

Attachment AD.2-1

Native American Contact List and Correspondence

Contact Letter Response Received (2016) Author Native American Heritage Commission 1550 Harbor Blvd, Suite 100 West Sacramento, CA 95691 Edwin Romero, Chairperson Barona Group of the Capitan Grande 1095 Barona Road Lakeside, CA 92040 [West About 120] Author Blvd, Suite 100 [West Sacramento, CA 95691 Edwin Romero, Chairperson Barona Group of the Capitan Grande 1095 Barona Road Lakeside, CA 92040 [West About 120] Author Parada, Chairperson Lakeside, CA 92040 [West About 120] Author Parada, Chairperson Lakeside, CA 92040 [West About 120] Author Parada, Chairperson Panny Tucker, Chairperson Panny Pa		Date	
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Contacted via Letter Will Micklin, Executive Officer Ewinapanya Tribal Office 4054 Willows Road Alpine, CA 91901 Michael Garcia, Vice Chairperson Ewinapanya Tribal Office 4054 Willows Road Alpine, CA 91901 Clint Linton, Director of Cultural Resources Ipai Nation of Santa Ysabel P.O. Box 307 Clinton73@aol.com 444/2012 442/2012 442/2012 442/2012 420/12 - A response was received from Mr. Clint Linton who indicated that there are numerous cultural resources in the Proposed Project area, and requested involvement with the Proposed Project prior to the survey effort being conducted. Additionally, Mr. Linton requested that a Native American monitor be included in the survey effort. 5/14/2012 - An on-site meeting was conducted with Dr. Sasam Hector of SDG&E, Mr. Linton of the Ipai Nation of Santa Ysabel, and Cheryl Bowden-Renna of AECOM, to discuss the with Dr. Sasam Hector of SDG&E, Mr. Linton of the Ipai Nation of Santa Ysabel, and Cheryl Bowden-Renna of AECOM, to discuss the Linton of Santa Ysabel, and Cheryl Bowden-Renna of AECOM, to discuss the with Dr. Sasam Hector of SDG&E, Mr. Linton of the Ipai Nation of Santa Ysabel, and Cheryl Bowden-Renna of AECOM, to discuss the Linton of Santa Ysabel, and Cheryl Bowden-Renna of AECOM, to discuss the with Dr. Sasam Hector of SDG&E, Mr. Linton of the Ipai Nation of Santa Ysabel, and Cheryl Bowden-Renna of AECOM, to discuss the Linton of Santa Ysabel, and Cheryl Bowden-Renna of AECOM, to discuss the with Dr. Sasam Hector of SDG&E, Further, it was agreed that Ms. Bowden-Renna ond provide Mr. Linton of the Ipai Nation of Santa Ysabel, and Cheryl Bowden-Renna ond provide Mr. Linton of the Ipai Nation of Santa Ysabel, and Cheryl Bowden-Renna ond Decorption of the Ipai Nation of Santa Ysabel, and Cheryl Bowden-Renna ond Jacon the Santa Ysabel, and Cheryl Bowden-Renna ond Jacon the Santa Ysabel, and Cheryl Bowden-Renna ond Jacon the Santa Ysabel Leroy J. Elliott, Chairperson Manzanita Band of the Kumeyaay Nation P.O. Box 1302 Mr. Louis Guassae 4/4/2012 No response receive		Date	
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Bernice Paipa, Vice Spokesperson 4/4/2012 No response received to date.			
		4/4/2012	No response received to date.
ا ا	Kumeyaay Cultural Repatriation Committee		_

Contact	Date Contacted via Letter	Response Received
1095 Barona Road		
Lakeside, CA 92040		

STATE OF CALIFORNIA

<u>Edmund G. Brown, Jr., Governor</u>

NATIVE AMERICAN HERITAGE COMMISSION

915 CAPITOL MALL, ROOM 364 SACRAMENTO, CA 95614 (916) 653-6251 Fax (916) 657-5390 Web She www.nahc.ca.gov ds_nahc@pacbell.net



April 2, 2012

Mr. Theodore G. Cooley, M.A., RPA

AECOM

1429 Kettner Boulevard, Suite 500 San Diego, CA 92101

Sent by FAX to:

619-233-0952

No. of Pages:

6

Re:

Sacred Lands File Search and Native American Contacts list for the <u>"San Diego Gas & Electric Company Salt Creek Substation and Transmission Line Improvements PEA Project;" located in the Jamul and Otay areas of southwestern San Diego County, California</u>

Dear Mr. Cooley:

The Native American Heritage Commission (NAHC) conducted a Sacred Lands File search of the 'area of potential effect,' (APE) based on the USGS coordinates provided and Native American cultural resources were not identified in the project area of potential effect (e.g. APE): you specified. However, there are Native American cultural resources in close proximity to the APE. Also, please note; the NAHC Sacred Lands Inventory is not exhaustive and does not preclude the discovery of cultural resources during any project groundbreaking activity.

California Public Resources Code §§5097.94 (a) and 5097.96 authorize the NAHC to establish a Sacred Land Inventory to record Native American sacred sites and burial sites. These records are exempt from the provisions of the California Public Records Act pursuant to. California Government Code§6254 (r). The purpose of this code is to protect such sites from vandalism, theft and destruction.

In the 1985 Appellate Court decision (170 Cal App 3rd 604), the court held that the NAHC has jurisdiction and special expertise, as a state agency, over affected Native American resources, impacted by proposed projects including archaeological, places of religious significance to Native Americans and burial sites

The California Environmental Quality Act (CEQA – CA Public Resources Code §§ 21000-21177, amendments effective 3/18/2010) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the CEQA Guidelines defines a significant impact on the environment as 'a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including …objects of historic or aesthetic significance." In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential

effect (APE), and if so, to mitigate that effect. CA Government Code §65040.12(e) defines "environmental justice" provisions and is applicable to the environmental review processes.

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Local Native Americans may have knowledge of the religious and cultural significance of the historic properties of the proposed project for the area (e.g. APE). Consultation with Native American communities is also a matter of environmental justice as defined by California Government Code §65040.12(e). We urge consultation with those tribes and interested Native Americans on the list that the NAHC has provided in order to see if your proposed project might impact Native American cultural resources. Lead agencies should consider avoidance as defined in §15370 of the CEQA Guidelines when significant cultural resources as defined by the CEQA Guidelines §15064.5 (b)(c)(f) may be affected by a proposed project. If so, Section 15382 of the CEQA Guidelines defines a significant impact on the environment as "substantial," and Section 2183.2 which requires documentation, data recovery of cultural resources.

The 1992 Secretary of the Interiors Standards for the Treatment of Historic Properties were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including cultural landscapes. Also, federal Executive Orders Nos. 11593 (preservation of cultural environment), 13175 (coordination & consultation) and 13007 (Sacred Sites) are helpful, supportive guides for Section 106 consultation. The aforementioned Secretary of the Interior's Standards include recommendations for all 'lead agencies' to consider the historic context of proposed projects and to "research" the cultural landscape that might include the 'area of potential effect.'

Partnering with local tribes and interested Native American consulting parties, on the NAHC list, should be conducted in compliance with the requirements of federal NEPA (42 U.S.C 4321-43351) and Section 106 4(f), Section 110 (f)(k) of federal NHPA (16 U.S.C. 470 et seq), 36 CFR Part 800.3 (f) (2) & .5, the President's Council on Environmental Quality (CSQ, 42 U.S.C 4371 et seq. and NAGPRA (25 U.S.C. 3001-3013) as appropriate. The 1992 Secretary of the Interiors Standards for the Treatment of Historic Properties were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including cultural landscapes. Also, federal Executive Orders Nos. 11593 (preservation of cultural environment), 13175 (coordination & consultation) and 13007 (Sacred Sites) are helpful, supportive guides for Section 106 consultation. The NAHC remains concerned about the limitations and methods employed for NHPA Section 106 Consultation.

Also, California Public Resources Code Section 5097.98, California Government Code §27491 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery', another important reason to have Native American Monitors on board with the project.

To be effective, consultation on specific projects must be the result of an ongoing relationship between Native American tribes and lead agencies, project proponents and their contractors, in the opinion of the NAHC. An excellent way to reinforce the relationship between a project and local tribes is to employ Native American Monitors in all phases of proposed projects including the planning phases.

Confidentiality of "historic properties of religious and cultural significance" may also be protected under Section 304 of he NHPA or at the Secretary of the Interior discretion if not

eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C., 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APE and possibility threatened by proposed project activity.

If you have any questions about this response to your request, please do not hesitate to

contact me at (916) 653-625/t.

Sincerely.

Dave Singleton

Attachment:

Native American Contact List

Diegueno/Kumeyaay

Diegueno/Kumeyaay

Diegueno/Kumevaav

Native American Contacts

San Diego County April 2, 2012

Barona Group of the Capitan Grande Edwin Romero, Chairperson

1095 Barona Road Diegueno

Lakeside , CA 92040 sue@barona-nsn.gov

(619) 443-6612 619-443-0681 Viejas Band of Kumeyaay Indians Anthony R. Pico, Chairperson

PO Box 908 Diegueno/Kumeyaay

Alpine , CA 91903 jrothauff@viejas-nsn.gov

(619) 445-3810 (619) 445-5337 Fax

La Posta Band of Mission Indians Gwendolyn Parada, Chairperson

PO Box 1120

Boulevard , CA 91905 qparada@lapostacasino.

(619) 478-2113 619-478-2125 Kumeyaay Cultural Historic Committee

Ron Christman

Alpine

56 Viejas Grade Road

, CA 92001

(619) 445-0385

San Pasqual Band of Mission Indians

Allen E. Lawson, Chairperson

PO Box 365 Diegueno

Valley Center, CA 92082 allenl@sanpasqualband.com

(760) 749-3200 (760) 749-3876 Fax Campo Band of Mission Indians Monique LaChappa, Chairwoman

36190 Church Road, Suite 1 Diegueno/Kumeyaay

Campo , CA 91906 miachappa@campo-nsn.gov

(619) 478-9046 (619) 478-5818 Fax

Sycuan Band of the Kumeyaay Nation

Danny Tucker, Chairperson

5459 Sycuan Road Diegueno/Kumeyaay

El Cajon , CA 92019 ssilva@sycuan-nsn.gov

619 445-2613 619 445-1927 Fax Jamul Indian Village

Kenneth Meza, Chairperson

P.O. Box 612

Jamul , CA 91935 jamulrez@sctdv.net

(619) 669-4785

(619) 669-48178 - Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed SDG&E Salt Creek Substation and Transmission Line Improvements PEA Project; for which a Sacred Lands File search and Native American Contacts list were requested.

Native American Contacts San Diego County April 2, 2012

Mesa Grande Band of Mission Indians Mark Romero, Chairperson P.O Box 270 Diegueno Santa Ysabel, CA 92070 mesagrandeband@msn.com (760) 782-3818 (760) 782-9092 Fax

Kwaaymii Laguna Band of Mission Indians Carmen Lucas P.O. Box 775 Diegueno -Pine Valley CA 91962 (619) 709-4207

Inaja Band of Mission Indians Rebecca Osuna, Spokesperson 2005 S. Escondido Blvd. Diegueno Escondido , CA 92025 (760) 737-7628 (760) 747-8568 Fax

Kumeyaay Cultural Repatriation Committee Steve Banegas, Spokesperson 1095 Barona Road Diegueno/Kumeyaay Lakeside , CA 92040 sbenegas50@gmail.com (619) 742-5587 (619) 443-0681 FAX Ewiiaapaayp Tribal Office
Will Micklin, Executive Director
4054 Willows Road Diegueno/Kumeyaay
Alpine , CA 91901
wmicklin@leaningrock.net
(619) 445-6315 - voice
(619) 445-9126 - fax

Ewiiaapaayp Tribal Office Michael Garcia, Vice Chairperson 4054 Willows Road Diegueno/Kumeyaay Alpine , CA ⁹¹⁹⁰¹ michaelg@leaningrock.net (619) 445-6315 - voice (619) 445-9126 - fax

Ipai Nation of Santa Ysabel
Clint Linton, Director of Cultural Resources
P.O. Box 507 Diegueno/Kumeyaay
Santa Ysabel, CA 92070
cjlinton73@aol.com
(760) 803-5694
cjlinton73@aol.com

Manzanita Band of the Kumeyaay Nation Leroy J. Elliott, Chairperson P.O. Box 1302 Diegueno/Kumeyaay Boulevard CA 91905 (619) 766-4930 (619) 766-4957 - FAX

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Native American Contacts San Diego County April 2, 2012

Kumeyaay Diegueno Land Conservancy M. Louis Guassac P.O. Box 1992 Diegueno/Kumeyaay Alpine , CA 91903 guassacl@onebox.com (619) 952-8430

Inter-Tribal Cultural Resource Protection Council Frank Brown, Coordinator

240 Brown Road Diegueno/Kumeyaay Alpine CA 91901

FIREFIGHTER69TFF@AOL.

(619) 884-6437

Kumeyaay Cultural Repatriation Committee Bernice Paipa, Vice Spokesperson 1095 Barona Road Diegueno/Kumeyaay Lakeside , CA 92040 (619) 478-2113

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

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CONTACT PROGRAM RESPONSE FORM SDG&E Salt Creek (60248948)

Clint Linton, Director of Cultural Resources Ipai Nation of Santa Ysabel P.O. Box 507 Santa Ysabel, CA 92070

	o. Box 507 anta Ysabel, CA 92070
Ple	ase check all that apply:
	Please call me to discuss the project further; my day-time phone number is ()
2	I have further comments as provided below
	I do not have any comments
Со	mments:
	Hi Cheryl, There are numerous cultural Resources in and around your project alignment. Santa Karbel request involvement for input into your post survey preservation / mitigation plan. We further request that
	SDESE retain a Notive American Monitor for your surveys and all ground disturbing activities related to this project.
	int Linton, Director of Cultural Resources January 1971 4/5/12 Date

Jow, Stephanie

From: Bowden-Renna, Cheryl < Cheryl.Bowden-Renna@aecom.com>

Sent: Wednesday, November 13, 2013 8:24 PM

To: Bowden-Renna, Cheryl

Subject: FW: AECOM SendFiles Confirmation: Your files have been sent

Cheryl Bowden-Renna Associate/Archaeologist Design + Planning D +1 619.764.6815 C +1 619.540.5746 cheryl.bowden-renna@aecom.com

AECOM

1420 Kettner Boulevard, Suite 500 San Diego CA 92101 USA T +1 619.233.1454 F +1 619.233.0952 www.aecom.com

From: <u>Delivery@sendfiles.aecom.com</u> [<u>mailto:Delivery@sendfiles.aecom.com</u>]

Sent: Tuesday, June 12, 2012 10:51 AM

To: Bowden-Renna, Cheryl

Subject: AECOM SendFiles Confirmation: Your files have been sent

This is an automatic notification from AECOM's File Transfer system that you have successfully sent 10 files

Recipient(s): cilinton73@aol.com

Message: Clint - Sorry this has taken me so long. Attached are the site forms for the Salt Creek project for SDGE and a table that list what compontes of the project are located with site boundaries. Let me know if you need anything else.

Thanks, CherylThese files will be available for download until 6/19/2012

<u>File</u>	Description	Size
CA-SDI-14225.pdf		26,285KB
CA-SDI-04529.pdf		605KB
<u>CA-SDI-12067.pdf</u>		254KB
Table for Clint.docx		11KB
CA-SDI-08666.pdf		200KB
P-37-015138.pdf		178KB
CA-SDI-12909.pdf		285KB
CA-SDI-04897.pdf		6,028KB
CA-SDI-04527.pdf		32,226KB
CA-SDI-07197.pdf		15,369KB

If you wish to check the status of these files, you may do so by **CLICKING HERE**

Jow, Stephanie

From: Bowden-Renna, Cheryl < Cheryl.Bowden-Renna@aecom.com>

Sent: Wednesday, November 13, 2013 8:21 PM

To: Bowden-Renna, Cheryl

Subject: FW: Salt Creek

Cheryl Bowden-Renna Associate/Archaeologist Design + Planning D +1 619.764.6815 C +1 619.540.5746 cheryl.bowden-renna@aecom.com

AECOM

1420 Kettner Boulevard, Suite 500 San Diego CA 92101 USA T +1 619.233.1454 F +1 619.233.0952 www.aecom.com

From: Hector, Susan [mailto:SHector@semprautilities.com]

Sent: Monday, May 14, 2012 1:04 PM

To: Bowden-Renna, Cheryl Subject: RE: Salt Creek

Yes, that's fine. Thanks for spending the time with him. I would rather find out up front whether there are specific areas of concern than learn later that we did something.

Susan M. Hector, Ph.D., RPA
Principal Environmental Specialist, Cultural Resources
SDG&E Environmental Programs
8315 Century Park Court CP21E
San Diego, CA 92123
office 858-654-1279
cell 858-204-7541

From: Bowden-Renna, Cheryl [mailto:Cheryl.Bowden-Renna@aecom.com]

Sent: Monday, May 14, 2012 1:03 PM

To: Hector, Susan Subject: Salt Creek

Susan – it went well with Clint today. He seems more concerned with monitoring during ground-disturbing activities more than monitoring during survey.. He asked for the site information and what poles where within those sites so that he can respond more precisely his concerns. Would this be okay to forward to him?

Thanks, Cheryl

Cheryl Bowden-Renna Associate/Archaeologist Design + Planning D +1 619.764.6815 C +1 619.540.5746 cheryl.bowden-renna@aecom.com

AECOM

1420 Kettner Boulevard, Suite 500 San Diego CA 92101 USA T +1 619.233.1454 F +1 619.233.0952 www.aecom.com

Pierce, Jennifer E

From: Valenzuela, Claudia

Sent: Tuesday, September 24, 2013 4:59 PM

To: Pierce, Jennifer E

Subject: FW: Salt Creek Substation

Claudia Valenzuela

SDG&E | Public Affairs Manager

8330 Century Park Court, CP 31D | San Diego, CA 92123

Tel: 858.654.8307 | Fax: 858.654.6301

cvalenzuela@semprautilities.com | www.sdge.com

From: Valenzuela, Claudia

Sent: Tuesday, September 24, 2013 4:58 PM

To: 'nahc@pacbell.net'
Cc: Valenzuela, Claudia
Subject: Salt Creek Substation

California Native American Heritage Commission:

San Diego Gas and Electric (SDG&E) proposes to construct the Salt Creek Substation and associated 69kV Transmission Line located in the Otay Mesa and Jamul area, of southwestern Diego County, California. In compliance with requirements under the California Environmental Quality Act, AECOM conducted a cultural resources survey of the locations and areas proposed for the project construction activities.

The proposed 5-mile-long transmission line lies along a 120-foot-wide, corridor within an existing SDG&E corridor easement. Included with the project will be associated access roads, as well as two construction staging areas adjacent to each end of the transmission line corridor. The results of a previously conducted survey of the proposed Salt Creek substation site will also be incorporated into the current cultural resources study.

The purpose of this letter is to notify you of this project and to solicit your input. We would like to know if you have any questions, comments, or concerns. A project map has been included for your convenience. Providing comments now does not limit your ability to comment at a later time. Please write or call so that we may include your views in our report.

Sincerely,

Claudia Valenzuela



Claudia Valenzuela SDG&E | *Public Affairs Manager* 8330 Century Park Court, CP 31D | San Diego, CA 92123 Tel: 858.654.8307 | Fax: 858.654.6301

cvalenzuela@semprautilities.com | www.sdge.com

Pierce, Jennifer E

From: Valenzuela, Claudia

Sent: Tuesday, September 24, 2013 6:56 PM

To: 'Wardlaw, Mark'

Cc: De La Rosa, Michael A; Jones, Megan; Gretler, Darren M; Pierce, Jennifer E

Subject: RE: Salt Creek Substation

Mr. Wardlaw -

Thank you for your prompt reply.

There is no immediate urgency. If your team is interested in commenting or providing input it would be welcome at your earliest convenience.

I apologize that you were not briefed sooner. The project team overlooked that a portion of the project was within the County of San Diego. They are not always as familiar with the jurisdictional lines between cities and the County; and the hierarchies within each organization.

This is the beginning of a long regulatory process, anywhere from 18-24 months if we are lucky. During the regulatory proceeding, there will be ample opportunity for additional review and comment periods by the community, state agencies, and others.

If at any time you are interested in having your team briefed by our project engineers, I'd be happy to accommodate.

Thank you,

Claudia Valenzuela

Claudia Valenzuela

SDG&E | Public Affairs Manager

8330 Century Park Court, CP 31D | San Diego, CA 92123

Tel: 858.654.8307 | Fax: 858.654.6301

cvalenzuela@semprautilities.com | www.sdge.com

From: Wardlaw, Mark [mailto:Mark.Wardlaw@sdcounty.ca.gov]

Sent: Tuesday, September 24, 2013 6:43 PM

To: Valenzuela, Claudia

Cc: De La Rosa, Michael A; Jones, Megan; Gretler, Darren M

Subject: Salt Creek Substation

Dear Ms. Valenzuela,

Thank you very much for providing Planning & Development Services (PDS) this information about the Salt Creek Substation for our review and comment. PDS staff will review this information and get back to you shortly with

our questions and/or comments. Is there an important timeframe that you need to receive questions and/or comments?

Sincerely,

Mark Wardlaw
Director
Planning & Development Services
5510 Overland Ave. Ste 310
San Diego, CA 92123
(858) 694-2962
Mark.Wardlaw@sdcounty.ca.gov

From: Valenzuela, Claudia [mailto:cvalenzuela@semprautilities.com]

Sent: Tuesday, September 24, 2013 4:57 PM

To: Wardlaw, Mark

Cc: De La Rosa, Michael A; Valenzuela, Claudia

Subject: Salt Creek Substation

Good afternoon Mr. Wardlaw -

San Diego Gas and Electric (SDG&E) proposes to construct the Salt Creek Substation and associated 69kV Transmission Line located in Southwestern San Diego County.

The proposed Salt Creek Substation site, the power tie-line (TL) 6910 loop-in, and the majority of TL 6965 are located in the eastern portion of the City of Chula Vista, California. A small segment (approximately 4,700 linear feet) of the northernmost portion of TL 6965 is located in an unincorporated portion of San Diego County on SDG&E fee-owned land surrounding the Existing Miguel Substation (herein referred to as the Existing Substation). The Existing Substation is on SDG&E fee-owned land in unincorporated San Diego County.

The majority of the Proposed Project would be located east of State Route (SR) 125 in the southwesterly portion of San Diego County (refer to PEA Figure 3-1, Regional Map; Figure 3-2, Vicinity Map; and Figure 3-3, Project Overview). A small segment of the proposed TL 6965 (approximately 6,100 linear feet) would be located on the west side of SR-125, with two overhead crossings over SR-125. The Proposed Project would be situated approximately 15 miles southeast of downtown San Diego and 5 miles north of the international border with Mexico.

The purpose of this letter is to notify you of this project and to solicit your input. We would like to know if you have any questions, comments, or concerns. A project map has been included for your convenience, as well as, a letter of support for the project from the City of Chula Vista.

Providing comments now does not limit your ability to comment at a later time. Please write or call so that we may include your views in our report. Feel free to reach me any time via email or cell phone (858) 539-9573.

Thank you for your time and consideration.

Sincerely,

Claudia Valenzuela

Claudia Valenzuela SDG&E | Public Affairs Manager 8330 Century Park Court, CP 31D | San Diego, CA 92123 Tel: 858.654.8307 | Fax: 858.654.6301 cvalenzuela@semprautilities.com | www.sdge.com

Edmund G. Brown, Jr. Governor

STATE OF CALIFORNIA
NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Boulevard, Suite 100
West Sacramento, CA 95691
(916) 373-3715
Fax (916) 373-5471
www.nahc.ca.gov

i. Brown, Jr. G

e-mail: ds nahc@pacbell.net

September 25, 2013

Ms. Claudia Valenzuela, Public Affiars Manager Office of Legal Affairs San Diego Gas & Electric Company 8330 Century Park Court, CP 31D San Diego, CA 92123

Sent by FAX to:

(858) 654-6301

No. of Pages:

- 1

Re: "SDG&E Salt Creek Substation Project;" located in the Otay Mesa and Jamul Areas of southwestern San Diego County, California

Dear Ms. Valenzuela:

Thank you for the opportunity to comment on the proposed Salt Creek Substation Project. You note, in your e-mail, that AECOM has done a cultural survey of the "locations and areas proposed for the project." AECOM may have already requested a sacred lands file search and Native American contacts list from the Native American Heritage Commission (NAHC). If so, the results of the NAHC search might indicate any Native American cultural resources are present and possibly in harms way of the proposed project. I suggest you contact AECOM to see if they have done that part of the due diligence for the project. If not, they know the procedure for requesting that information from the NAHC.

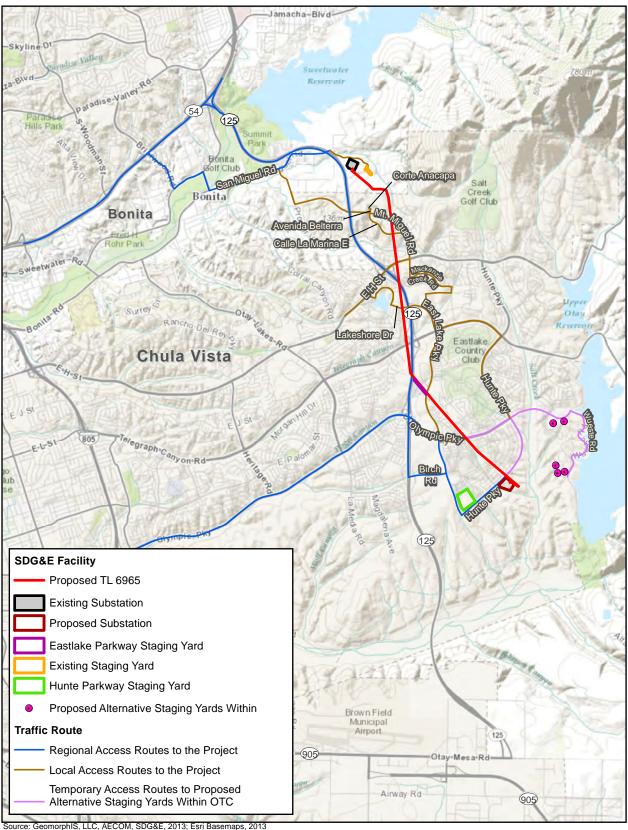
Also, we suggest, in addition, that contact be made to San Diego-based archaeologist Dennis Gallegos (619 299-9766) and Diegueño Tribal Elder Carmen Lucas (619-709-4207). Both are very knowledgeable of the areas considered for the project. The NAHC knows both the Jamul and the Otay areas are culturally sensitive.

If you have any questions or need additional information, please contact me at (916) 373-3715.

Sincerely,

Dave Singleton

Program Analy



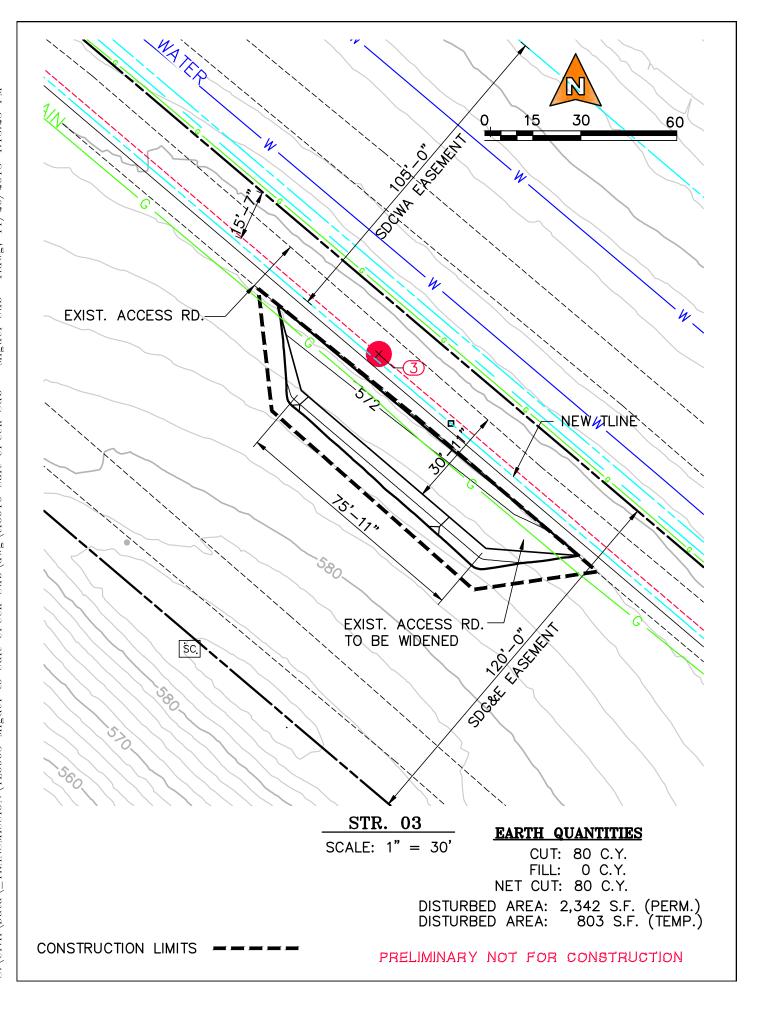
0 1.25 2.5 Miles

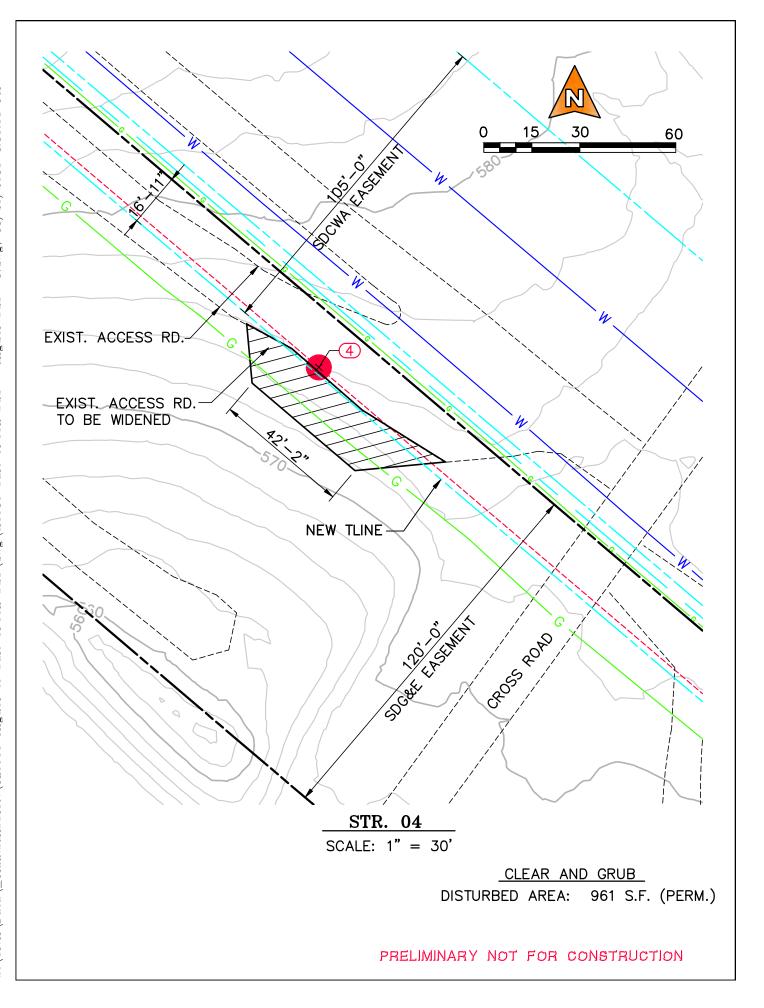
Figure 4.16-1

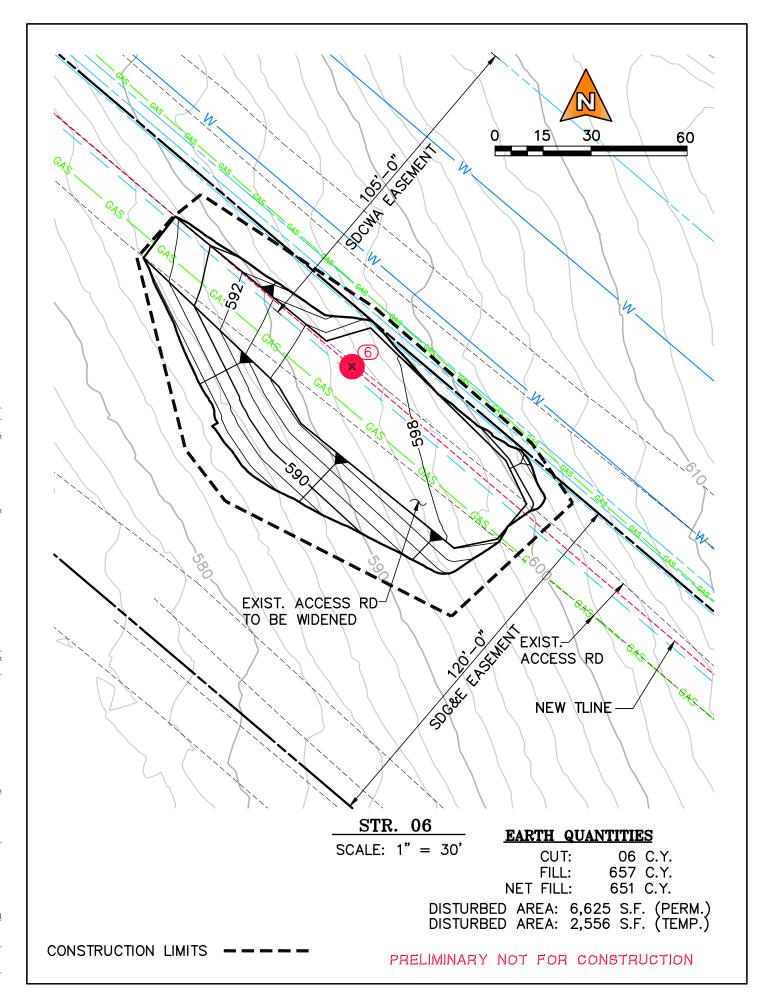
Traffic Routes

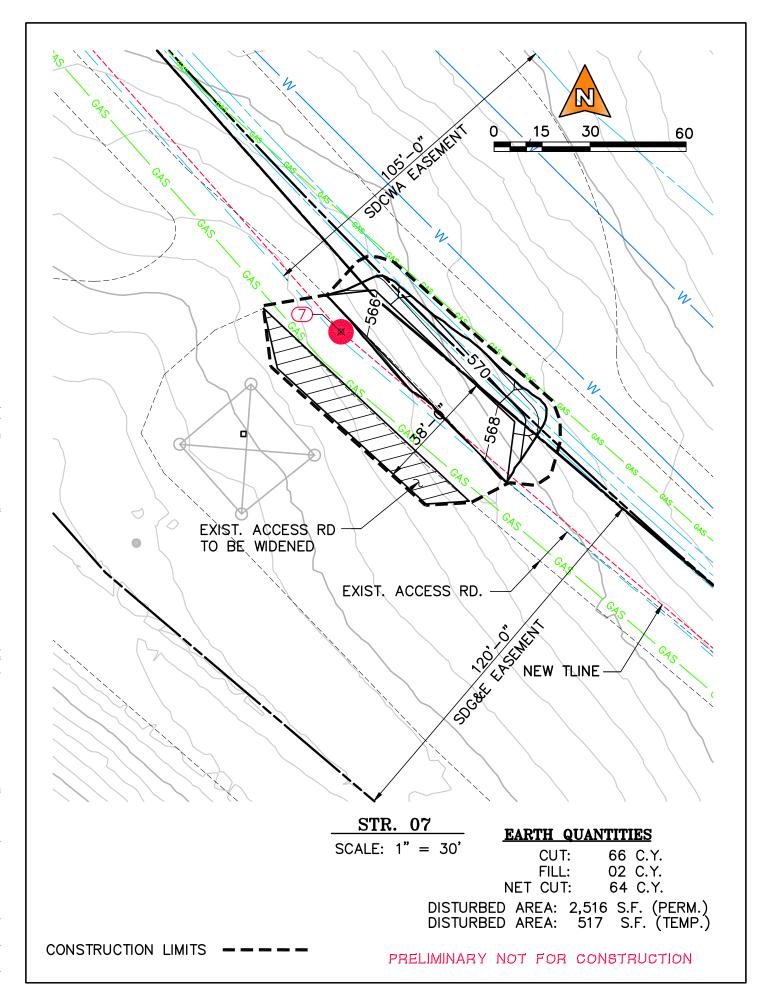
Scale: 1:79,200 1 inch equals 1.25 miles

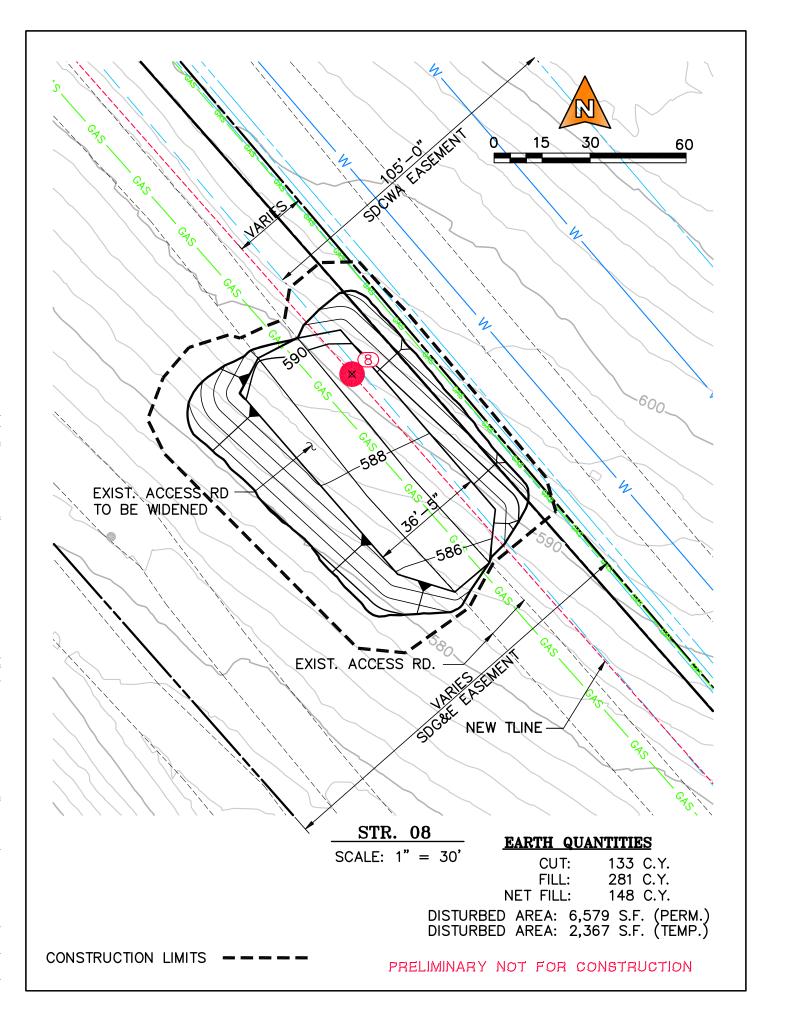
SDG&E is providing this map with the understanding that the map is not survey grade.

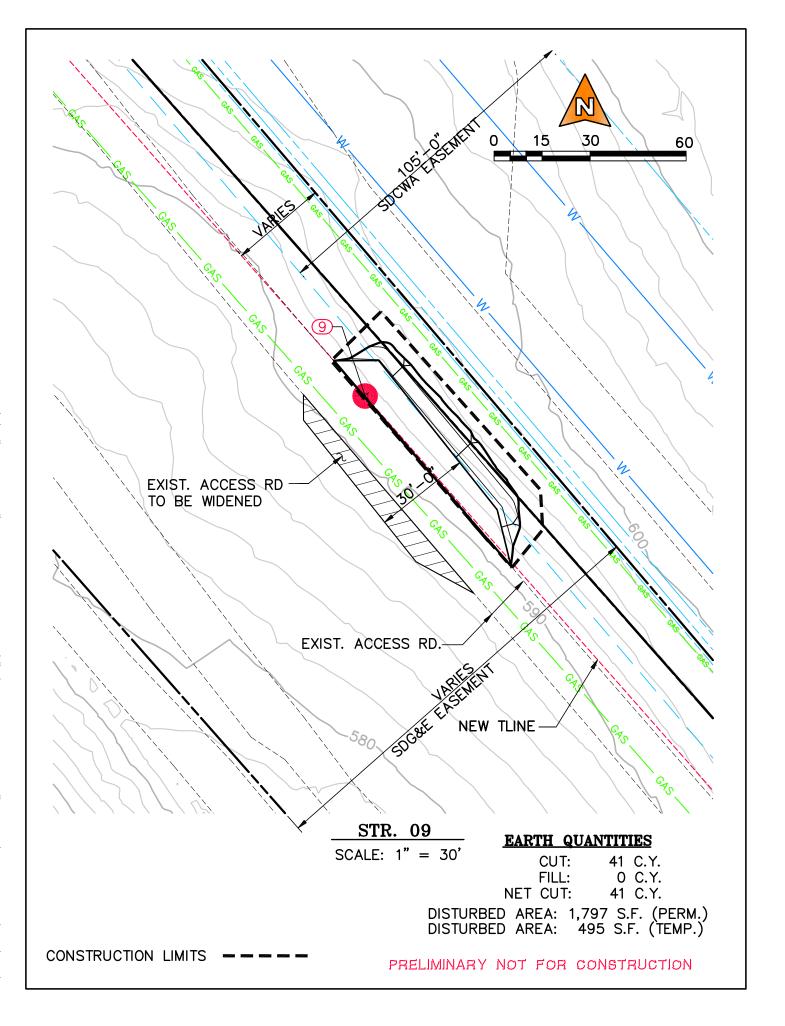


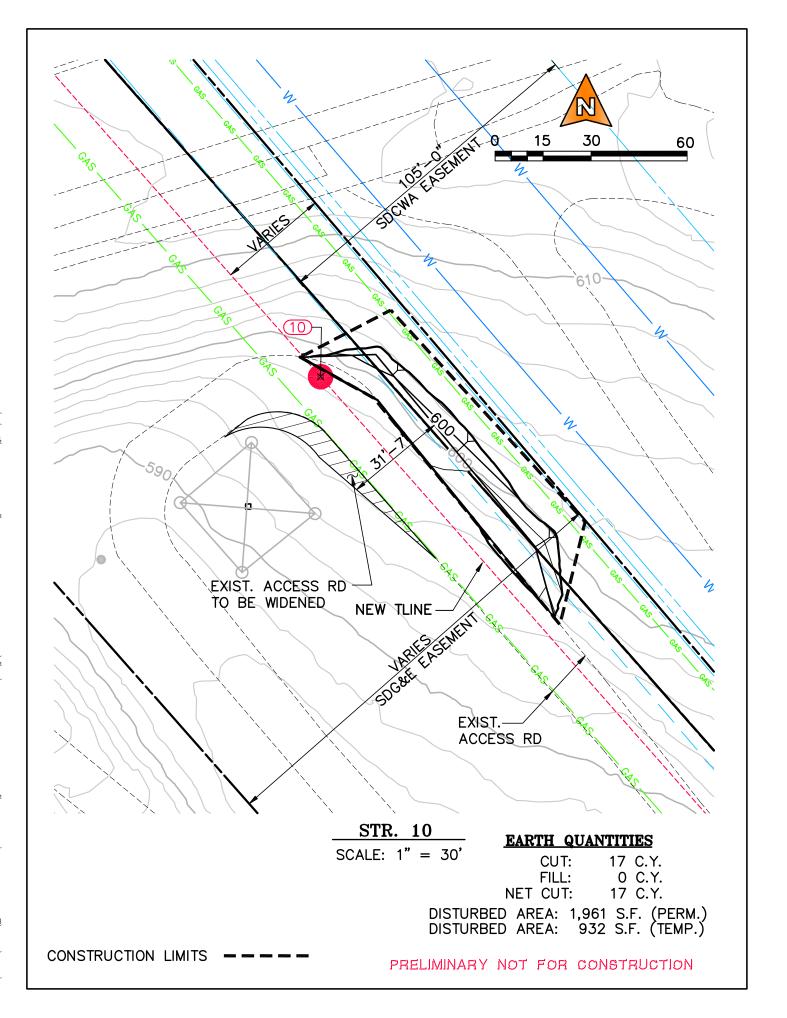


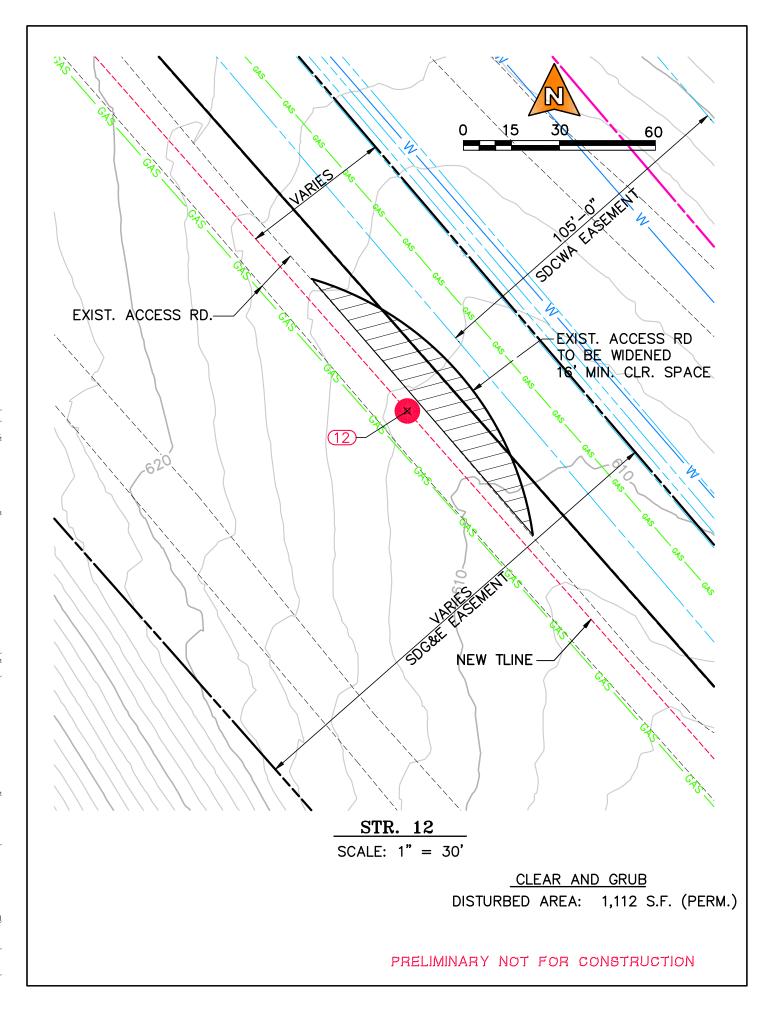


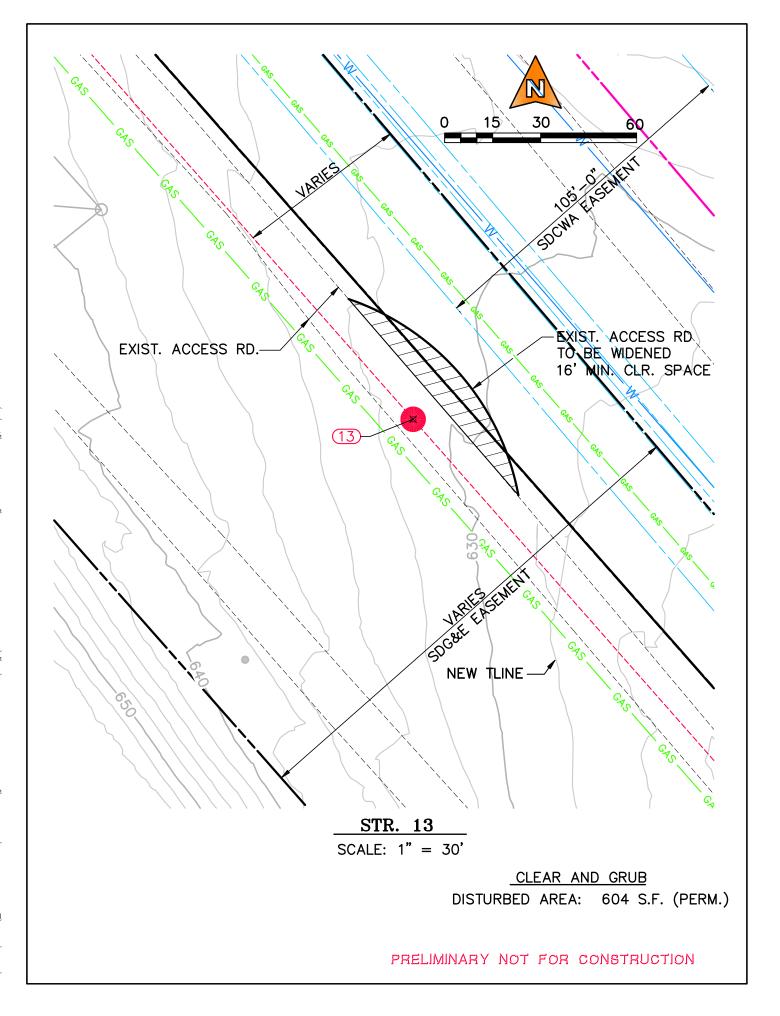


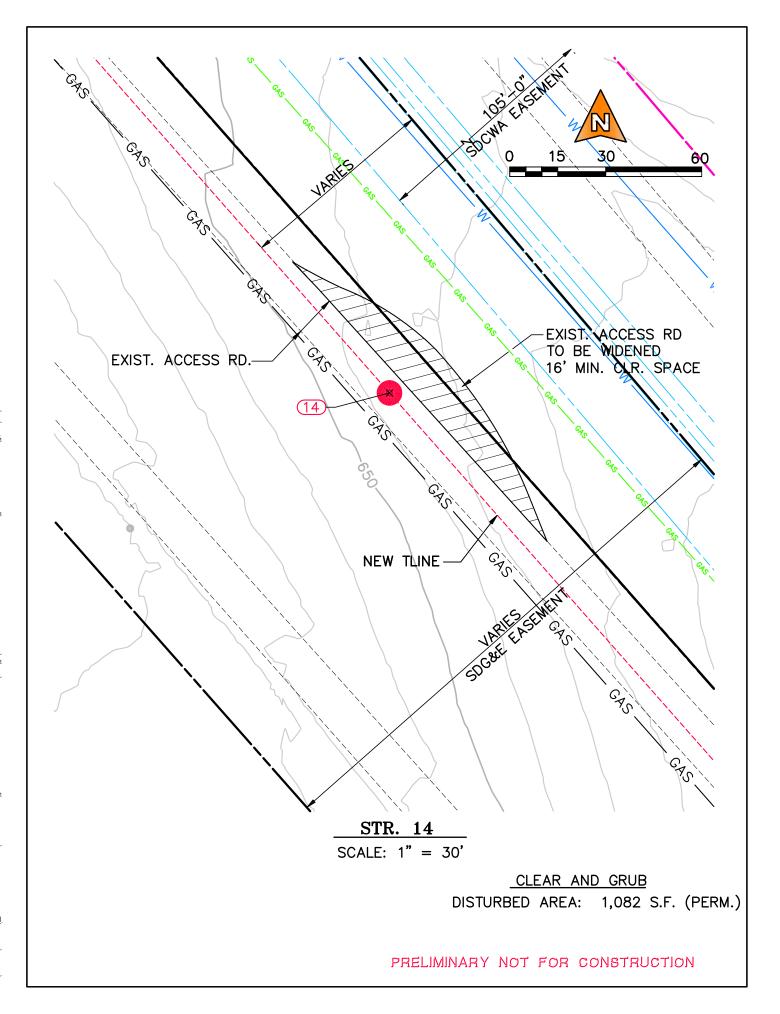


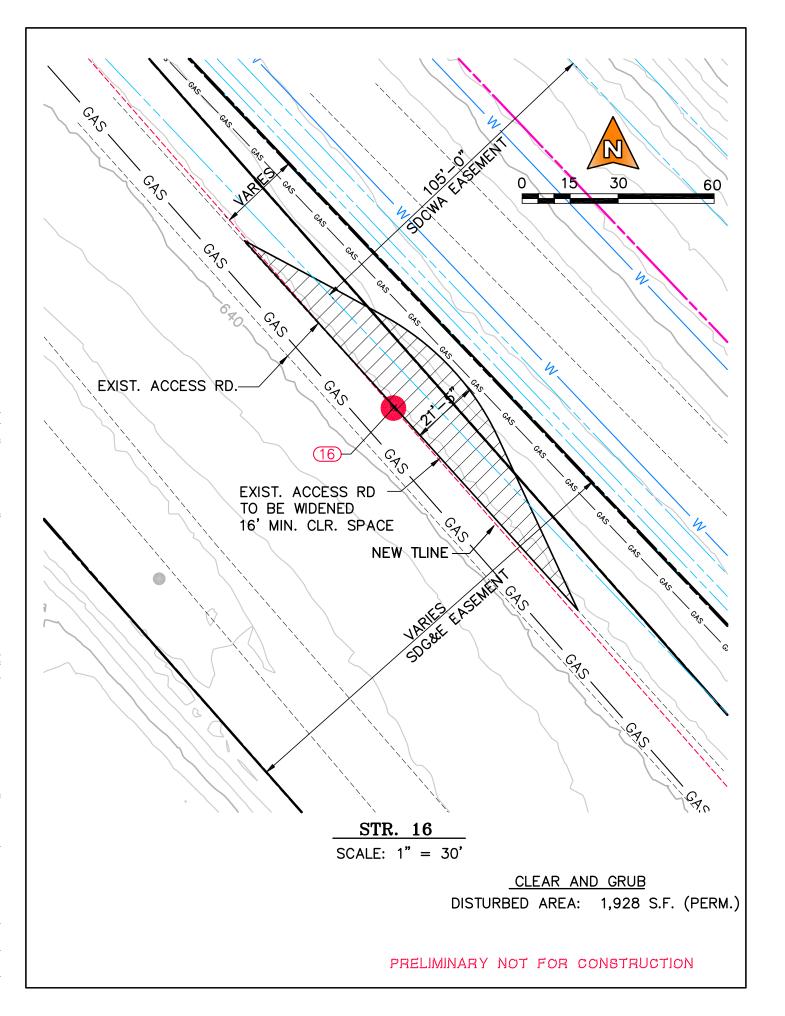


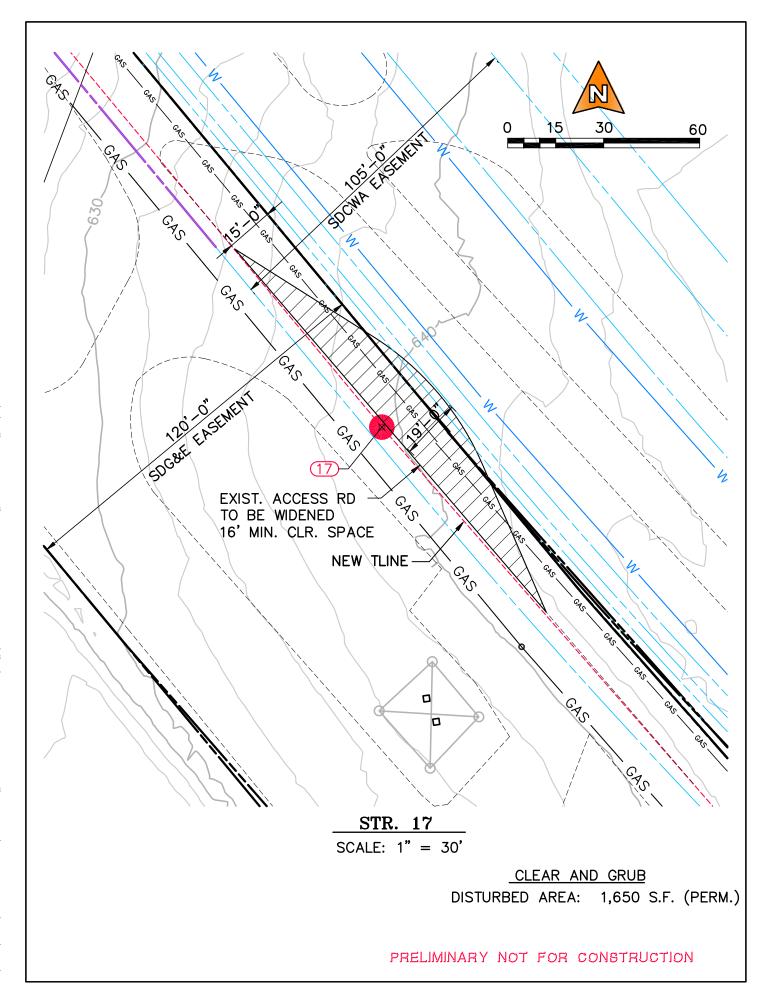


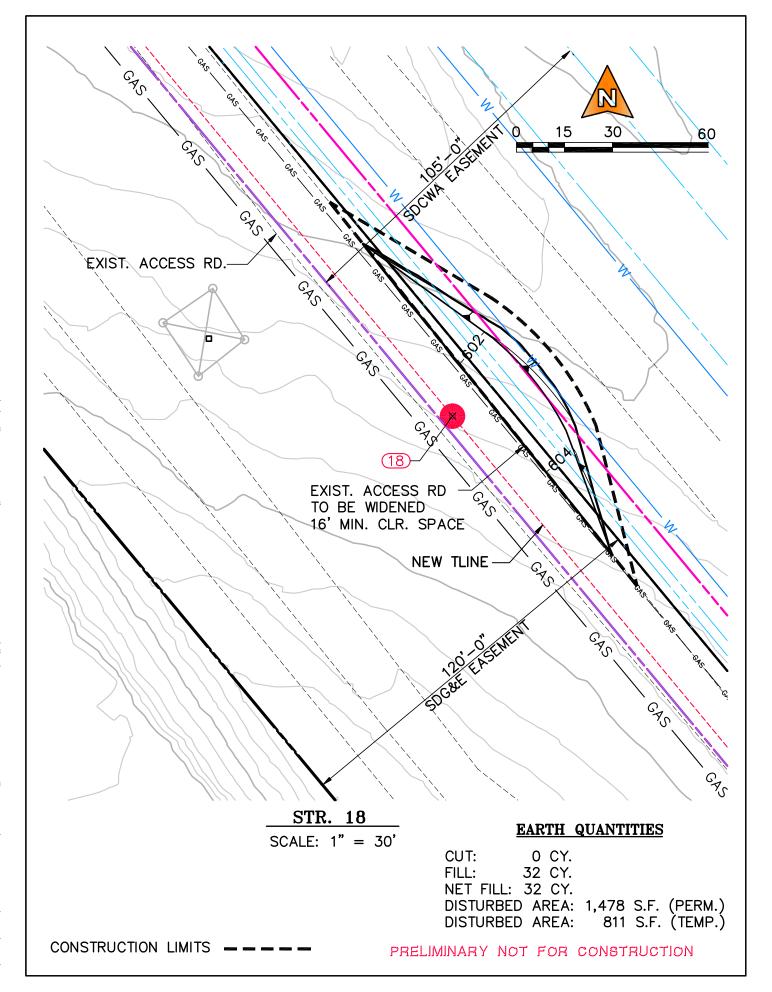


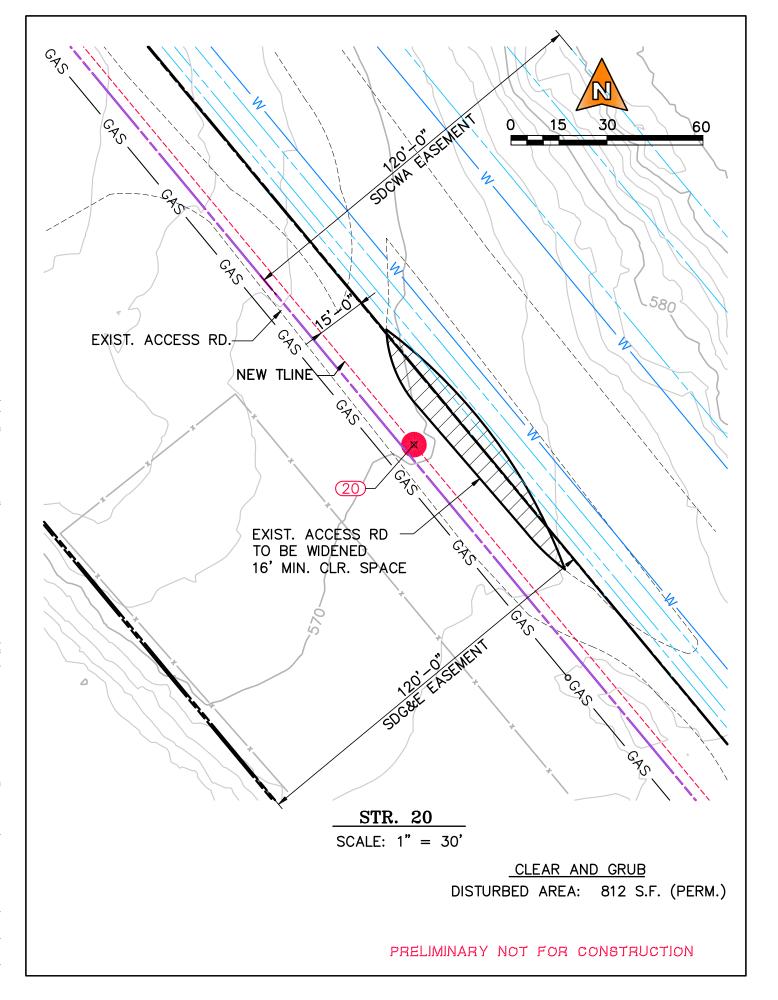


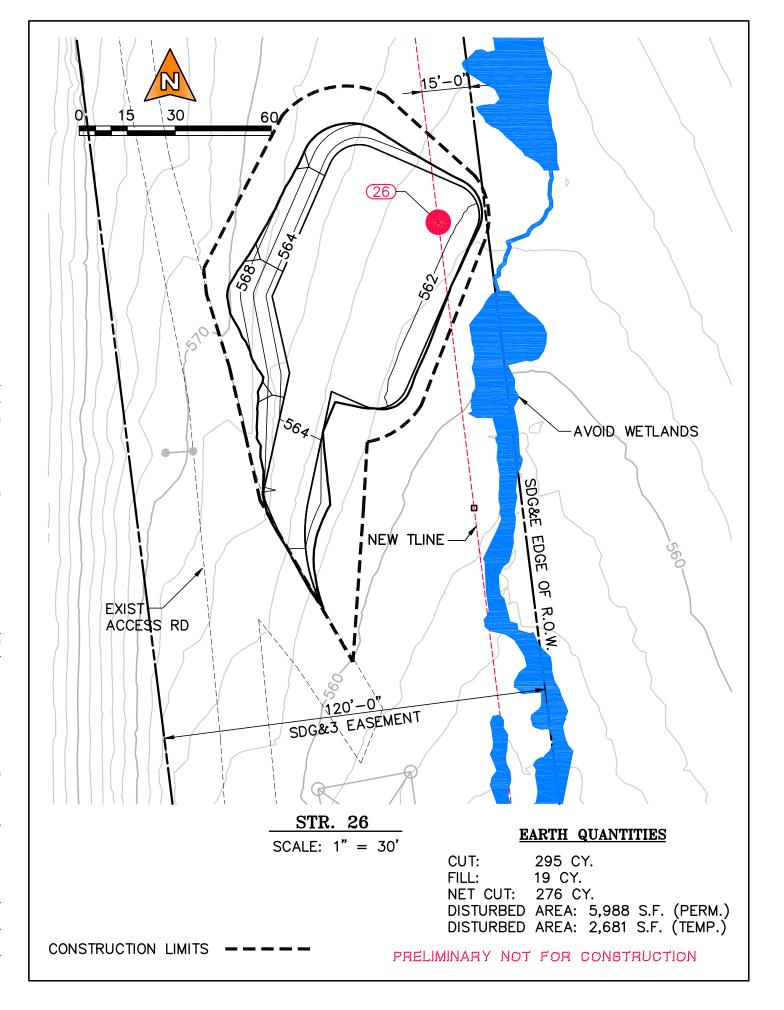


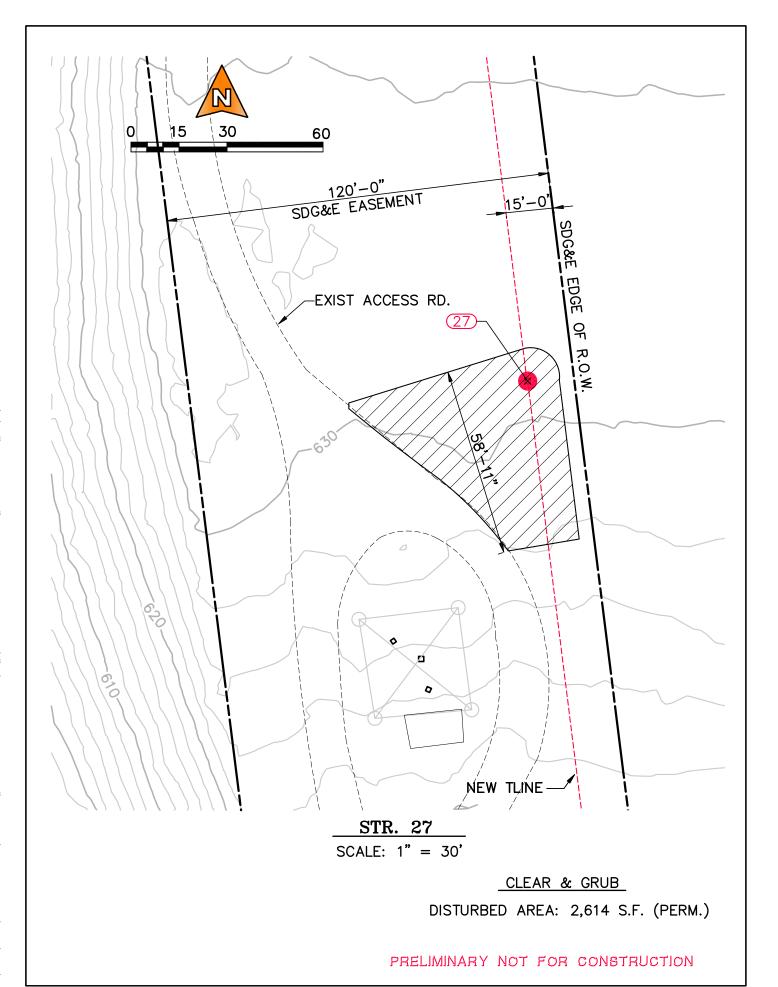




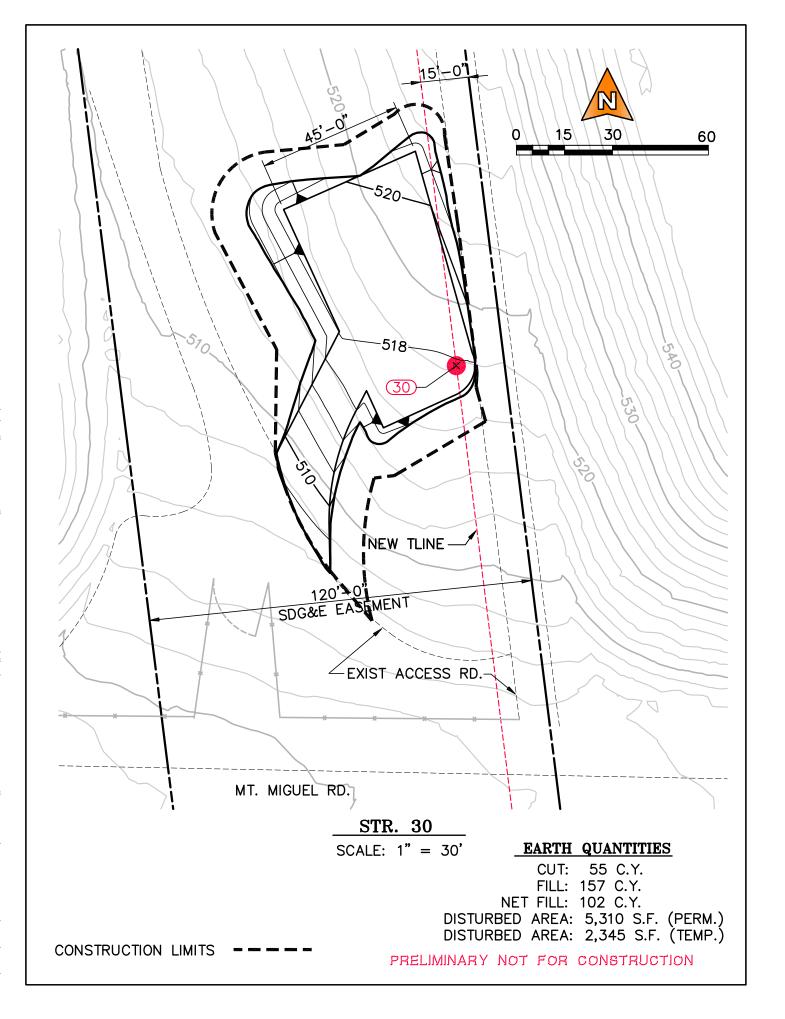


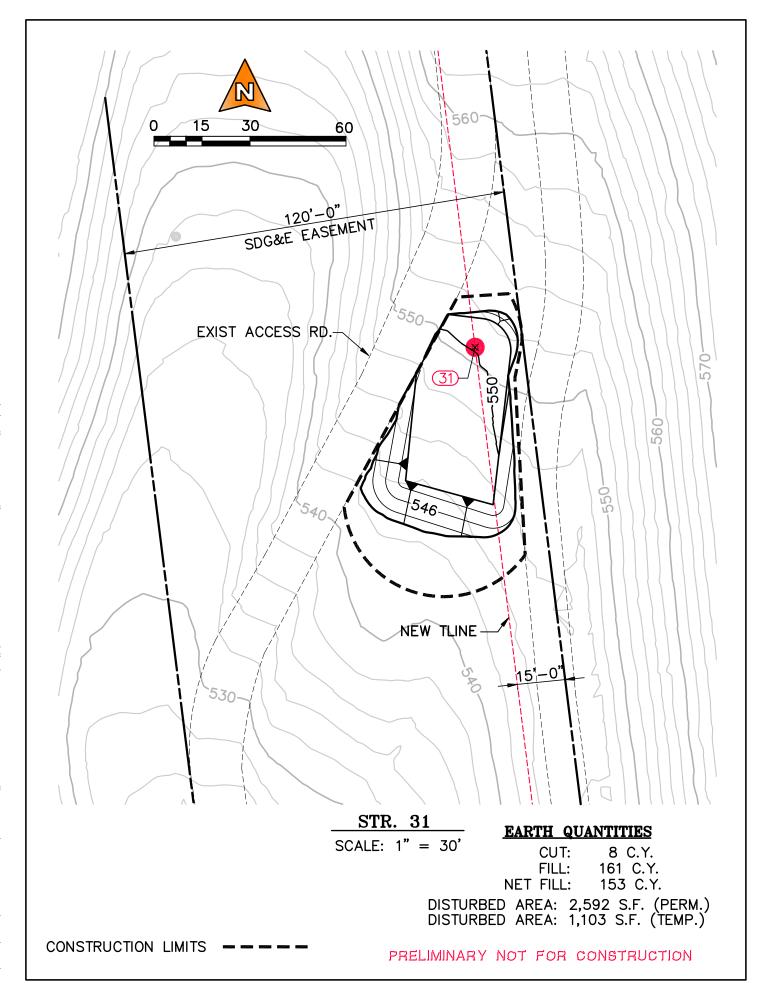


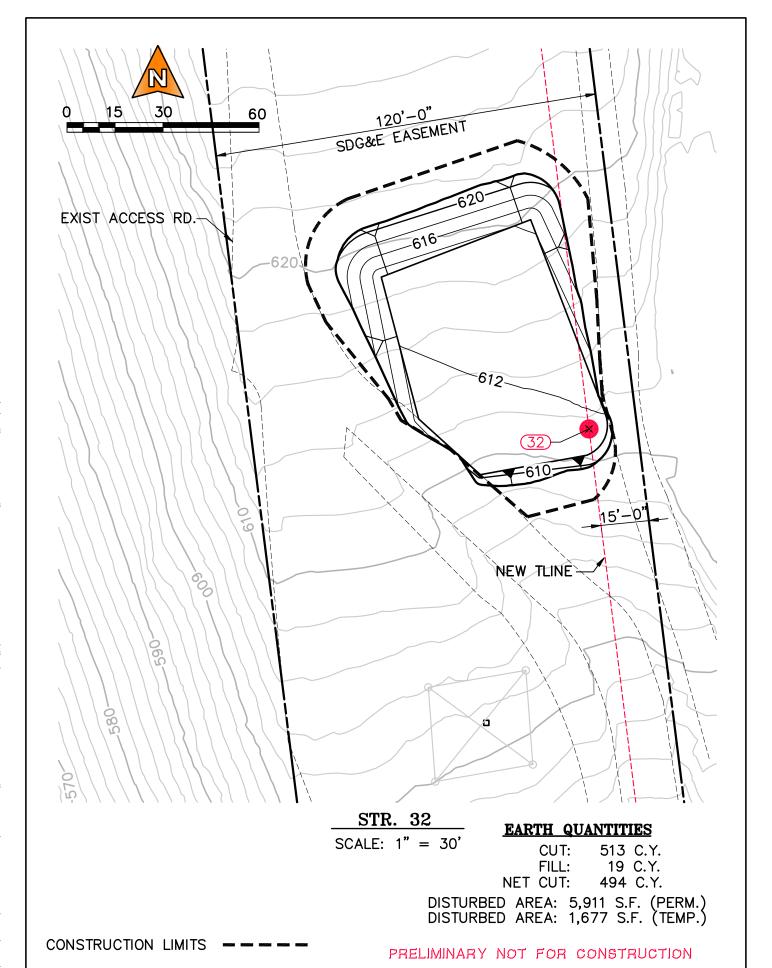


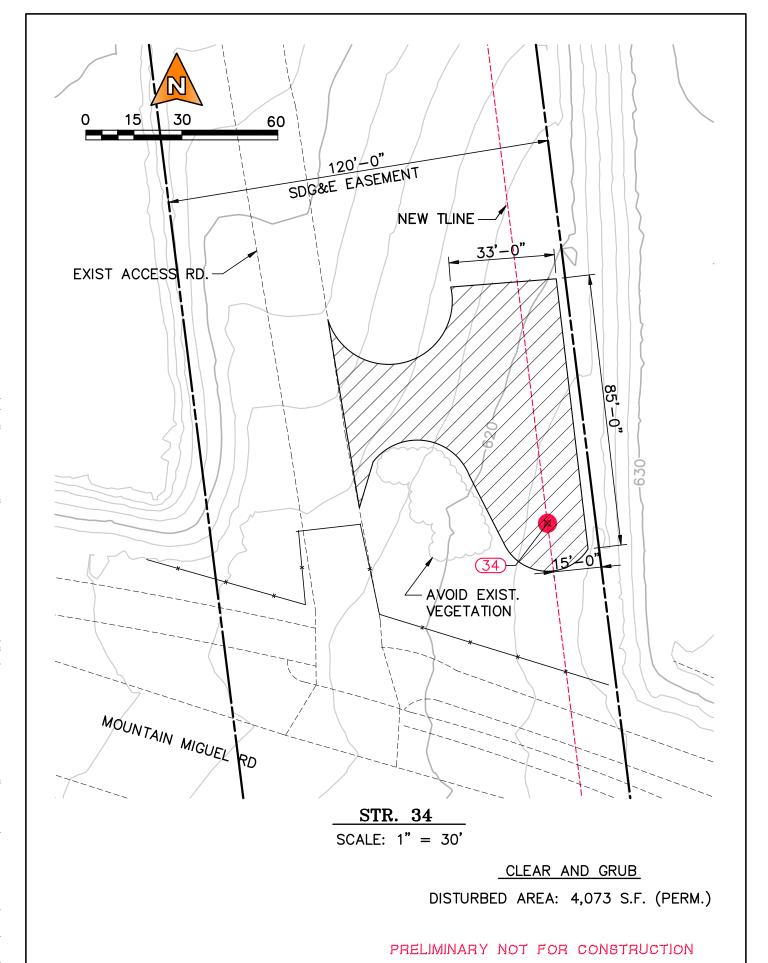


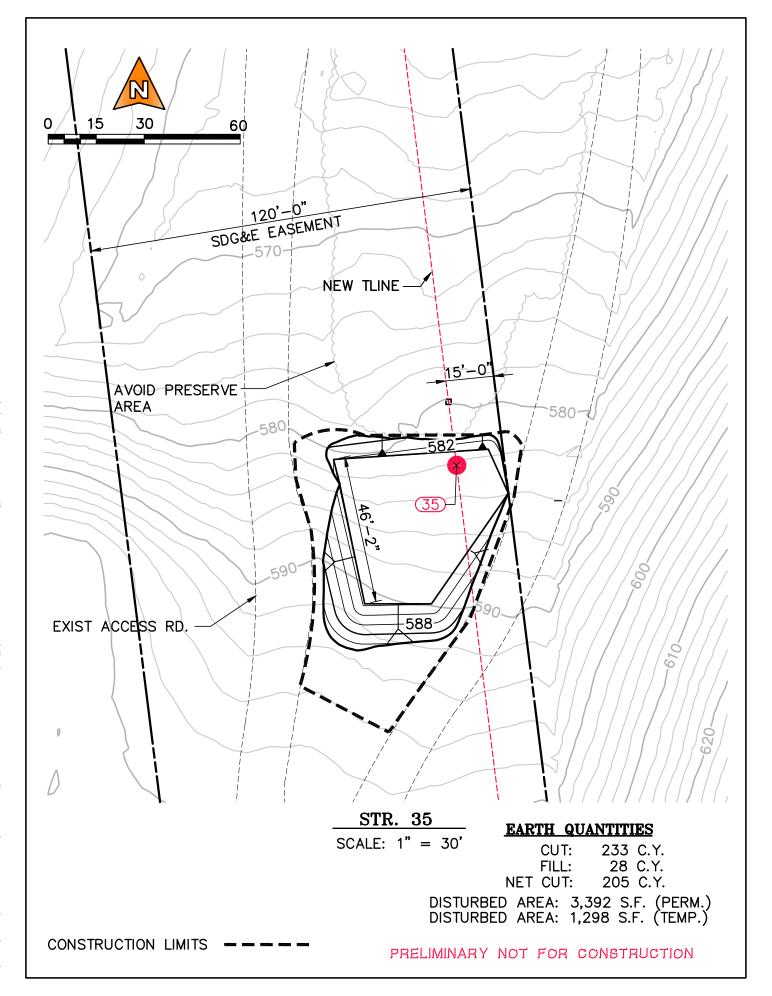


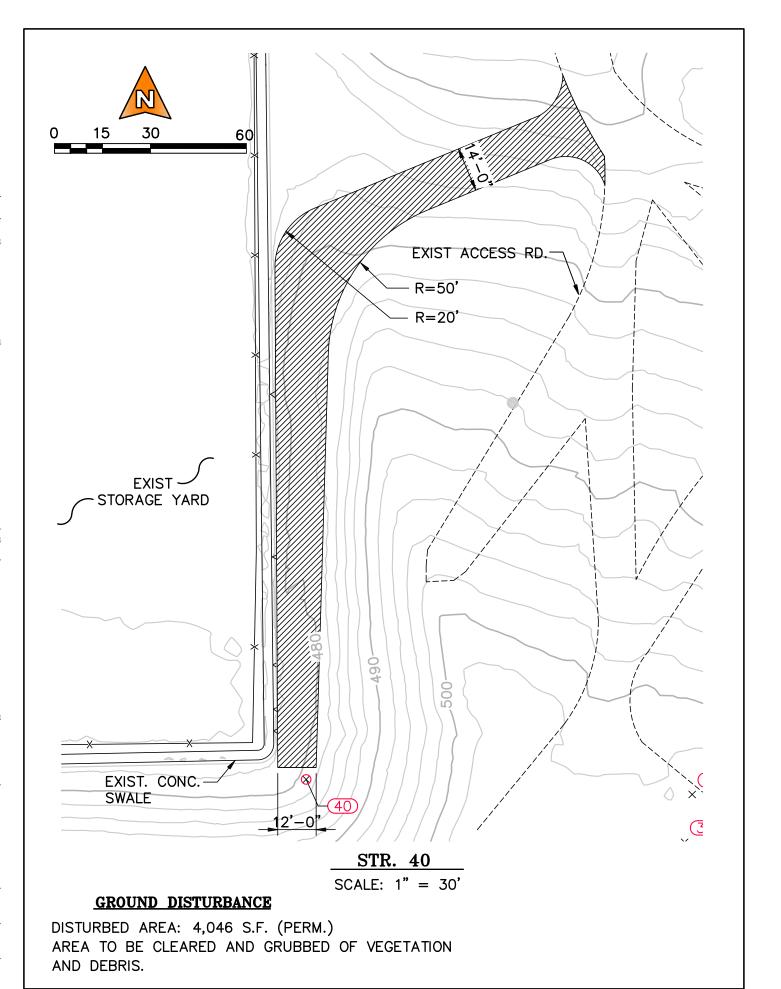




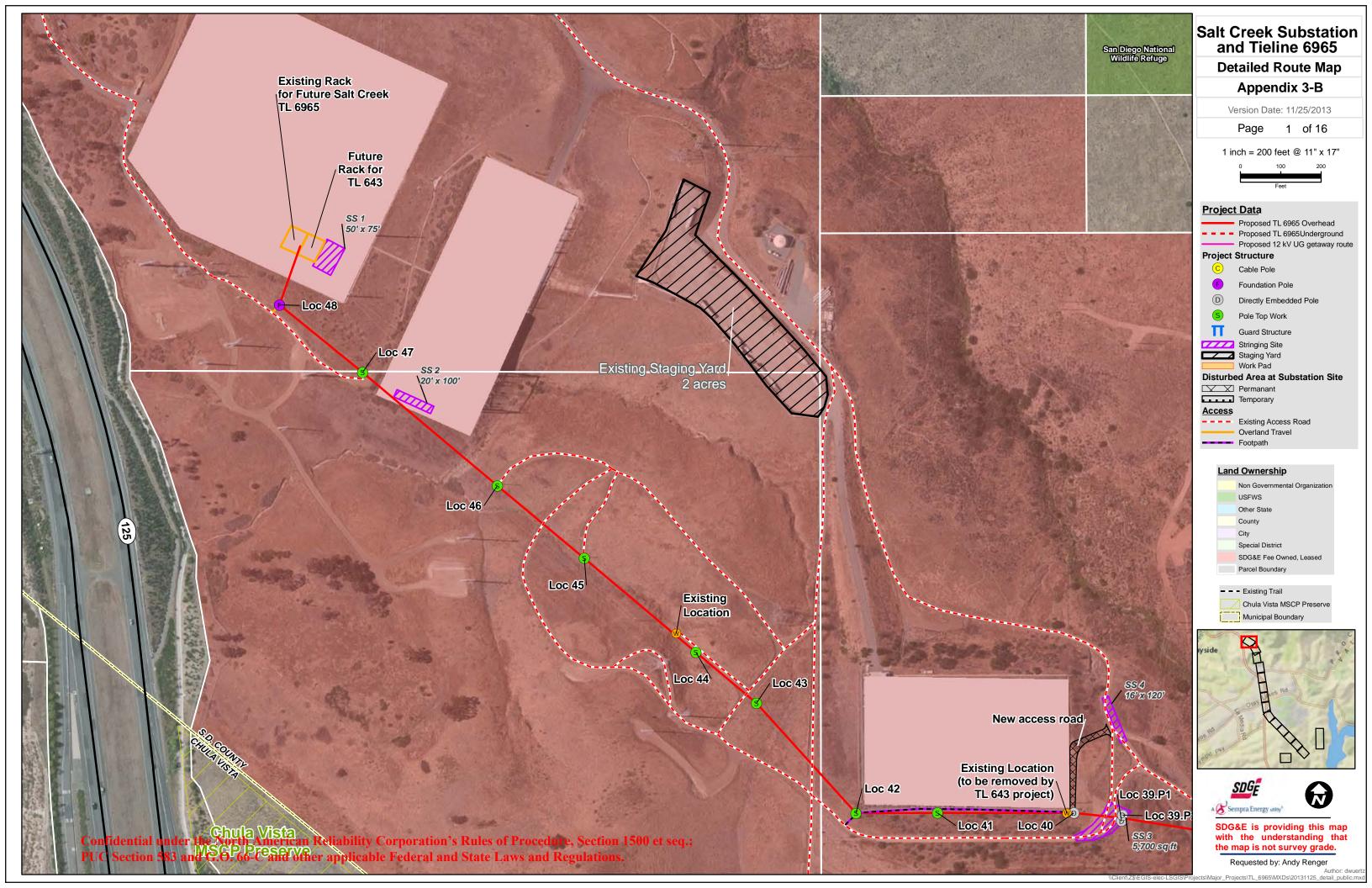


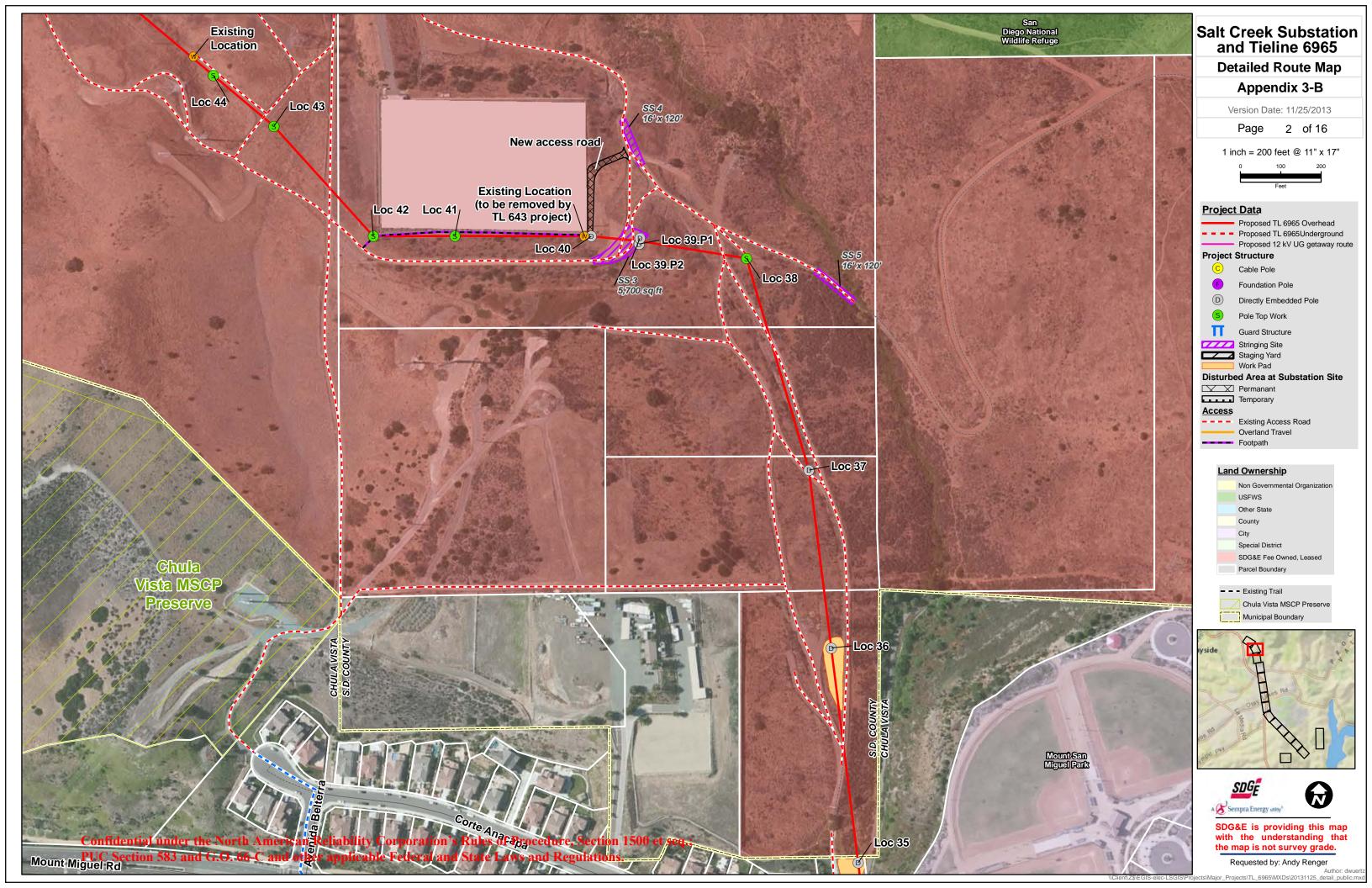




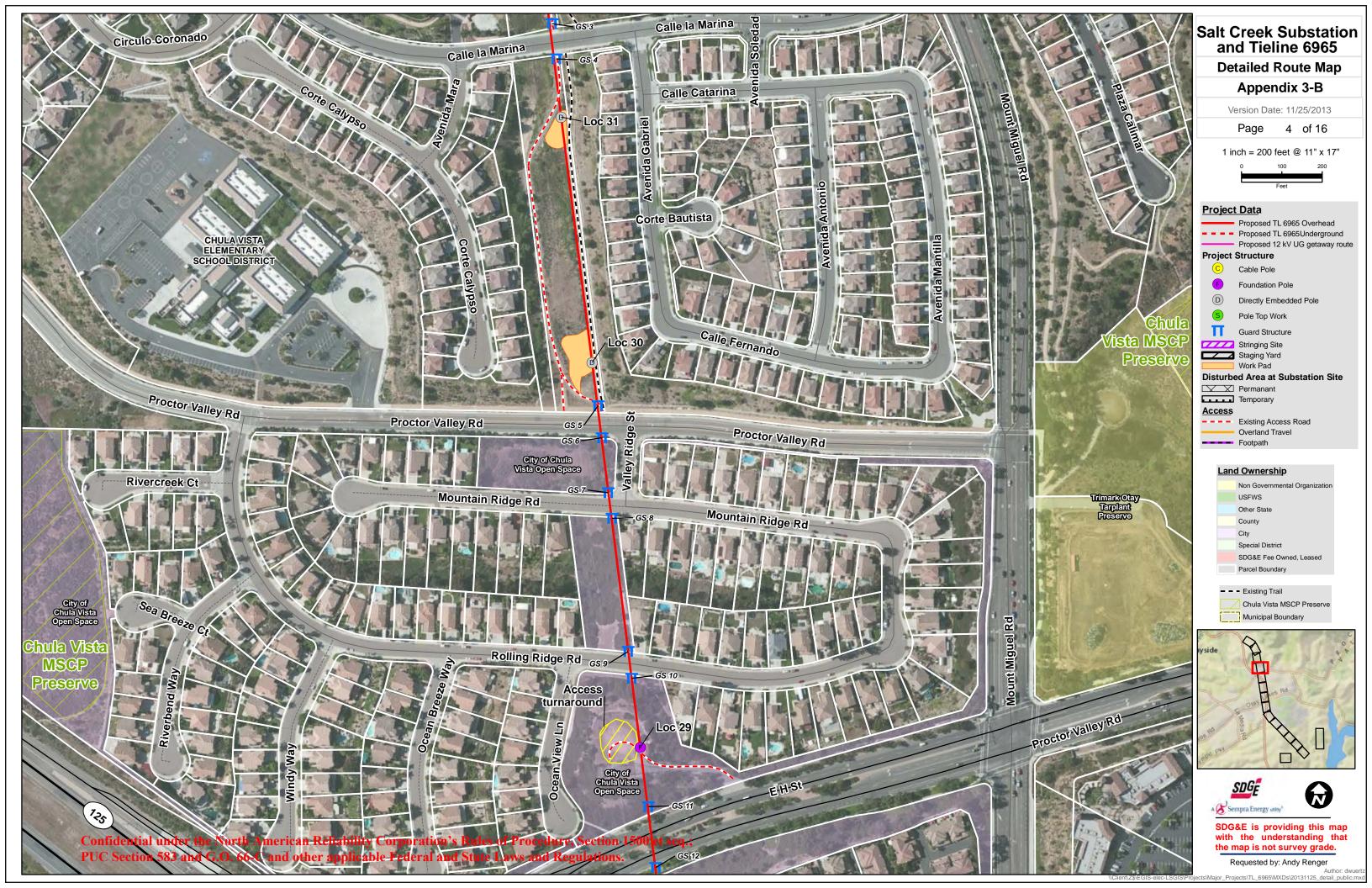


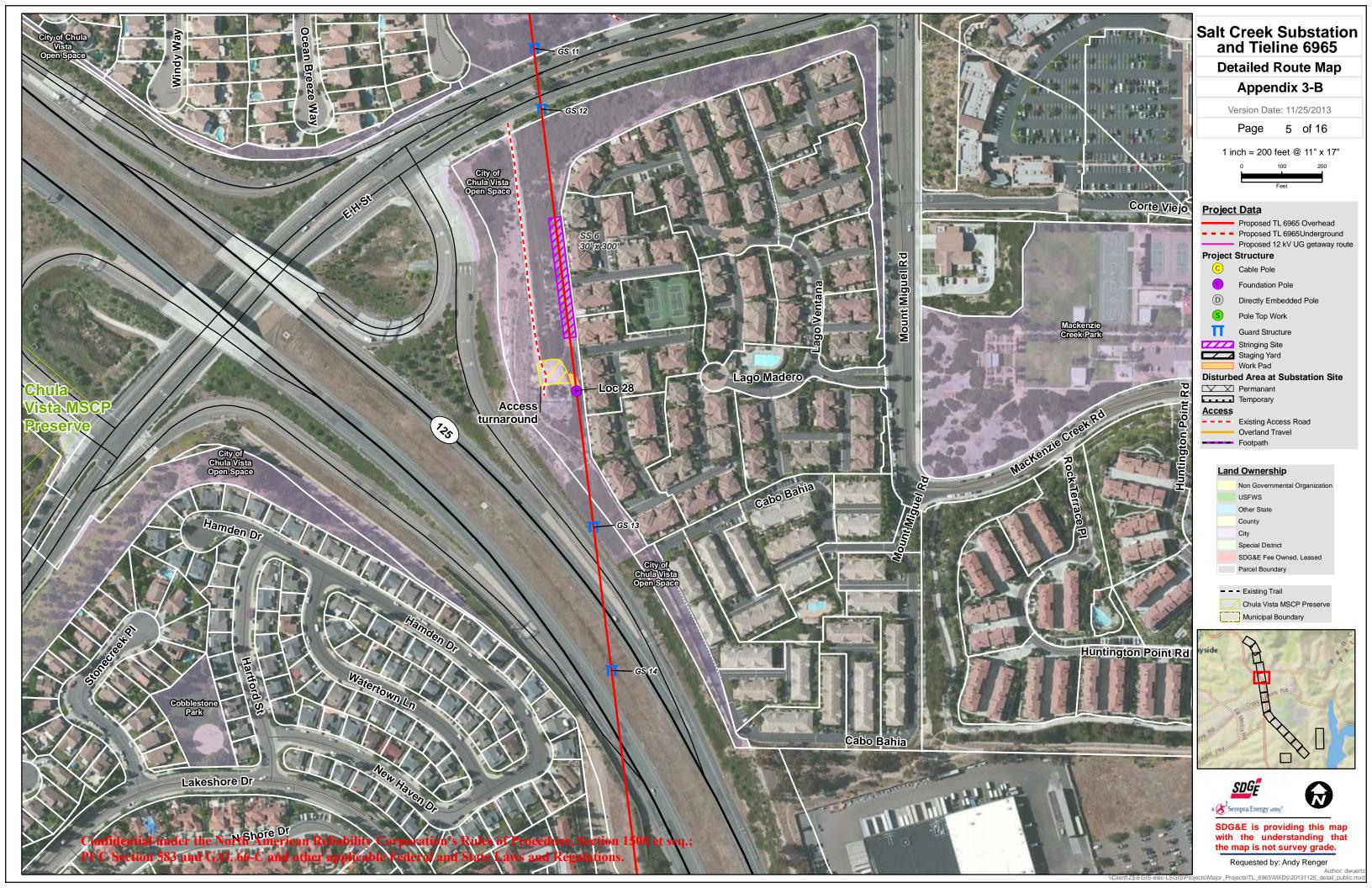




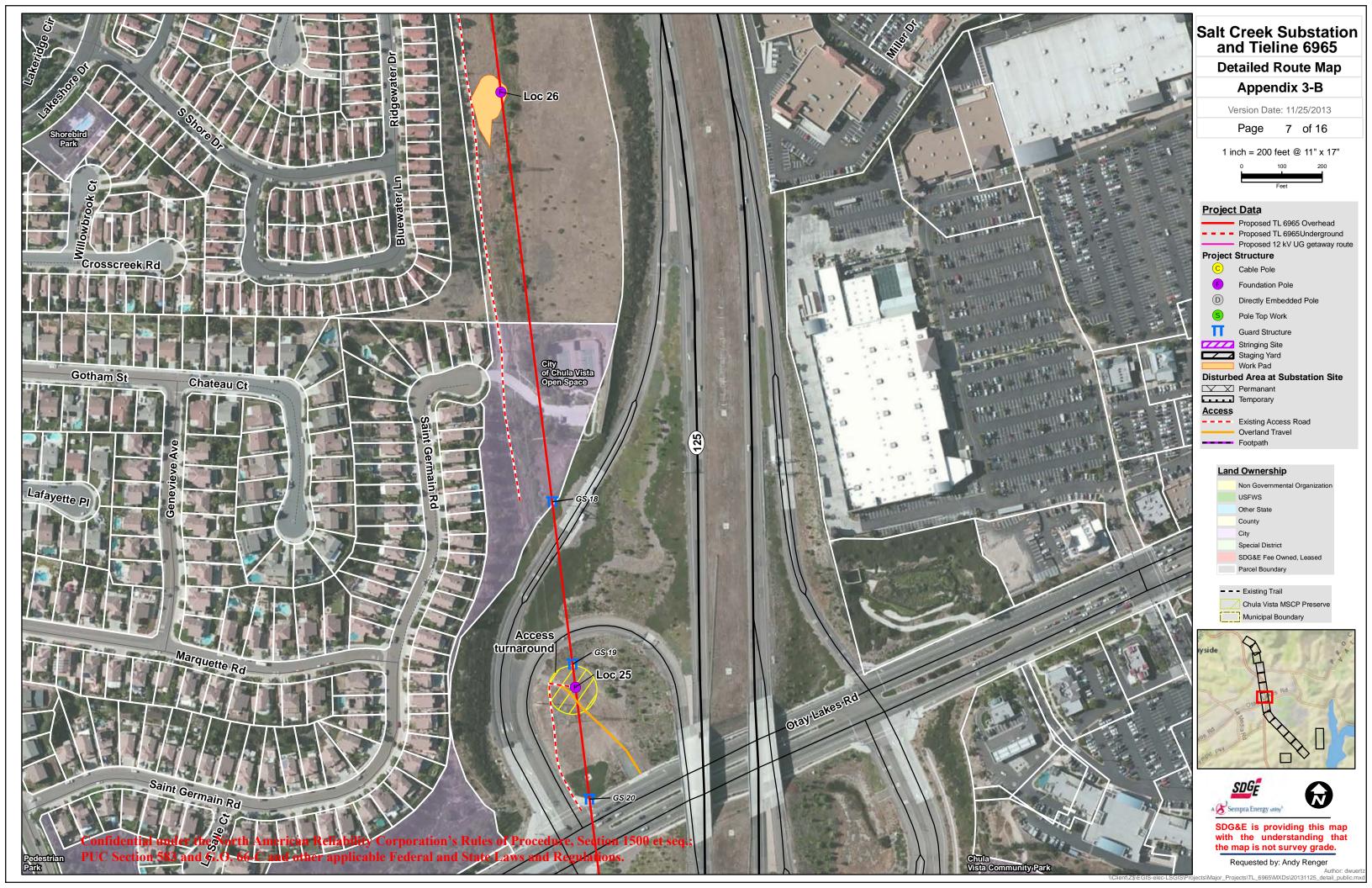




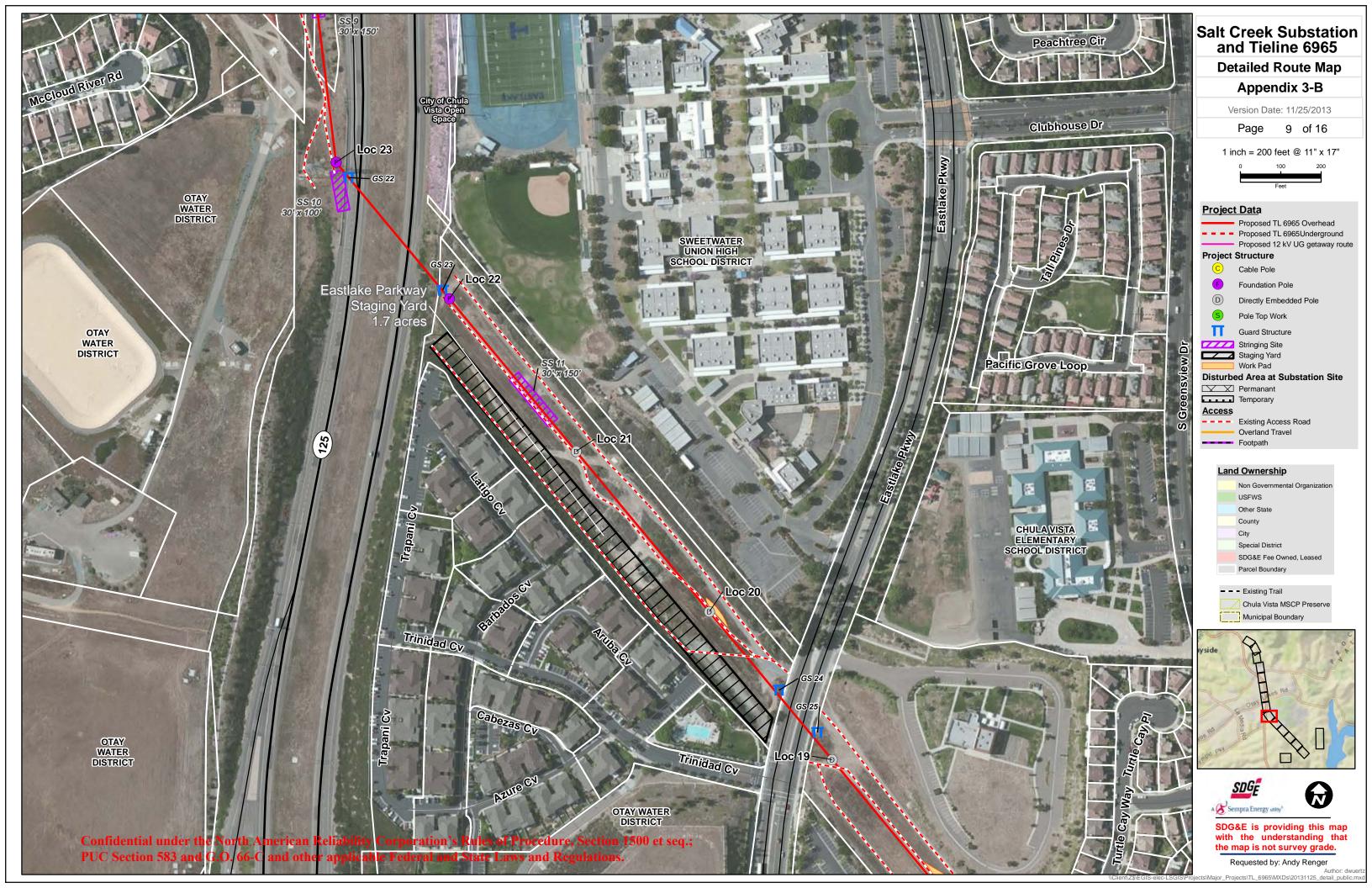


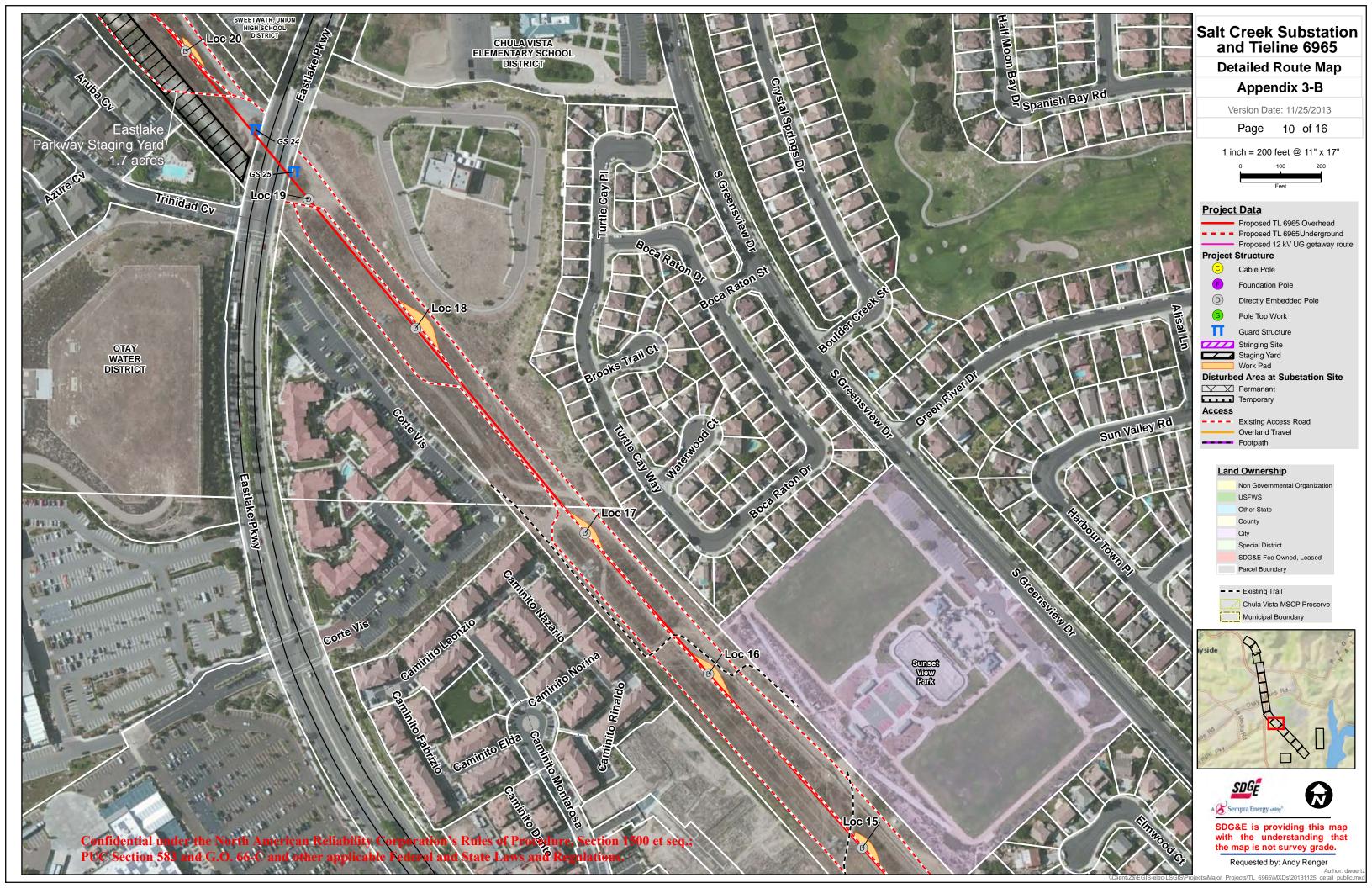


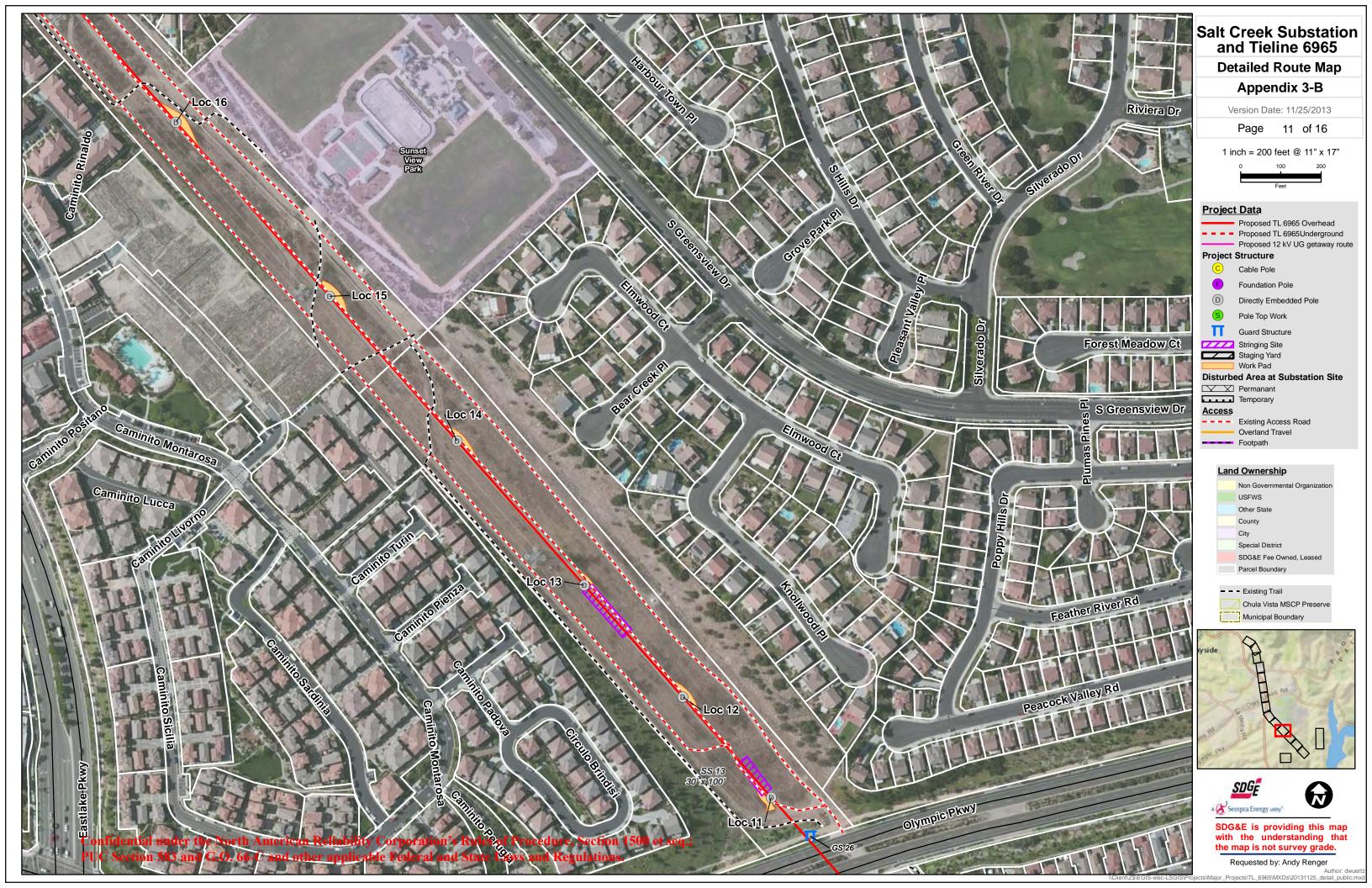


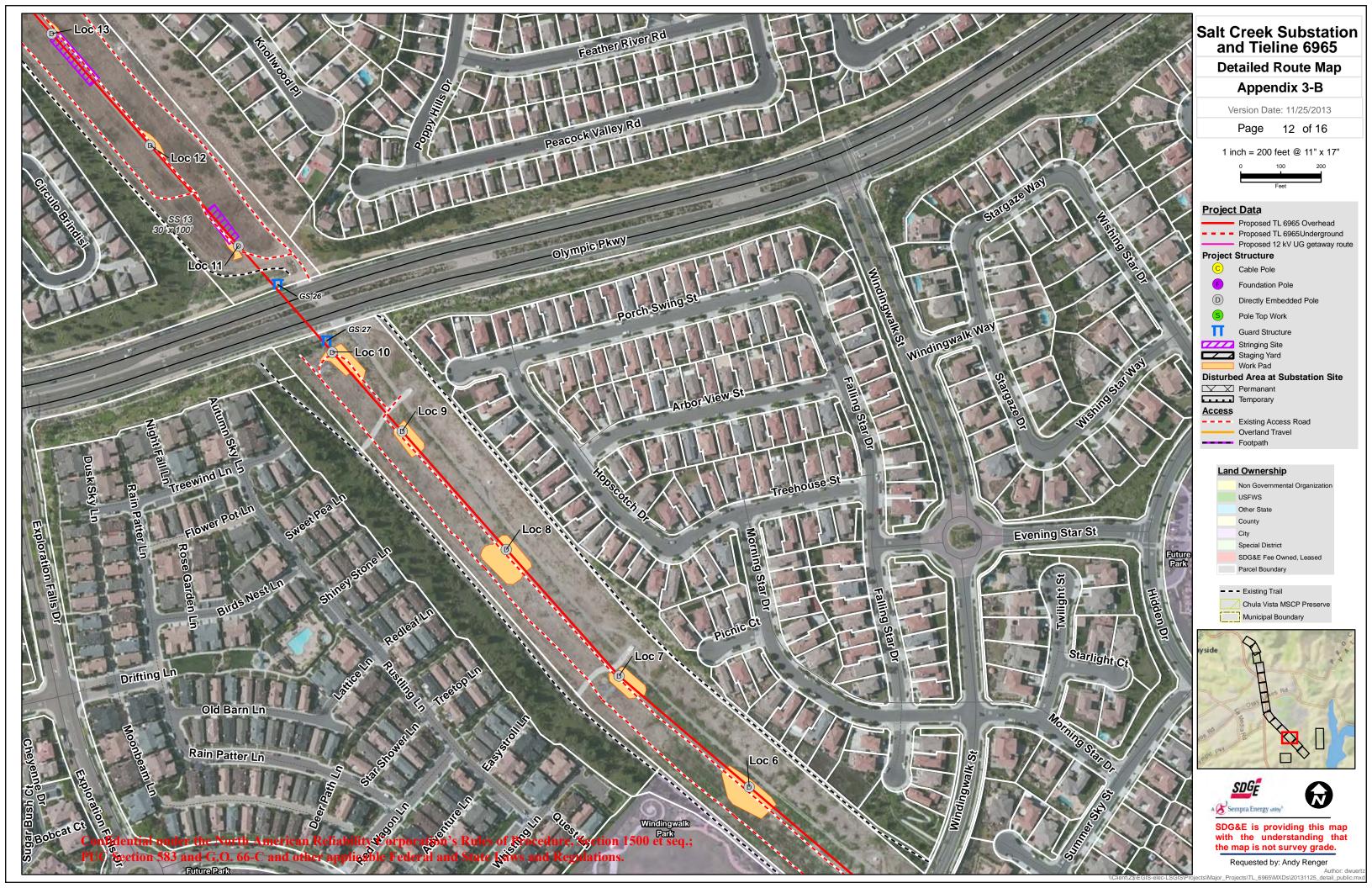


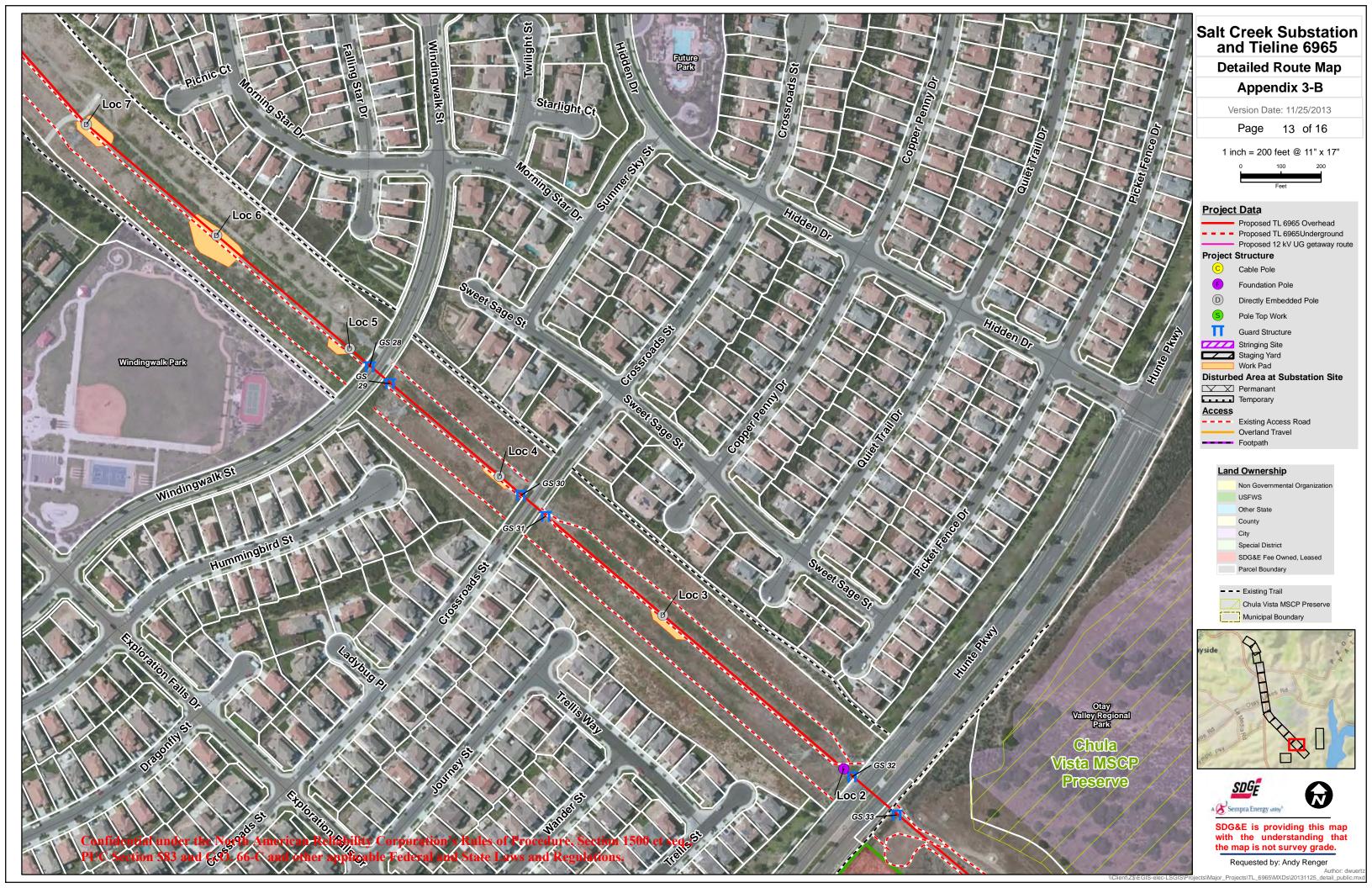


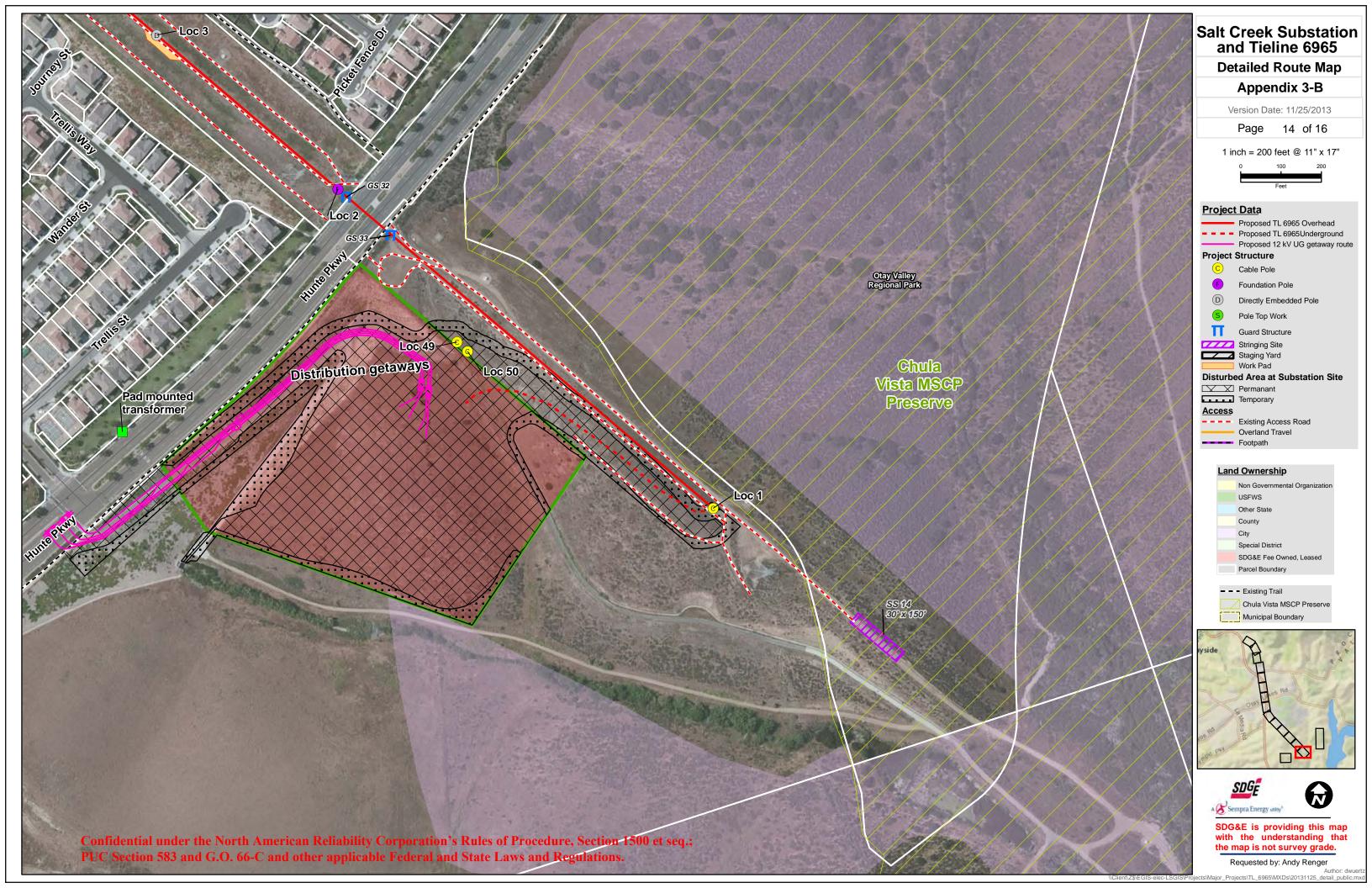






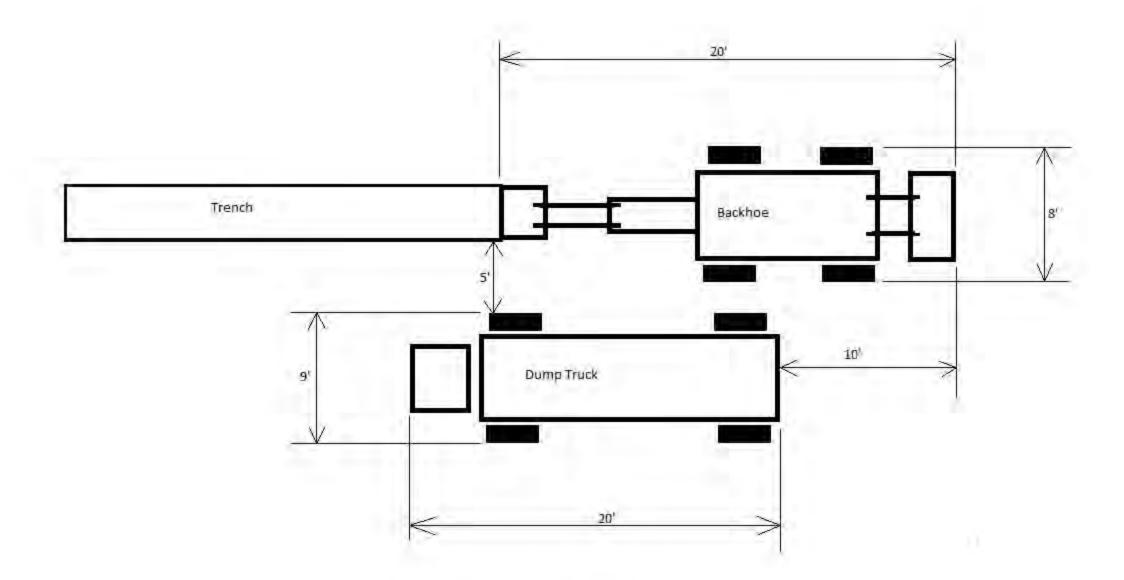


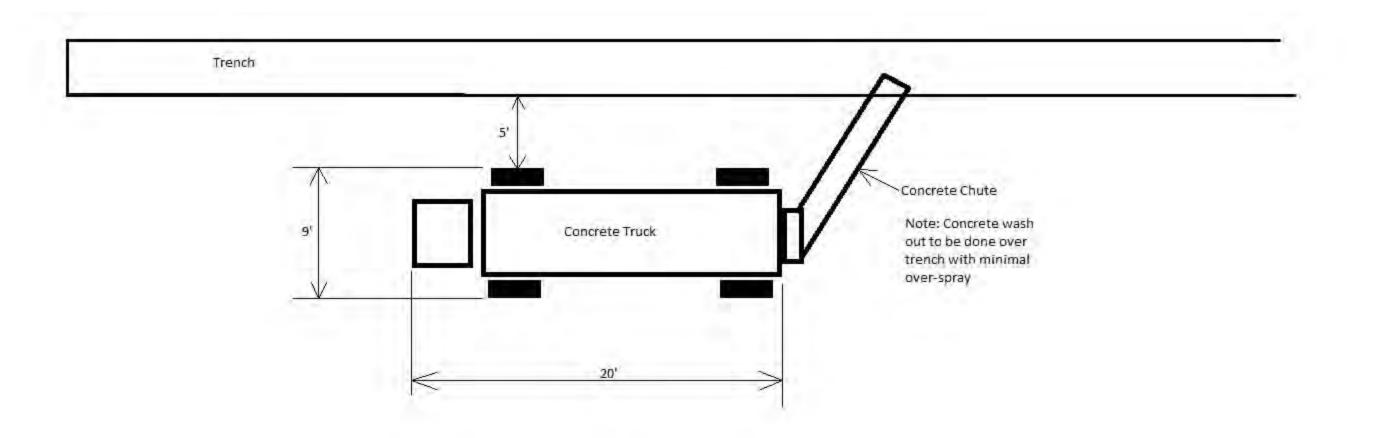


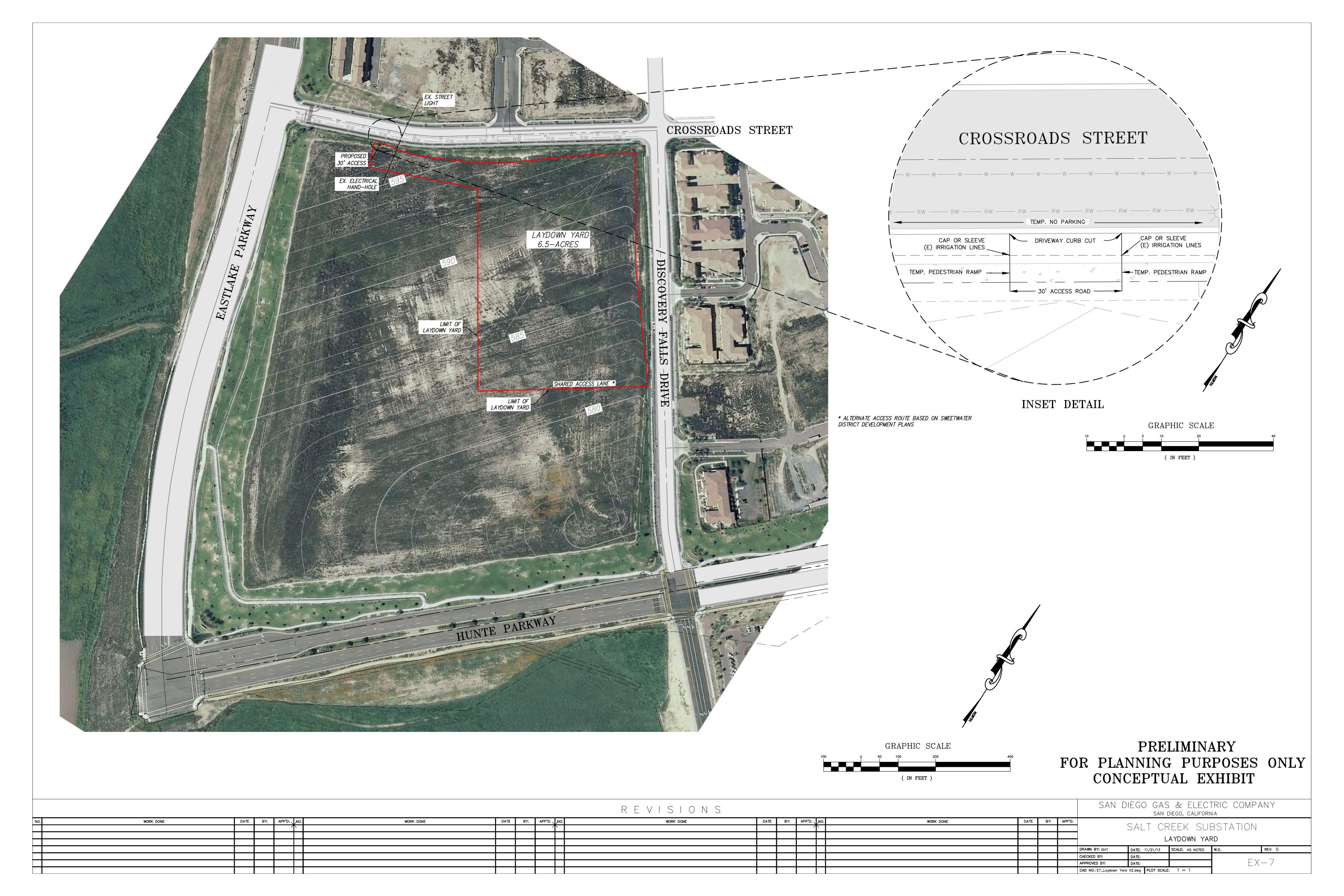


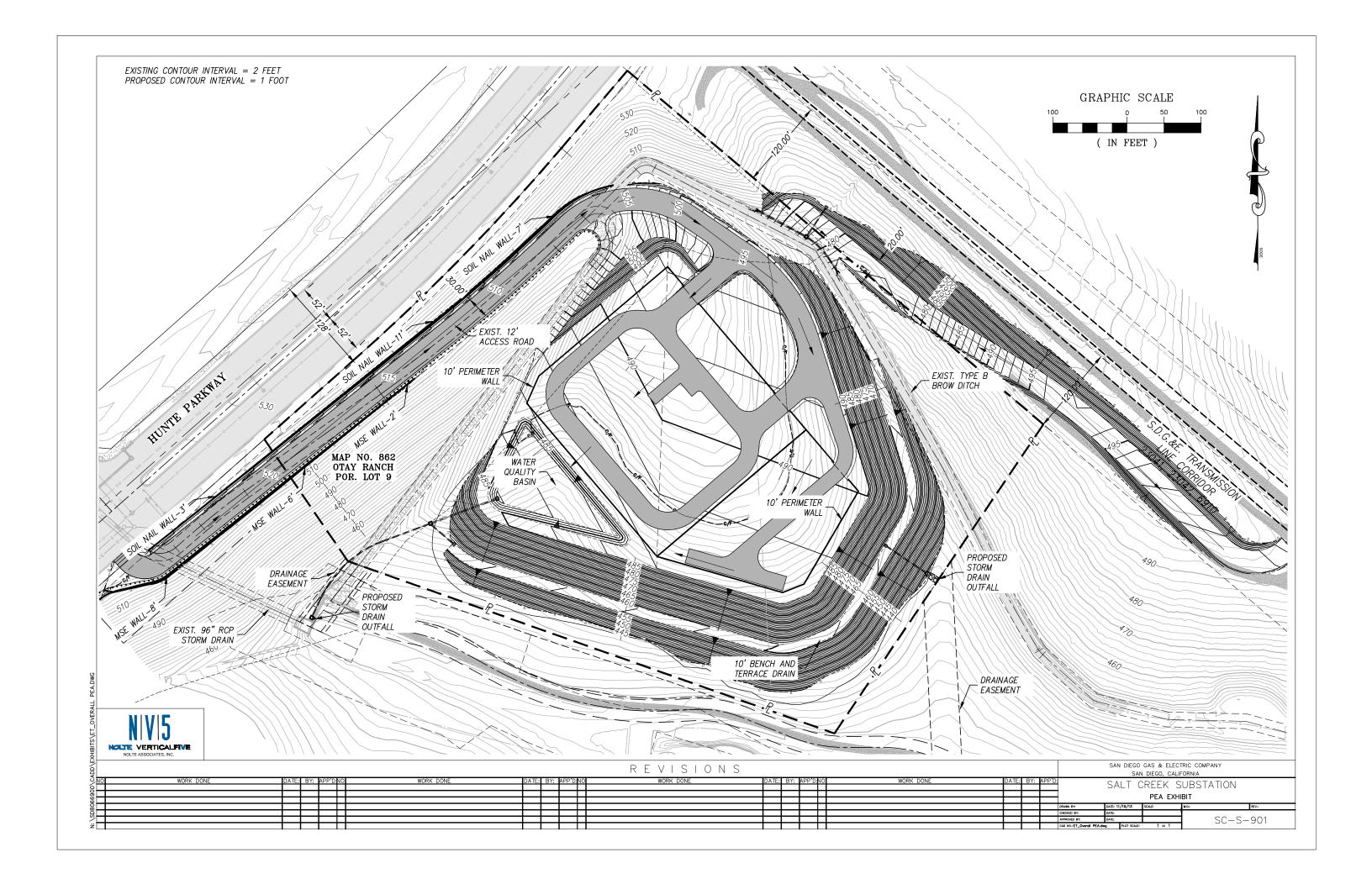












Santos, Remedios

From: Reider, Robert <Robert.Reider@sdcounty.ca.gov>

Sent: Wednesday, November 06, 2013 4:17 PM

To: Navrozali, Hashim **Subject:** RE: CEQA Thresholds

Hi Hashim,

The air quality significance thresholds you listed below are fully consistent with those established by the County of San Diego Planning and Development Services Department – formerly the Department of Planning and Land Use – for all projects within the County's jurisdiction. (See http://www.sdcounty.ca.gov/pds/procquid.html#Air Quality.) Consequently, these same significance thresholds are frequently used throughout the San Diego region. Nevertheless, the San Diego County APCD has not developed its own air quality significance thresholds for CEQA purposes and therefore we are not in a position to require or even recommend specific values.

If you have questions or need further clarification please let me know.

Regards,

--Rob

Robert C. Reider | Deputy Director Air Pollution Control District | County of San Diego 10124 Old Grove Road | San Diego, CA 92131 (858) 586-2640 | Robert.Reider@sdcounty.ca.gov

From: Navrozali, Hashim [mailto:HNavrozali@semprautilities.com]

Sent: Monday, November 04, 2013 9:21 AM

To: Reider, Robert

Subject: CEQA Thresholds

Hello Rob,

Hope you are doing well. We had a quick question about the CEQA Thresholds for criteria pollutants and would appreciate your guidance. We typically calculate construction/operational emissions of criteria pollutants from new projects (e.g. new transmission lines, Substations, and power generation plants) as part of the CEQA process. As part of our review, we compare the short term construction emissions with applicable daily significance thresholds (in lb/day).

For the past several years we have been using the AQIA trigger levels (lb/day) of the District's NSR Rule (20.2(d)(2)) as a basis for the significance thresholds (e.g. NOx: 250 lb/day; CO: 550 lb/day; SOx: 250 lb/day; PM10: 100 lb/day) for projects in San Diego County. Since no AQIA triggers are found for VOCs and/or PM2.5 in the District's NSR Rule, we have been using the SCAQMD's recommended thresholds of 75 lb/day and 55 lb/day respectively for these two pollutants.

We wanted to know if the above significance thresholds are consistent with what the District currently recommends as part of the CEQA review process.

Thanks in advance for your input regarding this issue.

Hashim Navrozali, P.E. Principal Environmental Specialist San Diego Gas & Electric Company Office: 858-650-4087 Cell: 619-980-7154 Fax: 858-637-3700

hnavrozali@SempraUtilities.com





Material Safety Data Sheet

Dow AgroSciences LLC

Product Name: GARLON* 4 Ultra Herbicide

Issue Date: 09/15/2011 Print Date: 15 Sep 2011

Dow AgroSciences LLC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification

Product Name

GARLON* 4 Ultra Herbicide

COMPANY IDENTIFICATION

Dow AgroSciences LLC A Subsidiary of The Dow Chemical Company 9330 Zionsville Road Indianapolis, IN 46268-1189 USA

Customer Information Number:

800-992-5994

SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: Local Emergency Contact:

800-992-5994

352-323-3500

2. Hazards Identification

Emergency Overview

Color: Yellow

Physical State: Liquid.

Odor: Mild

Hazards of product:

WARNING! May cause allergic skin reaction. May cause eye irritation. May cause skin irritation. May be harmful if swallowed. Isolate area. Toxic fumes may be released in fire situations.

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects

Eye Contact: May cause slight eye irritation. Corneal injury is unlikely.

Skin Contact: Brief contact may cause moderate skin irritation with local redness. May cause drying and flaking of the skin.

TM * Trademark of Dow AgroSciences LLC

Issue Date: 09/15/2011

Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts. **Skin Sensitization:** Prolonged or frequently repeated skin contact may cause allergic skin reactions in some individuals. Has demonstrated the potential for contact allergy in mice.

Inhalation: Prolonged exposure is not expected to cause adverse effects.

Ingestion: Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

Effects of Repeated Exposure: For the active ingredient(s): In animals, effects have been reported on the following organs: Blood. Kidney. Liver.

Cancer Information: In long-term animal studies with ethylene glycol butyl ether, small but statistically significant increases in tumors were observed in mice but not rats. The effects are not believed to be relevant to humans. If the material is handled in accordance with proper industrial handling procedures, exposures should not pose a carcinogenic risk to man.

Birth Defects/Developmental Effects: For the active ingredient(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

Reproductive Effects: The data presented are for the following material: Triclopyr. In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

3. Composition Information

Component	CAS #	Amount
Triclopyr-2-butoxyethyl ester	64700-56-7	60.5 %
Ethylene glycol monobutyl ether	111-76-2	0.5 %
Balance	Not available	39.0 %

4. First-aid measures

Description of first aid measures

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin Contact: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Eye Contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice.

Ingestion: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.

Indication of immediate medical attention and special treatment needed

No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. Fire Fighting Measures

Suitable extinguishing media

Issue Date: 09/15/2011

Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective. Water fog, applied gently may be used as a blanket for fire extinguishment.

Extinguishing Media to Avoid: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide. Phosgene.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. **Advice for firefighters**

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Water fog, applied gently may be used as a blanket for fire extinguishment. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to Section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. Handling and Storage

Handling

General Handling: Keep out of reach of children. Do not swallow. Avoid breathing vapor or mist. Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Wash thoroughly after handling. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Storage

Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

8. Exposure Controls / Personal Protection

Exposure Limits

Component	List	Type	Value
Triclopyr-2-butoxyethyl ester	Dow IHG	TWA	2 mg/m3 D-SEN

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING. A D-SEN notation following the exposure guideline refers to the potential to produce dermal sensitization, as confirmed by human or animal data.

Personal Protection

Eye/Face Protection: Use safety glasses (with side shields).

Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly.

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Neoprene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"). Viton. Polyvinyl chloride ("PVC" or "vinyl"). Nitrile/butadiene rubber ("nitrile" or "NBR"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

Engineering Controls

Ventilation: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations.

9. Physical and Chemical Properties

Appearance

Physical State Liquid.
Color Yellow
Odor Mild

pH 3.36 (@ 1 %) pH Electrode (1% aqueous suspension)

Melting Point

Freezing Point

Boiling Point (760 mmHg)

Not applicable

No test data available

No test data available.

Boiling Point (760 mmHg)No test data available.

> 100 °C (> 212 °F) Pensky-Martens Closed Cup ASTM D 93

Evaporation Rate (Butyl No test data available

Acetate = 1)

Flammable Limits In Air Lower: No test data available Upper: No test data available

per: No test data available

Product Name: GARLON* 4 Ultra Herbicide

Vapor Pressure

Vapor Density (air = 1) Specific Gravity (H2O = 1)

Solubility in water (by

weight)

Partition coefficient, noctanol/water (log Pow)

Autoignition Temperature

Decomposition **Temperature**

Dynamic Viscosity Kinematic Viscosity

Liquid Density

No test data available No test data available

1.11 Digital Density Meter (Oscillating Coil)

Issue Date: 09/15/2011

emulsifies

No data available for this product.

> 325 °C (> 617 °F) Literature

No test data available

23.4 mPa.s @ 20 ℃ No test data available

1.11 g/cm3 @ 20 °C Digital density meter

10. Stability and Reactivity

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical stability

Thermally stable at typical use temperatures.

Possibility of hazardous reactions

Polymerization will not occur.

Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible Materials: Avoid contact with: Strong acids. Strong bases. Strong oxidizers. Hazardous decomposition products

Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Hydrogen chloride. Nitrogen oxides. Phosaene.

11. Toxicological Information

Acute Toxicity

Ingestion

LD50, Rat, female 3,200 mg/kg

Dermal

LD50, Rat, male and female > 5,000 mg/kg

Inhalation

LC50, 4 h, Aerosol, Rat, male and female > 5.05 mg/l

Eve damage/eve irritation

May cause slight eye irritation. Corneal injury is unlikely.

Skin corrosion/irritation

Brief contact may cause moderate skin irritation with local redness. May cause drying and flaking of the skin.

Sensitization

Skin

Prolonged or frequently repeated skin contact may cause allergic skin reactions in some individuals. Has demonstrated the potential for contact allergy in mice.

Repeated Dose Toxicity

For the active ingredient(s): In animals, effects have been reported on the following organs: Blood. Kidney. Liver.

Chronic Toxicity and Carcinogenicity

In long-term animal studies with ethylene glycol butyl ether, small but statistically significant increases in tumors were observed in mice but not rats. The effects are not believed to be relevant to humans.

If the material is handled in accordance with proper industrial handling procedures, exposures should not pose a carcinogenic risk to man. The data presented are for the following material: Triclopyr. Did not cause cancer in laboratory animals.

Carcinogenicity Classifications:

Component	List	Classification
Ethylene glycol monobutyl ether	ACGIH	Confirmed animal carcinogen with unknown relevance to humans.; Group A3

Developmental Toxicity

For the active ingredient(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. For the active ingredient(s): Did not cause birth defects in laboratory animals.

Reproductive Toxicity

The data presented are for the following material: Triclopyr. In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. The data presented are for the following material: Butoxyethanol. In animal studies, did not interfere with reproduction. For the minor component(s): Available data are inadequate to determine effects on reproduction.

Genetic Toxicology

For the active ingredient(s): In vitro genetic toxicity studies were negative. For the active ingredient(s): Animal genetic toxicity studies were negative.

12. Ecological Information

Toxicity

Based largely or completely on information for similar material(s). Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested). Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg).

Fish Acute & Prolonged Toxicity

For similar material(s): LC50, bluegill (Lepomis macrochirus), 96 h: 0.44 - 1.2 mg/l

LC50, rainbow trout (Oncorhynchus mykiss), 96 h: 0.98 - 2.6 mg/l

LC50. Atlantic silverside (Menidia menidia), 96 h: 0.77 mg/l

Aquatic Invertebrate Acute Toxicity

For similar material(s): EC50, water flea Daphnia magna, 48 h, immobilization: 0.35 - 2.0 mg/l

EC50, eastern oyster (Crassostrea virginica), 96 h, shell growth inhibition: 0.30 mg/l

LC50, grass shrimp (Palaemonetes pugio), 96 h, lethality: > 1.8 mg/l

LC50, water flea Daphnia magna, 48 h, lethality: 0.43 mg/l

Aquatic Plant Toxicity

For similar material(s): EbC50, green alga Pseudokirchneriella subcapitata (formerly known as Selenastrum capricornutum), biomass growth inhibition, 72 h: 11 mg/l

Toxicity to Above Ground Organisms

Based on information for a similar material: oral LD50, bobwhite (Colinus virginianus): 1,350 mg/kg

Persistence and Degradability

For similar material(s): Biodegradation under aerobic static laboratory conditions is moderate (BOD20 or BOD28/ThOD between 10 and 40%).

Biological oxygen demand (BOD): For similar material(s):

BOD 5	BOD 10	BÓD 20	BOD 28
26 %	36 %		48 %

Bioaccumulative potential

Bioaccumulation: For the active ingredient(s): Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Mobility in soil

Mobility in soil: For the active ingredient(s):, Potential for mobility in soil is low (Koc between 500 and 2000).

Issue Date: 09/15/2011

13. Disposal Considerations

If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. Transport Information

DOT Non-Bulk

NOT REGULATED

DOT Bulk

NOT REGULATED

IMDG

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S

Technical Name: Contains Triclopyr-2-butoxyethyl Ester

Hazard Class: 9 ID Number: UN3082 Packing Group: PG III

EMS Number: f-a,s-f Marine pollutant.: Yes

ICAO/IATA

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S

Technical Name: Contains Triclopyr-2-butoxyethyl Ester

Hazard Class: 9 ID Number: UN3082 Packing Group: PG III

Cargo Packing Instruction: 964
Passenger Packing Instruction: 964

Additional Information

MARINE POLLUTANT

Contains Triclopyr-2-butoxyethyl Ester

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. Regulatory Information

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (Acute) Health Hazard

Yes

Delayed (Chronic) Health Hazard

Yes

Fire Hazard

No

Reactive Hazard No Sudden Release of Pressure Hazard No

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372.

Component	CAS#	Amount
Triclopyr-2-butoxyethyl ester	64700-56-7	60.5%

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

Toxic Substances Control Act (TSCA)

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

16. Other Information

Hazard Rating System

NFPA Health Fire Reactivity
2 1 0

Revision

Identification Number: 1001102 / 1016 / Issue Date 09/15/2011 / Version: 5.4

DAS Code: GF-1529

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

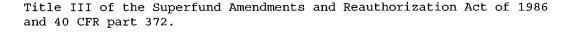
N/A	Not available
W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation
Action Level	A value set by OSHA that is lower than the PEL which will trigger the need for
	activities such as exposure monitoring and medical surveillance if exceeded.

Issue Date: 09/15/2011

Dow AgroSciences LLC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.



"DuPont" "Landmark" XP Herbicide M0000620 Revised 27-MAR-2009 Substance ID :130000029429 CHEMICAL PRODUCT/COMPANY IDENTIFICATION ______ Material Identification "LANDMARK", "OUST", "TELAR" are registered trademarks of DuPont. "DuPont" is a trademark of DuPont. Tradenames and Synonyms LANDMARK XP OUST XP TELAR DF DPX-JHV52 B12038440 Company Identification MANUFACTURER/DISTRIBUTOR DuPont 1007 Market Street Wilmington, DE 19898 PHONE NUMBERS Product Information : 1-800-441-7515 (outside the U.S. 302-774-1000) Transport Emergency : CHEMTREC 1-800-424-9300(outside U.S. 703-527-3887) Medical Emergency : 1-800-441-3637 (outside the U.S. 302-774-1000) COMPOSITION/INFORMATION ON INGREDIENTS ______ Components Material CAS Number OUST XP (Sulfometuron Methyl) 74222-97-2 50.00 (Methyl 2-[[[[(4,6-dimethyl-2-pyrimidinyl)amino] carbonyl] amino] sulfonyl] benzoate) *TELAR DF (Chlorsulfuron) 64902-72-3 25.00 [2-Chloro-N[(4-methoxy-6-methyl-1,3,5,-triazin-2yl)aminocarbonyl] benzenesulfonamide INERT INGREDIENTS 25.00 * Disclosure as a toxic chemical is required under Section 313 of



HAZARDS IDENTIFICATION

Emergency Overview

CAUTION! Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing.

Potential Health Effects

Based on animal data from components, eye contact with DuPont Landmark XP may cause eye irritation with discomfort, tearing, or blurring of vision.

Based on animal data of one of the components, ingestion of DuPont Landmark XP may lead to red blood cell destruction.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF SWALLOWED: Call poison control center or doctor immediately for treatment advice. Have a person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF INHALED: No specific intervention is indicated as the product is not likely to be hazardous by inhalation. Consult a physician if necessary.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You

may also contact 1-800-441-3637 for emergency medical treatment information.

FIRE FIGHTING MEASURES

Flammable Properties

Flammable limits in Air, % by Volume LEL : 0.092 g/L

Not a fire or explosion hazard.

Like most organic powders or crystals, under severe dusting conditions, this material may form explosive mixtures in air.

Extinguishing Media

Water Spray, Foam, Dry Chemical, CO2.

Fire Fighting Instructions

Wear self-contained breathing apparatus. Wear full protective equipment. Use water spray. Runoff from fire control may be a pollution hazard.

If area is exposed to fire and conditions permit, let fire burn itself out. Burning chemicals may produce by-products more toxic than the original material. If product is on fire, wear self-contained breathing apparatus and full protective equipment. Use water spray. Control runoff.

ACCIDENTAL RELEASE MEASURES

Safequards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Emergency Response - Chemical resistant coveralls, waterproof gloves, waterproof boots and face/eye protection. If dusting occurs, use NIOSH approved respirator protection.

Initial Containment

Dike spill. Prevent material from entering sewers, waterways, or low areas.

Follow applicable Federal, State/Provincial and Local laws/regulations.

Spill Clean Up

Shovel or sweep up. HANDLING AND STORAGE ______ Handling (Personnel) USERS SHOULD: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Do not get in eyes. Avoid breathing dust, vapors or mist. Avoid contact with eyes, skin or clothing. Wash thoroughly after handling. Wash clothing after use. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material. Handling (Physical Aspects) Avoid dust generation. Keep away from heat, sparks and flames. Storage Store product in original container only. Do not contaminate water, food or feed by storage. EXPOSURE CONTROLS/PERSONAL PROTECTION _____ Engineering Controls Use only with adequate ventilation. Keep container tightly closed. Personal Protective Equipment Always follow the label instructions when handling this product. No PPE is specified; however, avoid contact with skin, eyes and clothing. Use of Landmark XP Herbicide on non-crop sites is not within the scope of the Worker Protection Standard. Do not enter or allow others to enter the treated area until sprays have dried. # Exposure Guidelines Applicable Exposure Limits OUST XP (OSHA) : None Established PEL TLV (ACGIH)
AEL * (DuPont) : 5 mg/m3, 8 Hr. TWA, A4 : 10 mg/m3, 8 & 12 Hr. TWA

total dust

TELAR DF : None Established PEL(OSHA) (ACGIH) : None Established \mathbf{TLV} : 5 mg/m3, 8 & 12 Hr. TWA, respirable dust AEL * (DuPont) 10 mg/m3, 8 & 12 Hr. TWA, total dust * AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence. ______ PHYSICAL AND CHEMICAL PROPERTIES ______ Physical Data Oust XP (Sulfometuron Methyl) Solubility in water : Dispersible Odor : None : Solid Form Color : Off-white
Bulk density (Loose) : 33 lb/cu ft
Bulk density (Packed) : 39 lb/cu ft Telar DF (Chlorsulfuron) Solubility in water : Dispersible : 4.5 @ 1% suspension Нq Odor : None Form : Solid : Tan Color Specific gravity : 0.69 @ 250C (770F) : 0.64 - 0.74 g/mLDensity ______ STABILITY AND REACTIVITY Chemical Stability Stable at normal temperatures and storage conditions. Incompatibility with Other Materials None reasonably foreseeable. Decomposition Decomposition will not occur. Polymerization Polymerization will not occur. TOXICOLOGICAL INFORMATION

Animal Data

Oust XP

Inhalation 4 hour LC50: > 5.3 mg/L in rats
Skin absorption LD50 : > 5000 mg/kg in rabbits
Oral LD50 : > 5000 mg/kg in rats

Oust XP is a slight to mild skin irritant, and a mild eye irritant, but is not a skin sensitizer in animals.

Single inhalation exposure with Oust XP (Sulfometuron Methyl 75%) in rats caused slight to moderate body weight loss, nas and ocular discharge, and other nonspecific effects.

Single high oral doses of Oust XP (Sulfometuron Methyl 75%) produced no clinical signs of toxicity and no lesions were observed during pathological examination of tissue.

SULFOMETURON METHYL

Repeated exposures to high doses resulted in decreased body weight gain, liver changes, red blood cell hemolysis, and altered white blood cell counts. Long-term exposure caused mild hemolytic anemia, decreased body weight, alteration of clinical chemical parameters, and changes in the bile duct.

Animal testing indicates that Sulfometuron Methyl does not have carcinogenic effects. Developmental toxicity was observed but only at maternally toxic dose levels. In a two generation rat reproduction study, decreased numbers of pups were observed at the 5000 ppm level, a dose that was also maternally toxic. No reproductive effects were observed at 500 ppm.

Sulfometuron Methyl does not produce genetic damage in bacterial or mammalian cell cultures.

Telar DF Herbicide

Oral LD50 : > 2000 mg/kg in rats Skin Absorption LD50 : > 5000 mg/kg in rats Inhalation 4 hour LC50: > 5.5 mg/L in rats (Chlorsulfuron)

Telar DF Herbicide is a mild reversible skin irritant, and a very mild eye irritant, and is not a skin sensitizer in animals.

CHLORSULFURON

The effects in animals from repeated exposures by inhalation to Chlorsulfuron include decreased weight gain, reversible kidney and spleen effects, and bone marrow changes.

Repeated oral dosing caused decreased weight gain, and hematological and clinical chemistry changes. Long-term

dosing resulted in decreased body weight gain, and slight hematological changes.

Not carcingenic in mice and female rats; a slight increase in Leydig cell tumors was observed in male rats after lifetime exposure at high doses.

Animal testing indicates that Chlorsulfuron did not show reproductive effects. Developmental toxicity has been observed but only at maternally toxic dose levels.

Chlorsulfuron did not produce genetic damage in bacterial and mammalian cell cultures. It did not produce heritable genetic damage.

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______
ECOLOGICAL INFORMATION
Ecotoxicological Information
  AQUATIC TOXICITY:
   (Sulfometuron Methyl)
   48 hour NOEC - Daphnia magna: > 150 mg/L.
   96 hour LC50 - Rainbow trout: > 148 mg/L.
   96 hour LC50 - Bluegill sunfish: > 150 mg/L.
  AVIAN TOXICITY:
   (Sulfometuron Methyl)
  Acute Dietary LC50 - Mallard Duck: > 5000 ppm.
  Acute Dietary LC50 - Bobwhite Quail: > 5620 ppm.
  AQUATIC TOXICITY:
   (Chlorsulfuron)
   96 hour LC50 - Sheepshead minnow: > 980 mg/L.
   96 hour LC50 - Bluegill sunfish: > 128 ppm.
  96 hour LC50 - Rainbow trout: > 122 ppm.
  48 hour EC50 - Daphnia magna: > 112 ppm.
  AVIAN TOXICITY:
   (Chlorsulfuron)
  Acute Oral LD50 - Mallard Duck: > 5000 mg/kg.
  Acute Oral LD50 - Bobwhite Quail: > 5000 mg/kg > 112 ppm.
  Aquatic Toxicity
  Chlorsulfuron
  120 hour EC50, Freshwater algae: 0.05 ppm.
  Avian Toxicity
  Chlorsulfuron
  Short term Dietary LC50 - Mallard Duck: > 5000 ppm
  Short term Dietary LC50 - Bobwhite Quail: > 5620 ppm
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DISPOSAL CONSIDERATIONS

Waste Disposal

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

Do not contaminate water supply, food or feed by storage or disposal.

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of equipment washwaters.

Container Disposal

For Plastic Containers: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

For Fiber Sacks: Completely empty fiber sack by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into manufacturing or application equipment. Then dispose of sack in a sanitary landfill or by incineration if allowed by State and local authorities.

For Fiber Drums With Liners: Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by State and local authorities. If drum is contaminated and cannot be reused, dispose of in the same manner.

For Paper and Plastic Bags: Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

TRANSPORTATION INFORMATION
Shipping Information
DOT/IMO Proper Shipping Name : NOT REGULATED
EGULATORY INFORMATION
J.S. Federal Regulations

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

: Yes Chronic : No Fire : No Reactivity: No Pressure : No

In the United States this product is regulated by the US Environmental Protection Agency under the Federal Insecticide, Fungicide and Rodenticide Act. It is a violation of federal law to use this product in a manner inconsistent with its labeling.

EPA Reg. No. 352-645

State Regulations (U.S.)

*****ATTENTION*****

CALIFORNIA PROPOSITION 65

THIS PRODUCT CONTAINS CHLORSULFURON, A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating

Health : 1 Flammability : 1 Reactivity : 0

NPCA-HMIS Rating

Health : 1 Flammability : 1 Reactivity : 0

Personal Protection rating to be supplied by user depending on use conditions.

(Continued)

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS: DuPont Crop Protection Address : Wilmington, DE 19898 Telephone : 1-888-638-7668

Indicates updated section.



MILESTONE* VM HERBICIDE

Emergency Phone: 800-992-5994 Dow AgroSciences LLC Indianapolis, IN 46268

Effective Date: 20-Apr-06 Product Code: 103339

MSDS: 007887

PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Milestone* VM Herbicide

COMPANY IDENTIFICATION:

Dow AgroSciences LLC 9330 Zionsville Road Indianapolis, IN 46268-1189

HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Brown liquid with a mild odor. May cause temporary eye irritation. May cause skin irritation.

EMERGENCY PHONE NUMBER: 800-992-5994

COMPOSITION/INFORMATION ON INGREDIENTS:

Aminopyralid tri-CAS # 566191-89-7 40.6% isopropanolammonium Balance, Total, Including 59.4%

FIRST AID:

EYE: Flush eyes thoroughly with water for several minutes. Remove contact lenses, if present, after the initial 1-2 minutes. If effects occur, consult a physician, preferably an ophthalmologist.

SKIN: Wash skin with plenty of water.

INGESTION: No emergency medical treatment necessary.

INHALATION: Move person to fresh air; if effects occur, consult a physician.

NOTE TO PHYSICIAN: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

FIRE FIGHTING MEASURES:

FLASH POINT: Not applicable (water-based material) METHOD USED: Not applicable

FLAMMABLE LIMITS

LFL: Not determined UFL: Not determined EXTINGUISHING MEDIA: Foam, CO2, or Dry chemical

FIRE AND EXPLOSION HAZARDS: Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Toxic irritating gases may be formed under fire conditions.

FIRE-FIGHTING EQUIPMENT: Use positive-pressure, selfcontained breathing apparatus and full protective equipment.

ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS: Absorb small spills with materials such as sand, sawdust, Zorball, or dirt. Wash exposed body areas thoroughly after handling. Report large spills to Dow AgroSciences at 800-992-5994.

HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapors and spray mist. Handle concentrate in ventilated area. Wash thoroughly with soap and water after handling and before eating, chewing gum, using tobacco, using the toilet or smoking. Keep away from food, feedstuffs, and water supplies. Store in original container with the lid tightly closed.

EXPOSURE CONTROLS/PERSONAL PROTECTION: 8.

These precautions are suggested for conditions where the potential for exposure exists. Emergency conditions may require additional precautions.

EXPOSURE GUIDELINES: None established

ENGINEERING CONTROLS: Good general ventilation should be sufficient for most conditions.

RECOMMENDATIONS FOR MANUFACTURING. COMMERCIAL BLENDING, AND PACKAGING **WORKERS:**

EYE/FACE PROTECTION: Use safety glasses.

SKIN PROTECTION: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full-body suit will depend on the task.



MILESTONE* VM HERBICIDE

HAND PROTECTION: Use gloves chemically resistant to

Emergency Phone: 800-992-5994 **Dow AgroSciences LLC** Indianapolis, IN 46268

Effective Date: 20-Apr-06 Product Code: 103339 MSDS: 007887

SKIN: Brief contact may cause slight skin irritation with local redness. Prolonged skin contact is unlikely to result in absorption of harmful amounts. The LD₅₀ for skin absorption in rats is >5000 mg/kg. Did not cause allergic skin reactions when tested in guinea pigs.

INGESTION: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. The oral LD_{50} for rats is >5000 mg/kg.

INHALATION: Prolonged exposure is not expected to cause adverse effects. The aerosol LC50 for rats is >5.79 mg/L in 4 hours.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

CANCER INFORMATION: Based largely or completely on information for similar material(s): did not cause cancer in laboratory animals.

TERATOLOGY (BIRTH DEFECTS): Did not cause birth defects or any other fetal effects in laboratory animals.

REPRODUCTIVE EFFECTS: Based largely or completely on information for similar material(s): did not interfere with reproduction in laboratory animal studies.

MUTAGENICITY: In-vitro and animal genetic toxicity studies were negative.

this material. Examples of preferred glove barrier materials include: Polyethylene, Chlorinated polyethylene, and Ethyl vinyl alcohol laminate (EVAL). Examples of acceptable glove barrier materials include: Viton, Butyl rubber, Neoprene, Natural rubber (Latex), Polyvinyl chloride (PVC or Vinyl), Nitrile/butadiene rubber (Nitrile or NBR). Avoid gloves made of: Polyvinyl alcohol (PVA). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the

RESPIRATORY PROTECTION: No respiratory protection should be needed.

instructions/specifications provided by the glove supplier.

APPLICATORS AND ALL OTHER HANDLERS: Refer to the product label for personal protective clothing and equipment.

PHYSICAL AND CHEMICAL PROPERTIES:

APPEARANCE: Brown liquid

ODOR: Mild

DENSITY: 1.14 g/mL @ 20°C **pH:** 7.33 @ 19.8°C for a 1% solution FREEZING POINT: <14°F (<-10°C)

10. STABILITY AND REACTIVITY:

STABILITY: (CONDITIONS TO AVOID) Stable under normal storage conditions.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) None known.

HAZARDOUS DECOMPOSITION PRODUCTS: None known.

HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION:

EYE: May cause slight temporary eye irritation. Corneal injury is unlikely.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL FATE:

MOVEMENT & PARTITIONING:

No relevant information found.

DEGRADATION & PERSISTENCE:

No relevant information found.

ECOTOXICOLOGY:

Material is practically non-toxic to aquatic organisms on an acute basis (LC₅₀ or EC₅₀ is >100 mg/L).

Material is practically non-toxic to fish on an acute basis $(LC_{50} \text{ is } > 100 \text{ mg/L}).$

Material is practically non-toxic to birds on an acute basis $(LD_{50} \text{ is } > 2000 \text{ mg/kg}).$



MILESTONE* VM HERBICIDE

Emergency Phone: 800-992-5994 Dow AgroSciences LLC Indianapolis, IN 46268

Effective Date: 20-Apr-06 Product Code: 103339 MSDS: 007887

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities.

This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

If the material as supplied becomes a waste, follow all applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION:

U.S. DEPARTMENT OF TRANSPORTATION (DOT) INFORMATION:

For all package sizes and modes of transportation: This material is not regulated for transport

15. REGULATORY INFORMATION:

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

U.S. REGULATIONS

SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Section 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

No real health hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

OSHA HAZARD COMMUNICATION STANDARD: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

STATE RIGHT-TO-KNOW: This product is not known to contain any substances subject to the disclosure requirements of

New Jersey Pennsylvania

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND): To the best of our knowledge, this product contains no chemical subject to reporting under CERCLA.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

Health 1 Flammability 0 Reactivity 0

16. OTHER INFORMATION:

MSDS STATUS: Revised Sections: 2, 4, 8, 11, 12 & 15

Reference: DR-0368-4864 Replaces RSSDS Dated: 3-Jan-06 Document Code: D03-880-004

Replaces Document Code: D03-880-003

The Information Herein Is Given In Good Faith, But No Warranty, Express or Implied, Is Made. Consult Dow AgroSciences for Further Information.

Portfolio 4F CA

I. NAME

PRODUCT/TRADE NAME: PORTFOLIO 4F CA EPA REGISTRATION #: 279-3370-2935 CHEMICAL NAME/COMMON NAME:

N-(2,4-dichloro-5-(4-difluromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-

yl(phenyl)methanesulfonamide/Sulfentrazone

Methyl Benzene/Toluene

Propylene Glycol/Propylene glycol

II. HAZARDOUS INGREDIENTS

	CAS#	OSHA PEL	ACGIH TLV
Sulfentrazone	122836-35-5	NE	NE
Toluene	108-88-3	200 ppm	300 ppm
Propylene Glycol	57-55-6	10 mg/m ³	NÉ

III. PHYSICAL DATA

SPECIFIC GRAVITY (H2O = 1): 1.206 MELTING POINT: NÈ VAPOR DENSITY (AIR = 1): NA % VOLATILES BY VOL.: NA ODOR: Alcohol APPEARANCE: Off-white liquid FLASH POINT/METHOD: >199 Deg. F TCC

VAPOR PRESSURE (mmHg): NA

SOLUBILITY IN H2O: Disperses

IV. FIRE & EXPLOSION HAZARD

EXTINGUISHING MEDIA: [X] Water Fog [X] Foam [] Alcohol Foam [X] CO2 [X] Dry Chemical [] Other FIRE FIGHTING PRECAUTIONS & HAZARDS:

Fight fire upwind. Wear positive pressure self-contained breathing apparatus and full protective equipment. Avoid breathing vapors and spray mist. Avoid contact with fallout and runoff. Toxic gases are evolved when material is overheated. Dike to prevent entering drains, sewers and watercourses. Evacuate people downwind from fire.

V. CARCINOGEN STATUS

[] OSHA [] NTP [] IARC [X] No Listing Type:

VI. REACTIVITY

[X] Stable HAZARDOUS POLYMERIZATION [] Unstable [] May Occur [X] Will Not Occur AVOID: Excessive heat

HAZARDOUS DECOMPOSITION PRODUCTS: COx, NOx, SOx, HCI, HF

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE OF SPILL: Wear appropriate respiratory and personal protective equipment. Absorb with inert material and sweep or vacuum into an approved disposal container.

DECONTAMINATION: Treat area with detergent and water. Absorb with inert material and place in approved disposal container. Repeat as necessary until area

ENVIRONMENTAL HAZARDS: Slightly toxic to fish. Dike areas to prevent entering drains, sewers or water courses.

DISPOSAL: Use a DOT-approved container and dispose of in an EPA Class I disposal site.

VIII. HEALTH PRECAUTION DATA

INGESTION: Acute Oral LD_{s0} (rat) 2084 mg/kg (FMC). Do not ingest. Wash thoroughly before eating, drinking or smoking. Do not store near food or feed. May be fatal.

INHALATION: No PEL/TLV. Avoid breathing vapors.

SKIN ABSORPTION: Dermal PEL/TLV LD_{so} (rat) >2000 mg/kg (FMC). May cause skin irritation. Wear proper personal protective equipment to minimize exposure or spray mist. Wear appropriate respiratory protection for exposures above the PEL/

EYE EXPOSURE: Avoid eye contact. May cause mild eye irritation. Can be an eye irritant. Wear proper eye protection to prevent exposure. If contact occurs, flush eyes with water for a minimum of 15 minutes.

EFFECTS OF OVEREXPOSURE: This product has moderate inhalation toxicity. Oral and dermal toxicity is low. It is mildly irritating to the eyes and slightly irritating to the skin. Symptoms of overexposure include convulsions, tremors, increased sensitivity to touch and sound, labored breathing, decreased ability to move, tearing, nasal discharge and lack of coordination. Chronic exposure may cause kidney and liver damage. Preexisting medical conditions involving the above symptoms may be aggravated by exposure.

FIRST AID: In all cases, get prompt medical attention. If ingested, give several glasses of water. Do not induce vomiting. For skin contact, remove contaminated clothing and wash with soap and water. For eye exposure, flush eyes with water for a minimum of 15 minutes. If inhaled, remove to fresh air and administer CPR if necessary.

IX. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Use NIOSH/MSHA-approved respirator for pesticides for exposures up to 10 times the PEL/TLV. Positive pressure self-containing breathing apparatus should be used for confined space entry and exposure above 10 times the PEL/TLV.

PERSONAL PROTECTIVE EQUIPMENT: Rubber or neoprene boots, nitrile or neoprene gloves, long-sleeved coveralls, hat and safety goggles or glasses with side shields and brow protection and apron where necessary. For manufacture, formulation or application operations, recommend a shower at the end of the work

VENTILATION: Local exhaust ventilation is recommended for manufacture and formulation. Store in a well-ventilated area. Allow closed trucks adequate time to ventilate prior to entering.

X. SPECIAL PRECAUTIONS

Keep out of the reach of children. Read and follow all label instructions. Do not store near sparks, open flame or heat source.

XI. REGULATORY DATA

SARA HAZA	RD CLASS:				[] Flammable
		[]P	ressure [] Reactive	[] None
SARA 313:	[X] Yes	[] No	Chemical:	Toluene	
SARA 302:	[] Yes	(X) No	Chemical	:	
	TPQ: No	ne			
CERCLA:	[X] Yes	[] No	Chemical	Toluene	
	RQ: 1,000				
RCRA:	[X] Yes	I 1 No			
NFPA HAZA	RD RATING	:	NFF	A HAZARD	RATING SCALE:
Health:	[2]	-			3 = Serious
Fire:	[1]		1 =	Slight	4 = Severe
Reactivity:	[0]		2 =	Moderate	

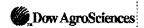
Special: [] HMIS CODES: HMIS HAZARD RATING SCALE: Health: 0 = Minimal 3 = Serious 4 = Severe Fire: 1 = Slight Reactivity: 2 = Moderate

DATE PREPARED: June 10, 2005 REVISED DATE: August 9, 2011

Notice: This information was developed from information on the constituent materials. No warranty is expressed or implied regarding the completeness or continuing accuracy of the information contained herein, and Wilbur-Ellis disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use. *Technical Material NE - Not Established NA - Not Applicable

> 24 Hour Emergency Phone Number CHEMTREC: (800) 424-9300





Material Safety Data Sheet

Dow AgroSciences LLC

Product Name: RODEO Herbicide Issue Date: 07/06/2011
Print Date: 06 Jul 2011

Dow AgroSciences LLC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification

Product Name

RODEO Herbicide

COMPANY IDENTIFICATION

Dow AgroSciences LLC A Subsidiary of The Dow Chemical Company 9330 Zionsville Road Indianapolis, IN 46268-1189 USA

Customer Information Number:

800-992-5994

SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: Local Emergency Contact:

800-992-5994 352-323-3500

2. Hazards Identification

Emergency Overview

Color: Yellow Physical State: Liquid. Odor: Odorless Hazards of product:

CAUTION! Combustible liquid and vapor. Vapor explosion hazard. Vapors may travel a long distance; ignition and/or flash back may occur. Isolate area. Stay out of low areas. Warn public of downwind explosion hazard. Eliminate ignition sources.

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects

Eye Contact: May cause slight temporary eye irritation. Corneal injury is unlikely.

Skin Contact: Essentially nonirritating to skin.

Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

TM * Trademark of Dow AgroSciences LLC

Product Name: RODEO Herbicide Issue Date: 07/06/2011

Inhalation: Brief exposure (minutes) is not likely to cause adverse effects.

Ingestion: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small

amounts.

Effects of Repeated Exposure: For similar material(s): Glyphosate. In animals, effects have been

reported on the following organs: Liver.

3. Composition Information

Component	CAS#	Amount
Glyphosate IPA salt	38641-94-0	53.8 %
Isopropylamine	75-31-0	1.0 %
Balance	Not available	45.2 %

4. First-aid measures

Description of first aid measures

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin Contact: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Eye Contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.

Indication of immediate medical attention and special treatment needed

No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. Fire Fighting Measures

Suitable extinguishing media

To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Straight or direct water streams may not be effective to extinguish fire. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.

Special hazards arising from the substance or mixture

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating.

Unusual Fire and Explosion Hazards: This material will not burn until the water has evaporated. Residue can burn. Container may vent and/or rupture due to fire. Electrically ground and bond all equipment. Flammable mixtures of this product are readily ignited even by static discharge. May produce flash fire. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Flammable mixtures may exist within the vapor space of containers at room temperature.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water may not be effective in extinguishing fire. Eliminate ignition sources. Move container from fire area if this is possible without hazard. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Isolate area. Refer to Section 7, Handling, for additional precautionary measures. Keep unnecessary and unprotected personnel from entering the area. Keep personnel out of low areas. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapor explosion hazard. Keep out of sewers. For large spills, warn public of downwind explosion hazard. Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Pump with explosion-proof equipment. If available, use foam to smother or suppress. Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. Handling and Storage

Handling

General Handling: Keep away from heat, sparks and flame. No smoking, open flames or sources of ignition in handling and storage area. Electrically bond and ground all containers and equipment before transfer or use of material. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Never use air pressure for transferring product. Keep out of reach of children. Do not swallow. Avoid breathing vapor or mist. Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Wash thoroughly after handling. Keep container closed.

Storage

Minimize sources of ignition, such as static build-up, heat, spark or flame. Keep container closed. Do not store in: Carbon steel. Galvanized containers. Steel. Flammable mixtures may exist within the vapor space of containers at room temperature. Store in a dry place. Store in original container. Do not store near food, foodstuffs, drugs or potable water supplies.

8. **Exposure Controls / Personal Protection**

Exposure Limits				
Component	List	Type	Value	
Isopropylamine	ACGIH ACGIH OSHA Table Z-1	TWA STEL PEL	5 ppm 10 ppm 12 mg/m3 5 ppm	

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Personal Protection

Eye/Face Protection: Use safety glasses (with side shields).

Skin Protection: No precautions other than clean body-covering clothing should be needed. Hand protection: Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized.

Respiratory Protection: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

Engineering Controls

Ventilation: Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for some operations.

9. **Physical and Chemical Properties**

Appearance Physical State Liquid. Color Yellow Odor Odorless **Odor Threshold** No test data available рH 4.6 (@ 1 %) NAPM 11A.00 1% aqueous solution. **Melting Point** Not applicable

No test data available Freezing Point

Boiling Point (760 mmHg) 110 ℃ (230 ℉). Flash Point - Closed Cup > 93 °C (> 199 °F) Setaflash Closed Cup ASTMD3828 none below

boiling point No test data available **Evaporation Rate (Butyl**

Acetate = 1)

Flammable Limits In Air Lower: No test data available Upper: No test data available

Vapor Pressure No test data available Vapor Density (air = 1) No test data available 1.211 22 ℃/4 ℃ Pyknometer

Specific Gravity (H2O = 1) Soluble

Solubility in water (by weiaht)

Autoignition Temperature

none below 400degC Decomposition No test data available **Temperature**

Dynamic Viscosity 64.6 mPa.s @ 20 ℃ **Kinematic Viscosity** 53.4 mm2/s @ 20 ℃

1.20 g/ml @ 20 ℃ Digital density meter **Liquid Density**

Product Name: RODEO Herbicide Issue Date: 07/06/2011

10. Stability and Reactivity

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical stability

Thermally stable at recommended temperatures and pressures.

Possibility of hazardous reactions

Polymerization will not occur.

Conditions to Avoid: Active ingredient decomposes at elevated temperatures. Avoid static discharge.

Incompatible Materials: Heat produced by the reaction with water will cause vaporization.

Flammable hydrogen may be generated from contact with metals such as:

Hazardous decomposition products

Decomposition products depend upon temperature, air supply and the presence of other materials.

11. Toxicological Information

Acute Toxicity

Ingestion

LD50, Rat > 5,000 mg/kg

Dermal

LD50, Rabbit > 5,000 mg/kg

Inhalation

LC50, 4 h, Aerosol, Rat > 6.37 mg/l

Eye damage/eye irritation

May cause slight temporary eye irritation. Corneal injury is unlikely.

Skin corrosion/irritation

Essentially nonirritating to skin.

Sensitization

Skin

Did not cause allergic skin reactions when tested in guinea pigs.

Repeated Dose Toxicity

For similar material(s): Glyphosate. In animals, effects have been reported on the following organs: Liver.

Chronic Toxicity and Carcinogenicity

For similar material(s): Glyphosate. Did not cause cancer in laboratory animals.

Developmental Toxicity

For the active ingredient(s): Available data are inadequate for evaluation of potential to cause birth defects.

Reproductive Toxicity

For the active ingredient(s): Available data are inadequate to determine effects on reproduction.

Genetic Toxicology

For the active ingredient(s): In vitro genetic toxicity studies were negative in some cases and positive in other cases. For similar material(s): Glyphosate. In vitro genetic toxicity studies were negative. For similar material(s): Glyphosate. Animal genetic toxicity studies were negative.

12. Ecological Information

Toxicity

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested). Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

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Fish Acute & Prolonged Toxicity

LC50, rainbow trout (Oncorhynchus mykiss), 96 h: > 2,500 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, water flea Daphnia magna, 48 h, immobilization: 918 mg/l

Aquatic Plant Toxicity

EC50, green alga Pseudokirchneriella subcapitata (formerly known as Selenastrum capricornutum),

biomass growth inhibition, 72 h: 10 - 127 mg/l

Toxicity to Above Ground Organisms

oral LD50, bobwhite (Colinus virginianus): > 2,000 mg/kg contact LD50, Honey bee (Apis mellifera): > 100 ug/bee oral LD50, Honey bee (Apis mellifera): > 100 ug/bee

Persistence and Degradability

Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions. For similar active ingredient(s). Biodegradation may occur under aerobic conditions (in the presence of oxygen).

Bioaccumulative potential

Bioaccumulation: For similar active ingredient(s). Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Mobility in soil

Mobility in soil: For similar active ingredient(s)., Expected to be relatively immobile in soil (Koc > 5000).

13. Disposal Considerations

If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. Transport Information

II DOT Non-Bulk

NOT REGULATED

II DOT Bulk

NOT REGULATED

II IMDG

NOT REGULATED

IIICAO/IATA

NOT REGULATED

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the

Product Name: RODEO Herbicide

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transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. Regulatory Information

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (Acute) Health Hazard	No
Delayed (Chronic) Health Hazard	Yes
Fire Hazard	No
Reactive Hazard	No
Sudden Release of Pressure Hazard	No

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:

The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Component	CAS#	Amount
Isopropylamine	75-31-0	1.0%

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

This product contains the following substances which are subject to CERCLA Section 103 reporting requirements and which are listed in 40 CFR 302.4.

Component	CAS#	Amount
Isopropylamine	75-31-0	1.0%

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

Toxic Substances Control Act (TSCA)

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

16. Other Information

Hazard Rating	System		
NFPA	Health	Fire	Reactivity
	4	4	0

Revision

Identification Number: 61082 / 1016 / Issue Date 07/06/2011 / Version: 2.0

DAS Code: NAF-552

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

N/A	Not available
W/W	Weight/Weight
N/A W/W OEL STEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
I I TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
ACGIH DOW IHG WEEL	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation
HAZ_DES Action Level	A value set by OSHA that is lower than the PEL which will trigger the need for
	activities such as exposure monitoring and medical surveillance if exceeded.

Dow AgroSciences LLC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

Roundup Weed & Grass Killer1 Ready-To-Use MSDS # 7070

MATERIAL SAFETY DATA SHEET

DATE PREPARED: 10/31/2000

MSDS No: 7070

Roundup Weed & Grass Killer1 Ready-To-Use

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Roundup Weed & Grass Killer1 Ready-To-Use

PRODUCT DESCRIPTION: Herbicide

MANUFACTURER

24 HR. EMERGENCY TELEPHONE NUMBERS

Monsanto Company Lawn & Garden Products P.O. Box 1750 Columbus, OH 43216

Emergency Phone: 1-800-225-2883

EPA REG. NO.: 71995-23 PN: 7037

2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name

<u>Wt.%</u>

CAS#

Glyphosate, isopropylamine salt

1.92 38641-94-0

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE: Yellow or off-white hazy liquid.

IMMEDIATE CONCERNS: CAUSES EYE IRRITATION
AVOID CONTACT WITH EYES OR CLOTHING
WASH THOROUGHLY WITH SOAP AND WATER AFTER HANDLING
KEEP OUT OF REACH OF CHILDREN

POTENTIAL HEALTH EFFECTS

EYES: This substance causes moderate eye irritation as indicated by possible discomfort, tearing, swelling, redness, and blurred vision. See Toxicological Information; section 11.

SKIN: This substance is not expected to cause skin irritation. See Toxicological Information, section 11.

INGESTION: If swallowed, this product may cause gastrointestinal tract irritation. See Toxicological Information, section 11.

INHALATION: If inhaled, this substance is considered practically non-toxic to internal organs. This substance may be irritating if inhaled. See Toxicological Information, section 11.

COMMENTS HEALTH: Inhalation and skin contact are expected to be the primary routes of occupational exposure to glyphosate. Occupational exposure to this material has not been reported to cause significant adverse health effects. However, swallowing of a similar, but more concentrated formulation, has been reported to produce gastrointestinal discomfort, nausea, vomiting and diarrhea.

4. FIRST AID MEASURES

EYES: Flush eyes immediately with fresh water for at least 15 minutes while holding the eyelids open. Remove contact lenses if worn. Call a physician if irritation persists.

SKIN: No first aid procedures are required. As a precaution, wash skin thoroughly with soap and water. Remove and wash contaminated clothing.

INGESTION: If swallowed, immediately telephone a poison control center, emergency treatment center or a physician for advice. DO NOT make person vomit unless directed to do so by medical personnel. If medical advice cannot be obtained, then immediately take person and product container, with label, to an emergency treatment center.

INHALATION: Since this material is not expected to be an immediate inhalation problem, no first aid procedures are required. If respiratory discomfort or irritation occurs, move the person to fresh air. See a doctor if discomfort or irritation continues.

ADDITIONAL INFORMATION: Medical Information: Call day or night, 1-800-225-2883

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: >212°F TAG CC

EXTINGUISHING MEDIA: Water spray, foam, CO2, dry chemical or any class B extinguishing agent.

FIRE FIGHTING PROCEDURES: For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment. This may include self-contained breathing apparatus to protect against the hazardous effects of normal products of combustion or oxygen deficiency. Equipment should be throughly cleaned after use. Read the entire document.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Soak up spilled material with paper towels and discard in trash.

LARGE SPILL: Liquid spills on floor or other impervious surfaces should be contained or diked, and should be absorbed with attapulgite, bentonite or other absorbent clays. Collect contaminated absorbent, place in plastic-lined metal drum and dispose of in accordance with instructions provided under Section 13. "DISPOSAL". Thoroughly scrub floor or other impervious surface with a strong industrial type detergent solution and rinse with water.

For liquid spills that soak into the ground, contact the applicable Federal, State and or County Health Dept. for disposal recommendations. If disposal is required then refer to Section 13 "DISPOSAL" for instructions.

Leaking containers should be separated from non-leakers and either the container or its contents transferred to a drum or other non-leaking container and disposed of in accordance with instructions provided under Section 13 "Disposal". Any recovered spilled liquid should be similarly collected and disposed of.

Do not contaminate water, foodstuffs or feed by storage or disposal.

GENERAL PROCEDURES: Observe all protection and safety precautions when cleaning up spills -- see Section 8. "EXPOSURE CONTROLS/PERSONAL PROTECTION". For help with any spill, leak, fire or exposure involving this material, call day or night (800) 225-2883.

7. HANDLING AND STORAGE

GENERAL PROCEDURES: Keep pesticide in original container. For containers larger then 24 oz.: Place sprayer nozzle under handle on container so the sprayer is not below level of contents of container to prevent leakage. Store in a secure, preferably locked, storage area. Protect container from freezing.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: No special ventilation is necessary.

PERSONAL PROTECTION

EYES AND FACE: For application of product in accordance with label instructions, no special eye protection is needed.

Where there is significant potential for eye contact, wear chemical goggles and have eye flushing equipment available.

SKIN: Although this product does not present a significant skin concern, minimize skin contamination by following good industrial practice. Wearing protective gloves is recommended. Wash hands and contaminated skin throughly after handling.

RESPIRATORY: Avoid breathing vapor or mist.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

APPEARANCE: Clear liquid

pH: \sim 7.1 to 7.5

SOLUBILITY IN WATER: Soluble

SPECIFIC GRAVITY: 1.01 Water = 1.00 at 20°C

VISCOSITY: Same as water.

10. STABILITY AND REACTIVITY

STABLE: YES

HAZARDOUS POLYMERIZATION: NO

HAZARDOUS DECOMPOSITION: None.

11. TOXICOLOGICAL INFORMATION

ACUTE

EYES: rabbit - moderately irritating, irritation cleared by test day 7. EPA FIFRA toxicity category - III.

DERMAL LD₅₀: Practically non-toxic, (Rat) LD50 > 5.0 gm/Kg; EPA FIFRA toxicity category - IV. Nonirritating to skin (Rabbit); EPA FIFRA toxicity category - IV.

ORAL LD_{so}: Rat = >5.0 g/kg. EPA FIFRA toxicity category - IV.

INHALATION LC₅₀: Practically non-toxic, (Rat 4-hr LC50 > 10mg/L). EPA FIFRA toxicity category - IV.

SENSITIZATION: Guinea pig - no evidence of allergic skin reactions.

CHRONIC: Data from glyphosate laboratory toxicology studies were conducted with a formulation comprised of 62% isopropylamine salt of glyphosate (MON 0139).

Rabbits - 3 week dermal: Repeated daily primarily resulted in slight skin irritation.

Dogs - 6 month feeding: Only slight body weight changes noted.

Rats - 90 day feeding: No treatment related effects.

Mice - 90 day feeding: Decreased weight gains at the high dose level group animals.

CARCINOGENICITY:

CARCINOGENICITY COMMENTS: GLYPHOSATE: Glyphosate is not considered to be a carcinogen. Glyphosate did not produce tumors in any of the long-term toxicology studies. EPA has classified glyphosate in category "E" (Evidence of noncarcinogenicity for humans).

Mice: 2-year feeding study. Reduced body weight gain and effects on liver tissues

were observed at high dose levels.

Rats: 2-year feeding study. Reduced body weight gain and eye changes were observed at the high dose level in one study, while no treatment related effects occurred in a second study conducted at lower dose levels.

Dogs: No adverse effects were observed in feeding studies with dogs.

TERATOGENICITY: GLYPHOSATE: No evidence of teratogenic effects. Results of rat and rabbit teratology studies indicate that no birth defects were noted. This included dose levels of glyphosate that were maternally toxic.

REPRODUCTIVE TOXIN: GLYPHOSATE: No evidence of adverse reproductive effects. Glyphosate was fed continuously to rats at very high dose levels for 2 successive generations. Toxicity was reported in offspring from the high dose, a level which also produced adverse effects on the mothers. In a 3-generation study conducted at lower dose levels, no effects were seen on the ability of male or female rats to reproduce.

MUTAGENICITY: GLYPHOSATE: Glyphosate has not produced any genetic changes in various mutagenicity tests involving animals and animal or bacterial cells.

COMMENTS: See Section 16 for definition of EPA FIFRA toxicity categories.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: Monsanto has not conducted environmental toxicity studies with this product. Available data for a similar formulation are summarized below:

Aquatic Invertebrates:48-hr EC50 Daphnia magna:1,634 mg/L;Practically Nontoxic

Warmwater Fish:96-hr LC50 Silver orfe:491 mg/L;Practically Nontoxic Coldwater Fish:96-hr LC50 Rainbow trout:322 mg/L;Practically Nontoxic Algal Species:72-hr EC50 Selenastrum:15 mg/L;Slightly Toxic

Studies with the active ingredient indicate that this product would be practically nontoxic to avian species and honeybees. The results of degradation and bioconcentration studies with the active ingredient in this product indicate that it is rapidly adsorbed to soil, readily biodegrades in soil and water, and does not bioaccumulate.

13. DISPOSAL CONSIDERATIONS

FOR LARGE SPILLS: Material collected that cannot be reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, State or local procedures.

PRODUCT DISPOSAL: Securely wrap partially filled or empty container in several layers of newspaper and discard in trash. Never pour product down any drain.

EMPTY CONTAINER: Do not reuse container except for refill in accordance with product label directions. If not used for refill, rinse thoroughly before discarding in trash.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

PROPER SHIPPING NAME: Not Regulated

PRIMARY HAZARD CLASS/DIVISION: None

UN/NA NUMBER: None

PACKING GROUP: No

U.S. SURFACE FREIGHT CLASS: Weed killing compounds, NOBIN.

AIR (ICAO/IATA)

PROPER SHIPPING NAME: Not Regulated

SPECIAL SHIPPING NOTES: The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

	PRODUCT CL	ASSIFICA'	TION UNDER SEC	TION 311 OF SARA
ACUTE:	CHRONIC:	FIRE:	REACTIVITY:	PRESSURE GENERATING:
YES	NO	NO		NO

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA REGULATORY: All non FIFRA regulated components are on the US EPA's TSCA Inventory List.

16. OTHER INFORMATION

HMIS CODES

FIRE: 0 HEALTH: 1 REACTIVITY: 0 PROTECTION: -

NFPA CODES

FIRE: 0 HEALTH: 1 REACTIVITY: 0 SPECIAL: -

APPROVAL DATE: 10/31/2000

REVISION SUMMARY New MSDS

MANUFACTURER SUPPLEMENTAL NOTES: EPA FIFRA (Federal Insecticide, Fungicide and Rodenticide Act) Toxicity Categories: The EPA toxicity categories are based on the results of the acute toxicology studies. The toxicology findings are compared to the FIFRA criteria to determine the product label signal word, precautionary and first aid statements. The EPA FIFRA toxicity category summary:

EPA FIFRA Product Label Toxicity Rating Toxicity Category Signal Word

I DANGER Most toxic and irritating
II WARNING
III CAUTION
IV CAUTION Least toxic and irritating

COMMENTS: For additional information concerning this product, call the Helpline at 800-225-2883.

MANUFACTURER DISCLAIMER: This Material Safety Data Sheet (MSDS) contains health, safety and environmental information for you and your employees. It does not replace the precautionary language, use directions, or the storage and disposal information found on the product label. Information contained in this MSDS will help you to prepare for emergency response and to meet community right-to-know, emergency response and reporting requirements under SARA Title III and many other laws. Emergency response agencies and health care providers will also find this additional information useful.

Use of this product is regulated by the U.S. Environmental Protection Agency (EPA) through the approved label copy. It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Although the information and recommendations set forth herein (herinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Monsanto Company makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determinations as to its suitability for their purposes prior to use. In no event will Monsanto Company be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.

http://www.roundup.com/product_info/msds/msds7070rtu1.htm

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SPRAKIL SK-26 GRANULAR WEED KILLER

MATERIAL SAFETY DATA SHEET

MANUFACTURER: SSI Maxim Company, Inc.

P.O. Box 1954

Kilgore, TX 75663

EMERGENCY TELEPHONE: Phone CHEMTREC toll free day or night 1/800/424-9300 or call

SSI Maxim Company, Inc. 1/903/984-5600.

GENERAL INFORMATION: SSI Maxim Company, Inc. 1/800/346-4781

EFFECTIVE DATE: April 1998

PRODUCT NAME: SPRAKIL SK-26 GRANULAR WEED KILLER

EPA REGISTRATION NUMBER: 34913-16

ACTIVE INGREDIENTS: Tebuthluron: N-(5-(1, 1-dimethylethyl)-1, 3, 4-

100.00%

SECTION I - PHYSICAL DATA

APPEARANCE: Grayish white/light tan granules

ph: Neutral

VAPOR PRESSURE: Tebuthiuron - 2 x 10 mm Hg at 25C

Diuron - 0.31 x 10⁻⁵mm Hg at 50C

SOLUBILITY IN WATER: Tebuthiuron - ,23g/100 ml at 25C

Diuron - 42 ppmw at 25C

SPECIFIC GRAVITY: 1.33

SECTION II — MATERIAL IDENTIFICATION

A Generic Names: Tebuthiuron 2%

1 Chemical Abstract Registry Number (CAS#): 34014-18-1

Diuron 6%

2 Chemical Abstract Registry Number (CAS#): 330-54-1

B Chemical Names of Active Ingredients: N-(5-(1, 1-dimethylethyl)-1, 3, 4-thiadiazol-2-yl)-N, N'dimethylurea, 2%; [3-(3, 4-dichlorophenyl)-1, 1-dimethylurea], 6%

C Other Ingredients: Inerts 92%

SECTION III — TOXICOLOGY

INGESTION: Single dose LD50

(RAT) 5,000 mg/kg

EYE CONTACT: May cause eye irritation; avoid contact with eyes. The use of protective goggles is recommended

when handling this product.

SKIN CONTACT: May cause skin irritation; avoid contact with skin. Wear protective clothing (long-sleeve shirt, long

pants, waterproof gloves).

INHALATION: May cause irritation of the nose and throat. A protective dust mask should be worn when handling

this product.

NOTE: Although the product is granular, it is possible that fine dust may be created during shipping & handling.

SECTION IV — FIRST AID

INGESTION: If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person. Call a physician.

EYES: Flush with large amounts of water, and contact a physician if irritation develops.

SKIN: Wash exposed areas with soap and water. Wash contaminated clothing before reuse.

INHALATION: If discomfort occurs, move to fresh air. If breathing difficulty occurs, consult medical personnel.

SK26/MSDS/(Rev. 12/00) HUDSOHLONGVIEW 845600-27

SECTION V - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: Not applicable.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None known. FIRE FIGHTING INFORMATION: Considered non-flammable.

Do not allow water run-off from fire site to enter nearby streams, ponds, or

lakes.

EXTINGUISHING MEDIA: Water

SECTION VI - REACTIVITY

UNDER NORMAL CONDITIONS: Stable CORROSIVENESS: Non-corrosive

SECTION VII - SPILL OR LEAK PROCEDURES

SPILL OR LEAK PROCEDURES: Clean up promptly. Do not flush with water. Pick up dry by sweeping or

other effective means. Return undamaged material to original container. Place damaged, unusable material in a landfill approved for pesticides in accordance with applicable regulations. If spill is near trees or other valuable

plants, remove top two inches of soil after initial cleanup.

SECTION VIII - TRANSPORTATION, STORAGE, AND DISPOSAL

SUGGESTED DISPOSAL METHOD: Dispose of container in accordance with applicable local, state, and/or federal regulations. Dispose of In an incinerator or landfill approved for

pesticide containers.

SECTION IX - TRANSPORTATION, STORAGE, AND DISPOSAL

SPECIAL PRECAUTIONS: Keep from contact with fertilizers, insecticides, fungicides, and seeds. Keep out of

reach of children.

FREIGHT DESCRIPTION: Compounds, tree or weed killing, NMFC 53020-2, Class 60, Nonhazardous

SECTION X - SPECIAL PROTECTION INFORMATION

SPECIAL PROTECTION: None Required.

All information contained herein is offered in good faith and with the belief that it is accurate. As of date of issuance or revision, we are providing all information that we have or are aware of relevant to the foreseeable use or handling of the material. However, in the event of an adverse incident associated with this material, this Material Safety Data Sheet is not, and is not intended to be, a substitute for consultation with appropriately trained personnel.

MATERIAL SAFETY DATA SHEET

IN-PLACE

I. NAME

PRODUCT/TRADE NAME: IN-PLACE **EPA REGISTRATION #: NONE** CHEMICAL NAME/COMMON NAME: Petroleum distillate/Petroleum distillate Modified Vegetable Oil/Modified Vegetable Oil

II. HAZARDOUS INGREDIENTS

OSHA PEL **ACGIH TLV** CAS# Petroleum Distillate 64742-47-8 500 ppm 100 ppm. Modified Vegetable Oil 67784-80-9

III. PHYSICAL DATA

SPECIFIC GRAVITY (H2O = 1): 0.88 MELTING POINT: NA VAPOR DENSITY (AIR = 1): NE % VOLATILES BY VOL.: NE ODOR: Mineral APPEARANCE: White Liquid FLASH POINT/METHOD: >200° F VAPOR PRESSURE (mmHg): <10 @ 25 Deg. C SOLUBILITY IN H2O: Emulisifable

IV. FIRE & EXPLOSION HAZARD

EXTINGUISHING MEDIA: [] Water Fog [X] Foam [] Alcohol Foam [X] CO2 [X] Dry Chemical [] Other

FIRE FIGHTING PRECAUTIONS & HAZARDS:

Fight fire upwind. Wear positive pressure self-contained breathing apparatus and full protective equipment. Do not breathe vapors and spray mist. Avoid fallout and runoff. Dike to prevent entering drains, sewers, or water courses. Evacuate people downwind from fire.

V. CARCINOGEN STATUS

[] IARC [X] No Listing Type [] OSHA [] NTP

VI. REACTIVITY

HAZARDOUS POLYMERIZATION [X] Stable [] Unstable [] May Occur [X] Will Not Occur AVOID: Oxidizers HAZARDOUS DECOMPOSITION PRODUCTS: COx. SOx

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE OF SPILL: Wear appropriate respiratory and personal protective equipment. Absorb with inert material and place in approved

DECONTAMINATION: Treat spill area with detergent and water. Absorb with inert material and place in disposal containers. Repeat as necessary until area is clean. ENVIRONMENTAL HAZARDS: Dike to prevent entering drains, sewers or water

DISPOSAL: Dispose of in accordance with Federal, State and local regulations.

VIII. HEALTH PRECAUTION DATA

INGESTION: Do not ingest. Wash thoroughly with soap and water prior to eating, drinking or smoking.

INHALATION: PEL/TLV 100 ppm. Vapors may cause narcotic reaction in high concentrations. Wear proper respiratory protection for equipment for exposures above the PEL/TLV.

SKIN ABSORPTION: May cause mild skin irritation with excessive exposure. Wear proper personal protection equipment to reduce exposure.

EYE EXPOSURE: Keep out of eyes. Wear proper eye protection to prevent splash exposure. If exposed, flush eyes for a minimum of 15 minutes with water.

EFFECTS OF OVEREXPOSURE: Severe overexposure will depress the central nervous system and produce a narcotic effect, headache and nausea. Ingestion may cause vomiting and diarrhea. Chronic exposure may effect kidney and liver. Preexisting conditions involving the above symptoms may be aggravated by exposure to this product.

FIRST AID: In all cases, get prompt medical attention. Do not induce vomiting. If ingested, give several glasses of water. For skin exposure, remove contaminated clothing and wash with soap and water. For eye exposure, irrigate for a minimum of 15 minutes with water. If swallowed, physician may give magnesia, chalk or whiting in water. If inhaled, remove victim to fresh air, and administer CPR if necessary.

IX. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: None required for intended use. Use NIOSH/ MSHA - approved respirator for organic vapors for exposures up to 10 times the PEL/TLV. Self-contained breathing apparatus should be used for confined space entry and exposures above 10 times the PEL/TLV.

PERSONAL PROTECTIVE EQUIPMENT: Nitrile or neoprene gloves, chemical goggles and long-sleeved coveralls.

VENTILATION: General ventilation should be sufficient for intended use. Local ventilation is recommended for manufacture and formulation operations.

X. SPECIAL PRECAUTIONS

Keep out of the reach of children. Read and follow all label instructions. Do not store near open flame, sparks or other ignition sources.

XI. REGULATORY DATA

SARA HAZARI	D CLASS:	XI Ac	ute	Chronic	Flamm	nable
				[] Reactive	[] None	
SARA 313:	[] Yes	[X] No	Chemic	:al:		
SARA 302:	[] Yes TPQ:	[X] No	Chemic	eal:		
CERCLA:	[] Yes RO:	[X] No	Chemic	eal:		
RCRA:	[] Yes	[X] No				
ΝΕΡΔ ΗΔ7ΔΡ	D RATINO	<u>3</u> .	N	FPA HAZARD	RATING	SCALE

NFPA HAZAR		NFPA HAZARD RAT	
Health:	[1]	0 = Minimal	3 = Serious
Fire:	[1]	1 = Slight	4 = Severe
Reactivity:	[0]	2 = Moderate	
Special:	ĹĴ		
HMIS CODES	:	HMIS HAZARD RAT	ING SCALE:
Health:	[1]	0 = Minimal	3 = Serious
Fire:	[1]	1 = Slight	4 = Severe
Reactivity:	101	2 = Moderate	

DATE PREPARED: November 1, 2000 REVISED DATE: February 7, 2013

Notice: This information was developed from information on the constituent materials. No warranty is expressed or implied regarding the completeness or continuing accuracy of the information contained herein, and Wilbur-Ellis disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

*Technical Material NE - Not Established NA - Not Applicable

24 Hour Emergency Phone Number CHEMTREC: (800) 424-9300



MATERIAL SAFETY DATA SHEET

Syl-Tac

I. NAME

PRODUCT/TRADE NAME: SYL-TAC EPA REGISTRATION #: NONE CHEMICAL NAME/COMMON NAME:

2-(3-Hydroxypropyl)-Heptamethyl-Trisiloxane, Ethoxylated Acetate/Polysiloxane

II. HAZARDOUS INGREDIENTS

CAS# OSHA PEL ACGIH TLV 125997-17-3 NE NE

Polysiloxane

III. PHYSICAL DATA

SPECIFIC GRAVITY (H2O = 1): 0.933

MELTING POINT: NÀ

VAPOR DENSITY (AIR = 1): NE % VOLATILES BY VOL.: NE

ODOR: None

APPEARANCE: Pale Yellow Liquid FLASH POINT/METHOD: 205 Deg. F VAPOR PRESSURE (mmHq): NE

SOLUBILITY IN H2O: Soluble

IV. FIRE & EXPLOSION HAZARD

EXTINGUISHING MEDIA: [X] Water Fog [X] Foam [X] Alcohol Foam [X] CO2 [X] Dry Chemical [] Other

FIRE FIGHTING PRECAUTIONS & HAZARDS:

Fight fire upwind. Wear positive pressure demand self-contained breathing apparatus and full protective equipment. Do not breathe smoke. Avoid fallout and runoff. Dike to prevent entering drains, sewers, or water courses. Evacuate people downwind from fire.

V. CARCINOGEN STATUS

[] OSHA [] NTP [] IARC [X] No Listing Type

VI. REACTIVITY

[X] Stable HAZARDOUS POLYMERIZATION
[] Unstable [] May Occur [X] Will Not Occur

AVOID: NONE

HAZARDOUS DECOMPOSITION PRODUCTS: COx, SIOX

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE OF SPILL: Absorb with inert material. Sweep or vacuum and place into approved disposal container.

DECONTAMINATION: Treat contaminated area with detergent and water. Absorb with inert material and place in disposal containers. Repeat as necessary until area is clean.

ENVIRONMENTAL HAZARDS: Dike to prevent entering drains, sewers or water courses

DISPOSAL: Dispose of in accordance with Federal, State and local regulations.

VIII. HEALTH PRECAUTION DATA

INGESTION: Do not ingest. May cause nausea. Wash thoroughly before eating, drinking or smoking.

INHALATION: No PEL/TLV for this product. Do not breathe vapors.

SKIN ABSORPTION: May cause slight skin irritation. Wear proper personal protective equipment to reduce exposure.

EYE EXPOSURE: Keep out of eyes. If exposed, flush eyes for a minimum of 15 minutes with water.

EFFECTS OF OVEREXPOSURE: May cause nausea or skin irritation. No known chronic effects. Preexisting medical conditions involving the above symptoms may be aggravated by exposure.

FIRST AID: In all cases, get prompt medical attention. If swallowed, give several glasses of water and induce vomiting. Do not induce vomiting if person is unconscious.

For skin exposure, remove contaminated clothing and wash with soap and water. For eye exposure, irrigate for a minimum of 15 minutes with water. If inhaled, remove victim to fresh air, and administer CPR if necessary.

IX. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Use NIOSH/MSHA - approved respirator for organic vapors for the exposures encountered. Positive pressure self-contained breathing apparatus should be used for confined space entry and high exposure operations. PERSONAL PROTECTIVE EQUIPMENT: Neoprene or rubber gloves and chemical goggles to reduce splash exposure.

VENTILATION: General ventilation recommended.

X. SPECIAL PRECAUTIONS

Keep out of the reach of children. Read and follow all label instructions.

XI. REGULATORY DATA

SARA HAZARD CLASS: [X] Acute [] Flammable [] Chronic [] Pressure [] Reactive [] None [] Yes [X] No Chemical: SARA 313: SARA 302: [] Yes [X] No Chemical: TPQ: CERCLA: [] Yes [X] No Chemical: RQ: RCRA: [] Yes [X] No

NFPA HAZARD RATING: NFPA HAZARD RATING SCALE: Health: 0 = Minimal 3 = Serious [1] Fire: [2] 1 = Slight 4 = Severe Reactivity: ίοί 2 = Moderate Special: [] HMIS CODES: HMIS HAZARD RATING SCALE: Health: [1] 0 = Minimal 3 = Serious Fire: [2] 1 = Slight 4 = Severe Reactivity: [0] 2 = Moderate

DATE PREPARED: December 9, 1996 REVISED DATE: June 29, 2012

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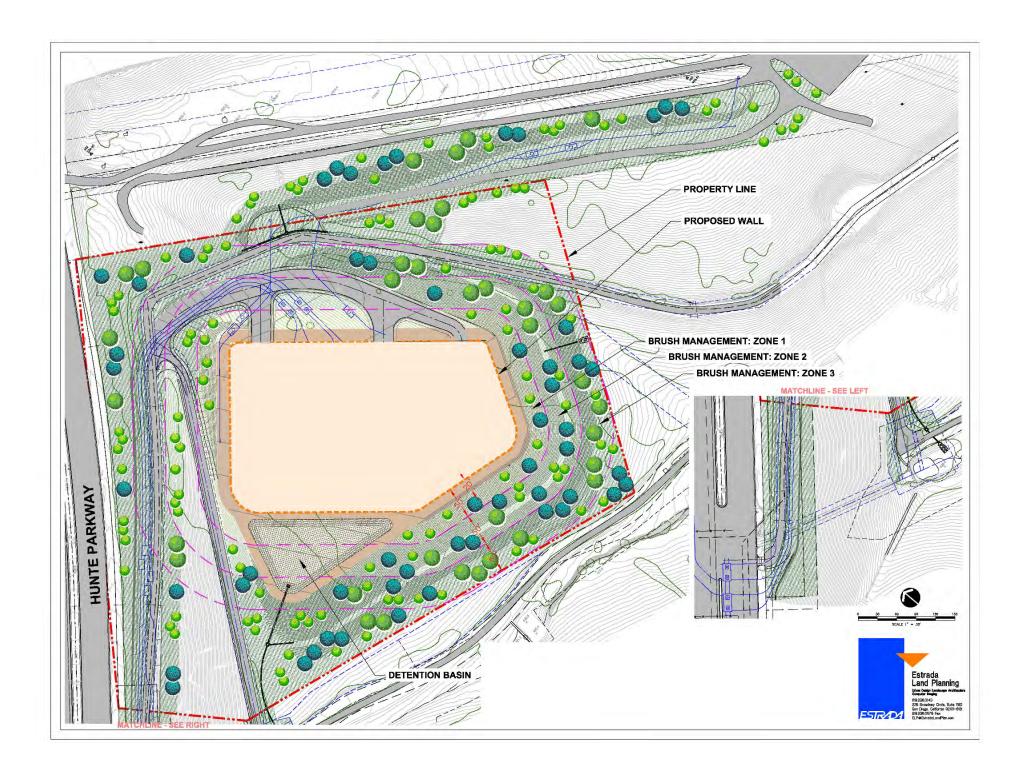
*Technical Material NE - Not Established NA - Not Applicable

24 Hour Emergency Phone Number CHEMTREC: (800) 424-9300



Attachment AD.60-1

Landscape Plan Sheets 1 and 2



LEGEND

Proposed Contours

Existing Contours

Brush Management Zone Fire Buffer Line (50', 100', 150' From Fence)

Property Line

Decomposed Granite Surfacing

Payed Road

Plant material (Planted from containers):

Trees

	Botanical Name	Common Name	Size
0	Quercus agrifolia 'oxyadenia'	Coast Live Oak	15 Gal
80	Heteromeles arbutifolia	Toyon	5 Gal
	Quercus engelmannii	Blue Oak	15 Gal

ZONE 1:

Shrubs: 1 Per 100 s.f. Minimum Big Berry Manzanita 1 Gal Arctostaphylos glauca Artemisia californica California Sagebrush 1 Gal 1 Gal Buck Brush Ceonothus leucodermis Cercocarpus betuloides Mountain Mahogany 1 Gal Cotoneaster dammeri 'Lowfast' Bearberry cotones 1 Gal Dudleva pulvenrulenta Chalk Lettuce 1 Gal 1 Gal Helianthemum scoprium Sun Rose Malosma laurina Laurel Sumac 1 Gal Redberry Holly-leafed Cherry 1 Gal Rhamnus crocea Prunus ilicifolia 1 Gal Sugar Bush/Laurel Whitethor Rhus ovata 1 Gal Rhus trilobata Squaw Bush 1 Gal Thymus serphyllum 'Reiters' Creeping Thyme 1 Gal

ZONE 2:

rui	bs: 1 Per 100 s.f. Minimum		
	Adenostoma fasiculatum	Chamise	1 Gal
	Agave shawii	Coastal Agave	1 Gal
	Arctostaphylos glauca	Big Berry Manzanita	1 Gal
	Artemisia californica	California Sagebrush	1 Gal
	Baccharis pilularis 'Pigeon Point'	Dwaft Coyote Bush	1 Gal
	Ceonothus leucodermis	Buck Brush	1 Gal
	Cercocarpus betuloides	Mountain Mahogany	1 Gal
	Comarostaphylis diversifolia	Summer Holy	1 Gal
	Galvezia speciosa	Bush Snapdragon	1 Gal
	Helianthemum scoprium	Sun Rose	1 Gal
	Heteromeles arbutifolia	Toyon	1 Gal
	Malosma laurina	Laurel Sumac	1 Gal
	Prunus ilicifolia	Holly-leafed Cherry	1 Gal
	Rhus ovata	Sugar Bush/Laurel Whitethorn	1 Gal
	Rhus trilobata	Squaw Bush	1 Gal

LEGEND

ZONE 3: Shrubs: 1 Per 100 s.f. Minimum Adenostoma fasiculatum Coastal Agave Agave shawii 1 Gal Arctostaphylos glauca Big Berry Manzanita 1 Gal 1 Gal Artemisia californica California Sagebrush Baccharis pilularis 'Pigeon Point' Dwaft Coyote Bush 1 Gal Ceonothus leucodermis Buck Brush 1 Gal Cercocarpus betuloides Mountain Mahogany 1 Gal Comarostaphylis diversifolia Summer Holy 1 Gal 1 Gal Galvezia speciosa Bush Snapdragon Helianthemum scoprium Sun Rose 1 Gal Heteromeles arbutifolia 1 Gal Laurel Sumac Malosma laurina 1 Gal Holly-leafed Cherry 1 Gal Prunus ilicifolia Sugar Bush/Laurel Whitethorn 1 Gal Rhus trilobata Squaw Bush 1 Gal DETENTION BASIN: Shrubs: 1 Per 100 s.f. Minimum Carex spp. 1 Gal

Sedge Common Rush 1 Gal Juncus patens Muhlengergia rigens Deer Grass 1 Gal 1 Gal Sambucus nigra spp. mexicana Blue Elderberry Scirpus cernuus Fiber Optics Plant 1 Gal

Cobble layer, 4" depth layer at and around the basin.

Hydroseed Mix: (Applied in 2 step process with seeds at bottom and MBFM on top)

Cammissonia cheiranthifolia Beach Evening Primrose Deinandra fasciculata Fascicled Tarplant Coastal Sunflower Encelia californica Eriophyllum confertiflorum Golden Yarrow Eschscholzia californica California Poppy Gnaphalium bicolor Bicolor Cudweed Isocoma menziesi Coast Goldenbush San Diego Marsh Elder Iva havesiana Goldfields Lasthenia californica Layia platyglossa Tidy Tips Lupinus bicolor Miniature Lupine Nassella pulchera Purple Needlegrass Phacelia campanularia California Blue Bells Sisvrinchium bellum Blue-Eves Grass Viguiera lacinata San Diego Sunflower

Landscape Concept:

ALL LANDSCAPE AND IRRIGATION SHALL CONFORM TO THE STANDARDS OF THE CITY OF CHULA VISTA LANDSCAPE STANDARDS. ALL TREES TO BE LOCATED AT LEAST THEIR MAXIMUM HEIGHT OR 1/2 WIDTH, WHICH EVER IS GREATER FROM SUBSTATION WALLS AND OVERHEAD LINES, IF ANY.

Planting:

The landscape surrounding the substation on the perimeter slopes and other disturbed areas will be composed of plants native to the project vicinity. The concept is to re-establish naturally occurring vegetation in the area in a manner that is consistent with the natural growth patterns. This planting will provide a visual continuity with the adjacent native landscape, and will become established to survive without supplemental irrigation after a 3 to 5 year establishment period. Engleman Oak and Coast Live Oak will be planted from containers to establish natural screening where possible. A native hydroseed will be applied to create a groundcover of native annuals, perennials and low woody shrubs. 1-gallon size native shrubs will be planted to supplement the hydroseed and establish the woody species such as Toyon, Sugar Bush, Coffee Berry, and Laurel Surnac. The goal of the planting is to be self-sustaining after the initial establishment period.

Fuel Modification Fire Buffers

Fuel modification zones will be established within 150 feet of the substation fence.

Zone 1 will consist of a 50' wide from the substation fence that included 20' wide un-planted gravel or Decomposed Granite buffer between the planting areas and the substation fence. This area also functions as the perimeter security camera zone, and for maintenance and fire fighting access. The pervious gravel material is to match the color of the natural soil. 30 wide planting area with low groundcover and not invasive materials. In individual trees maybe planted at an average rate of no less than one tree per 200 lineal feet, no closer than 15' from a property line or top of slope, and a minimum of 30' between malure canoples. This area will require continued maintenance to thin or remove dense growth of trees and shrubs, keep the groundcover low, and prevent build up of highly combustible materials

Zone 2 is the area 51' too 100' from the substation fence . This area will consist of low groundcover and widely spaced clusters. of shrubs (clusters not exceeding a total of 400 s.f.). Tree are planted a minimum distance of no less than 20° shall be maintained between the tree mature's canopies. The trees will be limbed up to maintain vertical separation from the understory shrub of 3x the height or 6' to lowest branch, whichever is greater.

Zone 3 is the area beyond 100' from the substation fence. This area will consist of low to medium high groundcover and randomly cluster of shrubs (succulent type plant material may exceed the height requirements, 48" high). Tree maybe located within this zone, provided that they are planted in clusters of trees of no more than three. Minimum distance of no less than 20' shall be maintained between the free cluster's mature canopies. The trees will be limbed up to maintain vertical separation from understory shrubs.

Permanent automatic irrigation system will be required for zone 1 and zone 2. Large radius and everhead spray type sprinklers will be used to provide full coverage to planted/hydroseeded areas. Zone 3 shall be serviced by a temporary, aboveground automatic irrigation system which will turned off after 5 year establishment plan, but will remain in place. The overhead irrigation will be operated between the hours of 6:00 PM and 8:00 AM. The irrigation system will be monitored by flow sensor and master valve to detect and shut down valves that are malfunctioning. Check valves, high flow shut off, rain sensor and pressure regulation will help conserve water.

The substation landscape and access road landscaping will be permanently maintained by SDG&E to promote a natural appearing, self-sustaining landscape. Substation maintenance will involve operating the irrigation as needed to supplement natural rainfall until plant cover is established. It is anticipated that the irrigation will only be operated in January through May to replicate natural rainfall. Bare areas will be reseeded yearly with the original native seed mix until satisfactory plant cover is established. Weeds will be removed and erosion controlled and repaired.

Access road maintenance will include weed removal, maintaining Erosion Control BMP's and re-seeding bare soil areas with the native hydroseed mix yearly, in late October, until cover has been established.



Salt Creek Substation Attachment AD60-2

Primary seed mix to be used:

Scientific Name	Common Name	Application Rate (pounds/acre)
Acmispon glaber (=Lotus scoparius)	Deerweed	2
Camissonia bistorta	California sun cup	0.1
Deinandra fasciculata	Golden tarplant	1
Dichelostemma capitatum	Blue dicks	1
Elymus glaucus ssp. glaucus	Blue wildrye	3
Eriogonum fasciculatum var. fasciculatum	Coast California buckwheat	3
Eriophyllum confertiflorum	Golden yarrow	2
Eschscholzia californica	California poppy	1
Pseudognaphalium canescens	Everlasting cudweed	2
Helianthemum scoparium	Peak rush-rose	1
Isocoma menziesii	Coast goldenbush	3
Lupinus bicolor	Miniature lupine	1
Nassella pulchra	Purple needlegrass	2
Osmadenia tenella	Osmadenia	0.1
Sisyrinichium bellum	Blue-eyed grass	2
	TOTAL	24.2

The following species may be used in addition to the above list.

Scientific Name	Common Name	Application Rate (pounds/acre)
Amsinckia mensziesii	Ranchers fiddleneck	0.5
Calystegia macrostegia	Morning-glory	2
Castilleja exserta	Purple owl's clover	2
Cryptantha micromeres	Cryptantha	1
Lasthenia coronaria	Goldfields	2
Lupinus succulentus	Arroyo lupine	1
Stipa lepida	Foothill needlegrass	3
Zeltnera venusta	Canchalagua	1

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Pole No.	Pole Location Count	Fire Threat Area	Cable Pole	SW SW	Mounted SW Pier Foundation	Micropile	Hardware Work Only	Pole Topped @ Distribution	H-Frame	Drop Pole Pole Removed From Service (RFS)		Radius	Existing SUGGE Access road- no work Required	Existing SDG&E Access Road - Blading Required	Existing Non-TCM Access Road	Existing Two-Track Road Existing Navigation Road	Access - Overl	nporary Vehicle Impacts for ding	Existing Footpath (No veg trimming required)	Create New Footpath (Distance)	Laild Mariager Noad Helicopter Pole Set	Boom Truck Set	Special Crane Set	Hand Dig Pole Hole Uutrigger Impacts Beyond Existing Access	Road	New	Distance/Bearing of New Anchors	Existing In Drainage	Removals	Number of Existing Pole Butts Pole Butts Unable to Remove - Provide	Environmental Justification in Notes	Telephone/Cable TV	Vegetation Trimming @ Pole Vegetation Removal @ Pole	Oak Tree Trimming @ Pole	Vegetation Impacts Due to Equipment Accessibility on Access Road	Adjacent Drainage (distance/bearing)	Water Crossing - Avoidance Required	Coastal Zone Federal Land	State Land	Nest on Pole	Archaeology	Paleontology Mater Resources) Nesoun	Non Environmental Access Issues and/or	Easement Width(s)			Notes (All sites are Machine Dig unless otherwise noted)					
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43 6910 CBL POLE N	1		1		1																																									691		TL6910 Loop In					
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41 (Ex. TL 643) 100613	1						1																																								41 0613	Remove jumper tap & utilize one side of TL643 twin circuit for TL 6965. Loop in OH to rack from this pole.					
40 (Ex. TL 643) 281842	1						1																																							28	1842	Remove jumper tap & utilize one side of TL643 twin circuit for TL 6965					
39.P2 H-Frame (north pole)	1								1																																					H-F (n	9.P2 Frame orth						
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Pole No.	Pole Location Count	Fire Threat Area	Cable Pole	SW	Modified SW	Pier Foundation	14/01/11	Pole Tonned @ Distribution	•	Drop Pole	oved From Service	Distance of New Pole Loc. Outside of 10 ft.	Kadius	Existing SDG&E Access Road- No Work Required	Existing SDG&E Access Road - Blading	Required	ad ba	Existing Navigation Road	No Existing Access - Overland Travel:	Temporary Vehicle Impacts for Access; No Blading	Existing Footpath (No veg trimming required)	Create New Footpath (Distance)	Land Manager Road	Helicopter Pole Set	Boom I ruck Set	Special Crane Set Hand Dig Pole Hole	Outrigger Impacts Beyond Existing Access	Road Existing	New	Distance/Bearing of New Anchors	Existing In Drainage	Removals	3utts	Pole Butts Unable to Remove - Provide Environmental Justification in Notes	Telephone/Cable TV	Vegetation Trimming @ Pole	Vegetation Removal @ Pole	Oak Tree Trimming @ Pole	Vegetation Impacts Due to Equipment Accessibility on Access Road	Adjacent Drainage (distance/bearing) Water Crossing - Avoidance Required	Coastal Zone	Federal Land	State Land	Nest on Pole	Archaeology	Water Resources		Non Environmental Access Issues and/or C	Easement Width(s)		ole No.	Notes (All sites are Machine Dig unless otherwise noted)
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Pole No.		Fire Threat Area	Cable Pole	WS.	Modified SW Pier Foundation	Micropile	×	Pole Topped @ Distribution	H-Frame	loved From Service (RFS	Distance of New Pole Loc. Outside of 10 ft. Radius	Existing SDG&E Access Road- No Work	Existing SDG&E Access Road - Blading	2000	Access	Navigation Road	No Existing Access - Overland Travel: Temporary Vehicle Impacts for Access; No	ing ting Footpath (No veg trim	equired) Create New Footpath (Distance)	er Road	Helicopter Pole Set	Special Crane Set	Hand Dig Pole Hole	Jutrigger Impacts beyond Existing Access Road	Existing	New Nietance/Rearing of New Anghore	Existing In Drainage	Removals	Butts	Pole Butts Unable to Remove - Provide Environmental Justification in Notes	Telephone/Cable TV	Vegetation Trimming @ Pole	Vegetation Removal @ Pole Oak Tree Trimming @ Pole	Impacts Due	inage (dist	ng - Avoidance Re	Coastal Zone	Federal Lailu State Land	Nest on Pole	Archaeology	Paleontology	Water Resources	Non Environmental Access Issues and/or (Po	ole No.	Notes (All sites are Machine Dig unless otherwise noted)
WP7 Str. 09																																													۱ s	NP7 tr. 09	1,113 SF Perm impact & 1,234 SF Temp impact
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WP9 Str. 11																																													S	WP9 tr. 11	1,002 SF Perm impact
WP10 Str. 12																																													۷ S	VP10 tr. 12	1,112 SF Perm impact
WP11 Str. 13																																													V	/D44	1,081 SF Perm impact
WP12 Str. 14																																													٧	/D12	1,081 SF Perm impact
WP13 Str. 16																																													V	/D12	380 SF Perm impact
WP14 Str. 17																																													V	/D1/	138 SF Perm impact
WP15 Str. 18																																													V	/D15	902 SF Perm impact
WP16 Str. 20																																													V	/D4c	965 SF Perm impact
WP17 Str. 26																																													٧	/D47	3,660 SF Perm impact
WP18 Str. 27				1			П						\top									1		П								\top									1				٧	/D10	2,614 Temp impact
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WP22 Str. 34				1						\dashv												T										\top									1				V	/P22 tr. 34	1,798 SF Perm impact
WP23 Str. 35							П						\top									1			1							\top	1								\top				V	VP23 tr. 35	1,356 SF Perm impact & 2,904 SF Temp impact
WP24 Str. 36							П															T																T							V	1001	2,071 SF Perm impact & 4,382 SF Temp impact

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Pole No.	Pole Location Count	Fire Threat Area	Cable Pole	SW Modified SW	Pier Foundation	pile	Hardware Work Only Pole Topped @ Distribution	H-Frame	Drop Pole	Pole Removed From Service (RFS)	Distance of New Pole Loc. Outside of 10 ft. Radius	Existing SDG&E Access Road- No Work	Required	Existing SDG&E Access Road - Blading Required	Existing Non-TCM Access Road	Existing Two-Track Road	Existing Navigation Road	No Existing Access - Overland Travel: Temporary Vehicle Impacts for Access; No	Blading Existing Footpath (No veg trimming) New Footpath (Land Manager Road	Helicopter Pole Set	Boom Truck Set	Special Crane Set	е	Outrigger Impacts beyond Existing Access Road	Existing	New	Distance/Bearing of New Anchors	Exisung in Drainage Removals	Kemovals Number of Existing Pole Butts	Unable to Rer	Environmental Justification in Notes	Telephone/Cable TV	<u></u> <u> </u>	Oak Tree Trimming @ Pole	Vegetation Impacts Due to Equipment Accessibility on Access Road	Adjacent Drainage (distance/bearing)		Coastal Zone	Federal Land	Nest on Pole	Archaeology	Paleontology	Water Resources	Diology Non Environmental Access Issues and/or (eme	ole No.	Notes (All sites are Machine Dig unless otherwise noted)
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Pole No.	Pole Location Count	Fire Threat Area	Cable Pole	SW	Modified SW	Pier Foundation Misseals	Hardware Work Only	naluwale work Only Pole Topped @ Distribution	200	Dron Pole	Pole Removed From Service (RFS)	of New Pole	Sn	Existing SDG&E Access Road- No Work Required	Existing SDG&E Access Road - Blading	Existing Non-TCM Access Road	Two-	sting Navigation Road	No Existing Access - Overland Travel: Temporary Vehicle Impacts for Access; No	veg trim	, decid	Cleate New Football (Distance) Land Manager Road	Helicopter Pole Set	Boom Truck Set	Special Crane Set	Hand Dig Pole Hole	Outrigger Impacts beyond Existing Access Road	Existing	New	Uistance/Bearing of New Anchors	ing in gini	Number of Existing Pole Butts	Pole Butts Unable to Remove - Provide	Environmental Justification in Notes	lelephone/Cable IV	Vegetation Trimming @ Pole	Oak Tree Trimming @ Pole	npacts Due	Accessibility on Access Road Adjacent Drainage (distance/bearing)	Aujacent Drainage (distance/bearing) Water Crossing - Avoidance Required	Coastal Zone	Federal Land	Nest on Pole	Archaeology	Paleontology	Water Resources		Environmental Access issues and/or Issues and Access Rights	Easement Width(s)	Pole No	0.	Notes (All sites are Machine Dig unless otherwise noted)
GS5																																																			7	2 SF of impact per structure (36 SF per pole)
GS6																																																			7	2 SF of impact per structure (36 SF per pole)
GS7																																																			7	2 SF of impact per structure (36 SF per pole)
GS8																																																			7	2 SF of impact per structure (36 SF per pole)
GS9																																																			7	2 SF of impact per structure (36 SF per pole)
GS10																																																			7	2 SF of impact per structure (36 SF per pole)
GS11																																																			7	2 SF of impact per structure (36 SF per pole)
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GS16																																																			7	2 SF of impact per structure (36 SF per pole)
GS17																																																			7	2 SF of impact per structure (36 SF per pole)
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GS20																																																			7	2 SF of impact per structure (36 SF per pole)
GS21																																																			7	2 SF of impact per structure (36 SF per pole)
GS22																																																			7	2 SF of impact per structure (36 SF per pole)
GS23																																																			7	2 SF of impact per structure (36 SF per pole)

Cultural Contractor:

DATE:	4/3/2012	TL 6965	CA:
Revised:	4/20/12 D Collins (add project data)		Land Planning:
Revised:	5/10/12 D Collins (added work pads & impact areas)		Natural Resources:
Revised:		Construction Fielded Date:	Land Management:
			Water Contractor:
			Biological Contractor:

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Pole No.	Pole Location Count	Cable Pole	SW	Modified SW	Pier Foundation	14/4/	Hardware Work Only Pole Topped @ Distribution		Drop Pole	Removed From Service (RFS)	Distance of New Pole Loc. Outside of 10 ft. Radius	Existing SDG&E Access Road- No Work	Required	Existing SDG&E Access Road - Blading Required	Existing Non-TCM Access Road	Two-Track	Navigation Road ting Access - Overland	nporary Vehicle Im	Existing Footpath (No veg trimming	Create New Footpath (Distance)	Land Manager Road	Helicopter Pole Set		Special Crane Set	nand Dig Pole Hole Outrigger Impacts Beyond Existing Access	Road	New	Distance/Bearing of New Anchors	Existing In Drainage	Removals	Butts	Pole Butts Unable to Remove - Provide Environmental Justification in Notes	phone/Cable	Vegetation Trimming @ Pole	Vegetation Removal @ Pole	Vegetation Impacts Due to Equipment	Accessibility on Access Road	Adjacent Drainage (distance/bearing)	Coastal Zone	Federal Land	State Land	Nest on Pole	Archaeology Paleontology	Water Resources	Non Environmental Access Issues and/or (Issues and Access Rights	Easement Width(s)	Pole No).	Notes (All sites are Machine Dig unless otherwise noted)
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Cultural Contractor:

DATE:	4/3/2012	TL 6965	CA:
Revised:	4/20/12 D Collins (add project data)		Land Planning:
Revised:	5/10/12 D Collins (added work pads & impact areas)		Natural Resources:
Revised:		Construction Fielded Date:	Land Management:
			Water Contractor:
			Biological Contractor:

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Pole No.	Pole Location Count	Fire Threat Area	Cable Pole	SW - 3:5-1	Modified SVV Dier Foundation	Micropile	Hardware Work Only	Dolo Toward @ Distribution	Fole Lopped @ Distribution	H-Frame		Distance of New Pole Loc. Outside of 10 ft. Radius	Existing SDG&E Access Road- No Work	Existing SDG&E Access Road - Blading	Required	Existing Non-TCM Access Koad	Existing Iwo-Irack Koad		No Existing Access - Overland Travel: Temporary Vehicle Impacts for Access; No	raquired)	Create New Footpath (Distance)	Land Manager Koad	Helicopter Pole Set	Special Crans Set	Special Crane Set	Hand Dig Pole Hole Jutrigger Impacts beyond Existing Access	Road Evistina	New New	Distance/Bearing of New Anchors	Existing In Drainage	Removals	Number of Existing Pole Butts	Pole Butts Unable to Remove - Provide	Environmental Justinication in Notes	Telephone/Cable TV	Vegetation Trimming @ Pole	Vegetation Removal @ Pole	Vak Tree Trimming @ Pole Vecetation Impacts Due to Fournment	Adjacent Drainage (distance/bearing)	Water Crossing - Avoidance Required	ō	Federal Land State I and	Nest on Pole	Archaeology	Paleontology	Water Resources	Non Environmental Access Issues and/or Issues and Access Rights		Pole N	10.	Notes (All sites are Machine Dig unless otherw	wise noted)
TOTALS																																																				

Attachment AD.63-1

USACE and **CDFW** Concurrence Emails

Kibriya, Fareeha

From: Fehrensen, Michelle

Sent: Thursday, November 21, 2013 8:52 AM

To: Kibriya, Fareeha

Subject: FW: Salt Creek Substation - Historic Aerials (UNCLASSIFIED)

----Original Message----

From: Bradford, Therese O. SPL [mailto:Therese.O.Bradford@usace.army.mil]

Sent: Thursday, November 21, 2013 8:25 AM

To: Fehrensen, Michelle Cc: Cervantes, Lanika

Subject: RE: Salt Creek Substation - Historic Aerials (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Michelle - based on the information provided below, it appears the ditches were constructed in areas that would not be considered geographically jurisdictional by the US Army Corps of Engineers.

----Original Message----

From: Cervantes, Lanika [mailto:Lanika.Cervantes@aecom.com]

Sent: Wednesday, November 20, 2013 4:45 PM

To: Bradford, Therese O. SPL

Cc: Fehrensen, Michelle

Subject: [EXTERNAL] Salt Creek Substation - Historic Aerials

Importance: High

Hi Therese,

I am following up on the voicemail that I left you. Attached are a few screenshots from Google Earth that show the area as it currently is and the conditions of the area prior to the construction of access roads and the brow ditches (in 2001 and 1996). For 1996 I provided two images one with the concrete brow ditches location drawn on and one with them off so that you may see the entire area.

In both the 2001 and 1996 aerials no topographical features are observed that may indicate that a natural stream and/or swale was present within this area. The area in question only contains hillside slopes and nonnative grasslands. In addition, you can see the natural stream to the west of the project area, that was also included in the report as a jurisdictional water (not formally delineated since it was outside or the work boundaries), however was placed onto the Figure to show the location of the natural drainage that was observed within the vicinity.

As I stated in my voicemails, based on the historic aerials of the site, these ditches did not replace a natural drainage, does not connect two natural drainages to one another, and was constructed wholly in uplands as a road BMP to only drain upland flows; therefore, was determined to not be a water of the U.S.

Please call my cell phone if you would like to discuss further and/or have additional questions (either today or tomorrow). If you do concur with this determination based on the additional information provided, please respond via email so that we have written confirmation of your concurrence. We need to respond to the CPUC on this issue ASAP, therefore if you can provide an immediate response that would be appreciated.

Thanks!

Lanika

Lanika Cervantes Wetland/Regulatory Specialist

Design + Planning

Direct Phone: (619)-764-6861

Email: Lanika.Cervantes@aecom.com

AECOM

1420 Kettner Boulevard, Suite 500 San Diego CA 92101 USA Main Phone: (619)-233-1454

Fax: (619)-233-0952

www.aecom.com <http://www.aecom.com/>

Classification: UNCLASSIFIED

Caveats: NONE

Kibriya, Fareeha

From: Fehrensen, Michelle

Sent: Thursday, November 21, 2013 8:52 AM

To: Kibriva, Fareeha

Subject: FW: SDG&E Salt Creek Substation - Assessment Review Request Attachments: Waters Assessment Memo Salt Creek Substation Project.pdf

Michelle Fehrensen

Senior Environmental Analyst/Project Manager D +1 619 764 6893 Michelle.Fehrensen@aecom.com

1420 Kettner Boulevard Suite 500, San Diego CA 92101 USA T + 1 619 233 1454 F + 1 619 233 0952 www.aecom.com

From: Fehrensen, Michelle

Sent: Wednesday, November 06, 2013 5:13 PM

To: 'therese.o.bradford@usace.army.mil'

Cc: Spear, Tamara A (TSpear@semprautilities.com); Cervantes, Lanika Subject: SDG&E Salt Creek Substation - Assessment Review Request

Hi Therese.

Our office is working on a project for SDG&E (the Salt Creek Substation in Chula Vista). As a part of that effort, we conducted a waters assessment of the proposed substation site. The assessment includes an analysis of some concrete ditches within the project boundary, with a conclusion that they would not be regulated by the Corps, due to the fact that they were installed in uplands for erosion control purposes. The CPUC has requested that we get confirmation from the Corps that these concrete ditches are not jurisdictional. Would it be possible for someone in your office to review the attached memo and provide just a quick e-mail response to us that we could include in the file? The attached assessment is brief (about 10 pages).

If you have any questions, please feel free to give me a call.

Thanks,

Michelle Fehrensen

Michelle Fehrensen

Senior Environmental Analyst/Project Manager D +1 619 764 6893 Michelle.Fehrensen@aecom.com

AECOM

1420 Kettner Boulevard Suite 500, San Diego CA 92101 USA T + 1 619 233 1454 F + 1 619 233 0952 www.aecom.com

From: Spear, Tamara A [mailto:TSpear@semprautilities.com]

Sent: Wednesday, November 13, 2013 3:26 PM

To: Collins, Debbie; Fehrensen, Michelle

Subject: FW: re: Salt Creek Substation - review of water assessment memo for concurrence

FYI

From: Fisher, Kelly@Wildlife [mailto:Kelly.Fisher@wildlife.ca.gov]

Sent: Wednesday, November 13, 2013 12:36 PM

To: Spear, Tamara A

Subject: RE: re: Salt Creek Substation - review of water assessment memo for concurrence

Tamara, I agree with your assessment that the concrete brow ditches described and depicted in the Aquatic Features Summary for the Proposed Salt Creek Substation Site (January 21, 2013) are not streams, and are not regulated by the Department under Section 1602 of the Fish and Game Code.

Kelly Fisher Environmental Scientist (858) 467-4207 kelly.fisher@wildlife.ca.gov

California Department of Fish and Wildlife Lake and Streambed Alteration Program 3883 Ruffin Road San Diego, California 92123

From: Spear, Tamara A [mailto:TSpear@semprautilities.com]

Sent: Tuesday, November 12, 2013 10:41 AM

To: Fisher, Kelly@Wildlife

Subject: FW: re: Salt Creek Substation - review of water assessment memo for concurrence

From: Spear, Tamara A

Sent: Wednesday, November 06, 2013 4:47 PM

To: KFisher@wildlife.ca.gov

Subject: re: Salt Creek Substation - review of water assessment memo for concurrence

Hi Kelly,

Attached is the Water Assessment memo we prepared for the proposed Salt Creek Substation project site. Based upon our review, the concrete brow ditches on-site are not jurisdictional for CDFW under the Section 1602 Streambed Alteration Agreement program. As I mentioned, we have received a data request from the California Public Utility Commission (CPUC) asking that we seek your written concurrence that the brow ditches with this determination. We have to respond by November 15, 2013 to the CPUC.

I really appreciate your help with this Kelly and fitting it into your work schedule.

Thanks again,

Tamara

Tamara Spear
Environmental Specialist
SDG&E Environmental Services
8315 Century Park Court, CP21E
San Diego, CA 92123
(858)637-3740

Attachment AD.65-1

USFWS and CDFW Correspondence

Salt Creek Substation and Power Line Project

Summary of Agency Coordination (prepared 11/12/13)

This list below summarizes the communication history with USFWS and CDFW regarding Quino checkerspot butterfly, coastal California gnatcatcher, least Bell's vireo surveys for the proposed Salt Creek Project:

- March 9, 2011 Phone conference with Alison Anderson (USFWS) to discuss modified Quino checkerspot butterfly survey protocol
- March 15, 2011 Email from Alison Anderson with Erin McCarthy CCd (USFWS) approving the modified Quino checkerspot butterfly protocol (USFWS accepted the results of the survey with the modified approach in November 2011).
- March 14, 2011 AECOM sent USFWS a notification letter to conduct Quino checkerspot butterfly surveys within the proposed Salt Creek substation site
- April 29, 2011 AECOM sent USFWS a notification letter to conduct coastal California gnatcatcher, and least Bell's vireo surveys within the proposed Salt Creek substation site
- November 16, 2011 AECOM sent USFWS the 2011 Survey Report for the Quino checkerspot butterfly protocol surveys within the proposed Salt Creek substation site
- November 16, 2011 AECOM sent USFWS the 2011 Survey Report for least Bell's vireo protocol surveys within the proposed Salt Creek substation site
- November 16, 2011 AECOM sent USFWS the 2011 Survey Report for coastal California gnatcatcher protocol surveys within the proposed Salt Creek substation site
- February 9, 2012 AECOM sent USFWS notification letter to conduct Quino checkerspot butterfly surveys within the proposed Salt Creek transmission corridor
- May 4, 2012 AECOM sent USFWS notification letter to conduct coastal California gnatcatcher surveys within the proposed Salt Creek transmission corridor
- January 14, 2013 AECOM sent USFWS the 2012 Survey Report for coastal California gnatcatcher protocol surveys within the proposed Salt Creek transmission corridor
- January 16, 2013 AECOM sent USFWS the 2012 Survey Report for Quino checkerspot butterfly protocol surveys within the proposed Salt Creek transmission corridor
- September 3, 2013 AECOM sent USFWS the 2013 Survey Report for Quino checkerspot butterfly protocol surveys within the proposed Salt Creek substation site

FW E-Submittal of Proposed Salt Creek Substation Technical Reports to USFWS 111611.htm

Mulrooney, Brennan From:

Wednesday, November 16, 2011 2:04 PM Sent:

To: MeyerLovell, Cecilia

Subject: FW: E-Submittal of Proposed Salt Creek Substation Least Bell's Vireo, Coastal

California Gnatcatcher, and Quino Checkerspot Butterfly 45-Day Reports

FYI

11/15/13

From: Mulrooney, Brennan

Sent: Wednesday, November 16, 2011 2:02 PM

To: 'Erin McCarthy@fws.gov'

Subject: E-Submittal of Proposed Salt Creek Substation Least Bell's Vireo, Coastal California Gnatcatcher, and Quino

Checkerspot Butterfly 45-Day Reports

Hi Erin,

Please find below, links to pdf's of the Least Bell's Vireo, Coastal California Gnatcatcher, and Quino Checkerspot Butterfly 45-day reports for surveys conducted by AECOM for SDG&E's proposed Salt Creek Substation this past survey season. Hardcopies are forthcoming in the mail. Let me know if you have any auestions.

Thanks, Brennan

Brennan Mulrooney

Wildlife Biologist Design + Planning C+00 619.405.5816 brennan.mulrooney@aecom.com

AECOM

1420 Kettner Boulevard, Suite 500, San Diego, California, 92101, USA T+00 619 233 1454 F+00 619 233 0952 www.aecom.com

From: brennan.mulrooney@aecom.com [mailto:brennan.mulrooney@aecom.com]

Sent: Wednesday, November 16, 2011 1:51 PM

To: Mulrooney, Brennan

Subject: AECOM SendFiles Notification: Brennan Mulrooney has sent you files

Brennan Mulrooney has sent you 3 files using AECOM's File Transfer System.

These files will be available for download until 11/23/2011

<u>File</u>	Description	Size
09080065 Salt Creek QCB 45-Day Summary Rpt.pdf		2,230KB
09080065 Salt Creek CAGN 45-Day Summary Rpt.pdf		1,604KB
09080065 Salt Creek LBV 45-Day Summary Rpt.pdf		2,597KB

If you are having trouble accessing the links in this email, you can view this message as a web page by copying the following link and pasting it into your browser:

http://sendfiles.aecom.com/message.aspx?msgld=72d6d586-8ec3-4cc2-aae9a2e30e71c0b6&u=brennan.mulrooney%40aecom.com

If you have any questions, please contact your project manager.



AECOM 1420 Kettner Boulevard Suite 500 San Diego, CA 92101 www.aecom.com 619.233.1454 tel 619.233.0952 fax

April 29, 2011

Ms. Erin McCarthy
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

RE: Pre-Activity Notification for the Coastal California Gnatcatcher, Western Burrowing Owl, and Least Bell's Vireo for Project, Otay Mesa, San Diego County, California

Dear Ms. McCarthy:

In compliance with the Special Terms and Conditions for Endangered and Threatened Wildlife Species Permit TE-820658-4 and TE-027736-4, AECOM is submitting this notification letter to conduct focused surveys to determine the presence or absence of the federally listed threatened coastal California gnatcatcher (*Polioptila californica californica*, gnatcatcher), and federally listed endangered least Bell's vireo (*Vireo bellii pusillus*, vireo) within the vicinity of a Project located within Chula Vista, California (Figures 1 and 2, attached). AECOM will also conduct surveys for the burrowing owl (*Athene cunicularia*), a California species of special concern. As an environmental consultant, AECOM has been contracted by our client to conduct protocol level surveys for these three species within and adjacent to the project site (Figure 2).

The coastal California gnatcatcher focused surveys will follow the U.S. Fish and Wildlife Service (USFWS) survey protocol (dated February 28, 1997 and amended July 28, 1977). The focused surveys will follow the current U.S. Fish and Wildlife Service (USFWS) survey protocols for the least Bell's vireo (dated January 19, 2001). The focused surveys for burrowing owl will follow the survey protocol published by the California Burrowing Owl Consortium (dated April 1993). AECOM biologists Barbra Calantas, Shelly Dayman, Andrew Fisher, James McMorran, Brennan Mulrooney, Lyndon Quon, and Erin Riley will be conducting the surveys (as appropriate for gnatcatcher and vireo) under Permit TE-820658. AECOM biologist Erik LaCoste (as appropriate for gnatcatcher and vireo) will be conducting surveys under Permit TE-027736.

No "take" of the vireo or burrowing owl will occur through visual and auditory surveys of the species' habitat. The survey activity will potentially "take" the coastal California gnatcatcher through harassment by playback of taped coastal California gnatcatcher vocalizations. No individual coastal California gnatcatchers will be captured.

Please call me at (619) 233-1454 if you have any questions or comments.

Sincerely,

Cecilia Meyer Lovell Senior Biologist

CialiamuserSwell

Enclosures: Figure 1 Regional Map

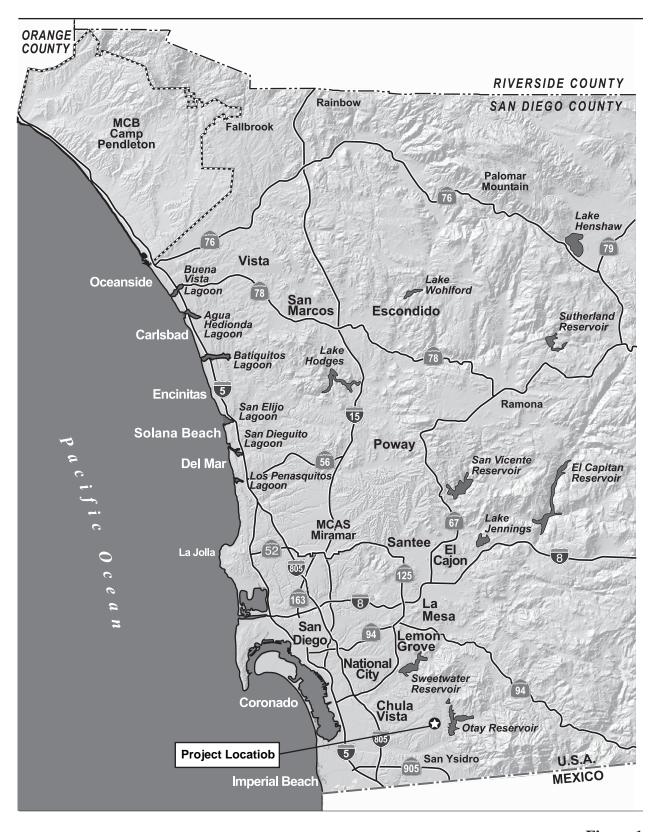
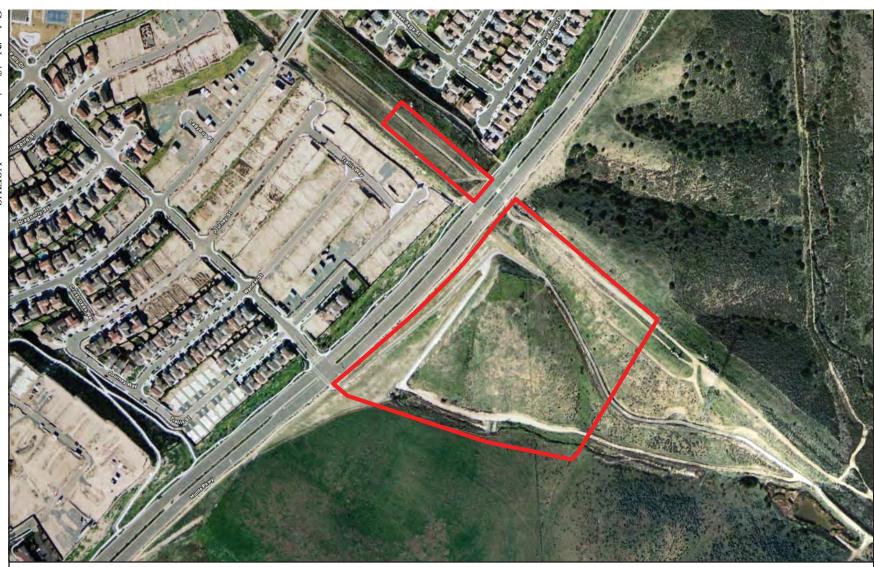




Figure 1 Regional Map



No Scale

Figure 2
""""Rt qr qugf 'Rt qlgev'Ct gc'



AECOM 1420 Kettner Boulevard Suite 500 San Diego, CA 92101 www.aecom.com 619.233.1454 tel 619.233.0952 fax

Transmittal

Date: November 16, 2011 Project No. 60209615.009

To: Ms. Erin McCarthy Sent Via: USPS

Carlsbad Fish and Wildlife Office 6010 Hidden Valley Road, Suite 101

Carlsbad, California 92011

From: Brennan Mulrooney

Subject: Proposed Salt Creek Substation for SDG&E 10a Report Submittal

Ms. McCarthy,

Please find enclosed one hardcopy each of the 2011 Coastal California Gnatcatcher 45-Day Report, Least Bell's Vireo 45-Day Report, and Quino Checkerspot Butterfly 45-Day Report for the proposed Salt Creek Substation for SDG&E. Please note, these reports are dated to when the client confirmed approval of content. These reports were also submitted electronically on November 16, 2011. Please let me know if you have any questions.

Thanks, Brennan



AECOM 1420 Kettner Boulevard Suite 500 San Diego, CA 92101 www.aecom.com 619.233.1454 tel 619.233.0952 fax

Transmittal

Date: January 14, 2013

To: Ms. Susie Tharratt Sent Via: USPS

Carlsbad Fish and Wildlife Office 6010 Hidden Valley Road, Suite 101

Carlsbad, California 92011

From: Jimmy McMorran

Subject: 45-Day Summary Report of 2012 Focused Surveys for the Coastal California

Gnatcatcher for the Proposed 69-kV Transmission Line Installation Project for

SDG&E.

Ms. Tharratt,

Please find enclosed one hardcopy of the 2012 Coastal California Gnatcatcher 45-Day Report for the Proposed 69-kV Transmission Line Installation Project for SDG&E. This report was also submitted electronically on January 14, 2013. Please let me know if you have any questions.

Thanks, Jimmy

Kibriya, Fareeha

From: Alison_Anderson@fws.gov

Sent: Tuesday, March 15, 2011 4:56 PM

To: MeyerLovell, Cecilia
Cc: Erin_McCarthy@fws.gov

Subject: Re: FW: Request to Modify QCB Survey Protocol

Cecilia,

To clarify, I did not give verbal approval, as a rule I never do that and I don't believe anyone else at the USFWS does either. The reason being we need a record of our decision and all applicable staff should have a chance to be informed and agree. We discussed your situtaion and I agreed that the suggested modifications sounded like they were reasonable. I specified that in order to get official approval you should ask in writing. That said, I do agree that your proposed modification is reasonable and the surveys would be a net recovery benefit to the species. If Erin McCarthy, our permit coordinator, agrees then it should be OK (copied her). We will review the final report and at that point determine if there is sufficient data to support your conclusions.

Sorry I hadn't gotten back to you yet with the email, I was out Friday and Monday. Alison Anderson, PhD Entomologist Carlsbad Fish and Wildlife Office 6010 Hidden Valley Rd. Suite 101 Carlsbad, CA 92011 760-431-9440 x245 760-431-5901 Fax

"MeyerLovell, Cecilia"

<<u>Cecilia.MeyerLovell@aecom.com</u>> To<<u>Alison_Anderson@fws.gov</u>>

cc<Erin McCarthy@fws.gov>

03/14/2011 09:58 AM

SubjectFW: Request to Modify QCB Survey Protocol

Hi Alison,

I left you a voicemail on Friday to follow up on an email from Thursday (see below). We are planning to initiate the proposed modified survey protocol for a 10-15 acres site in Otay Mesa today. I have drafted the pre-notification survey letter for Erin McCarthy and would like to include that we received confirmation from you on the modified approach. Based on the conversation Erin Riley and I had with you on Wednesday, March 9, 2011 I feel we have verbal approval, but would appreciate something in writing as we discussed.

Thanks so much, Cecilia

From: MeyerLovell, Cecilia

Sent: Thursday, March 10, 2011 8:04 AM

To: Alison Anderson@fws.gov Cc: Riley, Erin; Calantas, Barbra

Subject: Request to Modify QCB Survey Protocol

Hi Alison,

I am sending this email to request a modification to the survey protocol for QCB for spring 2011 at a site in Otay Mesa, as surveys have not started. Since we would be starting the surveys late, we request approval to modify the USFWS protocol in the following manner:

- 1. Doubling the protocol survey rate (2 surveys a week instead of 1 survey a week for the remainder of the flight season), and
- 2. Conducting a thorough QCB host plant search, both within the project boundaries and on adjacent parcels for which we can obtain access.

Please let me know if this would be appropriate under our section 10(a)(1)(A) Recovery Permit (TE-820658). We understand your approval of this modified survey protocol does not guarantee that negative survey results will be accepted. This will be dependent on the results of our surveys, especially the host plant search.

Thanks, Cecilia Meyer Lovell

Kibriya, Fareeha

From: Riley, Erin

Sent: Tuesday, September 03, 2013 2:55 PM

To: Susie_tharratt@fws.gov

Cc: dcollins@semprautilities.com; LNelson1@semprautilities.com; Calantas, Barbra; Anguiano,

Michael; Erik LaCoste (elacoste.bio@sbcglobal.net)

Subject: RE: Salt Creek Substation Project - Quino Checkerspot Butterfly Survey Report

Attachments: 60248948 Salt_Creek_2013_QCB_Svy Rpt.pdf

Susie,

I'm attempting a re-send here, had your email address wrong the first time so it bounced.

Thanks,

Erin

From: Riley, Erin

Sent: Tuesday, September 03, 2013 1:24 PM

To: 'susie.tharratt@fws.gov'

Cc: dcollins@semprautilities.com; LNelson1@semprautilities.com; Calantas, Barbra; Anguiano, Michael; Erik LaCoste

(elacoste.bio@sbcglobal.net)

Subject: Salt Creek Substation Project - Quino Checkerspot Butterfly Survey Report

Ms. Tharratt,

Please find attached the Quino Checkerspot Butterfly survey report associated with the Salt Creek Substation Project for San Diego Gas and Electric.

A hard copy will follow in the postal mail.

Please let us know if you have any questions.

Thank you,

Erin

Erin Riley

Senior Biologist, Natural Resources Design + Planning D +1 619.764.6889 C +1 619.306.8198 erin.riley@aecom.com

AECOM

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Kibriya, Fareeha

From: MeyerLovell, Cecilia

Sent: Monday, March 14, 2011 4:40 PM

To: 'Erin_McCarthy@fws.gov'

Cc: 'Alison_Anderson@fws.gov'; MillerLacoste, Karen

Subject: Pre-Notification Letter: Request to Modify QCB Survey Protocol

Attachments: QCB Notification letter to USFWS 031411.pdf

Hi Erin.

Per my email from earlier today, I am attaching the pre-notification letter for surveys our section 10(a)(1)(A) Recovery Permit (TE-820658). Please let me know if you have any questions.

Thanks, Cecilia

From: MeyerLovell, Cecilia

Sent: Monday, March 14, 2011 9:59 AM

To: Alison Anderson@fws.gov Cc: Erin McCarthy@fws.gov

Subject: FW: Request to Modify QCB Survey Protocol

Hi Alison,

I left you a voicemail on Friday to follow up on an email from Thursday (see below). We are planning to initiate the proposed modified survey protocol for a 10-15 acres site in Otay Mesa today. I have drafted the pre-notification survey letter for Erin McCarthy and would like to include that we received confirmation from you on the modified approach. Based on the conversation Erin Riley and I had with you on Wednesday, March 9, 2011 I feel we have verbal approval, but would appreciate something in writing as we discussed.

Thanks so much, Cecilia

From: MeyerLovell, Cecilia

Sent: Thursday, March 10, 2011 8:04 AM

To: Alison Anderson@fws.gov Cc: Riley, Erin; Calantas, Barbra

Subject: Request to Modify QCB Survey Protocol

Hi Alison,

I am sending this email to request a modification to the survey protocol for QCB for spring 2011 at a site in Otay Mesa, as surveys have not started. Since we would be starting the surveys late, we request approval to modify the USFWS protocol in the following manner:

- 1. Doubling the protocol survey rate (2 surveys a week instead of 1 survey a week for the remainder of the flight season), and
- 2. Conducting a thorough QCB host plant search, both within the project boundaries and on adjacent parcels for which we can obtain access.

Please let me know if this would be appropriate under our section 10(a)(1)(A) Recovery Permit (TE-820658). We understand your approval of this modified survey protocol does not guarantee that negative survey results will be accepted. This will be dependent on the results of our surveys, especially the host plant search.

Thanks,

Cecilia Meyer Lovell



AECOM 1420 Kettner Boulevard Suite 500 San Diego, CA 92101 www.aecom.com 619.233.1454 tel 619.233.0952 fax

March 14, 2011

Ms. Erin McCarthy Recovery Permit Coordinator Carlsbad Fish and Wildlife Office 6010 Hidden Valley Road, Suite 101 Carlsbad, California 92011

RE: Pre-Activity Notification for the Quino Checkerspot Butterfly for Project, Otay Mesa, California

Dear Ms. McCarthy:

In compliance with the Special Terms and Conditions for Endangered and Threatened Wildlife Species Permit TE-820658-4, AECOM is submitting a proposal to conduct focused surveys to determine the presence or absence of the federally listed endangered Quino checkerspot butterfly (*Euphydras editha quino*) within the vicinity of a Project located within Chula Vista, California (Figures 1 and 2, enclosed). As an environmental consultant, AECOM has been contracted by our client to conduct protocol level surveys for the Quino checkerspot butterfly within the project site. This project site occurs within U.S. Fish and Wildlife (USFWS) Survey Area 1.

AECOM biologist Bonnie Hendricks will be conducting the surveys under Endangered Species Permits TE-820658-4. As discussed via phone with Alison Anderson, USFWS, on March 9, 2011, we are proposing a modified version of the current USFWS adult survey protocol because the flight season for Quino checkerspot butterfly in the Otay Mesa region began approximately three weeks ago. Our proposed modified survey protocol includes:

- 1. Starting surveys immediately (e.g., Monday, March 14, 2011)
- 2. Doubling the protocol survey rate (2 surveys a week instead of 1 survey a week for the remainder of the flight season [at least 3 weeks, but could be 4 weeks]), and
- 3. Conducting a thorough Quino checkerspot butterfly host plant search and population assessment, both within the project boundaries and on adjacent parcels for which we can obtain access. The focus of this host plant search includes three primary host plant species (*Plantago erecta*, *Antirrhihum coulterianum*, and *Collinsia concolor*) and two secondary host plant surveys (*Castilleja exserta* and *Cordylanthus* sp.).

AECOM would like to begin surveys on March 14, 2011. Approximately 10 to 15 acres of habitat potentially suitable for Quino occurs within the project site and will be surveyed. No individual Quino checkerspot butterflies or larvae will be captured for this project. We understand your approval of this modified survey protocol does not guarantee that negative survey results will be accepted. This will be dependent on the results of our surveys, including the host plant search.

Please call me at (619) 233-1454, extension 6830 if you have any questions or comments.

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Ms. Erin McCarthy Recovery Permit Coordinator Carlsbad Fish and Wildlife Office March 14, 2011 Page 2

Sincerely,

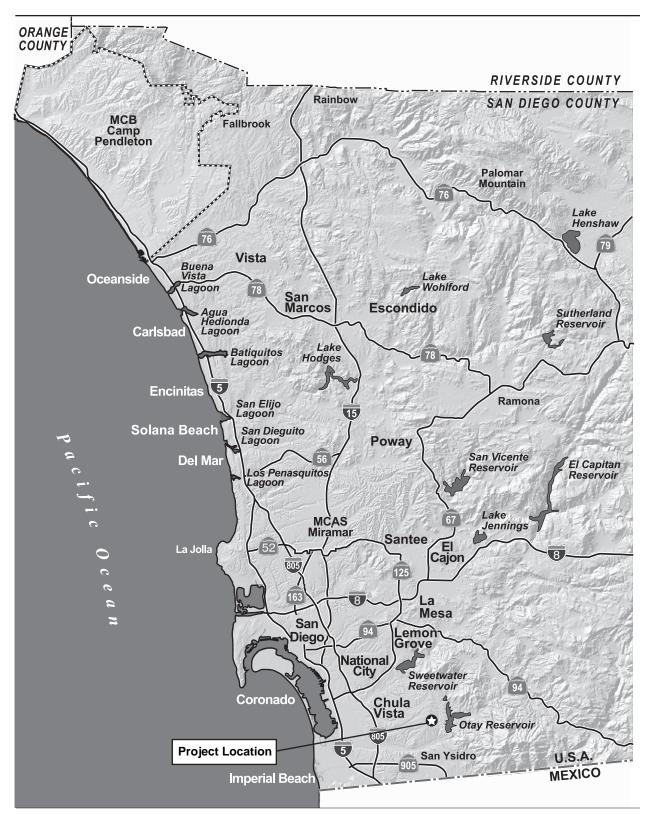
Cecilia Meyer Lovell Senior Biologist

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Enclosures: Figure 1 Regional Map

Figure 2 QCB Suitable Habitat Assessment

QCB Notification letter to USFWS 031411



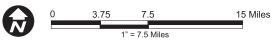


Figure 1 Regional Map





Figure 2 QCB Suitable Habitat Assessment

Survey Notification

Date: February 9, 2012

To: Susie Tharratt, FWS Carlsbad

cc. Debbie Collins, SDG&E and Cecilia Meyer Lovell, AECOM

From: Erik LaCoste, elacoste.bio@sbcglobal.net, 760-500-8802

Subject: Notification of Quino Checkerspot Butterfly (Euphydryas editha quino) Surveys.

Ms. Tharratt

This letter serves as notification to conduct focused Quino checkerspot butterfly surveys along an existing SDG&E powerline alignment in San Diego, California (Figure 1). The powerline alignment is located between an existing substation just southeast of Sweetwater Reservoir and an area just west of Lower Otay Lake on the Jamul Mountain and Otay Mesa USGS 7.5 minute quadrangles. These surveys will be conducted according to USFWS protocol. As adult Quino have already been observed flying this season, surveys will be initiated during the week of February 13, 2012.

If you should have any questions regarding our intentions to conduct these surveys, please feel free to contact me at 760-500-8802 or by the email address above.

Sincerely,

Erik LaCoste Wildlife Biologist TE027736-4



AECOM 1420 Kettner Boulevard Suite 500 San Diego, CA 92101 www.aecom.com 619.233.1454 tel 619.233.0952 fax

Transmittal

Date: January 16, 2013

To: Ms. Susie Tharratt Sent Via: USPS

Carlsbad Fish and Wildlife Office 6010 Hidden Valley Road, Suite 101

Carlsbad, California 92011

From: Jimmy McMorran

Subject: 45-Day Summary Report of 2012 Focused Surveys for the Quino Checkerspot

Butterfly for the Proposed 69-kV Transmission Line Installation Project for SDG&E

Ms. Tharratt,

Please find enclosed one hardcopy of the 2012 Quino Checkerspot Butterfly 45-Day Report for the Proposed 69-kV Transmission Line Installation Project for SDG&E. This report was also submitted electronically on January 16, 2013. Please let me know if you have any questions.

Thanks, Jimmy



AECOM 1420 Kettner Boulevard Suite 500 San Diego, CA 92101 www.aecom.com 619.233.1454 tel 619.233.0952 fax

May 4, 2012

Ms. Susie Tharratt
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

RE: Coastal California Gnatcatcher Focused Protocol Survey Pre-Activity Notification for the Salt Creek Transmission Line from the Miguel Substation to the Proposed Salt Creek Substation, California

Dear Ms. Tharratt:

In compliance with the Special Terms and Conditions for Endangered and Threatened Wildlife Species Permit TE-820658, AECOM is submitting this notification letter to conduct focused surveys to determine the presence or absence of the federally listed threatened coastal California gnatcatcher (*Polioptila californica californica*), within the vicinity of San Diego Gas & Electric (SDG&E) Salt Creek transmission line from the Miguel Substation to the proposed Salt Creek Substation, San Diego County, California (Figures 1 and 2, attached).

As an environmental consultant, AECOM has been contracted by SDG&E to conduct protocol level surveys for the coastal California gnatcatcher within suitable habitats in the Area of Potential Effect between the Miguel Substation, to south of Hunte/Olympic Parkway between Discovery Falls, Eastlake Parkway, and Crossroads Street (Figure 2).

The focused surveys will follow the current U.S. Fish and Wildlife Service survey protocol for coastal California gnatcatcher (USFWS 1997). AECOM biologists Andrew Fisher and Jimmy McMorran will be conducting the surveys. As allowed under AECOM's endangered species permit, the survey activity "takes" coastal Califonia gnatcatcher through harassment with playback of taped coastal Califonia gnatcatcher vocalizations. No individual coastal California gnatcatchers will be captured.

Please call me at (619) 233-1454, extension 6929 if you have any questions or comments.

Sincerely,

James McMorran Wildlife Biologist

AECOM

Ms. Susie Tharratt Recovery Permit Coordinator Carlsbad Fish and Wildlife Office May 4, 2012 Page 2

Enclosures: Figure 1 Regional Map Figure 2 Vicinity Map

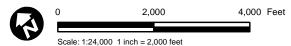


Source: GeomorphIS, LLC and AECOM, 2012; Esri Basemaps, 2010



Regional Map





Vicinity Map

Attachment AD.66-1

Summary of Qualifications and Permit Copies for QCB, CAGN, LBV, and WBO Surveys

DEPARTMENT OF THE INTERIOR



U.S. FISH AND WILDLIFE SERVICE 2. AUTHORITY-STATUTES 16 USC 1539(a) FEDERAL FISH AND WILDLIFE PERMIT 16 USC 1533(d) 16 USC 703-712 REGULATIONS 50 CFR 17.22 1. PERMITTEE 50 CFR 17.32 50 CFR 21.23 & 21.27 **AECOM** 50 CFR 13 1420 KETTNER BOULEVARD SUITE 500 3. NUMBER SAN DIEGO, CA 92101 TE820658-6 **AMENDMENT** U.S.A. 4. RENEWABLE 5. MAY COPY X YES X YES NO NO 6 EFFECTIVE 7 EXPIRES 06/20/2015 02/22/2013 8. NAME AND TITLE OF PRINCIPAL OFFICER (If#1 is a business) 9. TYPE OF PERMIT NATIVE ENDANGERED & THREATENED SP. RECOVERY - E & T RAY L HRENKO DIRECTOR OF OPERATIONS 0. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED ON LANDS SPECIFIED WITHIN THE ATTACHED SPECIAL TERMS AND CONDITIONS II. CONDITIONS AND AUTHORIZATIONS: A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK. #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, ORRENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS. B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL, TRIBAL, OR OTHER FEDERAL LAW. C. VALID FOR USE BY PERMITTEE NAMED ABOVE. ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY REPORTING REQUIREMENTS ANNUAL REPORTS DUE: 01/31 See permit conditions for further reporting requirements.

ISSUED BY

ENDANGERED SPECIES DIVISION CHIEF

DATE 02/22/2013

SPECIAL TERMS AND CONDITIONS AECOM

- 1. This permit was previously issued on June 21, 2011. The terms and conditions set forth in that permit are hereby superseded by this amendment.
- 2. Acceptance of this permit serves as evidence that the permittee understands and agrees to abide by the "General Conditions for Native Endangered and Threatened Wildlife Species Permits," 50 CFR Part 13, 50 CFR 17.22 (endangered wildlife), and/or 50 CFR 17.32 (threatened wildlife), as applicable (copies attached).
- 3. The permittee must have all other applicable State and Federal permits prior to the commencement of activities authorized by this permit. In addition, this permit does not authorize access to Federal, Tribal, State, local government, or private lands as it is the responsibility of the permittee to obtain land owner permission prior to commencing permitted activities on such lands.
- 4. The permittee is authorized to take (harass by survey, capture, handle, release, collect adult vouchers, and collect branchiopod cysts (hereafter referred to as "resting eggs")) the longhorn fairy shrimp (Branchinecta longiantenna), the Conservancy fairy shrimp (Branchinecta conservatio), the vernal pool tadpole shrimp (Lepidurus packardi), the vernal pool fairy shrimp (Branchinecta lynchi), the Riverside fairy shrimp (Streptocephalus woottoni), and the San Diego fairy shrimp (Branchinecta sandiegoenensis) (hereafter collectively referred to as vernal pool branchiopods); take (harass by survey) the coastal California gnatcatcher (Polioptilla californica californica) and the southwestern willow flycatcher (Empidonax traillii extimus); take (locate and monitor nests) the least Bell's vireo (Vireo bellii pusillus) and the western snowy plover (Charadrius alexandrinus nivosus); take (survey by pursuit) the Quino checkerspot butterfly (Euphydryas editha quino); take (capture and release) the Pacific pocket mouse (Perognathus longimembris pacificus); take (harass by survey, and locate and monitor nests) the California least tern (Sterna antillarum browni); take (capture, handle, and release) the California tiger salamander (Ambystoma californiense); take (capture, measure, handle, and release) the giant kangaroo rat (Dipodomys ingens) and Tipton kangaroo rat (Dipodomys nitratoides nitratoides); and take (survey, capture, handle and release) the unarmored threespine stickleback (Gasterosteus aculeatus williamsoni), in conjunction with surveys and scientific research for the purpose of enhancing their survival, as specified in the permittee's February 24, 2012, permit amendment request, in accordance with the conditions stated below.
- 5. Permitted activities are restricted to the following geographic areas in California:
 - a. For vernal pool branchiopods, coastal California gnatcatcher, least Bell's vireo, Quino checkerspot butterfly, California least tern, California tiger salamander, Tipton kangaroo rat, giant kangaroo rat and unarmored threespine stickleback:

Throughout the range of each species.

b. For the western snowy plover:

Throughout the range of the species in California.

c. For the Pacific pocket mouse and the southwestern willow flycatcher:

San Diego, Los Angeles, Orange, San Bernardino, Riverside, Imperial, Inyo, Ventura, and Santa Barbara Counties.

Notifications to conduct activities pursuant to this permit at specific locations within the above referenced areas must be submitted in writing to the appropriate Fish and Wildlife Office (FWO) of the U.S. Fish and Wildlife Service (Service) 15 days prior to conducting such activities. The appropriate FWO is determined as follows:

For the Northern California coast, north of the Mendocino County line, contact the Arcata Fish and Wildlife Office (AFWO), 1655 Heindon Road, Arcata, California 95521 (telephone: 707-822-7201; fax: 707-822-8136). For the Central Valley hydrographic basin and the coast ranges north of the Santa Cruz County line and south of the Mendocino County line, contact the Sacramento Fish and Wildlife Office (SFWO), 2800 Cottage Way, W-2605, Sacramento, California 95825 (telephone: 916-414-6600; fax: 916-414-6712). For areas from Santa Cruz County south to Los Angeles County north of the Angeles National Forest, contact the Ventura Fish and Wildlife Office (VFWO), 2493 Portola Road, Suite B, Ventura, California 93003 (telephone: 805-644-1766; fax: 805-644-3958). For areas from Los Angeles County including and south of the Angeles National Forest to San Diego County, contact the Carlsbad Fish and Wildlife Office (CFWO), 6010 Hidden Valley Road, Suite 101, Carlsbad, California 92011 (telephone: 760-431-9440; fax: 760-431-9624).

Notifications shall include, as appropriate and applicable: (a) an explanation of the purpose of the study and a clear description of methods, including the names of field personnel and the number and dates of surveys; (b) for vernal pool branchiopod activities, include the number of vernal pools or acres proposed to be surveyed, or proposed trapping and marking techniques (as appropriate); (c) for branchiopod dry season soil collection, the number of features to be sampled, and/or the number of soil samples proposed to be collected; (d) for soil sieving and cyst identification, include the name of the authorized individual who will be completing the soil processing and/or preliminary vernal pool branchiopod resting egg (cyst) identification; (e) a map (at a minimum, a 1:24,000 scale U.S. Geological Survey (USGS) topographical map) depicting the location of the survey site(s); (f) the assessor's parcel number (APN) for the site (if possible); and (g) geographic information system (GIS) data depicting the survey site or global positioning system (GPS) coordinates (if possible). Pre-survey notifications shall be submitted electronically with the Recovery Permit Coordinator at the appropriate FWO.

After 15 days of the Service's receipt of the proposal, the permittee may commence activities authorized by this permit unless authorization is denied by the Service. If the permittee is denied authorization to conduct activities at the requested location(s), including previously authorized sites, a request for reconsideration may be submitted to the Endangered Species Division Chief at the Service's Regional Office for the Pacific Southwest Region (Region 8), 2800 Cottage Way, Room W-2606, Sacramento California 95825-1846, as provided in 50 CFR 13.29. The procedures specified in 50 CFR 13.29(b) must be followed.

6. Authorized individuals:

Only individuals on the attached List of Authorized Individuals (List) are authorized to conduct activities pursuant to this permit. The List, printed on Service letterhead, may identify special conditions or circumstances under which individuals are authorized to conduct permitted activities and must be retained with these Special Terms and Conditions. Each named individual shall be responsible for compliance with the terms and conditions of this permit.

To request changes to the List, the permittee shall submit written requests to the CFWO. The request shall be submitted at least 30 days prior to the requested effective date. The request shall be signed and dated by the permittee and include:

- a. The name of each individual to be appended to the List;
- b. The resume/qualifications statement of each person to be appended to the List, detailing their experience with each species and type of activity for which authorization is requested;
- c. The names, phone numbers and email addresses of a minimum of two references. Letters of reference should address the individual's qualifications for the specific activities to be conducted; and
- d. The names of the individuals to be deleted from the List.

Note: This procedure is for personnel changes only. For requests to renew/amend this permit, a complete application must be submitted to the Endangered Species Division Chief at the Region 8 office.

7. Taking of the Quino checkerspot butterfly (Quino):

The permittee is authorized to survey by pursuit, handle, and live-capture Quino for the purpose of identification by the Service or its representatives within the geographic boundaries specified above, and the time limitation specified in the permit, provided that:

- a. Survey, handling, and capture activities shall be conducted in accordance with the most recent Service approved protocol for the Quino unless authorized in advance by the CFWO.
- b. Handling and capture is limited to one individual Quino larva, pupa, or adult per site.
- c. The permittee shall successfully pass the most recent version of the Service's practical examination for the Quino prior to initiating focused surveys unless authorized in advance by a letter from the Service.
- d. Host and nectar plants are not to be removed from the field.
- 8. Taking of the Pacific pocket mouse (pocket mouse):

The permittee is authorized to capture and release all individual pocket mice within the geographic boundaries specified above, and the time limitation specified in the permit. Individual pocket mice may be held for up to 10 minutes and then shall be released at the capture site provided that:

- a. At a given site, all traps must be located to include areas that best typify pocket mouse habitat, and trapping shall continue for a minimum of five consecutive nights, unless pocket mice are captured. A lesser effort may be approved by the CFWO on a case-by-case basis.
- b. Except as provided in this paragraph, only 9-inch or 12-inch long Sherman live traps, or traps of similar design and efficiency, shall be used to trap in habitats that are known or suspected to be occupied by pocket mice. Traps of "similar design and efficiency" shall be approved by the CFWO and the California Department of Fish and Game (CDFG) prior to their use. All trap models shall be modified to eliminate or substantially reduce the risk of injury (e.g., tail lacerations or excisions) to pocket mice.
- c. Traps must be checked at least twice per night, once near midnight and again at sunrise. Less frequent trap checks may be approved by the CFWO on a case-by-case basis. Trapping may not be conducted if the nightly low temperature is forecast to be below 50 degrees Fahrenheit and/or if extended wind, rain, fog, or other inclement weather make (or have made) conditions unsuitable for trapping, or unduly jeopardize the lives of pocket mice.
- d. No mutilation marking scheme (e.g., toe-clipping, ear-clipping) is allowed. No invasive technique (e.g., PIT-tagging) will be allowed unless specifically authorized by the Region 8 office. Other marking schemes (e.g., hair clipping, ear-tagging) are permissible with prior approval by the CFWO.

- e. The permittee shall notify the CFWO within 48 hours if a new population of pocket mice is discovered.
- f. Plastic bags shall be used only for removing pocket mice from the traps (for extraction and processing). Trapped pocket mice shall be processed as quickly as possible to reduce stress to the animal. Pocket mice shall not be kept in plastic bags beyond 5 minutes. Extreme care shall be taken to avoid heat stress or suffocation. Trapped pocket mice that must be kept for longer periods of time shall be transferred into a clean, structurally sound, breathable container with adequate ventilation. At no time shall the pocket mouse be allowed to become stressed due to temperature extremes (either hot or cold).
- g. Each time the traps are placed, set, and baited, the traps shall be adjusted and set by hand at a sensitivity level appropriate for capturing the pocket mouse. When closing traps, each trap shall be visually inspected and closed by hand.
- h. Translocation activities are not authorized.
- i. Measures to prevent inadvertently missing traps shall, at a minimum, include:
 - i. All trap locations shall be identified with a unique identification code.
 - ii. While checking traps, a log sheet shall be used. Each time the trap is checked, the surveyor shall note the action on the log sheet. Periodically, the surveyor shall review the log sheet to ensure that no traps were inadvertently missed.
 - iii. The log sheet shall be in addition to (or incorporated into) other field notes or data sheets that are used for noting trap contents. The log sheet and field notes/data sheets (collectively, the "field documentation") shall be formatted to ensure the surveyor, trap (as identified by the unique identification code), and date/time checked are documented. Field documentation shall be available to the Service upon request.
 - iv. In the field, all trap locations shall be marked with flagging, reflective tape, or other technique that allows the surveyor to readily locate the traps under day and nighttime conditions. To the maximum extent possible, the markings shall be visible at a distance of at least 5 meters (16.3 feet).
- 9. Taking of the coastal California gnatcatcher (gnatcatcher):

The permittee is authorized to survey using taped gnatcatcher vocalizations within the geographic boundaries specified above, and the time limitation specified in the permit, provided that:

- a. Tapes may be used only until individuals have been initially located and not to elicit further behaviors.
- b. Activities are not conducted during inclement weather conditions that would significantly reduce the ability to detect the species or expose nest contents to the elements (e.g., rain, strong wind, fog).
- c. Surveys shall be conducted in accordance with the most recent Service approved protocol unless authorized in advance by the CFWO.

10. Taking of the least Bell's vireo (vireo):

The permittee is authorized to locate and monitor nests, and remove brown-headed cowbird (*Molothrus ater*) eggs and chicks from parasitized vireo nests within the geographic boundaries specified above, and the time limitation specified in the permit, provided that:

- a. Surveys shall be conducted in accordance with the approved Service protocol (attached) for vireo surveys unless authorized in advance by the Service.
- b. Activities are not conducted during inclement weather conditions that would significantly reduce the ability to detect the species or expose nest contents to the elements (e.g., rain, strong wind, fog).
- c. Nests are not visited more than once per day and three times per nesting season.
- d. Nests are not visited if western scrub-jays (*Aphelocoma californica*) or brownheaded cowbirds are detected in the immediate vicinity.
- e. The removal of brown-headed cowbird eggs and chicks is accomplished with minimal disturbance to any vireo eggs, chicks, or nesting adults. Replacement of cowbird eggs with dummy eggs (to preclude the abandonment of small clutches) shall be done at the discretion of the permittee.
- f. The permittee shall report any incidental detections and locations of potentially breeding flycatchers to the appropriate FWO.

11. Taking of the western snowy plover (plover):

The permittee is authorized to locate and monitor nests, within the geographic boundaries specified above, and the time limitation specified in the permit, provided that:

a. Disturbance to nesting plovers shall be avoided during certain climatic conditions such as high wind, extreme cold, and extreme heat. Attempts shall be made to minimize the amount of time spent in plover nesting areas.

- b. Activities are conducted in such a way that the safety of adults, chicks, and eggs is not compromised.
- c. No adults, fledglings, or chicks are to be captured, handled, or banded under this permit.
- 12. Taking of the southwestern willow flycatcher (flycatcher):

The permittee is authorized to survey for flycatchers using taped vocalizations within the geographic boundaries specified above and the time limitation specified in the permit, provided that:

a. All presence/absence surveys shall be conducted in accordance with the protocols prescribed by the field office or in current or revised versions of the following protocols:

Sogge, M.K., Ahlers, Darrell, and Sferra, S.J., 2010, A natural history summary and survey protocol for the Southwestern Willow Flycatcher: U.S. Geological Survey Techniques and Methods 2A-10, 38 p. The protocol and survey forms can be retrieved at the following web address (http://pubs.usgs.gov/tm/tm2a10/).

- b. Tapes are used only until individuals have been initially located and not to elicit further behavior.
- c. Activities are not conducted during inclement weather conditions that would significantly reduce the ability to detect the species or expose nest contents to the elements (e.g., rain, strong wind, fog).
- d. The permittee shall report within 24 hours, all detections and locations of potentially breeding flycatchers to the appropriate FWO.
- e. The permittee shall report any incidental detections and locations of potentially breeding vireos to the appropriate FWO office.

13. Taking of vernal pool branchiopods:

The permittee is authorized to sample and collect voucher specimens of the vernal pool branchiopods (both hatched adult individuals and resting eggs) within the geographic boundaries specified above, and the time limitation specified in the permit, provided that:

a. The permittee must implement all of the actions included in the attached 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 (Guidelines), dated April 19, 1996. The Guidelines will be updated periodically

- and the permittee must follow the most recent Guidelines after receipt of such. Any deviation from these Guidelines shall first be approved in writing by the appropriate FWO.
- b. As specified in the Guidelines, sampling/collecting of hatched individuals or resting eggs is not authorized at any specific location until the permittee requests approval from the appropriate FWO.
- c. The number of voucher specimens authorized to be collected and preserved is limited to no more than 20 hatched individuals of each species from each vernal pool (or swale) per sampling visit or less than 10 percent of the subpopulation in the vernal pool (or swale) during the sampling visit, whichever is the lesser amount.
- d. The permittee is authorized to collect an unquantifiable number of vernal pool branchiopod eggs contained within soil samples taken following the most recent Guidelines. The total amount of soil samples each calendar year should not exceed a ratio of 2 liters per each 10 square meters (approximately 2 percent at 1 centimeter deep) of estimated vernal pool surface area surveyed.
- e. The permittee shall disinfect sampling and field gear as follows:
 - i. Remove mud, snails, algae, and other debris from nets, traps, boots, vehicle tires, and all other surfaces. Rinse cleaned items with sterilized (e.g., boiled or treated) water before leaving each survey site.
 - ii. Boots, nets, traps, hands, etc. shall be scrubbed with either a bleach solution (0.5 to 1.0 cup per 1.0 gallon of water), Quat-128TM (1:60), or a 3 to 6 percent sodium hypochlorite solution and thoroughly rinsed clean with water between study sites. Cleaning equipment in the immediate vicinity of a pond or wetland shall be avoided (e.g., clean in an area at least 100 feet from aquatic features). Care shall be taken so that all traces of the disinfectant are removed before entering the next aquatic habitat.
 - iii. In remote locations, clean all equipment as described above upon return to the lab or base camp. Elsewhere, when washing machine facilities are available, remove nets from poles and wash with bleach on the delicates cycle, within a protective mesh laundry bag.
 - iv. Used cleaning materials (liquids, etc.) shall be disposed of safely at the lab. Used disposable gloves shall be retained for safe disposal in sealed bags.
- f. If the permittee observes California tiger salamanders (*Ambystoma californiense*) during the course of branchiopod field surveys, the locations shall be listed as

- UTM coordinates in the 90-day report referenced below, and an appropriate entry will be made in the California Natural Diversity Data Base (CNDDB).
- g. Within 90 days following completion of the last field visit at each project site, a report shall be submitted to the appropriate FWO following the general reporting format specified below. The report shall include all reporting criteria specified in the current Guidelines unless otherwise specified below:
 - i. Each survey report submitted to the Service shall include the following:
 - A. An introduction section addressing reasons and objectives for taking the species;
 - B. Methodology section addressing data collection and analysis procedures, the names of personnel, and the number and dates of surveys;
 - C. Results section that includes data collected (including reporting criteria specified in the Guidelines) and summarizes the data collected;
 - D. Conclusion section that specifically provides recommendations for recovery of the species and any other pertinent observations made during survey efforts.
 - ii. All vernal pool data sheets should be included as attachments to the final 90-day report. Vernal pool datasheets shall not solely be submitted as a final report for any one project site;
 - iii. The location of the project site and survey area shall be delineated on a USGS topographic map (1:24,000 scale), and the location of the listed vernal pool branchiopods (i.e., pools, swales, ponds) delineated on a USGS topographic map in as precise a manner as possible (e.g., UTM coordinates or location within a section);
 - iv. Reports submitted to the Service shall provide accurate and complete reporting of activities. Each report shall include the following certification statement and be signed by each surveyor or multiple surveyor(s) conducting activities pursuant to their individual recovery permit: "I certify that the information in this survey report and attached exhibits fully and accurately represent my work." The date of signature and the surveyor's permit number shall be included.

14. Taking of the California least tern (tern):

The permittee is authorized to survey, and locate and monitor nests within the geographic boundaries specified above, and the time limitation specified in the permit, provided that:

- a. Disturbance to nesting and brooding terns shall be avoided during certain climatic conditions, such as high wind and extreme cold or heat. Attempts should be made to minimize the amount of time spent in tern nesting areas.
- b. Activities are conducted in such a way that the safety of individual terms and their nests, eggs, and young are not comprised.
- c. When monitoring of least terms is to occur at western snowy plover nesting sites, the permittee shall contact the appropriate FWO to coordinate activities with the plover monitor(s), to minimize disturbance to the plovers.
- d. The permittee shall closely coordinate with other tern permittees when activities are in or near the same geographic area.
- e. Capture, banding, marking, and handling of adults, chicks, or eggs are not authorized under this permit.

15. Taking of the tiger salamander:

The permittee is authorized to capture, handle, and release larvae, juvenile, and adult tiger salamanders within the geographic boundaries specified above, and the time limitations specified in this permit, provided that:

- a. The permittee has submitted a proposal to survey or conduct research at a given site and has received written approval from the appropriate FWO to proceed. The permittee's request to conduct surveys or research activities shall include a description of the study site, maps or aerial photos of the site, and if appropriate a diagram of the layout of the traps and drift fences in relation to property boundaries, topographic features, etc. Requests to conduct surveys or research activities shall be submitted at least 15 days prior to the desired commencement of activities. Information may be submitted electronically if pre-arranged with the appropriate Recovery Permit Coordinator.
- b. The permittee shall use the most recent Service-approved guidance (guidance) for surveying for tiger salamanders except where this permit allows for divergence from the guidance.
- c. Tiger salamanders shall not be marked in any manner (e.g., toe clip, pit tag, etc.) unless approved in writing by the appropriate FWO.

- d. Capture of larval tiger salamanders in ponds is achieved via dip-netting with standard aquatic nets, minnow traps, cast nets, seines, and umbrella seines in the following manner:
 - i. Capture of larval tiger salamanders in ponds shall be done in a manner to avoid disturbing tiger salamander eggs. Sampling shall be conducted between March and May unless otherwise authorized by the appropriate FWO. If tiger salamander eggs are encountered, surveys shall cease until eggs have hatched. The permittee shall use dipnets with a maximum mesh size of 3.2 millimeters, however, a smaller mesh size is advised due to the possibility of newly hatched tiger salamander larvae passing through larger mesh sizes.
 - ii. The permittee must receive approval from the appropriate FWO prior to using minnow traps. Minnow traps shall be deployed overnight and checked frequently enough to ensure that larvae are not killed or injured, and do not exhibit signs of physiological stress due to low oxygen levels. The frequency of trap inspections shall be determined empirically for each site, but shall not exceed 24 hours between inspections. Minnow trap deployment shall be avoided when daytime high temperatures reach or exceed 80 degrees Fahrenheit, or when water temperatures reach or exceed 70 degrees Fahrenheit.
 - iii. The necessity of sampling in ponds shall be evaluated on a case-by-case basis. Sampling in ponds shall be done after most larvae in the pond have grown sufficiently that they can avoid being trampled. When possible, sampling shall be done in ways that minimize disruption of the pond's substrate. For instance, sampling of a small pond shall be done from the shoreline, and sampling of a large pond shall be done via walking a minimum number of transects as necessary through the pond while still retaining a rigorous sampling effort. If such areas must be crossed, they shall be traversed in the most direct and least disturbing manner possible.
- e. Capture of adult and juvenile tiger salamanders in terrestrial habitats shall be achieved by hand capturing. The use of drift fences and pitfall traps is not authorized with this permit.
 - i. Captured tiger salamanders shall be released as near as possible to the point of capture, in a manner that maximizes their survival. Tiger salamanders shall be released into the mouth of a small mammal burrow or other suitable refugia. Tiger salamanders shall be watched after release to be sure that they are in a safe location and are not susceptible to increased predation risk.

- ii. Activities that would result in small mammals abandoning burrows potentially used as refugia by tiger salamanders are prohibited.
- f. All handling of tiger salamanders must adhere to the following measures:
 - i. Handling shall be done in an expedient manner with minimal harm to the individuals being handled. The hands and arms of all workers handling tiger salamanders shall be free of lotions, creams, sunscreen, oils, ointment, insect repellent, or any other material that may harm tiger salamanders. Handling of tiger salamanders shall be done with wet hands.
 - ii. If captured tiger salamanders exhibit signs of distress (e.g., lack of response to stimuli or erratic behavior), they shall be immediately released at the point of capture.
 - iii. All captured tiger salamanders shall be released at the point of capture unless that location puts them in imminent danger, in which case they shall be placed in a nearby refugium sufficient to protect them.
 - Larval salamanders shall not be handled out of the water for longer than 30 seconds unless rewetted, and shall not be retained for longer than 5 minutes for processing.
- g. In an effort to minimize the spread of pathogens that may be transferred as a result of these surveys, surveyors shall follow the guidance outlined below for disinfecting equipment and clothing after surveying a pond and before entering a new pond, unless the wetlands are hydrologically connected to one another.
 - i. All organic matter shall be removed from nets, traps, boots, vehicle tires, and all other surfaces that have come into contact with water or potentially contaminated sediments. Cleaned items shall be rinsed with clean water before leaving each study site.
 - ii. Boots, nets, traps, hands, etc. shall be scrubbed with a bleach solution (0.5 to 1.0 cup per 1.0 gallon of water), Quat-128 (1 to 60), or a 3-6 percent sodium hypochlorite solution. Equipment shall be rinsed clean with water between study sites. Cleaning equipment in the immediate vicinity of a pond or wetland shall be avoided (e.g., clean in an area at least 100 feet from aquatic features). Care shall be taken so that all traces of the disinfectant are removed before entering the next aquatic habitat.
 - iii. When working at sites with known or suspected disease problems,disposable gloves shall be worn and changed after handling each animal.Gloves shall be wetted with water from the site or distilled water prior to

- handling any amphibians. Gloves shall be removed by turning inside out to minimize cross-contamination.
- iv. Used cleaning materials (liquids, etc.) shall be disposed of safely, and if necessary taken back to the lab for proper disposal. Used disposable gloves shall be retained for safe disposal in sealed bags.
- h. Photographs shall serve as voucher specimens unless otherwise approved by the appropriate FWO. In instances where collection of voucher specimens is authorized, they are to be collected in the following manner:
 - i. Specimens shall only be taken from new localities or localities that have not been validated for more than 10 years and have a minimum population size of at least 100 larval individuals.
 - ii. Only one tiger salamander shall be removed from any such site.
 - iii. The permittee shall preserve the voucher specimens in accordance with standard museum practices and deposit the specimens at a designated depository listed below.
- i. Information on new localities for the tiger salamander shall be reported verbally and followed up in writing to the appropriate FWO and the California Natural Diversity Database within 3 working days of their discovery. Information may be submitted electronically if pre-arranged with the Recovery Permit Coordinator.
- 16. Taking of the Tipton kangaroo rat and the giant kangaroo rat (kangaroo rats):

The permittee is authorized to capture and immediately release individuals, at the capture site or to a suitable site, within the geographic boundaries specified above, and the time limitation specified in the permit, provided that:

- a. Only Sherman live traps with sufficient length or modification to eliminate or substantially reduce the risk of tail injury (e.g., tail lacerations or excisions) shall be used to capture kangaroo rats.
- b. The permittee shall undertake all necessary precautions, including placement of insulating materials over and/or inside traps and timely checking of traps, to minimize risk of exposure to captured animals. Traps shall be checked at least every 3 hours or as deemed appropriate by the applicable FWO. Traps must be checked during favorable weather conditions and shall be completed no later than 1 hour after sunrise. Trapping shall not be conducted if the nightly low temperature is forecasted to be below 50 degrees Fahrenheit, extended rains or weather have made conditions unsuitable for trapping, or it would unduly jeopardize the lives of the animals.

- c. Traps shall be sterilized prior to use at new locations.
- d. Individuals showing signs of stress during capture or handling shall be released immediately.
- e. No mutilation marking scheme (e.g., toe-clipping, ear-clipping) is allowed. No invasive technique (e.g., PIT-tagging) is allowed unless specifically authorized by the Region 8 office. Other marking schemes (e.g., hair clipping, ear-tagging) are permissible with prior approval by the appropriate FWO.
- f. Trapping efforts and methodologies shall be coordinated with the California Department of Fish and Game (CDFG) to increase the potential for trapping success and minimize the potential for inadvertent harm or mortality to individual animals. The CDFG contacts are Mr. Ron Schlorff (telephone: 916-654-4262) and Mr. Rod Goss (telephone: 209-222-3761).
- g. The permittee shall provide the appropriate FWO with a report containing all of the survey information as specified below no more than 90 calendar days after completing the survey at each project site. The report shall include, but not be limited to:
 - i. The location of the survey area delineated on a U.S. Geological Survey (USGS) topographic map (1:24,000 scale).
 - ii. A general habitat description (terrain, physical features, slope, aspect, and current and past land use) of the survey area and adjacent sites and a description of the plant community (dominant species, percent coverage, etc.) at the survey area;
 - iii. A topographic site map (at 1" to 200' scale or greater detail) showing the locations of potential and active kangaroo rat burrows;
 - iv. A complete description of survey methods, including names of personnel, number of acres surveyed per biologist per survey-day, dates of surveys, number of transects and traps used per survey, and the temperature and weather conditions at the beginning and end of each survey. The transects and location of all traps should be delineated on the topographic map, as specified above.
 - v. Data sheets showing weight, age, sex, species, and number of hind toes of all kangaroo rats (regardless of species) captured. This data shall be plotted on a 1" to 200' scale USGS topographic map of the survey area.
 - vi. Color photographs that portray the general landscape of the site, and occupied and potential burrows. The following information shall be

legibly written on each photograph with permanent ink: (A) precise location within the project site; (B) direction from which the photograph was taken; (C) date of photograph; (D) initials of photographer; and (E) whether or not any kangaroo rats were trapped near the burrow.

- vii. A discussion of the results found. If kangaroo rats are found, assess the direct, indirect, interrelated, and cumulative impacts of the project on the species. If kangaroo rats are not captured, analyze why the site might not support these species. Discuss future research needs and any conservation recommendations.
- viii. Copy of site-specific approval from the Service, completed California Natural Diversity Database forms, and other documentation as appropriate.
- 17. Taking of the unarmored threespine stickleback (stickleback):

The permittee is authorized to survey by capture, handle, and release all individuals within the geographic boundaries specified above, and the time limitation specified in the permit, provided that:

- a. All sticklebacks shall be returned in good condition to the point of capture unless an adverse natural (non-manmade) disturbance is occurring, in which case they may be relocated away from disturbance areas and moved to the nearest part of the stream with appropriate habitat. As necessary, sticklebacks may be blocked temporarily from returning to the immediate capture sites by use of nets.
- b. If minnow traps are used, they shall be checked at intervals of at least 12 hours.
- c. Any sticklebacks exhibiting signs of physiological stress shall be immediately released at the point of capture.
- d. Sticklebacks shall be removed from the water only if necessary to facilitate counting; bagged portions of seines shall remain in the water until all sticklebacks are removed.
- e. Temporary holding containers, if used during surveys, shall be shallow, filled with clean water, aerated if appropriate, and placed in a location that will not result in exposure to extreme temperatures.
- f. Sticklebacks shall not be anesthetized at any time.
- 18. Minor deviation from the stipulated terms and conditions may be authorized by the appropriate FWO unless an amendment to this permit is required.

- Within 45 days following completion of a survey for the gnatcatcher, vireo, flycatcher, 19. tern, salamander, Quino, or pocket mice, a report shall be submitted to the Recovery Permit Coordinator of the appropriate FWO that includes: (a) the location of the survey area delineated on a USGS topographic map (1:24,000 scale); (b) a qualitative description of the plant communities (including dominant species and habitat quality) on and adjacent to the survey area; (c) a complete description of survey methods including the names of personnel, the number of acres surveyed per biologist per survey-day, the number and dates of surveys, survey routes, the temperature and weather conditions at the beginning and end of each survey, and how frequently taped vocalizations were used, if at all; (d) the number, age (adult, juvenile, unknown), and the sex of all gnatcatchers, vireos, flycatchers, terns, salamanders, Quino, pocket mice, and brown-headed cowbirds detected; these data shall also be plotted on 1:24,000 scale map(s) of the survey area: (e) for the flycatcher only, copies of all field data forms with positive or negative results; (f) the APN for the site (if possible); (f) GIS data or GPS coordinates (if possible); (g) a conclusion section that specifically provides recommendations for recovery of the species; and (g) other pertinent observations made during survey efforts. Reports may be submitted electronically if pre-arranged with the Recovery Permit Coordinator.
- 20. This permit does not cover any activities authorized pursuant to a biological opinion or habitat conservation plan (HCP). All such activities must be authorized by the office that wrote the biological opinion, issued the section 10(a)(1)(B) incidental take permit based on an HCP, or is the lead field office implementing the HCP. Note also that this permit is not to be construed as meaning that the permittee or other authorized individuals are qualified to conduct activities pursuant to a biological opinion or HCP except insofar as the activities are similar to those authorized in this permit. Their qualifications for activities to be done pursuant to the biological opinion are subject to review and written approval for the specific activities by the office that wrote the biological opinion, issued the section 10(a)(1)(B) incidental take permit based on an HCP, or is the lead field office implementing the HCP.
- 21. This permit does not authorize take of federally listed species that are not specifically authorized pursuant to this permit. However, the Service acknowledges that incidental take of a co-occurring federally listed species could potentially occur while conducting certain permitted activities for some species. Although, incidental take of a co-occurring federally listed species is more likely to occur for some species and activities than another, and that incidental take of a co-occurring federally listed species may not occur at all for some permitted activities, when applicable, the following conditions now apply to all federally listed animals that the permittee is not authorized to take pursuant to this permit, but which may be incidentally sighted, encountered, captured, injured, or killed:
 - a. Each individual authorized pursuant to this permit shall be knowledgeable about potentially co-occurring listed species that may occur throughout the habitats in which permitted activities are conducted and must be observant and cautious to the extent that "take" of a co-occurring listed species is minimized to the maximum extent practicable.

- b. Any federally listed animal that the permittee is not authorized to take pursuant to this permit, but is incidentally captured during the course of conducting authorized activities, shall be released immediately at the point of capture.
- c. During the course of your permitted activities, if an incidental injury or mortality occurs to a federally listed species not authorized in this permit, the permittee shall follow instructions specified in condition number 22 below.
- d. Any incidental capture, injury or mortality of a federally listed species not authorized in this permit shall be recorded and reported in the annual report submitted pursuant to this permit.
- e. We request that all incidental encounters and/or sightings of other federally listed species not authorized under this permit be recorded and reported in the annual report submitted pursuant to this permit and also reported to the CNDDB as specified in condition number 25 below.
- 22. The number of individuals allowed to be incidentally injured or killed during permitted activities is: 0 (zero) (adults, chicks, or eggs) gnatcatchers, vireos, plovers, flycatchers, terns; zero pocket mice, kangaroo rats or Quino (including larvae, pupae, and web); 10 individuals of each vernal pool branchiopod species (and an unquantifiable number of eggs); or 0 (zero) tiger salamanders (larval, juvenile, or adult) in any calendar year.
 - a. Any incidental injury or killing must be reported within 3 working days to the Regional Recovery Permit Coordinator of the Pacific Southwest Region (Region 8 Office) and the Recovery Permit Coordinator of the appropriate FWO.
 - b. In the event that the number of individuals allowed to be incidentally injured or killed is exceeded during the performance of permitted activities, the permittee must:
 - i. Immediately cease the activity until reauthorized by the Regional Recovery Permit Coordinator, which may, after analysis of the circumstances of injury or mortality, revoke or amend this permit.
 - ii. Immediately notify the Regional Recovery Permit Coordinator (telephone: 760-431-9440) and the Recovery Permit Coordinator of the appropriate FWO. Within 3 working days, the permittee shall follow-up such verbal notification in writing to each office.
 - iii. With the written notification, the permittee is to provide a report of the circumstances that led to the injury or mortality. A description of the changes in protocols that will be implemented to reduce the likelihood of such injury or mortality from occurring again should be included, if appropriate. A copy of this report shall also be sent to the California

Department of Fish and Wildlife (CDFW), Attention: Permit Biologist, Wildlife Branch, 1812 Ninth Street, Sacramento, California 95811 (telephone: 916-445-3764).

- c. Dead specimens and/or appropriate parts of dead specimens that are incidentally taken pursuant to this section shall be preserved in accordance with standard museum practices. Within 90 days, the preserved specimen(s) shall be properly labeled and deposited with one of the designated repositories specified below. The permittee shall supply the repository with a copy of this permit to validate that the specimens supplied to the museum were taken pursuant to a permit.
- 23. The permittee is authorized to salvage all gnatcatcher, Quino, pocket mice, flycatcher, vernal pool branchiopod, plover, vireo, tern, salamander, kangaroo rat, and stickleback carcasses to be provided to one of the designated depositories within 90 days by following condition 22(c) above. Any salvaged species mentioned herein shall be documented and specified in the annual report submitted to the appropriate field office.

24. Designated depositories:

a. For the vernal pool branchiopods:

The California Academy of Sciences, Golden Gate Park, San Francisco, California; the Los Angeles County Museum of Natural History, Los Angeles, California; the Bohart Museum, University of California, Davis, California; the SFWO; the CFWO; or any other institution designated in writing by the SFWO.

b. For the gnatcatcher, flycatcher, tern, pocket mouse, and vireo:

The Los Angeles County Museum of Natural History, Los Angeles, California; the San Diego Natural History Museum, San Diego, California; or the San Bernardino County Natural History Museum, Redlands, California.

c. For the plover, and tiger salamander:

The Humboldt State University, Arcata, California; the California Academy of Sciences, Golden Gate Park, San Francisco, California; or the Museum of Vertebrate Zoology, University of California, Berkeley, California.

d. For the Quino:

The Entomological Museum, University of California, Riverside, California.

e. For the Tipton and giant kangaroo rats:

The University of California, Berkeley Museum of Vertebrate Zoology, Berkeley, California; the University of California, Davis, California; or the Museum of Natural History of Los Angeles County, Los Angeles, California.

f. For the stickleback:

The Los Angeles County Museum of Natural History, Los Angeles, California.

- 25. California Natural Diversity Database forms shall be completed, as appropriate, for each listed species addressed herein and submitted to the Biogeographic Data Branch, CDFG, 1807 13th Street, Suite 202, Sacramento, California 95811 (also accessible online at http://www.dfg.ca.gov/biogeodata/cnddb), with copies submitted to the appropriate FWO. Copies of the form can be obtained from the CDFG at the above address (telephone: 916-324-3812). Each form sent to the CDFG, for the vernal pool branchiopods, shall have an accompanying 1:24,000 scale USGS map of the site (or an exact scale photocopy of the appropriate portion(s) of the map).
- All reports or other documents that include information gathered under the authority of this permit (e.g., reports prepared by consulting firms for their clients or scientific journal articles) shall reference this permit number. Copies of such documents shall include a transmittal letter and be provided to the appropriate FWO upon their completion. Draft documents, raw/field data, and other information resulting from work conducted under the authority of this permit shall be submitted to the Service upon request

27 Annual reports:

Two types of annual reports shall be submitted to the Recovery Permit Coordinator at the AFWO, SFWO, CFWO and VFWO as listed in condition 5 above by January 31, following each year this permit is in effect as specified below.

a. Annual summary report:

In order to track, document, and assess all project specific activities conducted pursuant to this permit, we are requiring an annual summary report be submitted that summarizes all of the activities conducted pursuant to this permit during the previous calendar year. Activities that are continuous (i.e., overlapping in two or more calendar years), must be reported each year the activity is in effect. The AFWO, SFWO, CFWO and VFWO shall receive separate, independent summary reports specifying only those permitted activities conducted within their respective jurisdictions. The annual summary report shall be in the following format to include and not be limited to the following:

i. Permittee name and number with date of expiration

- ii. A section listing all authorized activities conducted for each permitted species during the previous calendar year. This information can be in tabular format and should provide a summary of each activity for each species authorized in this permit. This section shall include but not be limited to:
 - A. The name and title of each specific project or survey activity conducted during the previous calendar year, preferably the same title as the comprehensive survey and/or annual reports previously or concurrently being submitted to the Service (as referenced in condition numbers 13(g) and 19 above; and 27(b) below);
 - B. The specific location of the project site, including the County;
 - C. The common and scientific names of the listed species for which the permitted activity was conducted;
 - D. The numbers of individuals observed and the dates of observation;
 - E. The date and name of the Service office where each individual comprehensive project report(s) have been or will be submitted; and
 - F. Whether or not GIS data was submitted.
 - G. The version of each activity report (draft or final) and the report date. If a draft report was submitted, indicate the reason (ongoing activities; processing/analysis of data, final report in review, final report in progress, etc.) and the anticipated final report finish date.
- iii. Number of individual gnatcatcher, Quino, pocket mice, flycatcher, vernal pool branchiopod, plover, vireo, tern, salamander, kangaroo rat, and stickleback incidentally injured and/or killed, including dates, locations, circumstances of take, and depository receiving the preserved specimen(s). If no injuries or mortalities occurred, please state this in writing in your annual summary report.
- iv. Other pertinent observations made regarding the status or ecology of the species.
- v. Planned future activities, if authorized under this permit.
- vi. If no activities were conducted with any or all species authorized under the permit during the previous year, you must state this in writing in your annual summary report.

b. Comprehensive project reports:

- i. For any permitted activity conducted pursuant to this permit for which a report is not addressed in conditions number 13(g) or 19 above (such as nest monitoring activities or stickleback activities), the permittee shall submit an annual comprehensive report in the following format: (i) an introduction section addressing reasons and objectives for taking the species; (ii) a methodology section which includes an overview of the study design and methods used to collect and analyze data; (iii) a results section that provides and summarizes the data collected, including information on any other federally listed species detected while conducting activities authorized under this permit; and (iv) a conclusion section that specifically provides recommendations for recovery of the species and any plans for future studies. Activities that are continuous (i.e., overlapping in two or more calendar years), must be reported each year the activity is in effect to the appropriate FWO as applicable. If no activities occurred over the course of a year, indication of such shall be submitted as an annual report. Information may be submitted electronically if prearranged with the Recovery Permit Coordinator. The annual report shall include, but not be limited to:
 - A. Summary presentations and brief discussions of survey, research, population monitoring and/or distribution results;
 - B. The location(s) sampled and/or survey area(s) delineated on a 7.5 minute USGS topographic map at 1:24,000 scale, with the name of the USGS quadrangle identified on the map;
 - C. The names of all personnel that conducted and/or participated in the permitted activity and their associated permit number(s).
 - D. The results of all sampling efforts, including estimates of population sizes and genetic analyses (if applicable);
 - E. A qualitative description of the aquatic community and/or plant communities (including dominant species and habitat quality) on and adjacent to the survey area;
 - F. A complete description of survey methods, the number and dates of surveys, survey routes, temperature and weather conditions at the beginning and end of each survey, water temperatures, water flow rate, water conductivity, water pH, survey effort (i.e., number of netting hours, or siene hauls), presence of nests, fry and young, reproductive condition, and overall condition of stickleback sampled (presence of parasites, abnormalities, or injuries);
 - G. The number, size, weight, age (adult, juvenile, unknown), and sex of all sticklebacks detected;
 - H. Numbers of individuals incidentally killed, including dates, locations, circumstances of take, and depository receiving the preserved specimen(s);
 - I. Reports or other documents that include information gathered

- under the authority of this permit;
- J. Other pertinent observations made during sampling efforts regarding the status or ecology of the species; and
- K. Planned future activities if authorized under this permit.
- L. If no activities were conducted within any jurisdictional field office specified in condition number 5 above during the previous year, send a "statement of no activity" to the Recovery Permit Coordinator of the appropriate FWO.
- M. Upon completion of the study, a final comprehensive report shall be submitted to the Recovery Permit Coordinator of the appropriate FWO as applicable that includes the reporting criteria specified above and provides a final analysis of all data collected. The final report should explain if and how the defined goals of the authorized research project were reached.
- N. For the plover nest monitoring activities, the results and analysis section shall also include, but not be limited to, the following: (i) abundance and distribution of plovers; (ii) number of nesting pairs; (iii) nest initiations, total eggs laid, number of chicks hatched, other outcomes of eggs (i.e., abandoned, predated); (iv) fledgling success; (v) brood movements and habitat use; (vi) sources of breeding failure; and (vii) maps depicting the distribution of all plover nests at each nesting site.
- 28. Failure to comply with reporting requirements may result in the non-renewal or suspension/revocation of this permit.

2/27/()
Date

Endangered Species Division Chief



United States Department of the Interior



FISH AND WILDLIFE SERVICE Pacific Southwest Region 2800 Cottage Way, Suite W-2606 Sacramento, California 95825-1846

LIST OF AUTHORIZED INDIVIDUALS TE-820658-6

- 1. Individual authorized to independently conduct survey activities for the Pacific pocket mouse pursuant to this permit:
 - Chris Wilcox, John Ko.
- 2. Individuals authorized to independently conduct survey activities for the coastal California gnatcatcher pursuant to this permit:
 - Lyndon Quon, Bonnie Hendricks, James Prine, Erin Riley, Barbra Calantas, Andrew Fisher, Donna Germann, James McMorran, and John Ko.
- 3. Individuals authorized to independently conduct survey activities for the southwestern willow flycatcher pursuant to this permit:
 - Lyndon Quon, Erin Riley, Brennan Mulrooney, Andrew Fisher, and James McMorran.
- 4. Individuals authorized to independently conduct survey activities for the Quino checkerspot butterfly pursuant to this permit:
 - Bonnie Hendricks, Erin Riley, Barbra Calantas, Erin Bergman, Andrew Fisher, and Shirley Innecken.
- 5. Individuals authorized to independently conduct survey activities for vernal pool branchiopods pursuant to this permit:
 - Andrew Fisher, Ellen Tatum, Tracy Walker, Lance Woolley, Matt Wacker, Shirley Innecken, Barbra Calantas, Donna Germann, Linnea Spears-Lebrun, Karen Miller-Lacoste, and Eric Bergman.
- 6. Individual authorized to independently conduct survey activities for vernal pool branchiopods pursuant to this permit within the jurisdiction of the Carlsbad Fish and Wildlife Office only:
 - Katie Hall and Lindsay Teunis.

LIST OF AUTHORIZED INDIVIDUALS TE-820658-6

7. Individuals authorized to independently locate and monitor nests for the least Bell's vireo pursuant to this permit:

Leo Edson and James McMorran.

8. Individuals authorized to independently conduct survey activities, and locate and monitor nests for the western snowy plover pursuant to this permit:

Leo Edson, James McMorran, and Brennan Mulrooney.

9. Individuals authorized to independently conduct survey activities for the California least tern pursuant to this permit:

Brennan Mulrooney.

10. Individuals authorized to independently conduct survey activities for the California tiger salamander pursuant to this permit:

Shannon Hickey.

11. Individuals authorized to independently conduct survey activities for the Tipton kangaroo rat and giant kangaroo rat pursuant to this permit:

John Ko.

12. Individual authorized to independently capture, handle, and release the unarmored threespine stickleback pursuant to this permit:

Brian Felton.

Supervised individuals may conduct activities pursuant to this permit only under the direct, onsite supervision of an above-named independently authorized individual. "On-site supervision" is defined as a supervised individual conducting activities within 3 meters (9.8 feet) of an independently authorized individual.

Date

2/27/13

Endangered Species Division Chief

This List is only valid if it is dated on or after the permit issuance date.

Biologist Name	Survey	Years of Experience	10(a)1(A) Permit Number
Erik LaCoste	Quino Checkerspot Butterfly Survey, 2012 and 2013	14	TE027736-5
Viviane Marquez	Quino Checkerspot Butterfly Survey, 2012	20	TE800930-10
Jeffery Lincer	Western Burrowing Owl Survey, 2012	40	N/A
Brennan Mulrooney	Western Burrowing Owl Survey 2011, Least Bell's Vireo Survey 2011, Western Burrowing Owl Survey 2013	12	N/A
Erin Bergman	Quino Checkerspot Butterfly Survey, 2011	9	TE820658-6
Bonnie Hendricks	Quino Checkerspot Butterfly Survey, 2011, Coastal California Gnatcatcher Survey 2011	20	TE820658-6
James McMorran	Coastal California Gnatcatcher Survey 2012, Western Burrowing Owl Survey 2013	10	TE820658-6
Brynne Mulrooney	Western Burrowing Owl Survey, 2012, Western Burrowing Owl Survey 2013	14	NA
Mark Roll	Western Burrowing Owl Survey 2013	6	NA
Michael Anguiano	Western Burrowing Owl Survey 2013	6	NA
Andrew Fisher	Western Burrowing Owl Survey 2013	7	NA

DEPARTMENT OF THE INTERIOR



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FISH & WILDLIFE SERVICE FEDERAL	L FISH AND WILDLIFE P	ERMIT	2. AUTHORITY-STATUIES 16 USC 1539(a) 16 USC 1533(d)	
			16 USC 703-712	
1. PERMITTEE			REGULATIONS 50 CFR 17.22	
			50 CFR 17.32 50 CFR 21.23 & 21.27	
DAVID ERIK LACOSTE dba LACOSTE BIOLOGICAL CO 1565 LILAC ROAD	ONSULTING		50 CFR 13	
RAMONA, CA 92065			3, NUMBER TE027736-5	AMENDMENT
U.S.A.			4. RENEWABLE	5. MAY COPY
			YES NO	YES NO
			6. EFFECTIVE 01/13/2012	7. EXPIRES 01/12/2016
8. NAME AND TITLE OF PRINCIPAL OFFICER (IJ # I	is a business)	9. TYPE OF PERMIT NATIVE ENDANGERED & THE WILDLIFE; MIGRATORY BIR		/ERY - E & T
10. LOCATION WHERE AUTHORIZED ACTIVITY MAY ON LANDS SPECIFIED WITHIN TO		S AND CONDITIONS		:
11. CONDITIONS AND AUTHORIZATIONS: A. GENERAL CONDITIONS SET OUT IN SUBPART MADE A PART OF THIS PERMIT. ALL ACTIVI SUBMITTED. CONTINUED VALIDITY, OR RENFILING OF ALL REQUIRED INFORMATION AN B. THE VALIDITY OF THIS PERMIT IS ALSO CON	TIES AUTHORIZED HEREIN MUST BE CARRIEI REWAL, OF THIS PERMIT IS SUBJECT TO COMI REPORTS. REPORTS OF A REPORT OF A	D OUT IN ACCORD WITH AND FOR THE PUI PLETE AND TIMELY COMPLIANCE WITH AL	RPOSES DESCRIBED IN THE L APPLICABLE CONDITIONS, I	APPLICATION NCLUDING THE
C. VALID FOR USE BY PERMITTEE NAMED ABO	VE.			
D. Further conditions of authorization a	are contained in the attached Specia	al Terms and Conditions.		
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ADDITIONAL CONDITIONS AND AUTHORI	ZATIONS ALSO APPLY			
12. REPORTING REQUIREMENTS ANNUAL REPORT DUE: 1/31 See permit conditions for reporting	g requirements.			
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milaefM, for	TITLE ENDANGERED SPECIES DIVISION	ION CHIEF		DATE 01/13/2012
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SPECIAL TERMS AND CONDITIONS David Erik LaCoste

- 1. This permit was previously issued on August 28, 2007. The terms and conditions set forth in that permit are hereby superseded by this amendment.
- 2. Acceptance of this permit serves as evidence that the permittee understands and agrees to abide by the "General Conditions for Native Endangered and Threatened Wildlife Species Permits," 50 CFR Part 13, 50 CFR 17.22 (endangered wildlife), and/or 50 CFR 17.32 (threatened wildlife), as applicable (copies attached). In addition, the permittee must have all applicable State and Federal permits prior to the commencement of activities authorized by this permit.
- 3. The permittee is authorized to take (harass by survey) the coastal California gnatcatcher (*Polioptila californica californica*); take (survey by pursuit) the Quino checkerspot butterfly (*Euphydryas editha quino*); take (harass by survey, capture, handle, release, collect vouchers, and collect branchiopod cysts) the Conservancy fairy shrimp (*Branchinecta conservatio*), the longhorn fairy shrimp (*Branchinecta longiantenna*), the Riverside fairy shrimp (*Streptocephalus woottoni*), the San Diego fairy shrimp (*Branchinecta sandiegonensis*), the vernal pool fairy shrimp (*Branchinecta lynchi*), and the vernal pool tadpole shrimp (*Lepidurus packardi*); and take (harass by survey) the southwestern willow flycatcher (*Empidonax traillii extimus*) in conjunction with surveys for the purpose of enhancing their survival, as specified in the permittee's July 24, 2011, permit renewal request, in accordance with the conditions stated below.
- 4. Permitted activities are restricted to the following geographic areas:

Throughout the range of each species.

Notifications to conduct research pursuant to this permit at specific locations within the above referenced areas shall be submitted in writing to the Recovery Permit Coordinator at the appropriate Fish and Wildlife Office (FWO) of the U.S. Fish and Wildlife Service (Service) at least 15 days prior to conducting activities. The appropriate FWO is determined as follows:

i. For California:

For the Central Valley hydrographic basin and the coast ranges north of the Santa Cruz County line, contact the Sacramento Fish and Wildlife Office (SFWO), 2800 Cottage Way, W-2605, Sacramento, California 95825 (telephone: 916-414-6600; fax: 916-414-6710). For areas from Santa Cruz County south to Los Angeles County north of the Angeles National Forest, contact the Ventura Fish and Wildlife Office (VFWO), 2493 Portola Road, Suite B, Ventura, California 93003 (telephone: 805-644-1766; fax: 805-644-3958). For areas from Los Angeles County including and south of the Angeles National Forest to San Diego County, contact the Carlsbad Fish and Wildlife Office (CFWO), 6010 Hidden Valley

Road, Suite 101, Carlsbad, California 92009 (telephone: 760-431-9440; fax: 760-431-9624).

ii. For Nevada:

Nevada Fish and Wildlife Office (NFWO), 4701 North Torrey Pines Drive, Las Vegas, Nevada 89130 (telephone: 702-515-5230; fax: 702-515-5231)

iii. For Arizona:

Arizona Ecological Services Field Office (AESFO), 2321 W. Royal Palm Road, Suite 103, Phoenix, Arizona 85021-4951 (telephone: 602-242-0210; fax: 602-242-2513).

iv. For New Mexico:

New Mexico Ecological Services Field Office (NMESFO) at telephone 505-346-2525.

v. For Texas:

Austin Ecological Services Field Office (Austin ESFO) at telephone 512-490-0057.

iv. For Colorado:

Colorado Field Office (CFO), Ecological Services, 764 Horizon Drive, Suite B, Grand Junction, Colorado 81506 (telephone: 970-243-2778).

v. For Utah:

Utah Field Office (UFO), 2369 Orton Circle, Suite 50, West Valley City, Utah 84119 (telephone 801-975-3330).

Notifications shall include, as appropriate: (a) an explanation of the purpose of the study and a clear description of methods, including the names of field personnel and the number and dates of surveys; (b) the number of vernal pools or acres proposed to be surveyed; (c) the number of individual branchiopods proposed to be collected; (d) the name of the individual who will be completing the soil processing and/or preliminary vernal pool branchiopod cyst identification; (e) a map (at a minimum, a 1:24,000 scale U.S. Geological Survey (USGS) topographical map) depicting the location of the survey site(s); (f) the assessor's parcel number (APN) for the site (if possible); and (g) geographic information system (GIS) data depicting the survey site or global positioning system (GPS) coordinates (if possible). Information may be submitted electronically if pre-arranged with the Recovery Permit Coordinator.

After 15 days of the Service's receipt of the notification, the permittee may commence activities authorized by this permit unless authorization is denied by the Service. If the permittee is denied authorization to conduct activities at the requested location(s), including previously authorized sites, a request for reconsideration may be submitted to the Endangered Species Division Chief at the Service's Regional Office for the Pacific Southwest Region (Region 8), 2800 Cottage Way, Room W-2606, Sacramento California 95825-1846, as provided in 50 CFR 13.29. The procedures specified in 50 CFR 13.29(b) must be followed.

5. Authorized individuals:

Only individuals on the attached List of Authorized Individuals (List) are authorized to conduct activities pursuant to this permit. The List, printed on Service letterhead, may identify special conditions or circumstances under which individuals are authorized to conduct permitted activities and must be retained with these Special Terms and Conditions. Each named individual shall be responsible for compliance with the terms and conditions of this permit.

To request changes to the List, the permittee shall submit written requests to the Recovery Permit Coordinator at the CFWO. The request shall be submitted at least 30 days prior to the requested effective date. The request shall be signed and dated by the permittee and include:

- a. The name of each individual to be appended to the List;
- b. The resume/qualifications statement of each person to be appended to the List, detailing their experience with each species and type of activity for which authorization is requested;
- c. The names, email addresses and phone numbers of a minimum of two references; and
- d. The names of the individuals to be deleted from the List.

Note: This procedure is for personnel changes only. For requests to renew/amend this permit, a complete application must be submitted to the Endangered Species Division Chief at the Region 8 Office

6. Taking of the coastal California gnatcatcher (gnatcatcher):

The permittee is authorized to survey for gnatcatchers using taped vocalizations within the geographic boundaries specified above, and the time limitation specified in the permit, provided that:

a. Tapes are used only until individuals have been initially located and not to elicit further behavior.

- b. Surveys shall be conducted in accordance with the approved Service protocol (attached) unless authorized in advance by the appropriate FWO.
- c. Activities are not conducted during inclement weather conditions that would significantly reduce the ability to detect the gnatcatcher or expose nest contents to the elements (e.g., rain, strong wind, fog).
- 7. Taking of the Quino checkerspot butterfly (Quino):

The permittee is authorized to survey by pursuit, handle, and live-capture Quino for the purposes of identification by the Service or its representatives within the geographic boundaries specified above, and the time limitation specified in the permit, provided that:

- a. Survey, handling, and capture activities shall be conducted in accordance with the most recent Service approved protocol (attached) for the Quino unless authorized in advance by the appropriate FWO.
- b. Handling and capture is limited to one individual Quino larva, pupa, or adult per site.
- c. The permittee shall successfully pass the most recent version of the Service's practical examination for the Quino prior to initiating focused surveys unless authorized in advance by a letter from the Service.
- d. Host and nectar plants are not to be removed from the field.
- 8. Taking of the Conservancy fairy shrimp, the longhorn fairy shrimp, the Riverside fairy shrimp, the San Diego fairy shrimp, the vernal pool fairy shrimp, and the vernal pool tadpole shrimp (hereafter collectively referred to as vernal pool branchiopods):

The permittee is authorized to sample and collect voucher specimens of the above vernal pool branchiopods (both hatched individuals and eggs) within the geographic boundaries specified above, and the time limitation specified in the permit, provided that:

- a. The permittee must implement all of the actions included in the attached 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 (Guidelines), dated April 19, 1996. The Guidelines will be updated periodically and the permittee must follow the most recent Guidelines after receipt of such. Any deviation from these Guidelines shall first be approved verbally or in writing by the appropriate FWO.
- b. As specified in the Guidelines, sampling/collecting of hatched individuals or eggs is not authorized at any specific location until the permittee obtains approval from the appropriate FWO.

Note: The sampling and preservation of voucher specimens from locations that have been previously surveyed will not be authorized, except in cases where the adequacy of the earlier survey work is in doubt or otherwise should be repeated as determined by the Service.

- c. The number of voucher specimens authorized to be collected and preserved is limited to no more than 20 hatched individuals of each species from each vernal pool (or swale) per sampling visit or less than 10 percent of the subpopulation in the vernal pool (or swale) during the sampling visit, whichever is the lesser amount.
- d. The permittee is authorized to collect an unquantifiable number of vernal pool branchiopod eggs contained within soil samples taken following the most recent Guidelines. The total amount of soil samples each calendar year should not exceed a ratio of 2 liters per each 10 square meters (approximately 2 percent at 1 centimeter deep) of estimated vernal pool surface area surveyed.
- e. The permittee shall disinfect sampling and field gear as follows:
 - i. Remove mud, snails, algae, and other debris from nets, traps, boots, vehicle tires, and all other surfaces. Rinse cleaned items with sterilized (e.g., boiled or treated) water before leaving each survey site.
 - ii. Boots, nets, traps, hands, etc. shall be scrubbed with a bleach solution (0.5 to 1.0 cup per 1.0 gallon of water), Quat-128TM (1:60), or a 3 to 6 percent sodium hypochlorite solution and thoroughly rinsed clean with water between study sites. Cleaning equipment in the immediate vicinity of a pond or wetland shall be avoided clean in an area at least 100 feet from aquatic features). Care shall be taken so that all traces of the disinfectant are removed before entering the next aquatic habitat.
 - iii. In remote locations, clean all equipment as described above upon return to the lab or base camp. Elsewhere, when washing machine facilities are available, remove nets from poles and wash with bleach on the delicates cycle, within in a protective mesh laundry bag.
 - iv. Used cleaning materials (liquids, etc.) shall be disposed of safely at the lab. Used disposable gloves shall be retained for safe disposal in sealed bags.
- f. If the permittee observes California tiger salamanders (*Ambystoma californiense*) during the course of branchiopod field surveys, the locations shall be listed as UTM coordinates in the 90-day report referenced below, and an appropriate entry will be made in the California Natural Diversity Data Base (CNDDB).

- g. Within 90 days following completion of the last field visit at each project site, a report shall be submitted to the appropriate FWO following the general reporting format specified below. The report shall include all reporting criteria specified in the current Guidelines unless otherwise specified below:
 - i. Each survey report submitted to the Service shall include the following:
 - A. An introduction section addressing reasons and objectives for taking the species;
 - B. Methodology section addressing data collection and analysis procedures, the names of personnel, and the number and dates of surveys;
 - C. Results section that includes data collected (including reporting criteria specified in the Guidelines) and summarizes the data collected:
 - D. Conclusion section that specifically provides recommendations for recovery of the species and any other pertinent observations made during survey efforts.
 - ii. All vernal pool data sheets should be included as attachments to the final 90-day report. Vernal pool datasheets shall not solely be submitted as a final report for any one project site;
 - iii. The location of the project site and survey area shall be delineated on a USGS topographic map (1:24,000 scale), and the location of the listed vernal pool branchiopods (i.e., pools, swales, ponds) delineated on a USGS topographic map in as precise a manner as possible (e.g., UTM coordinates or location within a section);
 - iv. Reports submitted to the Service shall provide accurate and complete reporting of activities. Each report shall include the following certification statement and be signed by each surveyor(s) performing activities pursuant to this permit: "I certify that the information in this survey report and attached exhibits fully and accurately represents my work." The date of signature and the surveyor's permit number shall be included.
- 9. Taking of the southwestern willow flycatcher (flycatcher):

The permittee is authorized to survey for flycatchers using taped vocalizations within the geographic boundaries specified above, and the time limitation specified in the permit, provided that:

- a. The permittee attends the required formal training sessions before conducting activities pursuant to this permit. The training sessions shall be conducted by the Service, Biological Resources Division of the USGS, or their designated agents, and shall include updated curricula pertaining to flycatcher detection techniques, habitat assessments, nest monitoring, bird banding and marking, and bird handling. The permittee must be rated as qualified by the course instructors before initiation of permitted activities. The permittee shall contact the appropriate FWO to find out when and where the next flycatcher training session will be conducted.
- b. The permittee conducts all presence/absence surveys in accordance with the protocols prescribed by the appropriate FWO or in current or revised versions of:
 - Sogge, M.K., Ahlers, Darrell, and Sferra, S.J., 2010, A natural history summary and survey protocol for the Southwestern Willow Flycatcher: U.S. Geological Survey Techniques and Methods 2A-10, 38 p. The protocol and survey forms can be retrieved at the following web address (http://pubs.usgs.gov/tm/tm2a10/).
- c. Tapes are used only until individuals have been initially located and not to elicit further behavior.
- d. Activities are not conducted during inclement weather conditions that would significantly reduce the ability to detect the species or expose nest contents to the elements (e.g., rain, strong wind, fog).
- e. The permittee shall report within 24 hours, all detections and locations of potentially breeding flycatchers to the appropriate FWO.
- 10. Within 45 days following completion of a survey for the gnatcatcher, flycatcher and the Quino, a report shall be submitted to the Recovery Permit Coordinator of the appropriate FWO that includes: (a) the location of the survey area delineated on a USGS topographic map (1:24,000 scale); (b) a qualitative description of the plant communities (including dominant species and habitat quality) on and adjacent to the survey area; (c) a complete description of survey methods including the names of personnel, the number of acres surveyed per biologist per survey-day, the number and dates of surveys, survey routes, and the temperature and weather conditions at the beginning and end of each survey; (d) the title of the document shall identify the species surveyed and the county in which the survey took place; (e) the number, age (adult, juvenile, nestling, unknown), if appropriate, and sex of all gnatcatchers, flycatchers, brown-headed cowbirds (*Moluthrus ater*), and Quino detected; these data shall also be plotted on 1:24,000 scale maps of the survey area; (f) a conclusion section that specifically provides recommendations for recovery of the species; and (g) other pertinent observations made during survey efforts.
- 11. This permit does not authorize take of federally listed species that are not specifically authorized pursuant to this permit. However, the Service acknowledges that incidental take of a co-occurring federally listed species could potentially occur while conducting

certain permitted activities for some species. For some species and activities incidental take of a co-occurring federally listed species is more likely to occur while it may not occur at all for others. When applicable, the following conditions apply to all federally listed animals that the permittee is not authorized to take pursuant to this permit, but which may be incidentally sighted, encountered, captured, injured, or killed:

- a. Each individual authorized pursuant to this permit shall be knowledgeable about potentially co-occurring listed species that may occur throughout the habitats in which permitted activities are conducted and must be observant and cautious to the extent that "take" of a co-occurring listed species is minimized to the maximum extent practicable.
- b. Any federally listed animal that the permittee is not authorized to take pursuant to this permit, but is incidentally captured during the course of conducting authorized activities, shall be released immediately at the point of capture.
- c. During the course of your permitted activities, if an incidental injury or mortality occurs to a federally listed species not authorized in this permit, the permittee shall follow all instructions specified in condition 12 below.
- d. Any incidental capture, injury or mortality of a federally listed species not authorized in this permit shall be recorded and reported in the annual report submitted pursuant to this permit.
- e. We request that all incidental encounters and/or sightings of other federally listed species not authorized under this permit be recorded and reported in the annual report submitted pursuant to this permit and also reported to the appropriate State entities as specified in condition numbers 15 and 16 below.
- 12. The number of individuals allowed to be incidentally injured or killed during permitted activities is 0 (zero) gnatcatchers or flycatchers (adults, nestlings, or eggs), 0 (zero) Quino (including larvae, pupae, and web), and 10 individuals of each vernal pool branchiopod species (and an unquantifiable number of eggs) in any calendar year.
 - a. Any incidental injury or killing must be reported within 3 working days to the Region 8 Recovery Permit Coordinator (telephone: 760-431-9440; fax: 760-930-0846) and the Recovery Permit Coordinator at the appropriate FWO.
 - b. In the event that the number of individuals allowed to be injured or killed is exceeded during the performance of permitted survey activities, the permittee must:
 - i. Immediately cease the activity until re-authorized by the region 8 office, which may, after analysis of the circumstances of injury or mortality, revoke or amend this permit.

- ii. Immediately notify the Region 8 Recovery Permit Coordinator and the Recovery Permit Coordinator at the appropriate FWO. The permittee must follow-up such verbal notification in writing to each office.
- iii. With the written notification, the permittee is to provide a report of the circumstances that led to the injury or mortality. A description of the changes in protocols that will be implemented to reduce the likelihood of such injury or mortality from happening again should be included, if appropriate. The incident shall also be discussed in the annual report that is subsequently submitted. For California, a copy of this report shall also be sent to the California Department of Fish and Game (CDFG), Attention: Permit Biologist, Wildlife Branch, 1812 Ninth Street, Sacramento, California 95811 (telephone: 916-445-3764). For Nevada, a copy of this report shall also be sent to the Nevada Division of Wildlife (NDOW), 1100 Valley Road, Reno, Nevada 89512 (telephone: 775-688-1500).
- d. Preserve any dead specimens or appropriate parts of any dead specimen in accordance with standard museum practices. Before expiration of the permit, all preserved specimens shall be properly labeled and deposited with one of the designated depositories. The permittee shall supply the depository with a copy of this permit to validate that the specimens supplied to the museum were taken pursuant to a permit.
- 13. The permittee is authorized to salvage all gnatcatcher, flycatcher, Quino, and vernal pool branchiopod carcasses to be provided to one of the designated depositories.
- 14. Designated depositories:
 - a. For the gnatcatcher and flycatcher:

The Los Angeles County Museum of Natural History, Los Angeles, California; the San Bernardino County Museum, Redlands, California; or the San Diego Natural History Museum, San Diego, California.

b. For the Quino:

The Entomological Museum, University of California, Riverside, California.

c. For the vernal pool branchiopods:

The California Academy of Sciences, Golden Gate Park, San Francisco, California; the Los Angeles County Museum of Natural History, Los Angeles, California; the Bohart Museum, University of California, Davis, California; the SFWO; the CFWO; or any other institution designated in writing by the SFWO.

15. For activities conducted in California:

California Natural Diversity Database forms shall be completed, as appropriate, for each listed species addressed herein and submitted to the Wildlife Habitat Data Analysis Branch, CDFG – WHDAB, 1807 13th Street, Suite 202, Sacramento, California 95814 (also accessible online at: http://www.dfg.ca.gov/whdab/html/animals.html), with copies submitted to the appropriate FWO. Copies of the form can be obtained from the CDFG at the above address (telephone: 916-324-3812).

16. For activities conducted in Nevada:

Nevada Native Species Site Survey Report Forms shall be completed for any observations of southwestern willow flycatchers in Nevada and submitted to the Nevada Natural Heritage Program, 901 South Stewart Street, Suite 5002, Carson City, Nevada 89701-5245 (telephone: 775-684-2900) with copies submitted to the Nevada Fish and Wildlife Office in Las Vegas. Copies of the forms are available online at: http://heritage.nv.gov/index.htm).

17. All reports or other documents that include information gathered under the authority of this permit (e.g., reports prepared by consulting firms for their clients or scientific journal articles) shall reference this permit number. Copies of such documents shall include a transmittal letter and be provided to the appropriate FWO upon their completion. Draft documents, raw/field data, and other information resulting from work conducted under the authority of this permit shall be submitted to the Service upon request.

18. Annual reports:

Annual reports shall be submitted to the Recovery Permit Coordinator at each FWO specified in term and condition number 4 above by January 31, following each year this permit is in effect. Parts 18(a) and (b) below are required as specified:

a. For each permitted activity conducted with any species pursuant to this recovery permit that does not have a previously required reporting obligation stated in survey protocols, survey guidelines, or previously specified in this permit, the permittee shall submit a comprehensive annual report for that activity in the following format: (i) an introduction section addressing reasons and objectives for taking the species; (ii) a methodology section addressing data collection and analysis procedures; (iii) a results section that provides the data collected including any information on any other federally listed species detected while conducting activities authorized under this permit; and (iv) a conclusion section that specifically provides recommendations for recovery of the species. If no activities occurred over the course of the year for any species, indication of such shall be submitted in the annual report. Information may be submitted electronically if pre-arranged with the Recovery Permit Coordinator.

The annual report shall include, but not be limited to:

- Summary presentations and brief discussions of research and/or monitoring results;
- Locations sampled or survey/monitoring area delineated on a 7.5 minute U.S. Geological Survey topographic map at 1:24,000 scale. The name of the USGS map identified;
- iii. The names of all personnel conducting the activity and associated permit numbers;
- iv. The results of all sampling efforts, including estimates of population sizes and genetic analyses (if applicable);
- v. Reports or other documents that include information gathered under the authority of this permit;
- vi. Numbers of individuals incidentally killed, including dates, locations, circumstances of take, and depository receiving the preserved specimen(s);
- vii. Other pertinent observations made during sampling efforts regarding the status or ecology of the species; and
- viii. Planned future activities if authorized under this permit.

b. Required for all species authorized pursuant to this permit:

- i. An annual report of activities shall be submitted to the Recovery Permit Coordinator at each FWO by January 31, following each year this permit is in effect. The report should provide a summary for each focused survey, research and/or permitted activity conducted during the previous calendar year for all species authorized pursuant to this permit. This annual report shall include, but not be limited to: (a) the title of the project (please specify the same title used in the required comprehensive activity reports previously or concurrently being submitted to the Service), (b) the specific location of the project site, including the County, (c) the common and scientific names of the listed species for which the permitted activity was conducted, (d) the numbers of each species observed and the dates of observation, (e) the date and name of the Service office where the survey, research, or monitoring report was or will be submitted, and (f) include the permittee's name, permit number, and date of permit expiration. This information can be in tabular format and should provide a summary for all species authorized in the permit.
- ii. If no activities were conducted with any or all species authorized under the permit during the previous year within any authorized field office jurisdiction, please state this in writing in your annual report to that office.

19. Failure to comply with reporting requirements may result in non-renewal or suspension/revocation of this permit.

Date

Endangered Species Division Chief



United States Department of the Interior



FISH AND WILDLIFE SERVICE Pacific Southwest Regional Office 2800 Cottage Way, Suite W-2606 Sacramento, California 95825-1846

LIST OF AUTHORIZED INDIVIDUALS TE-027736-5

1. Individual authorized to conduct activities pursuant to this permit:

David Erik LaCoste.

Supervised individuals may conduct activities pursuant to this permit only under the direct on-site supervision of Mr. LaCoste. For the gnatcatcher, flycatcher, and Quino "on-site supervision" is defined as a supervised individual conducting activities within 3 meters (9.8 feet) of an authorized individual.

Date

Endangered Species Division Chief

This List is valid only if it is dated on or after the permit issuance date.





Senior Biologist

Mr. LaCoste has over 14 years of biological experience, 10 years as an environmental consultant, and 4 years as a research ecologist at San Diego State University. Mr. LaCoste has experience in project management, conducting natural resource surveys, and document preparation for large and small-scale projects. Specific responsibilities have included general and focused sensitive plant and wildlife species surveys, habitat assessments, impact evaluation, and document preparation. Project management experience includes database management, and quality assurance and control for data collection procedures and technical reports.

Mr. LaCoste also has professional training and practical field experience in wildlife tracking and wildlife movement studies, and has attained Tracker III status through Cybertracker International.

Education B.S., Ecology , San Diego State University	Permits/Certifications Federal Endangered Species Act 10(a)1(A) Permit Number 027736-5 for • Quino checkerspot butterfly, all listed • vernal pool branchiopods, coastal • California gnatcatcher, and • southwestern willow flycatcher
Professional Affiliations Association of Environmental Professionals (AEP) The Western Section of the Wildlife Society, So Cal Chapter Vice President	On-Going Education Tracker III, Cybertracker International Wildlife Trailing Course Wildlife Tracking, Western Tracking Institute CEQA Basic Workshop Desert Tortoise Survey and Handling Workshop Flat-Tailed Horned Lizard Monitoring Training, El Centro BLM Office Bat Ecology and Field Tech. California Fairy Shrimp Identification Course and Exam Willow Flycatcher Survey Training Workshop San Diego Track Team Member

Project Experience (Select)

Ocotillo Express Wind Energy Project Wildlife Surveys [2009 - 2011]. As a project biologist Mr. LaCoste worked as part of a team of biologists on an intensive raptor migration and bird movement study that included raptor migration counts and bird point counts. This study included approximately 2,800 hours of observation time between fall 2009 and spring 2011.

Depending upon the season, migration counts were conducted 3 to 4 days per week for 5.5 to 8 hours each day for a period of 8 to 12 weeks. Mr. LaCoste was responsible for assessing bird behavioral patterns, including flight height, direction of movement, and flight duration within the study area.

Cleghorn Ridge Avian Migration Survey, San Bernardino, CA [Fall 2011] Mr LaCoste conducted an avian migration study for a wind development project along Cleghorn Ridge, in San Bernardino, California. The project is located along a ridge in the San Bernardino Mountains between the Mojave Desert and the Inland Empire. Raptor species

were the focus of surveys, particularly golden eagle and bald eagle; however, all observed species, whether in migration or as residents were documented.

Union Pacific Railroad Southwestern Willow Flycatcher Surveys, Caliente, Nevada [2011]. Mr. LaCoste served as the lead flycatcher biologist for SWFL surveys along an approximately 70 mile long section of the Union Pacific Railroad in Caliente, Nevada. Surveys were conducted over a 3 week period. Though the species is known historically from the area, no southwestern willow flycatchers were observed.

Desert Tortoise Surveys for the High Desert Corridor Project, San Bernardino, CA [2011] Mr. LaCoste served as a project biologist for desert tortoise surveys for the proposed High Desert Corridor Project located near Apple Valley, California. The project alignment follows an approximately 40 mile long path through desert tortoise habitat. A 100 percent coverage of the project alignment and buffer areas was achieved during surveys. Several active burrows and one live desert tortoise were observed and documented.

Coachella Valley Fringe-toed Lizard Monitor, Riverside County, CA [2008]. Mr. LaCoste served as the on-site biological monitor for a Southern California Edison power line replacement project near Palm Springs, California. Because the project was located in desert dune habitat, and Coachella Valley fringe-toed lizard (CVFTL) was known to occur in the area, a biological monitor was necessary to help reduce the possibility of species impacts. Additional duties included preconstruction surveys for the species, contractor training, completing daily monitoring logs, and final monitoring report preparation.

Baseline Ecological Studies for the Imperial Irrigation District's HCP, Imperial County, CA [2007 - 2009]. As the Task Lead for several wildlife surveys associated with this project, Mr. LaCoste coordinated with other wildlife biologists to perform presence/absence surveys of sensitive wildlife species with a potential to occur within IID's service area, which covers a significant portion of the Imperial Valley. The data obtained from these surveys will allow habitat suitability models to be generated and will allow AECOM to determine the probability of detection for the plant and animal species that are the focus of these surveys. The data obtained from this project will ultimately be used to prepare the Habitat Conservation Plan and the Imperial Valley Natural Communities Conservation Program Plan.

Quino Checkerspot Butterfly and Hermes Copper Butterfly Surveys for the SDG&E Sunrise Powerlink Project, San Diego County, CA [2009-2010]. As Project Manager, Mr. LaCoste led a survey team conducting focused adult Hermes copper butterfly surveys for the SDG&E Sunrise Powerlink Project. Specific duties included coordinating the survey effort, determining daily survey schedules, data compilation and QA/QC, and client interactions. Though no Hermes copper butterfly were observed during these surveys, appropriate habitat for the species was located in scattered locations throughout the survey area and the butterfly was observed nearby.

U.S. Marine Corps Base, Camp Pendleton Base-Wide Coastal California Gnatcatcher Surveys, Camp Pendleton, CA. [2006 and 2010]. As a project biologist, Mr. LaCoste assisted with base-wide coastal California gnatcatcher surveys on U.S. Marine Corps Base, Camp Pendleton, California. Surveys covered approximately 20,000 acres of native habitat in the eastern part of the base in active Marine Corps training areas. A total of 56 gnatcatcher pairs were located and documented, along with approximately 15 nest site locations. Nesting birds were followed throughout the breeding season.

Wildlife Corridor/Large Mammal Movement Study for the Wildcat Canyon Road Enhancement Project, San Diego County, CA [2002 and 2009]. As a project wildlife biologist for this road enhancement project, Mr. LaCoste conducted an animal movement study on and adjacent to Wildcat Canyon Road in order to assist with design of wildlife crossings associated with project design. Sampling methods included the use of tracking plate and road-kill surveys to determine species composition and wildlife movement in the area.

Survey methodology included conducting track station, camera station, tracking transects, and road-kill surveys in and adjacent to the road improvement project.



DEPARTMENT OF THE INTERIOR U.S. FISH AND WILDLIFE SERVICE

FEDERAL FISH AND WILDLIFE PERMIT

1 PERMITTEE

VIVIANE JEANNE MARQUEZ-WALLER dba MARQUEZ & ASSOCIATES BIOLOGICAL CONSULTANTS 505 NORTH WILLOWSPRING DRIVE ENCINITAS, CA 92024 U.S.A.

2 AUTHORITY-STATUTE 16 USC 1539(a)	5
16 USC 1533(d)	
16 USC 703-712	
REGULATIONS	
50 CFR 17.22	
50 CFR 17.32	
Control of the Contro	
50 CFR 21.23 & 21.27	
50 CFR 21.23 & 21.27 50 CFR 13	
50 CFR 13	AMENDMENT
50 CFR 13 3 NUMBER TE800930-10	
50 CFR 13 3 NUMBER TE800930-10	AMENDMENT
50 CFR 13 3 NUMBER TE800930-10 4 RENEWABLE	AMENDMENT
50 CFR 13 3 NUMBER TE800930-10 4 RENEWABLE YES	AMENDMENT 5 MAY COPY YES

8 NAME AND TITLE OF PRINCIPAL OFFICER (If Ling business)

9. TYPE OF PERMIT

NATIVE ENDANGERED & THREATENED SP. RECOVERY - E & T WILDLIFE: MIGRATORY BIRDS

ON LANDS SPECIFIED WITHIN THE ATTACHED SPECIAL TERMS AND CONDITIONS

CONDITIONS AND AUTHORIZATIONS

- A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR (3). AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEW AL. OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS. INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS
- B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL, TRIBAL, OR OTHER FEDERAL LAW
- C. VALID FOR USE BY PERMITTEE NAMED ABOVE.
- D. Further conditions of authorization are contained in the attached Special Terms and Conditions.

ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY

12 REPORTING REQUIREMENTS

ANNUAL REPORT DUE: 1/31

See permit conditions for further reporting requirements.

mulally by

TITLE

ENDANGERED SPECIES DIVISION CHIEF

DATE

10/07/2011

SPECIAL TERMS AND CONDITIONS Viviane Jeanne Marquez

- 1. This permit was previously issued on June 14, 2007. The terms and conditions set forth in that permit are hereby superseded by this amendment.
- 2. Acceptance of this permit serves as evidence that the permittee understands and agrees to abide by the "General Conditions for Native Endangered and Threatened Wildlife Species Permits," 50 CFR Part 13, 50 CFR 17.22 (endangered wildlife), and/or 50 CFR 17.32 (threatened wildlife), as applicable (copies attached). In addition, the permittee must have all applicable State and Federal permits prior to the commencement of activities authorized by this permit.
- 3. The permittee is authorized to take (harass by survey, locate and monitor nests, and remove brown-headed cowbird (*Moluthrus ater*) eggs and chicks from parasitized nests) the coastal California gnatcatcher (*Polioptila californica californica*), and take (harass by survey) the southwestern willow flycatcher (*Empidonax traillii extimus*), and take (survey by pursuit) the Quino checkerspot butterfly (*Euphydryas editha quino*) while conducting demographic surveys for the purpose of enhancing their survival, as specified in the permittee's April 29, 2011, permit request, in accordance with the conditions stated below.
- 4. Permitted activities are restricted to the following geographic areas in California:
 - a. For the coastal California gnatcatcher (gnatcatcher):

San Diego, Riverside, and Orange Counties.

b. For the southwestern willow flycatcher (flycatcher):

San Diego, Los Angeles, Imperial, and Riverside Counties.

c. For the Quino checkerspot butterfly (Quino):

Throughout the range of the species.

Notifications to conduct activities pursuant to this permit at specific locations within the above referenced areas must be submitted in writing to the appropriate Fish and Wildlife Office (FWO) of the U.S. Fish and Wildlife Service (Service) at least 15 days prior to conducting such activities. The appropriate FWO is determined as follows:

For areas from Los Angeles County including and south of the Angeles National Forest to San Diego County, contact the Carlsbad Fish and Wildlife Office

(CFWO), 6010 Hidden Valley Road, Suite 101, Carlsbad, California 92011 (telephone: 760-431-9440; fax: 760-431-9624).

Notifications shall include, as appropriate: (a) an explanation of the purpose of the study and a clear description of methods, including the names of field personnel, the extent of area surveyed, and the number and dates of surveys; (b) the number of individuals proposed to be captured and/or collected; (c) at a minimum, a 1:24,000 scale U.S. Geological Survey (USGS) topographic map depicting the location of the survey site(s); (d) the assessor's parcel number (APN) for the site (if possible); and (e) geographic information system (GIS) data depicting the survey site or global positioning system (GPS) coordinates (if possible). Information may be submitted electronically if prearranged with the Recovery Permit Coordinator.

After 15 days of the Service's receipt of the notification, the permittee may commence activities authorized by this permit unless authorization is denied by the Service. If the permittee is denied authorization to conduct activities at the requested location(s), including previously authorized sites, a request for reconsideration may be submitted to the Endangered Species Division Chief at the Service's Regional Office for the Pacific Southwest Region (Region 8), 2800 Cottage Way, Room W-2606, Sacramento California 95825-1846, as provided in 50 CFR 13.29. The procedures specified in 50 CFR 13.29(b) must be followed.

5. Authorized individuals:

Only individuals on the attached List of Authorized Individuals (List) are authorized to conduct activities pursuant to this permit. The List, printed on Service letterhead, may identify special conditions or circumstances under which individuals are authorized to conduct permitted activities and must be retained with these Special Terms and Conditions. Each named individual shall be responsible for compliance with the terms and conditions of this permit.

To request a change to the List, the permittee shall submit a written request to the CFWO. The request shall be submitted at least 30 days prior to the requested effective date. The request shall be signed and dated by the permittee and include:

- a. The name of each individual to be appended to the List,
- The resume/qualifications statement of each person to be appended to the List, detailing their experience with each species and type of activity for which authorization is requested,
- The names, email addresses and phone numbers of a minimum of two references, and

d. The names of the individuals to be deleted from the List.

Note: This procedure is for personnel changes only. For requests to renew/amend this permit, a complete application must be submitted to the Endangered Species Division Chief, at the Region 8 office.

6. Taking of the coastal California gnatcatcher (gnatcatcher):

The permittee is authorized to survey using taped vocalizations, and locate and monitor nests, within the geographic boundaries specified above, and the time limitation specified in the permit, provided that:

- Tapes are used only until individuals have been initially located and not to elicit further behavior.
- Activities are not conducted during inclement weather conditions that would significantly reduce the detectability of the species or expose nest contents to the elements (e.g., rain, strong wind, fog).
- Surveys shall be conducted in accordance with the approved Service protocol (attached) unless authorized in advance by the CFWO.
- d. Nests are not visited more than once per day and three times per nest season.
- Nests are not visited if western scrub jays (Aphelocoma californica) or brownheaded cowbirds (Molothrus ater) are detected in the immediate vicinity.
- 7. Taking of the southwestern willow flycatcher (flycatcher):

The permittee is authorized to survey for flycatchers using taped vocalizations within the geographic boundaries specified above, and the time limitation specified in the permit, provided that:

- a. The permittee conducts all presence/absence surveys in accordance with the protocols prescribed by the CFWO or in current or revised versions of:
 - Sogge, M.K., Ahlers, Darrell, and Sferra, S.J., 2010, A natural history summary and survey protocol for the Southwestern Willow Flycatcher: U.S. Geological Survey Techniques and Methods 2A-10, 38 p. The protocol and survey forms can be retrieved at the following web address (http://pubs.usgs.gov/tm/tm2a10/).
- b. Tapes are used only until individuals have been initially located and not to elicit further behavior.

- The permittee shall report within 24 hours all detections and locations of potentially breeding flycatchers to the CFWO.
- d. The permittee shall report any incidental detections and locations of potentially breeding least Bell's vireo (Vireo bellii pusillus) to the CFWO.

8. Taking of the Quino:

The permittee is authorized to survey by pursuit, handle, and live-capture Quino for the purposes of identification by the Service or its representatives within the geographic boundaries specified above, and the time limitation specified in the permit, provided that:

- Survey, handling, and capture activities shall be conducted in accordance with the most recent Service-approved protocol (attached) for the Quino unless authorized in advance by the CFWO.
- Handling and capture is limited to one individual Quino larva, pupa, or adult per site.
- c. The permittee shall successfully pass the most recent version of the Service's practical examination for the Quino prior to initiating focused surveys unless authorized in advance by a letter from the Service.
- Host and nectar plants are not to be removed from the field.
- Within 45 days following completion of a survey for the Quino checkerspot butterfly. 9. southwestern willow flycatcher, or California gnatcatcher, a report shall be submitted to the CFWO that includes: (a) the location of the survey area delineated on a USGS topographic map (1:24,000 scale); (b) a qualitative description of the plant communities (including dominant species and habitat quality) on and adjacent to the survey area; (c) a complete description of survey methods including the names of personnel, the number of acres surveyed per biologist per survey-day, the number and dates of surveys, survey routes, the temperature and weather conditions at the beginning and end of each survey. and how frequently taped vocalizations were used, if at all; (d) the number, age (adult, juvenile, nestling, unknown), and sex of all Quinos, flycatchers, gnatcatchers and brownheaded cowbirds (these data shall also be plotted on 1:24,000 scale map(s) of the survey area); (e) the APN for the site (if possible); (f) GIS data or GPS coordinates (if possible); (g) a conclusion section that specifically provides recommendations for recovery of the species; and (h) other pertinent observations made during survey efforts. Information may be submitted electronically if pre-arranged with the Recovery Permit Coordinator.
- 10. This permit does not authorize take of federally listed species that are not specifically authorized pursuant to this permit. However, the Service acknowledges that incidental take of a co-occurring federally listed species could potentially occur while conducting

certain permitted activities for some species. Although, incidental take of a co-occurring federally listed species is more likely to occur for some species and activities than another, and that incidental take of a co-occurring federally listed species may not occur at all for some permitted activities, when applicable, the following conditions now apply to all federally listed animals that the permittee is not authorized to take pursuant to this permit, but which may be incidentally sighted, encountered, captured, injured, or killed:

- a. Each individual authorized pursuant to this permit shall be knowledgeable about potentially co-occurring listed species that may occur throughout the habitats in which permitted activities are conducted and must be observant and cautious to the extent that "take" of a co-occurring listed species is minimized to the maximum extent practicable.
- b. Any federally listed animal that the permittee is not authorized to take pursuant to this permit, but is incidentally captured during the course of conducting authorized activities, shall be released immediately at the point of capture.
 - c. During the course of your permitted activities, if an incidental injury or mortality occurs to a federally listed species not authorized in this permit, the permittee shall follow instructions specified in conditions 11 below.
- d. Any incidental capture, injury or mortality of a federally listed species not authorized in this permit shall be recorded and reported in the annual report submitted pursuant to this permit.
- e. We request that all incidental encounters and/or sightings of other federally listed species not authorized under this permit be recorded and reported in the annual report submitted pursuant to this permit and also reported to the CNDDB as specified in condition number 14 below.
- 11. The number of individuals allowed to be incidentally injured or killed during permitted activities is zero Quino, zero flycatchers, and zero gnatcatchers in any calendar year. In the event that an individual is injured or killed during the performance of permitted activities, the permittee must:
 - a. Immediately cease the activity until reauthorized by the Region 8 office, which may, after analysis of the circumstances of injury or mortality, revoke or amend this permit.
 - b. Immediately notify the Region 8 Recovery Permit Coordinator (telephone: 760-431-9440; fax: 760-930-0846) and the CFWO, and within 3 working days, the permittee shall follow up such verbal notification in writing to both offices.

With the written notification, the permittee is to include a report of the circumstances that led to the injury or mortality. A description of the changes in activity protocols that will be implemented to reduce the likelihood of such injury or mortality from happening again should be included, if appropriate. This written report shall also be sent to the California Department of Fish and Game (CDFG), Habitat Conservation Planning Branch, 1416 Ninth Street, Sacramento, California 95814 (telephone: 916-653-4875).

- c. Preserve any dead specimens in accordance with standard museum practices. Before expiration of the permit, all preserved specimens shall be properly labeled and deposited with one of the designated depositories. The permittee shall supply the depository with a copy of this permit to validate that the specimens were taken pursuant to a permit.
- 12. The permittee is authorized to salvage all gnatcatcher, and flycatcher carcasses to be provided to one of the designated depositories.
- 13. Designated depositories:

The Los Angeles County Museum of Natural History, Los Angeles, California; the San Bernardino County Museum, Redlands, California; or the San Diego Natural History Museum, San Diego, California.

- 14. California Natural Diversity Database forms shall be completed, as appropriate, for each listed species addressed herein and submitted to the Biogeographic Data Branch, CDFG, 1807 13th Street, Suite 202, Sacramento, California 95811 (also accessible online at: http://www.dfg.ca.gov/biogeodata/cnddb), with copies submitted to the CFWO. Copies of the form can be obtained from the CDFG at the above address (telephone: 916-324-3812).
- 15. All reports or other documents that include information gathered under the authority of this permit (e.g., reports prepared by consulting firms for their clients or scientific journal articles) shall reference this permit number. Copies of such documents shall include a transmittal letter and be provided to the CFWO upon their completion. Draft documents, raw/field data, and other information resulting from work conducted under the authority of this permit shall be submitted to the Service upon request.

16. Annual reports:

a. An annual report summarizing all survey activities conducted for the calendar year shall be submitted to the Recovery Permit Coordinator of the CFWO the permittee is authorized (as specified in term and condition number 4 above) by January 31. following each year this permit is in effect. The report should provide a summary for each focused survey and/or permitted activity conducted during the previous calendar year for all species authorized pursuant to this permit. This annual report shall include, but not be limited to: (a) the title of the project (preferably the same title as was used in any survey, research, monitoring or other required report previously or concurrently being submitted to the Service), (b) the specific location of the project site, including the County, (c) the common and scientific names of the listed species for which the permitted activity was conducted, (d) the numbers of each species observed and the dates of observation, (e) the date and name of the Service office where the survey, research, or monitoring report was or will be submitted, and (f) include the permittees name, permit number, and date of permit expiration. This information can be in tabular format and should provide a summary for all species authorized in the permit.

- b. If no activities were conducted with any or all species authorized under the permit during the previous year within any authorized field office jurisdiction, please state this in writing in your annual report to that office.
- Failure to comply with reporting requirements may result in non-renewal or suspension/revocation of this permit.

Date

Endangered Species Division Chief



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Pacific Southwest Region
2800 Cottage Way, Suite W-2606
Sacramento, California 95825-1846

LIST OF AUTHORIZED INDIVIDUALS TE-800930-10

Individual authorized to independently conduct all activities pursuant to this permit:

Viviane Jeanne Marquez.

Supervised individuals may conduct activities pursuant to this permit only under the direct on-site supervision of Ms. Marquez. "On-site supervision" is defined as an unauthorized individual conducting activities within 3 meters (9.8 feet) of an independently authorized individual.

Date

Endangered Species Division Chief

This List is only valid if it is dated on or after the permit issuance date.

JEFFREY L. LINCER, Ph.D. Senior Scientist and Consulting Ecologist

9251 Golondrina Dr., La Mesa, CA 91941 (619) 668-0032 (Direct); jefflincer@gmail.com

EDUCATION

Post-Doctoral	Selby Environmental Fellow,	Mote Marine Laboratory,
	1972-74	Sarasota, FL
Ph.D.	Ecology and Systematics, Ecology	Cornell University, Ithaca, NY
	"The Effects of Organochlorines on R	aptors"
Pre-Doctoral	Inter-American Conferences on	University of Miami, Miami, FL
(36 cr. hrs.)	Toxicology and Occupational	
	Medicine, 1968 and 1972	
M.S., M.F.	Wildlife Management, 1969	New York State College of Forestry
		& Envir. Science, Syracuse, NY
B.S., B.F.	Forest Zoology, 1967 (cum laude)	New York State College of Forestry
		& Envir. Science, Syracuse, NY

BIOGRAPHICAL SKETCH

Dr. Lincer has been involved in research projects from Alaska to Africa, has a strong interest in the natural resources of those areas as well as Florida, Southern California and Mexico, and has produced over 100 scientific publications and papers. Dr. Lincer has over 40 years (15 of which with local government) experience in the environmental field. He has taught numerous college-level biological, environmental, and toxicological classes and courses. He has a strong history of scientific involvement, complex natural resource project management, and environmental policy; and has successfully dealt with local, regional, state, and federal agencies and issues. He has directed or contributed to major projects from Alaska to Africa. He is a co-founder of, and past Research Director for, the non-profit Wildlife Research Institute, Inc.; currently holds an Adjunct Scientist position with the San Diego Museum of Natural History (Department of Birds and Mammals) and the Mote Marine Laboratory; has held adjunct positions at other well-known academic and research institutions; produced over 100 scientific publications and papers, authored scores of consultant reports, and served as advisor to high-level governmental offices and national/international conservation programs.

His background includes biological resource surveys and HCP monitoring for both public and private sectors, including local, county, regional, and federal government, and the development, mining and utilities industries, including wind and solar energy. He has technical expertise in ecotoxicology, terrestrial, coastal, desert, and wetland biology, endangered species, and habitat/watershed management. He has a particularly strong background in interdisciplinary project management, coordinating programs up to \$5 million in size and commonly involving 10-12 subconsultants.

Since 1991, Dr. Lincer has managed and participated in natural resource surveys throughout southern California, including numerous ones in San Diego, Riverside, Imperial, San Bernardino, Kern, Los Angeles, and Orange counties. He served as program and project manager for many biological, ecotoxicological, and environmental projects. He has managed and/or conducted numerous NEPA/CEQA, CERCLA-related, and RCRA projects, many of which involving regional and watershed level resource considerations, wetland issues, and mitigation. He regularly works with T/E species and has extensive experience with the coastal California gnatcatcher, fish-eating birds, burrowing owl, golden eagle, and numerous other raptor species. He also has substantial experience with the brown pelican, various wading birds, least Bell's vireo, southwestern willow flycatcher, desert tortoise, arroyo toad, Quino checkerspot butterfly, steelhead trout, tidewater goby, bighorn sheep, Stephens' kangaroo rat, and San Joaquin kit fox.

In Southern California, he has been the Project Manager and/or Lead Biologist for numerous biotechnical studies, including those for the private sector, utilities, the Corps of Engineers (Los Angeles District), U.S. Fish and Wildlife Service, CDFG, BLM, and California State Parks. He also has extensive experience managing and conducting fieldwork for various municipalities and on many military bases (i.e., San Clemente Island, MCB Camp Pendleton, Twentynine Palms, the former MCAS El Toro, March Air Force / Reserve Base, Camp Pendleton, and Edwards Air Force Base).

Particularly relevant to this proposal, for the past year, he has led the field studies (breeding, migrating, and wintering) for raptors and other birds, and participated in surveys for burrowing owls, gila woodpeckers, and desert tortoises, for two proposed solar installations in eastern California, just west of Ehrengerg, AZ.

PROFESSIONAL EXPERIENCE

- Adjunct Research Scientist, San Diego Natural History Museum, Ornithology and Mammalogy Section, San Diego, CA (currently active).
- Adjunct Senior Scientist, Mote Marine Laboratory, an international marine research institution, Sarasota, FL (currently active)..
- Adjunct Associate Professor, University of Florida, School of Forest Resources and Conservation, Gainesville, FL.
- President and Chairman of the Board, Raptor Research Foundation, an international professional organization, made up of approximately 1,000 scientists representing over 40 countries. Currently Board Member and International Liaison.
- Scientific Advisor to a number of national and international environmental organizations, the (Florida) Governor's Office, 208, etc. water committees, school boards, local government, and AIBS Bioassay Standards Committee.
- President, Eco-Analysts, Inc., Sarasota, FL. Developed funded programs and carried out consulting activities relating to endangered species, environmental planning, FIFRA, the presence and effects of environ-mental toxicants; expert witness work; testing protocols; cancellation of registration hearings; TSCA, Data Evaluation Reports for EPA on pesticide registration applicants, etc.
- Scientific Advisor to local governments. Provided scientific guidance on phosphate mining, coastal zone management, energy and water conservation, critical habitat, endangered species, comprehensive planning, wild and scenic rivers, habitat acquisition and management.

- Director, Raptor Information Center, National Wildlife Federation, Washington, D.C. Developed and directed international program dealing with birds of prey, habitat acquisition and management, toxicants, etc. Interacted with numerous federal and state agencies.
- Senior Scientist and Program Director, Environmental Health and Estuarine Ecology Program, Mote Marine Laboratory, Sarasota, FL. Developed and funded environmental quality programs, including the establishment of the Pesticide Residue Laboratory.
- Technical Advisor, environmental conservation/education texts (K-12 and college level) and films (BBC and nationally syndicated).
- Board Member, Sarasota County Comprehensive Environmental Education Program (founding member); Gulf Coast Zoological Society (founding member and President); International Osprey Foundation (Technical Advisory Board); Centro de Estudios para la Conservacion de los Recursos (Chiapas, Mexico).
- Over 40 years referee work for several major scientific journals.
- Senior author for several major reviews of the scientific literature (e.g., estuararine environment; bald eagles; burrowing owls, including the world literature, and those focused on the California literature and owl territories).
- Associate Editor for Environmental Chemistry and Toxicology, Journal of Raptor Research.
- Team Leader for many interdisciplinary environmental studies and working bibliographies, including "The Effects of Synthetic Organic Compounds on Estuarine Ecosystems," which was published in EPA's Ecological Research Series.
- Developed mechanisms to protect wetlands and endangered species and established County-level Coastal Zone Management Division office. Sarasota County, FL
- Developed environmental quality programs, including the establishment of a pesticide residue laboratory, 1972-1974. Research aimed at elucidating the subacute effects of estuarine pollutants on marine invertebrates and fish-eating birds. Mote Marine Laboratory.
- Continued and expanded projects with an emphasis on the effects of land use changes and environmental pollution, 1974-76. Environmental Health and Estuarine Ecology Program, Mote Marine Laboratory, Sarasota, FL.
- In charge of pesticide residue analysis for various field and laboratory studies, 1969-72. Conducted field research on birds of prey. Cornell University.

EMPLOYMENT HISTORY

1997-2012.	Research Director/Cofounder	Wildlife Research Inst., Inc., Ramona, CA
1996-pres.	Principal	Lincer & Associates, San Diego, CA
1993-1996	Sr. Scientist in charge of Wildlife	Sweetwater Environmental Biologists, Inc.,
	Biologists/Sr. Toxicologist	San Diego, CA
1991-1993	Regional Manager/Sr. Ecologist/	BioSystems Analysis, Inc., San Diego, CA
	Sr. Toxicologist	
1972-1991	President/C.E.O. and Sr. Ecologist	Eco-Analysts, Inc., Sarasota, FL
1986	Taught "Environmental and	University of South Florida
	Public Occupational Health"	College of Health, Tampa

1985-1991	Adjunct Associate Professor	University of Florida, Dept. of Wildlife
1984	Tought "Environmental Science"	and Range Sciences, Gainesville
1984	Taught "Environmental Science"	University of South Florida
		College of Education, Tampa
1977-1991	Scientific Advisor/Envir. Admin.	Sarasota County, FL
1976-pres.	Adjunct Senior Scientist	Mote Marine Laboratory, Sarasota, FL
1976-1977	Director, Raptor Information Center	Nat'l Wildlife Federation, Washington, D.C.
1974-1976	Senior Scientist/Director	Environmental Health and Estuarine
		Ecology Program, Mote Marine Lab.,
Sarasota, FL		
1972-1974	Selby Environ. Research Fellow	Mote Marine Laboratory, Sarasota, FL
1969-1972	Research Assistant, Ecology and	Cornell University, Ithaca, NY
	Systematics	
1967-1969	Research Assistant, Bioassays and	Syracuse University Research Corp.,
	Pesticide Residue Analyses	Microbiological and Biochemical Center

EXPERT WITNESS AND OTHER RELATED ACTIVITIES

- Testified as a witness for the Environmental Defense Fund (EDF) before the EPA Administrative Law Judge during the Aldrin-Dieldrin Cancellation of Registration Hearings. November 27, 1973. Washington, D.C. Subject: The effects of dieldrin on the behavior of the fiddler crab.
- Testified as a consultant expert witness for EPA during the Mirex Hearings. March 7, 1974. Washington, D.C. Subject: Review of the literature dealing with the effects of mirex on bird life.
- P.I. for Impact Assessment of Mosquito Larvicides on Selected Listed Species of Marsh and Shore Birds of the S.W. Florida Coast. Funded by Florida HRS and Lee County Mosquito Control District. July 1988-June 1990.
- Lincer, J.L. Prototypical Report: Avifauna and Man-made Systems. *In* Gasparilla Island: An Ecological Approach. E. Rifkin and F.S. Johns (Eds.). New College Environmental Studies Program. 1974.
- Lincer, J.L. The Effects of Synthetic Organic Compounds on Estuarine Ecosystems (A Semi-Popular Article). Prepared for the Environmental Protection Agency. November 1, 1974.
- Lincer, J.L. *In* Protocol for Testing Pesticides for Registration. Field-Testing Techniques. Prepared for A.I.B.S. Panel for Aquatic Toxicology. October 15, 1974.
- Lincer, J.L. Effects of Toxic Discharges on Aquatic Life. App. to D.R.I. Application for Jacaranda West. Gulfstream Land & Development Corp., Florida. January 1975.
- Testified as expert witness for the Sanibel-Captiva Conservation Foundation, Captiva, FL (v. Mariner Properties). February 20, 1979. Subject: Ecological value of grassflats and impact of proposed boat channel.
- Testified as expert witness for Rohm and Haas Co., Philadelphia, PA. Subject: The Reproductive Effects and Risks of Dicofol on Sensitive Bird Species. March 1987. Washington, D.C.

- P.I. for Environmental Assessment of Proposed Loading Dock and Barge Traffic on Area Bald Eagles, Maurice and Cohansey Rivers, New Jersey. May-November 1988.
- Presented review paper on "The Biology of the Myakka River" to the Myakka River Management Coordination Council. June 4, 1987. Sarasota, FL.
- Under contract to EPA, Washington, D.C. (Environmental Effects Branch) to provide review services on toxicology studies and the effects of various pesticides being considered for registration. July 1987-present.
- Lincer, J.L. The Potential Effects of the Proposed Caledon State Park on the Existing Bald Eagle and Osprey Populations. Prepared for Mr. James Nash, Agent for Cedar Grove Farms. January 1, 1975.
- Lincer. J.L. First and Second Follow-up Studies on the Bald Eagles and Ospreys of Cedar Grove Farms. Prepared for Mr. James Nash, Agent. September 1975 and August 1976.
- Provided input to President's Council on Environmental Quality (CEQ) on scoring and scoring procedure of environmental chemicals being considered under the Toxic Substance Control Act (TSCA), 1978 and 1979.
- Lincer, J.L. and N. Jaffee. The Bald Eagles of Cedar Grove Farms: Five Years in Review. Prepared for Mr. James Nash, Agent. October 22, 1979.
- Testified as expert witness for Sarasota County, FL (v. Estech Chemical Corp.) in DOA Hearing. Subject: Environmental impact of proposed Duette Mine. June 22-July 10, 1981.
- Lincer, J.L. An Environmental Critique of the Proposed Martin County Comprehensive Plan. Prepared for the Martin County Board of County Commissioners. November 23, 1981.
- Provided assessment of proper management of New Jersey's only bald eagle nest site. Client: Pitney, Hordin, Kipp and Smith. Morristown, NJ. June 1984.
- P.I. for Myakka River Basin Project. Funded by Florida DER/NOAA and included water quality, flow, GIS and biological (invertebrates and vegetation) investigations. October 1988.
- Prepared "Impact of Genstar's Proposed Maurice River (New Jersey) Dock-Loading Facility and Associated Barge Traffic on the Area Bald Eagles" for Genstar Stone Products Co., MD. 1988.
- Prepared "Impact of Genstar's Proposed Cohansey River (New Jersey) Dock-Loading Facility and Associated Barge Traffic on the Area Bald Eagles" for Genstar Stone Products Co., MD. 1988.
- Chairman, Sarasota Bay Project TAC. Multidisciplinary project which is part of the National Estuarine Program, administered by the USEPA. 1989 and 1990.

PROFESSIONAL AFFILIATIONS (*= currently active)

- San Diego Fire Recovery Network-Founding Member and Co-chair of Research and Monitoring Committee*
- American Ornithological Union*
- Association of Environmental Professionals
- ASTM

- o Pesticide Subcommittee Member
- o Animal Damage Control Committee
- Ecological Society of America
 - o Nominated to Board of Professional Certification
- Florida Academy of Sciences
- Gulf Coast Zoological Society
 - o Founding Board Member and Past President
- Raptor Research Foundation*
 - o Secretary and Foreign Correspondent (1979-1981)
 - o President (1982-1988)
 - o Conference Guidelines Committee (ongoing)
 - o International Communications Committee (ongoing)
 - o Chair, Leslie Brown Award Committee, for research on African raptors (ongoing)
- Society of Environmental Toxicology and Contamination
- Society for Conservation Biology
- Sigma XI (currently serving on Executive Committee)*
- Society of Wetland Scientists
- The Wildlife Society (National)*
- The Wildlife Society (Florida Chapter)
 - o Education Information Committee (1987-1991)
- The Wildlife Society (Western Section)*
 - o Nominated for President (1992)
- The Wildlife Society (Southern California Chapter)*
 - o President (1994-1997)
 - o Chapter Representative to Western Section (2009-Pres.)

SAMPLES OF RELEVANT PUBLICATIONS

- Lincer, J.L. and D.B. Peakall. 1970. Induced hepatic steroid metabolism and increased cytoplasmic RNA by polychlorinated biphenyls (PCB) in the American kestrel (*Falco sparverius*). Nature, 228 (5273):783.
- Lincer, J.L., T.J. Cade and J.M. Devine. 1970. Organochlorine residues in Alaskan peregrine falcons, rough-legged hawks and their prey species. Can. Field Nat., 84(3):225-263.
- Cade, T.J., J.L. Lincer, C.M. White, D.G. Roseneau and L.G. Swartz. 1971. DDE residues and eggshell changes in Alaskan falcons and hawks. Science, 172:955-957.
- Lincer, J.L. and D. Zalkind. 1973. A preliminary note on organochlorine residues in the eggs of fish-eating birds of the west coast of Florida. Fla. Field Naturalist, Vol. 1(2):3-6.
- Peakall, D.B., J.L. Lincer, R.W. Risebrough, J.B. Pritchard and W.B. Kinter. 1973. DDE-induced eggshell thinning: Structural and physiological effects in three species. Comp. Gen. Pharmac., 4:305-313.

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- Lincer, J.L. and P.H. Bloom. 2003. Status of Burrowing Owls (*Athene cunicularia*) in San Diego County, California. Presented by JLL at the California Burrowing Owl Symposium. Western Section of The Wildlife Society and Albion Environmental, Inc. November 11-12, 2003.
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- WRI (Wildlife Research Institute, Inc.). 2005. Final Report for NCCP/MSCP Raptor Monitoring Project-Golden Eagles of the San Diego Multiple Species Conservation Plan Area 2001-2003. Authors: J.D. Bittner, J.L. Lincer, J. Hannan, and J. Oakley. Prepared for California Department of Fish and Game. 31 March.
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- Wilkerson, R., R. Siegel, D. Palmer, D. Bittner, and J. l. Lincer. 2011. An Overview of the Status of Burrowing Owls in California and Several Other Western States. Presented at the 2011 Western Raptor Symposium, J.L. Lincer and J.D. Bittner, Co-chairs. Riverside Convention Center, Riverside, CA. 8-9 February.
- Lincer, J. L. and D.H. Johnson. 2012. Protocols used to survey for the burrowing owl (*Athene cunicularia*). Presented at the Society of Rangeland Management Annual Conference. 30 January; Spokane, WA.



Brennan Mulrooney Wildlife Biologist

Education

BS in Wildlife and Fisheries Biology, University of California at Davis, 1997

Training

Southwestern Willow Flycatcher Workshop, Southern Sierra Research Station, 2002 Flat-tailed Horned Lizard Worksop, BLM, 2011 Quino Checkerspot Butterfly Identification Test, USFWS, 2010 Hermes Copper Butterfly Workshop, SoCal Chapter of the Wildlife Society with Dave Faulkner, 2011

Certifications

10(a)(1)(A) Endangered Species Permit TE 820658-4 to independently conduct presence/absence surveys for southwestern willow flycatcher, coastal California gnatcatcher, and independently survey and nest monitor for western snowy plover and California least tern.

Red Cross First Aid and CPR Certification

Motorboat Operator Certification

Brennan Mulrooney's qualifications as a biologist include more than 12 years of experience as a field ornithologist and field biologist. As a wildlife biologist, Mr. Mulrooney is experienced in sensitive wildlife species surveys and population monitoring, and habitat assessment. His primary focus has been with search efforts and monitoring of threatened and endangered avian species. In addition, a passion for understanding seasonal status and distribution of avian species throughout North America has aided in his qualifications. He is experienced with GPS data gathering and processing.

Project Experience

Los Angeles Department of Water and Power, Confidential Project, Kern County, CA

As a biologist, conducted all day point counts focused on large targets, such as raptors to determine how human detections compare to radar detections.

Imperial Irrigation District (IID), Transmission Line Upgrades, Imperial County, CA

As a biologist, conducted surveys for western burrowing owl. [05/2011]

IID, Burrowing Owl Population Estimate Surveys, Imperial County, CA

As a biologist, conducted surveys for western burrowing owl. [05/2011]

Brennan Mulrooney Resume

NAVFAC Wildlife Studies for the Naval Base Coronado Coastal Campus Environmental Impact Statement, Naval Base Coronado, San Diego, CA As a biologist conducted avian surveys in support of environmental documentation for a coastal campus project.

Mojave Solar Power Project, Mojave Desert, San Bernardino County, CA

As a biologist, assisted with spring and summer nesting bird surveys around the project site. All documented nests were monitored to determine necessary avoidance buffers. Additionally, he assisted with the preparation of the raven management plan for the project.

Confidential Transmission Line Project, Colorado Desert, CA

As a biologist, conducted protocol surveys for burrowing owl (Athene cunicularia) for a 3 mile transmission Line and substation expansion project in Imperial County, California. Primary author for associated reports.

Confidential Solar Energy Project, Mojave Desert, CA

As biologist conducted protocol surveys for burrowing owl (*Athene cunicularia*) in the Mojave Desert for a solar array project.

City of Carlsbad, Agua Hedionda Creek Dredging Project, City of Carlsbad, CA

As a biologist, conducted surveys for coastal California gnatcatcher (Polioptila californica californica) and least Bell's vireo (Vireo bellii pusillus) and southwestern willow flycatcher (Empidonax traillii extimus).

California Department of Transportation (Caltrans), Morrison Mitigation Property Species Surveys, Bonsall, CA

As a biologist, conducting surveys for arroyo toad and southwestern willow flycatcher. [04/2011 - Ongoing]

San Diego Gas & Electric (SDG&E), Natural Communities Conservation Plan On-Call Biological Services, San Diego, CA As a biologist, conducting surveys for least Bell's vireo and western burrowing owl.
Assisting permitted biologist with surveys for coastal California gnatcatcher. [04/2011 - Ongoing]

Confidential Solar Energy Project, San Diego County, CA

Assisted permitted biologists with Quino checkerspot butterfly surveys. [04/2011]

City of Carlsbad, Agua Hedionda Creek Dredging Project, City of Carlsbad, CA

As a biologist, conducting surveys for least Bell's vireo and southwestern willow flycatcher. Assisted permitted biologists with surveys for coastal California gnatcatcher. [03/2011 - Ongoing]

Caltrans, South Bay Expressway State Route 125 South Restoration Site, San Diego, CA

As a biologist, conducted surveys for western burrowing owl and assisted permitted biologist with surveys for Quino checkerspot butterfly. [02/2011 - 05/2011]

County of San Diego Department of Parks and Recreation, As-Needed Environmental Services, San Diego County, CA

As a biologist, conducting surveys for nesting birds on an as-needed basis. [05/2010 - Ongoing]

US Army Corps of Engineers, Santa Ana Arundo Removal Project, Norco, CA

As a biologist, conducting bird use counts and surveys for least Bell's vireo and southwestern willow flycatcher. [05/2010 - Ongoing]

Naval Facilities Engineering Command (NAVFAC), Wildlife Surveys for Grow-the-Force and Basewide Utility Infrastructure Improvements Project,

Marine Corps Base (MCB) Camp Pendleton, CA Assisted permitted biologists with presence/absence surveys for coastal California gnatcatcher throughout the base. [08/2010 - 12/2010] Brennan Mulrooney Resume

Shu'luuk Wind, San Diego County, CA

As a biologist, conducted bird use counts, bird area searches, and raptor nesting surveys to determine the seasonal use, abundance, and distribution of resident and migratory bird species as an indicator of potential impacts from a wind development project in eastern San Diego County. In addition, conducted focused protocol-level surveys for least Bell's vireo and assisted with protocol-level surveys for southwestern willow flycatcher and arroyo toad. [04/2010 - 04/2011]

Confidential Wind Energy Project, San Diego County, CA

As a biologist, completed surveys with other biologists for arroyo toad. [06/2010]

Avian Research Associates, California Least Tern and Western Snowy Plover Monitoring, Coronado, CA

As a biologist, conducted presence/absence surveys for, monitored nests of, and banded chicks of Western snowy plover and California least tern; conducted surveys/counts for all bird species at study sites; recorded data on mortality (all species), predation of California least tern and Western snowy plover nest and chicks, and human disturbance of nesting sites. [Prior to AECOM]

Victor Emanuel Nature Tours, Tour Leader, Austin,[PEX]or to AECOM]

Led groups of up to 14 people on birding and nature tours to various locations in the US, Canada, Mexico, Belize, Panama, Jamaica, and Kenya. Wrote detailed itineraries for tours. Responsible for day-to-day logistics. Wrote detailed trip reports and completed financial reports for each tour. [Prior to AECOM]

National Audubon Society, Roseate Spoonbill Monitoring Project, Tavernier, FL

As a biologist, deployed satellite transmitters on adult spoonbills; surveyed and monitored breeding colonies by small boat, kayak, and on foot; banded nestlings and resighted color banded birds throughout the state; and conducted flight-line counts, surveyed colonies, and conducted adult foraging flights via fixed-wing aircraft. Presented project data, birding, and Florida Keys natural history presentations to local community organizations. [Prior to AECOM]

National Audubon Society, Florida Keys Stopover Ecology Study of Neotropical Migrant Birds, Cudjoe Key, FL

As a bander, mist-netted and banded neotropical migrants; recorded age, sex, wing chord, and fitness; conducted foraging observations and analyzed diet via fecal samples; conducted prey availability studies; conducted vegetation surveys; and recorded and entered data. [Prior to AECOM]

US Geological Survey (USGS) Western Ecological Research Center (WERC), San Diego Field Station, Avian Inventories of National Forests of Southern California San Diego, CA

Conducted point counts for all bird species throughout the Cleveland, Angeles, San Bernardino, and Los Padres National Forests. Assisted with mist-netting and banding of neotropical migrants at Monitoring Avian Productivity and Survivorship (MAPS) stations. [Prior to AECOM]

USGS Western Ecological Research Center (WERC), Santa Margarita River Watershed Avian Surveys, San Diego, CA

Conducted point counts for all bird species throughout the Santa Margarita watershed.

USGS Western Ecological Research Center (WERC), Least Bell's Vireo (LBVI) and Southwestern Willow Flycatcher (SWFL) Surveys, San Diego, CA

Conducted point counts for all bird species in Cleveland National Forest, Marine Corps Base Camp Pendleton, and Santa Margarita Ecological Reserve; surveyed fixed-transects for LBVIs and SWFLs in Cleveland National Forest; surveyed independently for SWFL at the mouth of San Mateo Creek; mist-netted and banded passerines at MAPS stations; conducted vegetation surveys; recorded and entered data. [Prior to AECOM]

Brennan Mulrooney Resume

Cape May Bird Observatory, Fall Migration Study of Neotropical Migrant Birds, Cape May, NJ

Performed daily constant effort raptor counts at the Hawk Watch, and waterbird counts at the Sea Watch. Assisted with mist-netting and banding of neotropical migrants; recorded age, sex, wing chord, and fitness; conducted vegetation surveys; conducted prey availability studies; conducted workshops on field identification of raptors and waterbirds in flight at Hawk Watch and Sea Watch; conducted surveys for shorebirds and other waterbirds along the beaches of southern New Jersey; recorded and entered data. [Prior to AECOM]

Varanus Biological Services, San Diego, CA

Conducted presence/absence and spot mapping surveys for least Bell's vireo; assisted with California gnatcatcher surveys; trapped small mammals and reptiles using pitfall traps and Sherman live traps; carried out bull frog eradication from sensitive habitats to protect the endangered arroyo toad; implanted Passive Integrated Transponder (PIT) tags in arroyo toads for monitoring of relocation efforts; built and maintained cowbird traps to protect nesting least Bell's vireos. [Prior to AECOM]

Lassen Volcanic National Park/Forest, Point Reyes Bird Observatory, Mineral, CA

Conducted point counts for all bird species to complete an inventory of the birds of Lassen Volcanic National Park; assisted with MAPS banding in Lassen Volcanic National Forest.
[Prior to AECOM]

Point Reyes Bird Observatory, Salton Sea, CA

Conducted targeted surveys of breeding snowy plovers; conducted general counts of all shorebirds and waterbirds; conducted surveys for breeding rail species including California black rail and Yuma clapper rail; conducted surveys for mountain plover; assisted with constant effort migration banding; banded the chicks of California gull, gull-billed tern, Caspian tern, and black skimmer; monitored breeding colonies of colonial wading birds.

[Prior to AECOM]



Erin Bergman

Biologist/Certified Arborist

Education

BS, Agricultural Science and Rangeland Management, Oregon State, Corvallis, Oregon 2012-currently enrolled

MS, Biology/Ecology, San Diego State University, San Diego, California, 2009

BS, Organismal Biology, Portland State University, Portland, Oregon,

BA, Health and Fitness/Philosophy, Minor Art, Gonzaga University, Spokane, Washington, 2002

BE, Bachelor of Education/ Secondary Teaching Certificate for Health, Physical Education, Art, Science and Philosophy 2002

Publications

Bergman, E., and J.D. Ackerman. 2006. Land Use History Affects the Distribution of a Saprophytic Orchid Wullschlaegelia calcarata in Puerto Rico's Tabonuco Forest Biotropica.

Bergman, E. 2009. Pine Regeneration at Cuyamaca Rancho State Park after a High Severity of Fire. San Diego State University Publishing. Franklin, Janet, and E. Bergman. 2011. Patterns of Pine Regeneration Following a Large, Severe Wildfire in the Mountains of Southern California. The Journal of Canadian Forestry (41) 810-821.

Instruction

Biology Instructor 201 B, San Diego State University, 2007-2009.

Training/ Conferences

Benthic Ecology Meeting, Mobile, Alabama, 2006

International Fire Conference, San Diego, California, 2009

Mojave Desert Fall-Blooming Endemic Plant Training, California Native Plant Society, 2009

MSCP Rare Plant Monitoring Workshop, USGS and Enduring Conservation Outcomes, 2010

Plant Identification for Coastal California, Wetland Training Institute, 2010

From Sea to Summit: Plant Communities of San Diego County March 31-April 3, 2011 (Jepson Herbarium Class)

Poaceae (UC Berkeley) May 14-15, 2011 (Jepson Herbarium Class)
Rare Flora of the Panamint Mountains (Death Valley) July 7-10, 2011
Carex 2012 (Pepperwood Preserve, Sonoma County) (Jepson Herbarium Class)

Juncaceae (UC Berkeley) June 30-July 2, 2012 (Jepson Herbarium Class) Tarweeds (UC Berkeley) August 18-19, 2012 (Jepson Herbarium Class) California Native Plant Society Conference (CNPS) San Diego, Californa 2012

Arctostaphylos (UC Berkeley) Hastings Preserve, Monterey County January 25-27, 2013 (Jepson Herbarium Class)

Certifications/Permits

CRAM California Rapid Assessment Methods Practitioner South Coast (Estuarine Module)

Practitioner Training Dates October 17-18, 2013

CRAM California Rapid Assessment Methods Practitioner South Coast (Vernal Pool Systems)

Practitioner Training Dates April 17-19, 2013

CRAM California Rapid Assessment Methods Practitioner (Riverine Systems) South Coast Practitioner Training Dates April 12-14, 2012 Authorization to Collect Voucher Specimens of State-Listed Endangered

and Threatened Plants, Permit Number 2081 (a)-11-35-V -2011 Quino Checkerspot Butterfly Recovery Permit, Fish and Wildlife Service Permit Number TE-820658 -2010

Vernal Pool Branchipods Recovery Permit, Fish and Wildlife Service Permit Number TE-820658 -2013

Certified Arborist-International Society of Arboriculture (ISA) 2010

Certified Rangeland Management Certification, Oregon State 2012-currently enrolled

Emergency Response Certification: AED, CPR, Oxygen Administration, PDT (current)

RSO Certified (current)

Affiliations

Member, Association for Tropical Biology and Conservation
Member, American Association for the Advancement of Science

Member, California Native Plant Society

Erin Bergman has 9 years of experience in biological research and ecology. She has worked in a variety of communities, including the Pacific Northwest, Puerto Rico, the Midwest, Arizona, Nevada and throughout California. She currently works as a field biologist vegetation mapping (Keeler-Wolf Vegetation Classification System/Holland) and weed mapping/monitoring, wetland monitoring (including the California Rapid Assessment Method), completing general rare plant surveys for Camp Pendleton (CPEN) (Eryngium, Brodiaea, Dudleya) and studies rangeland ecosystems while monitoring grazing. She works on focused rare desert plant surveys, restoration efforts (focused mainly in riparian habitats, vernal pool communities, southern mountains regions and the desert), biological monitoring on construction-related projects, and bird surveys. She also manages field efforts related to Quino checkerspot butterfly surveys, works on Vernal Pool Branchipod surveys and assists in wetland delineations.

Ms. Bergman has extensive experience working with a variety of clients, including SDG&E, City of Laguna Niguel, Marine Corps Base Camp Pendleton, State Parks, County Parks, San Diego Association of Governments (SANDAG), and confidential solar and wind clients. She also has experience with the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA), and in writing sections of Environmental Impact Reports (EIR), Environmental Assessment (EA), Biological Technical Reports (BTR), Natural Environment Study (NES), Pre-activity Study Report (PSRs), Biological Resources Reports (BRRs), Biological Opinions (BOs) and Biological Assessments (BA). Ms. Bergman writes 10a reports, restoration reports, and monitoring memos. She also works on data collection, data analysis, and data management.

Project Experience

Military Projects

Naval Facilities Engineering Command (NAVFAC) Southwest, Growth the Force Environmental Studies, Marine Corps Base Camp Pendleton, CA As a biologist, performed vegetation mapping and rare plant survey efforts for a base-wide development project and assisted in the preparation of related NEPA documentation. [2009 - 2011]

NAVFAC Southwest, Button-Celery Survey, Marine Corps Base (MCB) Camp Pendleton, CA

Conducted field surveys for Pendleton buttoncelery, a rare endemic plant species. Assisted in the preparation of the final deliverable. [2009]

NAVFAC Southwest, Brodiea Surveys, MCB Camp Pendleton, CA

Conducted field surveys for threadleaf brodiaea, a rare endemic plant species. Also participated in data downloading. [2011]

NAVFAC Southwest, Grow the Force Fairy Shrimp Surveys, MCB Camp Pendleton, CA

As a biologist, participated in fairy shrimp surveys throughout the base. Assisted in surveying more than 100 pools with fairy shrimp. [2010 - 2011]

NAVFAC Southwest, Post-Exotic Removal Riparian Habitat Monitoring Plan, MCB Camp Pendleton, CA

Participated in the implementation of the riparian Habitat Monitoring Plan (HMP) in three rivers across Marine Corps Base Camp Pendleton. The HMP assessed the success of a post-exotic species removal program in the 100-year floodplain of the Santa Margarita River, San Mateo Creek, and Las Flores Creek. This included 156 vegetation transects and 36 California Rapid Assessment Method assessment areas. Comparison to success standards, recommendations on the exotic removal program, and improvements to the HMP were provided in the Habitat Monitoring Report. Additional analysis comparing sensitive species data to time since treatment was conducted and included in the Habitat Monitoring Report as an appendix. [2009]

Solar and Wind Projects

Confidential Solar Project, Boulevard, CA

As a biologist and certified arborist, assessed oak tree populations to determine their health. A variety of oak trees and scrub oak populations were found on-site. Reviewed morphological characteristics of oak species, disease, pathogens, branch structure, soils, recruitment, and issues related to cattle grazing on oak species. Participated in writing final documents related to oak assessments. [12/2011 - 2012]

Invenergy Wind California, Quino Checkerspot Butterfly Protocol Surveys, Campo, CA

Organized field crews of independent butterfly biologists to conduct surveys in areas throughout the Campo Reservation. As a biologist, conducted Quino checkerspot butterfly surveys with permitted biologists throughout the reservation and recorded host plant populations. Host plants found in the eastern part of San Diego County included Antirrhinum coulterianum and Collinsia concolor. [2010]

Invenergy Wind California, Rare Plant and Vegetation Mapping Protocol Surveys, Campo, CA

Participated in the botany effort during focused rare plant surveys at the Campo Reservation. Rare plants were documented with individual global positioning system (GPS) locations and population numbers. Additionally, vegetation communities were recorded as habitat changed. [2010]

Concentrix/Soitec Solar Project, Quino Checkerspot Butterfly Surveys, Boulevard, CA (CONFIDENTIAL PROJECT)

As a Quino checkerspot butterfly (QCB) biologist, organized independent biologists to run surveys for QCB. Included a detailed understanding of QCB protocol information published by the US Fish and Wildlife Service (USFWS). In charge of all biologist scheduling and meetings. Gave trainings on the use of GARMINS to independent biologists and organized data, collecting all data and downloading it for reporting into a large database. Performed field surveys for QCB and searched for and recorded QCB host plants in

eastern San Diego County, which included blooming specimens of *Antirrhinum coulterianum* and *Collinsia concolor*. Recorded remnant specimens of *Cordylanthus rigidus*. Wrote 45-day reports for USFWS. Ms. Bergman also participated in the BRR. [2011]

Confidential Solar Project, Rare Plant Surveys, Boulevard, CA

As a botanist, organized botanical field surveys for AECOM and independent botanists. Studied rare plant specimens from eastern San Diego County at the San Diego Natural History Museum. Performed field surveys for rare plants and assisted in data management of rare plant data collection. Ms. Bergman participated in the BRR. [2011]

Rugged Solar, 80-Megawatt LAN East Solar and LAN West Solar, Boulevard, CA

Prepared the documentation related to these separate solar projects. [2011]

Solar Millennium, Palen/Blythe Section 7 Incidental Take Permit, Mojave Desert, Blythe, CA

As a field biologist, participated in the botany effort during a focused rare plant survey for six special-status plants that had potential to occur within the impact area of solar energy sites located in the Mojave Desert. More than 2,000 acres of land was surveyed for the target rare plant species, in addition to the 1-mile buffer zone. Vegetation mapping and an inventory of special-status wildlife was also conducted, with a focus on the desert tortoise. [2009 - 2010]

San Diego Gas & Electric Biological Monitoring, Restoration, and On-Call Services

San Diego Gas & Electric (SDG&E), Natural Communities Conservation Plan Enhancement and Monitoring Project, San Diego County, CA
As project biologist, provided field survey and reporting support to SDG&E Land Planning and Natural Resources for habitat enhancement and monitoring associated with impacts as a result of routine operations and maintenance activities associated with electricity transmission and distribution lines within the

SDG&E service territory. This project involved identifying temporary impact areas that required enhancement activities per requirements of SDG&E's Subregional Natural Communities Conservation Plan and monitoring success of sites that have received habitat enhancement treatments or are recovering through natural recruitment. Specific duties included field surveys for sensitive plants and wildlife, assessment and delineation of least-impact access routes and work areas, recommending mitigation measures, and writing project-specific reports. [2009 - 2011]

SDG&E, Natural Communities Conservation Plan (NCCP) Enhancement and Monitoring, San Diego, CA

As a biologist, worked as a monitor for projects that require on-going maintenance. Monitored work crews to avoid any NCCP-listed species, including wildlife and plant species. Also monitored ongoing passive restoration at SDG&E work sites. [2010 - 2011]

SDG&E, Natural Communities Conservation Plan (NCCP) On-Call Services, San Diego County, CA

As a biologist, performs fieldwork and document preparation for on-call support to SDG&E's Land Planning and Natural Resources Department for planned and emergency operations and maintenance activities associated with electricity transmission and distribution lines within San Diego and Orange Counties. This project involves evaluating potential biological impacts from operations and maintenance activities being conducted under SDG&E's Subregional NCCP. A thorough understanding of SDG&E operations and maintenance activities and operational protocols of the NCCP is required. The project consists of ongoing multiple task orders. [2009 - 2011]

SDG&E, Manzanita Crestwood to Boulevard Transmission Line, Boulevard, CA

Conducted field surveys for butterfly species, rare plants, and host plants for the federally listed Quino checkerspot butterfly along the transmission line. Also mapped vegetation communities along the transmission line. [2009 - 2010]

SDG&E, Sunrise Powerlink Restoration Services, San Diego County, CA

Participated in the field effort to survey all SDG&E tower sites before towers were slated to be constructed. This pre-vegetation survey served as documentation for the restoration efforts following tower construction in temporary impact areas. Individual species were recorded in each temporary impact area. Also performed post-impact surveys to determine the area of impact to each temporary site. [2011 - Ongoing]

SDG&E, Sunrise Powerlink Restoration Services Seed Collection, San Diego County, CA

Participated in the field effort to collect seed from over 100 plant species from mountains west to the desert. Ms. Bergman collected seeds from a variety of annuals to perennials.

Restoration Projects

San Ysidro Railroad Plant Salvage Project, San Ysidro, CA

Project consists of salvaging 6 species of rare plants. As a biologist, Ms. Bergman lead crews in the collection of seed and general plant salvage. Ms. Bergman also worked on seed collection throughout the site [11/12-01/13].

Otay Sweetwater Revegetation Project, Otay, CA

Project consists of monitoring the restoration occurring at the Otay Revegetation site. As a biologist, Ms. Bergman monitored the site for weed infestation and marked all weed species with a GPS for removal. Ms. Bergman also assisted in photo documentation of the field site [01/13].

D and D Wildlife Habitat Restoration, Dennery Canyon Vernal Pool Restoration Project, Otay Mesa, CA

Worked on the restoration for this 45-acre vernal pool site on Otay Mesa in San Diego County. More than 300 vernal pools were created/restored with 10 sensitive state and federally listed species. Due to sensitivity

of the endangered species, all plant material was either salvaged from the impact area or grown from locally collected seed and propagated in a nursery created for the project. Ms. Bergman worked on plant propagation, rare plant surveys, plant collections, burrowing owl surveys, seed dispersing methods, and butterfly surveys. This project set a new standard for vernal pool restoration in the San Diego area. [2009 - 2011]

California Department of Transportation (Caltrans), Dennery Canyon Vernal Pool Restoration Project Seed Bulking and Plant Propagation, Otay Mesa, CA

Project consists of enhancement and construction of more than 30 vernal pools and adjacent upland habitat for Qunio checkersport butterfly habitat. As a biologist, assisted in the collection of seed of several vernal pool plant species and worked on seed bulking of sensitive plant species. Propagated both vernal pool plants and upland plants in the annex. [2009 - 2011]

San Diego County Water Authority, Escondido Creek Wetland/Riparian Enhancement Project, Escondido, CA

As a botanist and restoration ecologist, assisted in the monitoring of 21 acres of wetland/riparian enhancement within a conservation easement established within the 100-year floodplain of Escondido Creek. [2009 - 2011]

City of Laguna Niguel, Sulphur Creek Restoration Project, Laguna Niguel, CA

This project was designed to create, restore, and enhance wetland and riparian communities and establish a native sage scrub buffer along a 1.5-mile stretch of Sulphur Creek in the Aliso Creek Watershed. Performed annual vegetation surveys and data collection. Year 1 annual monitoring and baseline data collection were completed in June 2008 for each of the project components (Upper Sulphur Creek and Lower Sulphur Creek). [2009 - 2011]

Caltrans and South Bay Expressway, State Route 125 South Restoration Site, San Diego, CA

As a biologist, worked on the mitigation for the construction of State Route 125, including vernal pool restoration, and Quino checkerspot butterfly and cactus wren habitat restoration. Provided qualitative and quantitative botanical surveys of vernal pools and Quino habitat. Also worked on the propagation of rare plants specific to Otay Mesa. [2009 - 2011]

Agri-Chemical Supply, SARM Habitat Monitoring Santa Ana River Arundo Removal Project, Norco,

As a biologist, participated in the botanical effort of monitoring vegetation communities before a large-scale removal of invasive species was to occur. Performed field vegetation analysis on transects next to the Santa Ana River, which provided information on the percent cover of species, with a focus on nonnative invasives such as giant reed and broad leaf pepperweed, which are having a detrimental effect on the river. [2010 - 2011]

US Army Corps of Engineers-Los Angeles District, Santa Ana River Land Management, Corona, CA

Assisted in the initial steps of field work preparation and organization relating to property ownership and designating random points for wildlife surveys and vegetation monitoring. [2010]

San Diego Association of Governments (SANDAG), Dennery West Biological Mitigation, Otay Mesa, CA

As a biologist, worked on wildlife surveys. Focused butterfly surveys were conducted with other permitted biologists to determine if the Quino checkerspot butterfly would inhabit this restoration site. Also propagated host plants for the federally listed Quino. Created vegetation maps of dotseed plantain and purple owls clover occurring on the site. [2009 - 2011]

Vegetation Mapping

San Diego Association of Governments (SANDAG), Vegetation Classification System Development, San Diego, CA

SANDAG is creating a fine-scale vegetation map for approximately 450,000 acres of Habitat Preserve and Conserved Lands in western San Diego County. Through the guidance of an oversight committee, SANDAG opted to use a hierarchical classification system based on the California Department of Fish and Game (CDFG) standards. This classification system is based on a repeatable scientific approach and includes statistical analysis vegetation and environmental data. AECOM is conducting the data collection and analysis. This updated vegetation classification system for San Diego County is based on the Sawyer Keeler-Wolf Classification System and integrates quantitative/statistical methods. Ms. Bergman collected data on plant community compositions, describing the most abundant vegetation at random points throughout the county. In addition, Ms. Bergman recorded all the vegetation in that local area to tough books (mini computers). A variety of data was collected, ranging from plant species on-site, integrated photos of the community, percent cover of vegetation, slope and aspect, latitude and longitude data, and site notes. Soils were keyed out using a soil key and recorded at each site similar to soils keyed in wetland deliniations. [2009]

San Diego Association of Governments (SANDAG), Invasive Nonnative Species Plant Mapping, San Diego, CA

SANDAG is currently developing a regional framework and strategy for the management of invasive plants for approximately 1.3 million acres of western San Diego County. Under a separate contract, SANDAG has tasked a project team of invasive plant experts with developing this plan. Ms. Bergman is working to create a new database of geospatially linked data to consolidate the attributes of the existing dataset and add additional fields useful for management and interpretation of invasive species distribution. Ms. Bergman will also

participate in the field effort, which will verify the accuracy of the mapping effort.
[2011]

San Diego Association of Governments (SANDAG), Tecate Cypress Mapping, San Diego, CA

SANDAG seeks to acquire baseline knowledge of the distribution and status of Tecate cypress within San Diego County. Ms. Bergman participated in the mapping effort related to this species. [2013]

City of Laguna Niguel, Sulphur Creek Restoration Project, Laguna Niguel, CA

This project was designed to create, restore, and enhance wetland and riparian communities and establish a native sage scrub buffer along a 1.5-mile stretch of Sulphur Creek in the Aliso Creek Watershed. Ms. Bergman performed vegetation mapping for the project sites and participated in document preparation. [2011]

Otay Truck Trail Road Expansion, Vegetation Mapping Otay, CA

As a biologist, Ms. Bergman worked on a field assessment reviewing the rare plants and soils. Ms. Bergman organized and completed the vegetation map for the site and participated in an NES [01/2012-08/2013]

Arizona Department of Transportation (ADOT) Vegetation Mapping SW-US 95 Yuma, Arizona

As a biologist, Ms. Bergman worked on a field assessment to map out the vegetation communities off of US 95 in Yuma Arizona. Ms. Bergman participated in the constraints analysis vegetation sections. [01/2012-08/2013]

Otay Water District, Otay Conveyance Pipeline Project,

San Diego County, CA

As biologist, completed rare plant surveys, vegetation mapping, burrowing owl surveys and quino checkerspot butterfly surveys [2012-2013]

United States Fish and Wildlife Service, Santa Ana River Marsh Restoration, Orange County, CA As biologist, conducted a floristic inventory and vegetation mapping within the Santa Ana River Marsh Restoration Area. [2013]

City of Escondido, Lake Wohlford Dam Replacement, San Diego County, CA

As biologist, participated with the botany field effort, including vegetation mapping and a focused rare plant survey for the project site and 500-foot buffer. [2013]

Wildlife Surveys

Santa Ana Nonnative Vegetation Removal Project Bird Surveys, Norco, CA

Biologist assisting with bird use counts and assisting in focused protocol-level surveys for the federally listed least Bell's vireo as part of a 5-year study to measure the effects of invasive nonnative vegetation removal within a 250-acre section of the Santa Ana River Valley on federally listed and resident bird species. [2010 - 2011]

San Diego Association of Governments (SANDAG), Dennery West Biological Mitigation: Gnatcatcher (CAGN) Surveys and Quino Checkerspot (QCB) Surveys, Otay Mesa, CA

Managed field crews and report writing for QCB monitoring in the second year. Focused on field work related to vegetation transects, CAGN surveys, and QCB surveys on the restoration site. Wrote 45-day reports and sections of the report for SANDAG with relation to wildlife species. [2011]

Otay Truck Trail Road Expansion, Quino Checkerspot Butterfly Surveys, Western Burrowing Owl Surveys, Fairy Shrimp Surveys and Rare Plant Surveys Otay, CA

As a biologist, Ms. Bergman worked on a field assessment reviewing the rare plants, soils and wildlife at Otay Truck Trail. Ms. Bergman organized and completed the Quino Checkerspot Butterfly protocol surveys and Western Burrowing Owl protocol surveys for the project site and participated in an NES [1/12-current]

Groundworks San Diego, Chollas Creek Cactus Wren Habitat Restoration, National City, CA

As a biologist, organized and completed the vegetation mapping for this site. Plants that provided habitat for the cactus wren were of particular focus, and nests were recorded. These included cactus that were of older stature with many spines (Cylindropuntia). Focused attention on Rhamnus crocea due to its importance as a host plant for the Hermes copper butterfly. All other rare plants were recorded individually or population size was recorded. The majority of rare plants found at the site were Ferocactus viridescens and Adolphia californica. [2009 - 2010]

Marine Corps Base (MCB) Camp Pendleton, Wire Mountain Gnatcatcher Surveys, MCB Camp Pendleton, CA

Assisted birding specialists in California gnatcatcher (CAGN) surveys near Wire Mountain. Worked in coastal sage scrub and disturbed communities where numerous CAGN were seen. [08/2011]

Miramar Gnatcatcher Surveys, San Diego, CA
Assisted birding specialists with California
gnatcatcher (CAGN) surveys on Miramar. Worked
in coastal sage scrub where numerous CAGN were
seen. [01/13- current]

Culvert Repair Project CalTrans (CPEN) Gnatcatcher Surveys, San Diego, CA

Assisted birding specialists with California gnatcatcher (CAGN) surveys on coastal bluff scrub and coastal sage scrub habitat while monitoring crews working on culvert repairs. [01/13- current]

Ornamental Plant Surveys

Nutmeg and Olive, St. Paul Environmental Impact Report (EIR), San Diego, CA

This EIR was prepared as a project-level EIR to evaluate the environmental effects of the proposed St. Paul's Cathedral and Residences project. As a biologist, provided knowledge

and identification of ornamental plants from Mediterranean climates that surrounded the project site, ranging from South Africa to Australia. [2010]

County Parks Surveys

Endangered Habitats Conservancy, El Monte Valley Nature Park, Lakeside, CA

This project involves an EIR and associated technical studies for a mineral extraction and 460-acre habitat restoration project within the El Monte River Valley. As a biologist, followed crews across the park who were working to create new trails for park guests. Helped to flag native chaparral vegetation that was requested to be preserved by park management. [2010]

County of San Diego, Ramona Grassland Residual Dry Matter Research and Monitoring, Ramona, CA

As a biologist, worked with a certified rangeland specialist to determine the effect of cattle grazing on the Ramona Grassland Preserve. Collected residual dry matter samples for analysis, provided recommendations, and assisted in the preparation of documents. [2010 - 2011]

County of San Diego, Santa Ysabel Residual Dry Matter (RDM) Research and Monitoring, Santa Ysabel, CA

As a biologist, worked with a certified rangeland specialist to determine the effect of cattle grazing. Instead of collecting RDM, used visual assessments to determine the impacts and benefits of cattle grazing on eastern and western Santa Ysabel open space preserves. Provided recommendations and assisted in the preparation of documents. [2010 - 2011]

County of San Diego, Ramona Grassland Residual Dry Matter Research and Monitoring, Ramona, CA

As a biologist, managed rangeland management studies, surveys, and documentation tasks. Created a monitoring program for newly acquired areas of the Ramona Grassland Preserve. Managed field crews in plant sample

collection and wrote all required documents. [10/2011 - 12/2013]

County of San Diego, Santa Ysabel Residual Dry Matter (RDM) Research and Monitoring, Santa Ysabel, CA

As a biologist, trained rangers on the process of collecting RDM samples on the Santa Ysabel Preserve. Taught the process of collection, weighing, and calculation. Rangers at the preserve will now complete all RDM tasks after this training. Also completed all documentation related to the 2011 RDM studies. [10/2011 - 12/2013]

General Biological Surveys and Reporting

Arizona Department of Transportation (ADOT) Rare plant Surveys, Vegetation Map and Wildlife Assessment SW-US 95 Yuma, Arizona

As a biologist, Ms. Bergman worked on a field assessment and constraints analysis for rare plants and wildlife off of US-95 in Yuma, Arizona. Ms. Bergman directed the rare plant surveys for the project site and wrote sections of the constraints analysis [01/13-current]

Arizona Department of Transportation (ADOT) JD and Section 404, I-10 Tucson, Arizona

As a biologist, Ms. Bergman worked on a field assessment mapping washes and drainages across 404 I-10 in Tucson, Arizona. Ms. Bergman assisted with the JD. [01/13-current]

Laurel Ridge Storm Drain Biological Assessment, San Diego, CA

As a biologist, Ms. Bergman worked on a field assessment reviewing the rare plants, soils and wildlife at Laurel Ridge for the City of San Diego. Ms. Bergman directed the rare plant surveys for the project site and wrote a constraints analysis and is working on the BTR. [12/12-current]

Other Relevant Biological Experience

San Diego State University, Rare Plant (Orchid) Recovery after Fire, San Diego, CA

As a research assistant, assisted with rare plant analysis after fires, grant writing, and GIS mapping of rare species. [2007 - 2009]

California State Parks/San Diego State University, Cuyamaca Restoration Project GIS, Arc Map Analysis of Conifers, San Diego,

Performed research on individual vegetation, vegetation communities, soils, fire history, topography, substrate, seedling/sapling clumping, animal caching, and age determination. Gained experience with Systat, GPS, Endnote software, and grant writing.

[2007 - 2009]

Sea World Adventure Parks, San Diego, CA While working in the Conservation Education Department, assisted with marine mammal and fish education, and served as a tour guide. [2007 - 2009]

Audubon Society, Borderfield State Park Long-Term Monitoring Project, San Diego, CA

Led biologists and volunteers in both bird monitoring and vegetation monitoring.

Monitoring included transects in a variety of habitats, such as dunes, salt marsh, upland habitats, chaparral, coastal sage scrub, and riparian communities. [2008 - 2009]

National Science Foundation, Saprophytic Orchid Distribution in Old Growth Rain Forest, Rio Grande, Puerto Rico

Researched saprophytic orchids with relation to land use history. Analyzed location and distribution of plant species, managed data with JMP and STATISTICA, ran Excel programs to analyze large distributions, and analyzed leaf litter and soils samples, which resulted in published work. [2005]

Portland Parks and Recreation, No Ivy League, Forest Park, Portland State University, Portland, OR

Worked in Forest Park on an urban ecology project studying the effects of the invasive English Ivy on native plant diversity. Studied the bryophyte populations where English Ivy was most invasive. Also assisted in the removal of English Ivy from sections of the park. [2006]

Portland State University, Determining the Genetic Structure of *Distichilis spicata*, Portland, OR

Propagated *Distichlis spicata* for genetic structure research. Assisted in researching the genetic structure of a wetland grass and its role in maintaining spatial segregation of the sexes to stabilize wetland ecosystems.
[2006]

Portland State University, Determining the Invasive Effects on Typha latifolia, Portland,

Studied a variety of invasive nonnative grasses in local waterways and how these grasses can affect the reproductive effort of *Typha latifolia*, a native cattail. [2006 - 2007]

Opal Creek Ancient Forest Center, Cascade Mountains, Salem, OR

Studied *Goodyera* and *Listera* in relation to varying land use history while comparing O-horizon depth, soil moisture, light levels, canopy cover, and plant diversity. [2007]



Bonnie Hendricks Senior Ecologist

Education

MS, Biology, Ecology Emphasis, San Diego State University,

BS, Biology, Magna Cum Laude, Western Washington University, 1983

Training

Advanced Hydric Soils 24 hr Course, Wetland Training Institute. 2006

Basic Wetland Delineation 40 hr Course, Wetland Training Institute, 1993

Wildlife Tracking and Corridor Analysis Training, Tom Brown Jr. Tracking Course Equivalent, San Diego Tracking Team, 1996, 2002-2003; 2005

Participation in the San Diego Bird Atlas, San Diego Natural History Museum, 1997-2002

Sensitive Butterflies of San Diego, A Workshop Focusing on Nine Local Species, David Faulkner and Michael Klein, 2001 and 2005

Quino Checkerspot Butterfly Workshop, Gordon Pratt and Ken Osborne, $2000\,$

Desert Tortoise Survey and Handling Techniques Workshop, Desert Tortoise Council, 1991

OSHA Hazardous Material Operations and Emergency Response Training and Supervisory Training, 1994

Certifications

California Gnatcatcher Independently Permitted, U.S. Fish and Wildlife, 1993 to present

Quino Checkerspot Butterfly Independently Permitted, U.S. Fish and Wildlife, 1999 to present

Wildlife Track and Sign Interpretation, Certified Level II, North American Evaluation, 2006

Professional Affiliations

Member, San Diego Tracking Team

Member, California Native Plant Society Member, Southern California Botanists Bonnie Hendricks has 20 years of professional experience as a biologist in the environmental consulting field. Ms. Hendricks has conducted and managed ecological and botanical field studies for numerous projects in southern California. Her expertise includes rare plant and floristic surveys, vegetation classification and mapping, wetland delineation and permitting, restoration and monitoring of vernal pool habitat, wildlife tracking and corridor analysis, and regional conservation planning. She also has experience with Quino checkerspot butterfly surveys, California gnatcatcher surveys, herpetological surveys, avian surveys, and general wildlife surveys.

She has completed projects for military and industrial installations, private landowners, development companies, and government agencies. Her responsibilities have included conducting and managing varied biological field studies; managing databases; overseeing quality assurance and quality control; and writing biological sections of EIRs, EAs, BAs, and other environmental technical reports, restoration plans, and resource management plans.

Project Experience

Botanical Field Surveys and Reports

Caltrans State Route 76 Road Improvement Project, San Diego County, CA

As task manager of botanical studies, Ms Hendricks conducted and oversaw rare plant

surveys and vegetation mapping along three alternative routes proposed for improving SR 76 in the eastern segment between I-15 and South Mission Road in Bonsall. Conducted comprehensive wetland delineations for the eastern and middle segments, Bonsall and Oceanside west to Melrose Drive, along the San Luis Rey River. Also participated in protocol surveys for least Bell's vireo, California gnatcatcher, and southwestern arroyo toad. Currently managing the preparation of an NES for the project and contributing to the wetland delineation report, wildlife tracking study, and BA.

NAVFAC Southwest U.S. Marine Corps Base Camp Pendleton Military Family Housing Project, San Diego County, CA

As task manager, Ms. Hendricks conducted and oversaw vegetation, rare plant, and wildlife surveys on three alternative military family housing sites. Conducted protocol California gnatcatcher surveys on the approximately 84-acre Rodeo Grounds site. More than 10 pairs of gnatcatchers were detected. Prepared biological sections of the EA for the project.

California Department of Fish and Game Hollenbeck Canyon Wildlife Area Land Management Plan, San Diego County, CA

As Senior Biologist, conducted rare plant surveys and vegetation mapping for a land management plan per CDFG Guidelines for the approximately 5,500-acre Hollenbeck Canyon Wildlife Area to establish a set of management goals and tasks that will enhance the Area's natural resources, protect special plant and animal species and their habitats on site, and allow for compatible public uses where appropriate. Contributed to land management plan and assisted with document.

Caltrans and California Transportation Ventures, Inc. Lake Jennings Open Space Preserve/Restoration Area Land Management and Post-fire Recovery Monitoring, San Diego County, CA

As Senior Biologist, collected quantitative and qualitative vegetation data for assessing

the success of habitat restoration for the coastal cactus wren on this burned and partially disturbed area as part of the post-fire monitoring and long-term management of the preserve. Contributed to the Post-Fire Monitoring Report. Detected cactus wren and California gnatcatcher on site after wildfires and made recommendations for continued preserve management.

City of Escondido Hale Avenue Resource Recovery Facility Expansion Tanks, San Diego County, CA

As a task manager, Ms. Hendricks conducted and oversaw general biological surveys, wetland delineation, rare plant surveys, and a tree impact survey for the installation of two expansion tanks for the Hale Avenue Resource Recovery Facility, using GPS methodology and GIS mapping. Prepared a Biological Technical Report and wetland permit packages for this project.

City of Carlsbad Cannon Road Reach 4, Carlsbad, CA

As Project Biologist, performed rare plant surveys and vegetation mapping for the preparation of the Cannon Road Reach 4 Preliminary Environmental Assessment Report (PEAR). The City of Carlsbad is proposing to construct the final segment of Cannon Road, which is classified as a major arterial in the Carlsbad Circulation Element. These studies established a baseline for future environmental documentation and review within the context of the Local Assistance process.

Los Angeles Department of Water and Power Pine Tree Wind Development Project, Kern County, CA

As Project Biologist, assisted in the environmental documentation for a Wind Energy Resource Area in the foothills of the Sierra Nevada south of Kings Canyon National Park and north of the city of Tehachapi for a proposed green energy farm (wind turbines). Performed botanical surveys and vegetation mapping and contributed to the biological technical report and permitting procedures for compliance with regulatory agencies.

U.S. Marine Corps MCB Camp Pendleton P-527 and P-529 Wastewater Compliance Programs, San Diego County, CA

As Biologist, conducted vegetation and rare plant surveys addressing the potential impacts of wastewater treatment facilities and pipelines along Santa Margarita River, San Mateo Creek, San Onofre Creek, Las Flores Creek, and Pilgrim Creek.

OHM Remediation Services Corp. North Island Remediation DO36 Sites 9 and 11, San Diego County, CA

As Biologist, conducted vegetation and rare plant surveys for two coastal sites proposed for remediation. Prepared rare plant mitigation plan for two coastal plant species.

California Intelligent Communities Joshua Hills, Riverside County, CA

As Botany Task Manager, conducted botanical surveys and vegetation mapping of a 9,000-acre proposed development near Palm Desert, California. Developed comprehensive mapping techniques and managed botany team for a large-scale investigation involving complex vegetation transitional communities in a desert alluvial system.

Imperial Irrigation District Transmission Line Pole Replacement Projects, Imperial, San Diego, and Riverside Counties, CA

Assistant Project Manager for biological resource investigations along two existing transmissions lines (R and L-Lines) through desert ecosystems across three counties. This project spanned a total of 184 miles requiring replacement of 300 existing poles. Conducted biological surveys including an assessment of the vegetation communities along the lines, and pole-specific accounts of the biological resources (such as rare plants, flat-tailed horned lizard, burrowing owls, and sensitive desert vegetation communities) within the proposed construction areas.

Imperial Irrigation District Chiriaco Summit Transmission Line, Riverside County, CA

As Botanical Resource Task Manager prepared BTR and EA and carried out construction monitoring for the Chiriaco Summit transmission line. Conducted rare plant surveys and vegetation mapping along the proposed transmission line corridor. Carried out desert tortoise transect monitoring during the construction phase.

Caltrans, West Mission Bay Drive Bridge Replacement, San Diego, CA

As Senior Biologist/Task Manager, conducted biological surveys and analyses of direct and indirect impacts of a bridge replacement project at the mouth of the San Diego River involving wetlands, brackish water, and endangered species habitats.

City of San Diego, Metropolitan Wastewater District Coastal Sewer Alignment, San Diego County, CA

As Biologist, conducted botanical investigations in various salt marsh, freshwater marsh, and coastal dune habitats for a proposed sewer alignment extending from the Mission Bay area south to Borderfield National Monument.

City of San Luis Obispo Nacimiento-to-San Luis Obispo Pipeline, San Luis Obispo County, CA

As Botanical Resource Task Manager, conducted studies to determine the potential impacts of constructing a 70-mile aqueduct connecting Lake Nacimiento to the City of San Luis Obispo. Surveys included rare plant and vegetation mapping, with focused surveys for red-legged frog and kit fox burrows. Prepared vegetation and sensitive plants species sections of the EIR.

U.S. Generating Company Otay Mesa Generating Project, San Diego County, CA

As Project Biologist, served as lead biologist for a biological resources study submitted to the California Energy Commission. Conducted field studies to determine the potential impacts of a power-generating project including 60 kV and 230 kV power lines, a sewer line, and associated facilities in the

Otay Mesa area of San Diego County. Surveys included rare plants and animals, and vegetation mapping. Assisted the client in avoiding impacts to biological habitat, and threatened and endangered species, through project design. Used GIS to map project components, quantify existing conditions and impacts, and to generate report graphics.

San Diego County Water Authority Emergency Water Storage Project, San Diego County, CA As Field Biologist, conducted and managed biological field investigations for alternative pipeline alignments, including wetland delineations, vegetation mapping, and sensitive plant surveys. Analyzed large data sets for the fine screening of project alternatives. Developed methodology and prepared a report for assessing wetlands functions and values. Involved in ongoing monitoring of and permitting for rare plants and California gnatcatcher.

Kennecott Minerals Company Cahuilla Project, Imperial County, CA

As Botanical Resource Task Manager, designed and managed a quantitative vegetation sampling program to describe desert plant communities to be impacted by mining exploration in Imperial County. Initial vegetation mapping involved aerial photo interpretation; quantitative field investigations involved vegetation transect and quadrat sampling.

U.S. Immigration and Naturalization Service Brown Field Border Patrol Station EA, San Diego County, CA

As Biologist, conducted botanical surveys and prepared biology sections of an EA and biological technical report to address development of the Brown Field border patrol master plan on 30 acres of U.S. Navy-owned land. The site was adjacent to the Brown Field Air Station, 4 miles north of the United States and Mexico international border. Issues of concern included mitigation of two vernal pools, federally endangered plant and animal species (San Diego button-celery and San Diego

fairy shrimp), and a California species of special concern (burrowing owl).

County of San Diego North County Landfills, San Diego County, CA

As Biologist, conducted rare plant surveys, vegetation mapping, and wetland delineations using the federal method on four proposed North San Diego County landfill sites.

U.S. Marine Corps Helicopter Outlying Field, MCB Camp Pendleton, San Diego County, CA As Biologist, mapped vegetation habitats and conducted focused surveys for rare plants on four sites at MCB Camp Pendleton for a proposed helicopter landing field. Prepared vegetation and sensitive plant species sections for the biological technical report.

City of San Diego and County of San Diego Southwest County Landfills, San Diego County, CA

As Biologist, conducted and managed field surveys for sensitive plant species, vegetation mapping, and wetland delineations on five proposed San Diego landfill sites. Also conducted focused California gnatcatcher surveys. Prepared site feasibility assessment for biological resources.

Caltrans SR-54 and SR-94 Widening, Natural Environment Study Report and Mitigation Recommendations,

San Diego County, CA

As Biologist, prepared natural environment study report and mitigation report. Delineated wetlands using the federal method, and conducted an oak tree impact analysis based on oak tree canopy measurements.

City of San Diego, Department of Waste Management Miramar Landfill General Development Plan,

San Diego County, CA

As Biologist, conducted vegetation and sensitive species surveys general development plan. Assisted in the preparation of the BTR and EIR.

Baldwin Corporation Thread-Leaved Brodiaea Mitigation Site, San Diego County, CA

As Biologist, collected field data on a series of experimental plots in San Marcos for a study that monitored survivorship and growth under a number of test conditions.

City of Chula Vista Otay Ranch EIR, San Diego County, CA

As Biologist, prepared botanical sections of the EIR, including response to comments from the public, and assisted in the preparation of the findings of fact, and mitigation and monitoring report. The Otay Ranch Project was a large-scale, multijurisdictional development that involved over 40 sensitive plant species and numerous sensitive habitats on an approximately 23,000-acre property in Chula Vista.

McMillin Communities Biological Resources Analysis and Spring Survey for Sensitive Plants of Scripps Ranch, San Diego County, CA As Biologist, conducted rare plant surveys, and classified and mapped vegetation. Prepared report on assessment of potential vernal pool habitat and rare plants.

Shea Homes Biological Constraints Analysis of Daley Ranch, San Diego County, CA

As Biologist, conducted focused surveys for rare plants and California gnatcatchers, and assisted in wetland delineation, in Escondido.

Baldwin Corporation Otay Ranch BTRs, San Diego County, CA

As Biologist, conducted detailed study on the vernal pools within this 23,000-acre property. Prepared technical reports on the hydrology and flora of Otay Ranch vernal pools. Conducted rare plant surveys on one of the three major parcels of Otay Ranch (the Jamul Mountains).

Baldwin Corporation Rare Plant Mapping of Otay Ranch, San Diego County, CA

As Biologist, conducted focused surveys for 52 sensitive plants on the Jamul Mountains area of the 23,000-acre Otay Ranch.

City of San Marcos Discovery Hills EIR, San Diego County, CA

As Biologist, conducted and supervised floral and faunal surveys, including mapping of vegetation communities, rare plants, and California gnatcatchers, in San Marcos. Prepared BTR for the EIR.

City of San Diego BTR for Extension of Jackson Drive, San Diego County, CA

As Biologist, assisted in vegetation and floristic surveys, and in the preparation of BTR for the EIR. Worked with city planners, engineers, and the resource agencies for development of viable mitigation alternatives.

Dillon Development Biological Resources Analysis of Roberts Ranch, San Diego County, CA

Biologist conducted biological surveys to map and describe the vegetation and sensitive resources. Prepared BTR.

Wildlife Biology

NAVFAC Southwest U.S. Marine Corps Base Camp Pendleton Military Family Housing Project, San Diego County, CA

As task manager, Ms. Hendricks conducted and oversaw vegetation, rare plant, and wildlife surveys on three alternative military family housing sites. Conducted protocol California gnatcatcher surveys on the approximately 84-acre Rodeo Grounds site. More than 10 pairs of gnatcatchers were detected. Prepared biological sections of the EA for the project.

Caltrans and California Transportation Ventures, Inc. State Route 125 South Johnson Canyon Open Space Preserve Land Management Mitigation, San Diego County, CA

As Senior Biologist, conducted focused protocol surveys for California gnatcatcher as part of the long-term management of the preserve (mitigation site for State Route 125). Prepared 45-Day Report for California gnatcatcher survey to USFWS. Recommended management actions and coordinated with

restoration biologists to minimize impacts to listed species.

NAVFAC Southwest P-634 Range 409 Armor/Anti-Armor Tracking Range Upgrade, MCB Camp Pendleton, CA

As Project Biologist, conducted coastal California gnatcatcher (Polioptila Californica) surveys, botanical surveys, vegetation mapping, wetland delineation, and Quino checkerspot butterfly (Euphydryas editha quino) habitat assessment, and assisted in fairy shrimp wet season sampling for the proposed reorientation and technological upgrade of the Marine Corps weapons and training Range 409. This project involved production of a BA and EA.

Power Engineers and SDG&E Valley-Rainbow 500kV Interconnect Electrical Transmission Line Project,

Riverside and San Diego Counties, CA

Senior biologist and task manager for the endangered Quino checkerspot butterfly investigations on behalf of SDG&E for a 500kV transmission line connecting southern California Edison's Valley substation in Riverside County with a proposed new SDG&E substation in Rainbow, San Diego County. Work included management of protocol surveys and fieldwork for the Quino checkerspot butterfly within the preferred corridor, and consultations with the resource agencies regarding project impacts, mitigation, and permits.

The LandWell Company Provenance, Henderson, NV

As Senior Biologist, conducted wildlife movement studies within a proposed green community on a 2,600-acre desert site in Henderson, Nevada. Performed a wildlife corridor study and constraints analysis to analyze the most suitable areas for ecological preservation and enhancement, including the creation of open space corridors and wildlife preserve areas to maintain connectivity and long-term viability of wildlife populations.

San Diego County Department of Public Works Wildcat Canyon Road Enhancement Project, San Diego County, CA

As Senior Biologist, studied wildlife movement and determined corridor use surrounding Wildcat Canyon Road using transects and stations for track and sign identification of target mammal species. The purpose of this study was to identify potential impacts that road widening might pose on local and regional wildlife corridors. Areas that would benefit from the construction of a specifically designed wildlife crossing were also identified. Provided initial wildlife tracking training to junior staff biologists prior to project initiation.

East Otay Mesa Specific Plan, County of San Diego, CA

As Senior Biologist/Task Manager, conducted and managed surveys for Quino checkerspot butterfly over approximately 1,300 acres of occupied habitat in East Otay Mesa. Documented approximately 105 occurrences of Quino checkerspot butterflies. Managed and coauthored with independent consultant, Ken Osborne, the Site Assessment and Focused Adult Survey for Quino Checkerspot Butterfly in the East Otay Mesa Specific Plan Area.

NAVFAC Southwest East Miramar Housing, San Diego County, CA

As Senior Biologist/Task Manager, conducted and managed Quino checkerspot butterfly surveys per the USFWS year 2000 survey protocol for three alternative sites on MCAS Miramar totaling approximately 1,200 acres. Conducted rare plant and vernal pool surveys.

OHM Remediation DO93 San Pedro Project, Los Angeles County, CA

As Biologist, conducted vegetation and host plant mapping for the Palos Verdes blue butterfly at the U.S. Navy Defense Fuel Support Point in San Pedro. Prepared an environmental protection plan to ensure avoidance of impacts to the butterfly from testing and remediation of a tar seep.

NAVFAC Southwest Northern Power Distribution System, MCB Camp Pendleton, San Diego County,

As Field Biologist, conducted biological field investigations and impact assessments of the placement of electrical distribution poles and associated aboveground electrical line along 15 miles in Oceanside. Conducted biological investigations including detailed vegetation community mapping and general wildlife surveys, focused surveys for rare plant species, protocol surveys for California gnatcatcher, and reconnaissance surveys for Pacific pocket mouse and Stephens' kangaroo rat. Mapped biological data using GIS ArcInfo database.

NAVFAC Southwest MCB Camp Pendleton Passerine Study, San Diego County, CA

As Biologist, conducted an intensive behavioral study of potential adverse effects of helicopter activity on the endangered least Bell's vireo. Participated in field investigations to document detailed behavioral observations of birds and noise conditions for the large vireo population adjacent to MCB Camp Pendleton and for a comparable off-site control population.

4-S Ranch Biological Resources Analysis, San Diego County, CA

As Biologist, conducted focused surveys for California gnatcatchers, sensitive reptiles, and sensitive plants on 3,000 acres of primarily coastal sage scrub within the 4-S Ranch in San Diego.

Caltrans Avian Studies, San Diego County, CA As Biologist, trapped and banded brown-headed cowbirds to investigate their daily and seasonal movement patterns as they relate to parasitism of the federally listed endangered least Bell's vireo. Investigated vegetative parameters of the nesting habitat for the least Bell's vireo on three San Diego County rivers.

Resource Management Plans

MCAS Miramar Fire EA, San Diego County, CA Senior biologist for biological investigations associated with preparation of an EA for improved wildland fire management on Marine Corps Air Station Miramar. An EA was prepared to analyze the potential impacts of a proposed 5-year program to manage the frequency, size, distribution, and intensity of wildfires at the 23,616-acre MCAS Miramar. The program addresses vegetation and fire management measures intended to protect high value areas on MCAS Miramar (e.g., military assets and sensitive resource areas) as well as adjacent to the Station (e.g., bordering residential and commercial areas). Sensitive biological resources on MCAS Miramar include numerous listed or other sensitive plant and animal species, regionally important vernal pool complexes, riparian corridors, and sensitive upland habitats.

Caltrans and California Transportation
Ventures, Inc. Johnson Canyon Open Space
Preserve Habitat Management Plan for State
Route 125 South, San Diego County, CA
As Senior Biologist, conducted vegetation,
rare plant, California gnatcatcher, and Quino
checkerspot butterfly surveys for the
development of a habitat management plan for
this 210-acre Johnson Canyon area in Otay
Mesa, located in southern San Diego County.
The management area consists of an array of
parcels acquired for the mitigation of

SDCWA and City of Poway Habitat Management Plan for the Sanrex Property, City of Poway,

construction of State Route 125 South.

sensitive species and habitats affected by the

The San Diego County Water Authority entered into an agreement with the City of Poway to mitigate for impacts of the Authority's Emergency Storage Project through the acquisition and management of a 46-acre site containing upland habitat. As Senior Biologist, conducted biological surveys of this coastal sage scrub/chaparral ecotone and prepared a management plan for the continued preservation and management of this open space

in perpetuity. The plan included a description of current biological conditions and habitat management procedures such as an annual inventory and associated methods, provisions against trespassing, exotic species removal and trash cleanup, restoration and fire management, and an annual cost analysis for habitat management.

City of San Diego, Metropolitan Wastewater District Multiple Species Conservation Plan, San Diego County, CA

As Project Biologist, conducted and coordinated field surveys for habitat and sensitive plant species mapping within 20 target study areas in San Diego. The study areas were chosen to fill identified gaps in the regional database for sensitive biological resources. The survey data were used in a habitat evaluation model for regional preserve planning.

County of San Diego, Department of Public Works Assessment of Potential Biological Resource Mitigation Banks, San Diego County, CA

As Biologist, conducted research and assessment of six County-owned properties (1,305 acres total) to be considered for establishment as mitigation banks. Performed detailed vegetation mapping and focused surveys for sensitive plant and other animal species. Evaluated current and planned land uses within the properties and throughout adjacent properties, and assimilated all data to determine the relative value of designating a site as a mitigation bank. Presented findings to the County's Mitigation Task Force to determine which bank(s) would be established.

U.S. Army Space and Missile Defense Command Critical Habitat Evaluation: Program Review of Integrated Natural Resource Management Plans

Under contract with the U.S. Army, we are providing support to CINCPACFLT, Honolulu, Hawaii, for the Program Review of Integrated Natural Resource Management Plans (INRMPs).

The objective of the review is to identify potential shortfalls that may lead to the designation of critical habitat and recommend corrective actions. The INRMPs are being reviewed using criteria listed by the U.S. Fish and Wildlife Service and include multiple measures regarding the conservation benefit provided to listed species and assurances regarding plan implementation and effectiveness. Working with CINCPACFLT, we developed a matrix for the comparative reviews. To date, reviews have been conducted for INRMPs written for installations in Hawaii, Guam, and California and will include installations in Washington and Oregon.

City of Escondido Master Plan of Parks,
Trails, and Open Space, San Diego County, CA
As Biologist, prepared biological impact
analysis for the City of Escondido Master
Plan. Conducted biological surveys on numerous
proposed park sites. Conducted aerial
photointerpretation for vegetation types and
wildlife corridors in the master plan area.

Wetland Delineations and Restoration

City of Santa Clarita Cross Valley Connector East Project, Los Angeles County, CA

As Senior Biologist, conducted formal U.S. Army Corps of Engineers wetland delineation of riparian habitats on the Santa Clara River for the proposed Cross Valley Connector. Assisted with preparation of the Natural Environmental Survey Report.

Power Engineers and SDG&E Valley-Rainbow 500kV Interconnect Electrical Transmission Line Project, Riverside and San Diego Counties, CA Senior biologist for wetland delineations on behalf of SDG&E for a 500kV transmission line and substation in Rainbow, San Diego County. Work included wetland delineations of intermittent streams and wet meadow habitat at the proposed Rainbow substation including consultations with the resource agencies regarding project impacts, mitigation, and permits.

Mid-America Pipeline Company Rocky Mountain Loop Project, Uintah County, UT, and Rio Blanco County, CO

Project biologist for focused investigations of wetland communities and jurisdictional waters along 200 miles of pipeline as part of a larger scale study. Conducted detailed wetland delineations per the ACOE 1987 manual at all locations where jurisdictional wetlands or waters coincided with the 200-foot-wide project study corridor. Flagged wetlands and waters in the field, recorded locations and pertinent data with GPS equipment, prepared field sketches, and completed wetland delineation data sheets.

Santa Fe Pacific Pipeline Partners, Inc. Pipeline Upgrade and Management Plan, MCB Camp Pendleton,

San Diego County, CA

As Biologist, conducted field studies, including wetland delineations, wetland functions assessment, surveys for sensitive plants and animals, and habitat mapping. The project involved the replacement of over 24 miles of petroleum pipeline through MCB Camp Pendleton. Products included a BTR and wetland delineation report.

State of Pennsylvania Characterization of Wetlands Plant Community and Metals Concentrations in Vegetation, Jefferson County, PA

As Project Biologist, designed and conducted field investigations to determine the effects of contaminated sludge from an abandoned ceramics factory on the structure and functioning of a 200-acre wetland ecosystem in Falls Creek. Prepared the Phase I plant community report and assisted in preparation of a risk assessment report for the Jackson Ceramix site.

Metropolitan Water District of Southern California Sylvan Meadows, Santa Rosa Plateau, Riverside County, CA

As Biologist, conducted an extensive wetland delineation on the 740-acre property, including field evaluation of soils,

hydrology, and vegetation. The analysis was aided by aerial photointerpretation for vegetation types. The Sylvan Meadows property was proposed to be added to the Santa Rosa Plateau Preserve and managed jointly by the Nature Conservancy and Metropolitan Water District.

NAVFAC Southwest Base Realignment and Closure, MCB Camp Pendleton, San Diego County, CA

As Biologist, conducted a comprehensive wetland delineation and wetland functions assessment on the Santa Margarita River for construction and operation of new facilities associated with base realignment. Aerial photointerpretation was used to aid in the mapping of vegetation communities.

ASIC U.S. Air Force Enhanced Training, Owhyee County, ID

As Biologist, prepared a wetland habitat analysis in support of an EIS for the proposed expansion of U.S. Air Force base activities.

Riverside County Transportation Department Temecula River (Pala Road) Bridge Project, Riverside County, CA

As Biologist, conducted comprehensive wetland delineation and wetland functions assessment of bridge widening for a categorical exemption/exclusion under CEQA and NEPA, and conducted an alternatives analysis under 404(b)(1) guidelines. Prepared permit applications for acquisition of a 401 Water Quality Certification and a 1601 Streambed Alteration Agreement in accordance with Caltrans, and applicable state and federal standards.

North County Transit District Oceanside-to-Escondido Rail Project and Bike Path, San Diego County, CA

As Biologist, prepared a wetland functions assessment for riparian habitats to be impacted by the proposed light rail project.

Chet Upham Biological Technical Report (BTR), San Diego County, CA

As Biologist, conducted vernal pool surveys, rare plant surveys, and wetland delineations for site in San Marcos. Prepared the BTR and vernal pool mitigation plan. Prepared and obtained federal and state permits for impacting wetlands and endangered species.

City of San Diego, Department of Parks and Recreation First San Diego River Improvement Plan, San Diego County, CA

Served as assistant project manager of quantitative monitoring, data synthesis, and report preparation for the riparian vegetation of the rechannelized San Diego River.

Monitored multiple phases of growth, and assessed project success against agencyestablished criteria. Botanical monitoring consisted of vegetation transects, herbaceous and freshwater marsh quadrats, tree measurements, and foliage height diversity.

Caltrans Biological Studies for Freeway Developments, Riparian Mitigation Plans, San Diego County, CA

Served as independent biological consultant for Caltrans. Conducted botanical surveys and habitat mapping for impact analysis and mitigation design for freeway developments in San Diego, working under CEQA and NEPA regulations. Managed three monitoring programs for riparian revegetation on the San Diego and Sweetwater rivers. Supervised planting of riparian revegetation site on the San Diego River.

Bureau of Land Management Burro Creek Riparian Habitat Restoration for Recovery of the Mexican Black Hawk, Kingman, AZ

As Volunteer Biologist, conducted vegetation and stream dynamics surveys for suitability of riparian habitat restoration along an approximately 20-mile reach of Burro Creek in Central Arizona. Responsibilities also included implementation of cottonwood riparian forest restoration, periodic avian surveys, and preparation of a habitat restoration report for Burro Creek.

Vernal Pool Ecology and Restoration

County of San Diego, Department of Planning and Land Use Ramona Vernal Pool Conservation Study,

San Diego County, CA

As Senior Biologist, conducted a comprehensive study of vernal pools in Ramona to document biological functions, quality, diversity, and distribution of vernal pools and pool complexes to determine conservation priorities. Designed sample parameters and methods for vernal pool assessments, conducted rare plant surveys, and created a database for GIS modeling, mapping, and analysis. The Ramona Vernal Pool Conservation Study has been integrated into the larger North County MSCP to identify conservation priorities consistent with regional planning efforts.

NAVFAC Southwest MCAS Miramar Vernal Pool Restoration and Enhancement Plan, San Diego County, CA

As project manager, prepared and implemented a detailed restoration and enhancement plan for 90 vernal pool basins on four sites at MCAS Miramar. Primary goal was to restore or enhance habitat for the endangered San Diego mesa mint and fairy shrimp in areas that had been degraded by past disturbance. The 5-year maintenance and monitoring program has been successfully completed. The program included monitoring of hydrology, flora, and fauna for the restored pools and adjacent control pools, and measures to maintain and protect the restoration site.

County of San Diego Department of Public Works Ramona Airport IHMP, San Diego County, CA

As Senior Biologist, contributed to an integrated habitat management plan for the Ramona Airport property. This work included conducting detailed vernal pool surveys using GPS equipment, identifying basins by indicator plant species, directing fairy shrimp surveys (dry and wet season), and performing jurisdictional wetlands delineations. Land management to integrate these resources and protect them in perpetuity was the focus of the plan. Conducted intensive mitigation site search for vernal pool properties and

developed mitigation plans for vernal pool and wet meadow restoration.

City of San Diego McAuliffe Park, San Diego County, CA

As Senior Biologist, conducted detailed vernal pool delineations, vegetation mapping, and surveys for rare, threatened, and endangered plant species for a proposed City of San Diego Recreational Park. Prepared a biological technical report and biology sections for the Draft EIR.

MCI Telecommunications Vernal Pool Restoration along Kearny Villa Road, San Diego County, CA

Managed the monitoring phase of a restoration plan and implementation program for vernal pools of the F-series in the community of Mira Mesa in San Diego. The project involved inoculum collection and reapplication from adjacent vernal pool systems; and seed collection and seeding of two federally endangered vernal pool plant species, San Diego mesa mint and San Diego button celery, according to USFWS protocol. Conducted longterm hydrological and vegetation monitoring, including preparation of the annual report to the ACOE, USFWS, and CDFG. The project was successfully completed in the year 2000, with pools maintaining an increasing population of San Diego fairy shrimp and San Diego mesa mint.

The Environmental Trust West Otay Mesa Vernal Pool Delineation, San Diego County, CA

As Biologist, conducted and managed field investigations to characterize and map vernal pools, and to identify the potential and techniques for restoration. Coordinated with resource agencies to establish a vernal pool mitigation bank. Used GPS for detailed mapping and input into GIS.

Metropolitan Water District of Southern California Metropolitan Mitigation Site, Riverside County, CA

As Biologist, conducted field investigations to establish existing conditions and annual monitoring of a preserve containing various unique wetland habitats and endangered plant species. Investigations included floral surveys, habitat mapping of vernal pools and alkali playa, soils profiling, and identification of restoration potential for alkali playa and associated endangered plant species.

NAVFAC Southwest Chollas Heights and Murphy Canyon Vernal Pool Restoration Plan, San Diego County, CA

As Biologist, designed and managed field investigations to delineate vernal pools and identify restoration approaches on two San Diego vernal pool preserve sites used to mitigate impacts from a planned Navy family housing project. Prepared a comprehensive vernal pool restoration and management plan.

NAVFAC Southwest MCAS Miramar BAs, San Diego County, CA

As Biologist, delineated vernal pools, and associated rare plant and animal species, which might have been impacted when NAS Miramar was realigned as a Marine Corps air station. Prepared a vernal pool restoration and management plan for NAS Miramar in support of the BA.

BTR and Vernal Pool Mitigation Plan, San Diego County, CA

As Biologist, prepared BTR and vernal pool mitigation plan for San Marcos site. Conducted vernal pool survey and delineated wetlands using the federal method.

City of Chula Vista Rancho del Rey Specific Plan Area III Vernal Pool Mitigation Plan, San Diego County, CA

As Biologist, developed detailed mitigation plan for restoration and enhancement of vernal pool habitat in Chula Vista.

Baldwin Corporation Vernal Pool Study of Otay Ranch, San Diego County, CA

Served as assistant project manager for detailed study of the hydrology and flora of more than 900 vernal pools in Chula Vista.

NAVFAC Southwest Vernal Pool Management Plan, MCAS Miramar, San Diego County, CA

As Biologist, conducted botanical surveys of all vernal pool groups on MCAS Miramar, and assisted in development of management plan to protect vernal pool resources in a multipleuse system.

International Projects

San Diego State University Tropical Coastal Ecosystem Study, Master's Thesis, El Estacion de Biologia Chamela, México

Conducted a study on the interactions between tropical trees and their insect herbivores during dry- and wet-season periods. Worked closely with local residents of Jalisco and students from Mexico City.

Publications

Hendricks, B.J. and B.D. Collier. 2003. Effects of sex and age of a dioecious tree, Forchhammeria pallida (Capparaceae) on the performance of its primary herbivore, Murgantia varicolor (Hemiptera: Pentatomidae). Ecological Research 18 (3), 247-255.

Hendricks, B.J. 1990. Interactions between a tropical dioecious tree Forchhammeria pallida (Capparaceae) and its herbivore Murgantia varicolor (Hemiptera: Pentatomidae), M.S. Thesis. San Diego State University.

Hendricks, B.J. and J.P. Rieger. 1988.

Description of nesting habitat for least

Bell's vireo in San Diego County. Proceedings
of the California Riparian Systems Conference,

Davis, California.

Hendricks, B.J. 1988. Effects of sex and age of a tropical tree Forchhammeria pallida on herbivory by the pentatomid bug Murgantia varicolor. Ecological Society of America Program and Abstracts 69 (2): 166, Davis, California.

Hendricks, B.J. 1987. Abundance and damage of a Mexican harlequin bug, Murgantia varicolor,

on plants of different age and sex in the dioecious tree, Forchhammeria pallida.

Abstracts from the American Association for the Advancement of Science Conference, San Diego. (Best Student Presentation Award).



Jimmy McMorran Wildlife Biologist

Education

Diploma, Hemet High School, 1995

Training

California Native Plant Society Rapid Assessment,2008 San Diego Natural History Museum Plant Identification, 2008 Flat-tailed Horned Lizard Worksop, Bureau of Land Management, 2009

Desert Tortoise Council Workshop on Surveying, Monitoring, and Handling Techniques for Desert Tortoise, 2009 Southwestern Willow Flycatcher Workshop, Southern Sierra Research Station, 2010

Quino Checkerspot Butterfly Identification Test, US Fish and Wildlife Service, 2010

Certifications

10(a)(1)(A) Endangered Species Permit TE 820658-4 to independently conduct presence/absence surveys for coastal California gnatcatcher and southwestern willow flycatcher; independently survey and nest monitor for western snowy plover and least Bell's vireo.

California Department of Fish and Game Authorization for Flat-tailed Horned Lizard Surveys Wilderness First Aid Certification CPR Certification Motorboat Operator Certification

Jimmy McMorran's qualifications as a biologist include more than 10 years of experience as an ornithologist and research biologist. Mr. McMorran is experienced in sensitive wildlife species surveys and population monitoring, and habitat assessment. His primary focus has been being involved with search efforts and the monitoring of both threatened and endangered avian species. In addition, a passion for understanding seasonal status and distribution of avian species throughout North America has aided in his qualifications. He is experienced with GPS, GIS, modeling of wildfire behavior, and wildlife tracking. Mr. McMorran also regularly supports CEQA and NEPA documents by assisting with the writing of biological technical reports; biological assessments; and sections of EAs, EIRs, and EISs.

Project Experience

Shu' luuk Wind, San Diego County, CA

As biologist conducted bird use counts, bird area searches, and all day raptor point counts with a focus on golden eagle (Aquila chrysaetos) to determine the seasonal use, abundance, and distribution of resident and migratory bird species as an indicator of potential impacts from a wind development project in eastern San Diego County. In addition, he conducted focused protocol level surveys for the federally listed least Bell's vireo (Vireo bellii pusillus), assisted with protocol level surveys for the federally listed southwestern willow flycatcher (Empidonax traillii extimus), and assisted with nest surveys for raptors and other large

avian species. He completed surveys with other biologists for the federally endangered quino checkerspot butterfly (Euphydryas editha quino).

NAVFAC Southwest San Nicolas Island Wind Turbine Project, San Nicolas Island, CA

As biologist, conducted preconstruction avian point count surveys in relation to wind power development focusing on migratory species moving throughout this outermost Channel Island in support of the avian risk assessment, documenting uncommon and rare avian species, and performing general wildlife habitat assessments.

NAVFAC Wildlife Studies for the Naval Base Coronado Coastal Campus Environmental Impact Statement, Naval Base Coronado, San Diego, CA As biologist is conducting avian surveys in support of environmental documentation for a coastal campus project.

Confidential Solar Energy Project, Sonoran Desert, CA

As biologist participated in managing and conducting avian point count surveys in the Sonoran Desert.

Confidential Solar Energy Project, Mojave Desert, CA

As biologist conducted protocol surveys for burrowing owl (Athene cunicularia) in the Mojave Desert for a solar array project.

City of Escondido Citracado Parkway -Andreasen Drive to West Valley Parkway, San Diego County, CA

As biologist, conducted protocol surveys for least Bell's vireo (Vireo bellii pusillus), kept detailed notes and documented any uncommon or rare avian detections, and assisted with associated reports.

Santa Ana Nonnative Vegetation Removal Project, Orange County, CA

As biologist is assisting with bird use counts and is conducting focused protocol level surveys for the federally listed least Bell's

vireo (Vireo bellii pusillus) as part of a five year study to measure the effects of invasive nonnative vegetation removal within a 250-acre section of the Santa Ana River Valley on federally listed and resident bird species.

San Diego Gas & Electric- Sunrise Powerlink-Restoration Services, San Diego County, CA As biologist, participated in habitat assessments for temporary and permanent impacts to sensitive wildlife habitats associated with construction of the Sunrise Powerlink project, a 117-mile, 500 kilovolt transmission corridor.

Mojave Solar Power Project, Mojave Desert, San Bernardino County, CA

As biologist, assisted with surveys focused on desert tortoise (Gopherus agassizii), transmission towers around the project site and documented all raptor and raven nests, and spring and summer nesting bird surveys around the project site. All documented nests were monitored to determine necessary avoidance buffers. Additionally, he assisted with the preparation of the raven management plan for the project.

California Department of Transportation (Caltrans), Morrison Mitigation Property Species Surveys, Bonsall, CA

As biologist, participated in surveys for arroyo toad (*Bufo californicus*) and conducted surveys for southwestern willow flycatcher (*Empidonax traillii extimus*).

Los Angeles Department of Water and Power, Confidential Project, Adelanto, San Bernardino County, CA Wildlife Biologist

As a biologist, assisted with focused desert tortoise (*Gopherus agassizii*) clearance surveys and burrowing owl preconstruction surveys.

Blythe, Palen, and Ridgecrest Solar Power Projects, Mojave Desert, Riverside/Kern County, CA

As a biologist, assisted with focused desert tortoise (Gopherus agassizii), and avian point count surveys for various large solar array projects. He has conducted numerous nesting bird, and burrowing owl surveys. He assisted with setting-up and conducting avian point counts for the BLM, and conducted contractor training.

Confidential Transmission Line Project, Colorado Desert, CA

As biologist, conducted protocol surveys for burrowing owl (Athene cunicularia) and flattailed horned lizard (Phrynosoma mcallii) for a 3 mile transmission Line and substation expansion project in Imperial County, California. Primary author for associated reports.

Confidential Solar Energy Project, San Diego County, CA

Assisted permitted biologists with Quino checkerspot butterfly (Euphydryas editha quino) surveys for a solar array project.

City of Carlsbad, Agua Hedionda Creek Dredging Project, City of Carlsbad, CA

As biologist, conducted surveys for coastal California gnatcatcher (Polioptila californica californica) and least Bell's vireo (Vireo bellii pusillus). Assisted permitted biologists with surveys for southwestern willow flycatcher (Empidonax traillii extimus).

San Diego Gas & Electric Various Widget Monitoring Projects, San Diego County, CA

As biologist, has been involved in various monitoring tasks with SDG&E in habitats for various listed and sensitive wildlife species. He has provided on-site construction monitoring for pole replacement projects to avoid sensitive wildlife habitats.

NAVFAC Southwest MCB Camp Pendleton Basewide Water Improvements and Stuart Mesa Bridge Replacement Project, Environmental Studies, San Diego, CA

As biologist, conducted protocol surveys for coastal California gnatcatcher (*Polioptila californica californica*) and was primary author of associated reports.

Imperial Irrigation District (IID) Imperial Valley-wide Burrowing Owl Surveys, Imperial County, CA

As a biologist, participated in the surveying of randomly selected 3 x 3 kilometer grids in a double independent observer methodology.

Confidential Wind Energy Project, San Diego County, CA

As biologist, completed surveys with other biologists for the federally endangered quino checkerspot butterfly.

Olivenhain Municipal Water District, Various Pipeline Projects, San Diego County, CA

As biologist, participated in protocol surveys for coastal California gnatcatcher.

California Health Care Facilities Project at R.J. Donavan State Correctional Facility, San Diego County, CA

As biologist, conducted protocol surveys for least Bell's vireo (Vireo bellii pusillus), participated in protocol surveys for coastal California gnatcatcher (Polioptila californica californica), and assisted with associated reports.

NAVFAC Southwest MCB Camp Pendleton Grow the Force Environmental Studies, San Diego, CA $\,$

As biologist, participated in protocol surveys for coastal California gnatcatcher (*Polioptila californica californica*) and was primary author of associated reports.

San Diego County Department of Public Works Wildcat Canyon Road Enhancement Project, Phase I, San Diego County, CA

As biologist, studied wildlife movement and determined corridor use surrounding Wildcat Canyon Road using baited and unbaited tracking plates.

MCB Camp Pendleton, San Diego, CA

Wildlife technician responsible for organizing and conducting systematic avian surveys basewide; monitor and ensure that fencing surrounding the nesting sites of threatened western snowy plover (Charadrius alexandrinus nivosus) and endangered California least tern (Sterna antillarum brownii) are maintained for predator control purposes; assist with flagging threatened and/or endangered plants and habitat in conjunction with habitat restoration projects; responsible for updating the checklist to the Birds of MCB Camp Pendleton.

RC Biological Consulting, Inc., La Mesa, CA
As biologist, conducted botanical and wildlife
surveys, including focused surveys for least
Bell's vireo (Vireo bellii pusillus), mapped
habitat, and assisted with wetland
delineations throughout southern California
regions; conducted fuel management surveys and
fire modeled for Fire Protection Plans; and
assisted with technical report preparation,
research, and graphics using Arcview and
AutoCAD in support of potential construction
development. Work was performed prior to
joining this firm.

Point Reyes Bird Observatory Conservation Science (PRBO), Santa Cruz Island, CA

As Lead Biologist, conducted systematic surveys for loggerhead shrikes (Lanius ludovicianus anthonyi) utilizing all habitats islandwide; kept detailed notes of behavioral observations and located nests; entered data using Microsoft Excel, ArcMap, and Google Earth; logged sightings and read color bands of the island endemic Island scrub jay (Aphelocoma insularis); and recorded, compiled, and submitted all avian species detected to the proper agencies. Coordinated

and managed group volunteer survey efforts. Work was performed prior to joining this firm.

Alaska Biological Research (ABR, Inc.), Forest Grove, OR

As Field Technician, participated in preconstruction studies in relation to potential wind power development by monitoring nocturnal bird and bat migration with use of radar and night vision in New York and Pennsylvania; entered data using Microsoft Excel. Work was performed prior to joining this firm.

U.S. Geological Surveys (USGS), Flagstaff, AZ
As Field Technician, conducted ornithological
surveys for western yellow-billed cuckoo
(Coccyzus americanus occidentalis) along the
Colorado River from the U.S./Mexican border up
through the Grand Canyon by foot, kayak, and
motorboat; performed detailed botanical
surveys using vegetation plots in riparian
ecosystems; entered avian survey data into the
avian database; kept detailed records of all
avian species detected; and compiled records
of all surveyors and submitted them to the
appropriate agencies. Work was performed prior
to joining this firm.

Cornell University Laboratory of Ornithology, St. Charles, AR

As Field Technician, conducted systematic surveys for ivory-billed woodpecker (Campephilus principalis) in the bottomland and hardwood forests of Cache River and White River National Wildlife Refuges by foot, canoe, and motorboat; inventoried feeding signs and roost/nest cavities of large woodpeckers; conducted point counts, playback surveys, and detailed behavioral observations of pileated woodpeckers (Dryocopus pileatus); daily use and operation of Global Positioning Systems (GPS), video camera, and aerial photography for navigation and orientation; and entered data into ArcView data management software. Work was performed prior to joining this firm.

Point Reyes Bird Observatory Conservation Science (PRBO),

San Clemente Island, CA

As Field Biologist, monitored the wild population of the endangered San Clemente loggerhead shrike (Lanius ludovicianus mearnsi); read color bands, conducted detailed behavioral observations, located nests, and assisted with banding of shrikes; conducted surveys for the threatened western snowy plover (Charadrius alexandrinus nivosus); completed 40 hours of supervised training in survey techniques, breeding behavior, identification, and habitat of the western snowy plover under a permitted biologist; permitted to handle endangered and threatened avian species (i.e., San Clemente loggerhead shrike and western snowy plover); entered data using ArcView, Microsoft Access, Excel, and MSWord; kept detailed records of all avian species detected; and compiled records of all surveyors and submitted them to the appropriate agencies. Work was performed prior to joining this firm.

Institute for Wildlife Studies (IWS), San Clemente Island, CA

As Release Biologist, monitored and conducted supplemental feeding of the captive released population of the endangered San Clemente loggerhead shrike (Lanius ludovicianus mearnsi); participated in transporting, weighing, and releasing of both juvenile and adults; and assisted with trapping and processing of state threatened Island fox (Urocyon littoralis) for research purposes. Work was performed prior to joining this firm.

Blucher Audubon Nature Center, Corpus Christi,

Naturalist responsible for restoring native habitat and preserving facilities; participated in the identification and removal of invasive plant species; and assisted visitors with questions about the flora and fauna of the center and surroundings. Work was performed prior to joining this firm.

Volunteer Experience

IWS, San Clemente Island, CA

Constructed raptor holding cages for problematic species that were found within areas of endangered San Clemente loggerhead shrike (Lanius ludovicianus mearnsi) release sites; participated in raptor surveys islandwide, assisted wildlife biologist with trapping and processing state threatened Island fox (Urocyon littoralis) for research purposes; assisted biologist with the removal of nonnative feral cats through various means, including trapping; logging sightings and behavioral data such as behavior in specified geographical areas. Work was performed prior to joining this firm.

U.S. Fish and Wildlife Service, Ventura, CA Participated in the search and recovery efforts for one of the last original wild California condors (*Gymnogyps californianus*) after its release back into the wild. Work was performed prior to joining this firm.

Hazel Bazemore Hawkwatch, TX

Volunteered numerous hours helping identify raptors during fall migration. Work was performed prior to joining this firm.

American Birding Association, USA

Has lead bird watching tours for the American Birding Association (ABA) Conferences in southern California and Louisiana. Work was performed prior to joining this firm.

Arkansas Birding Festival, AR

Served as a leader of bird watching tours during the Arkansas birding festival. Work was performed prior to joining this firm.

San Diego & Buena Vista Audubon Society

Has served as a leader for San Diego & Buena Vista Audubon Society pelagic birding trips in southern California.



Brynne Mulrooney Biologist

Education

B.S, Wildlife Ecology and Conservation, University of Florida, 1998

Publications + Technical Papers

Langan, B. E. and J. J. Lorenz. 2007. Roseate Spoonbill Satellite Telemetry Project. Annual Report. The Batchelor Foundation, The Louis Wolfson Foundation, and The Ocean Fund. Miami, Florida, USA.

Lorenz, J. J., B. Langan, M. Korosy, A. Paul, K. Fisk, R. Heath, and A. Hodgson. 2004-2008. Roseate Spoonbills in Florida Bay, in South Florida Wading Bird Report. Vol. 10-14, G. E. Crozier, M. I. Cook, E. M. Call, and H. K. Herring, Eds., South Florida Water Management District, West Palm Beach, FL.

Lorenz, J.J., B. Langan Mulrooney, P. E. Frezza, R. G. Harvey, and F. J. Mazzotti. 2009. Roseate spoonbill reproduction as an indicator for restoration of the Everglades and the Everglades estuaries. Ecological Indicators.

Lott, C. A., B. E. Langan, M. B. Mulrooney, R. T. Grau, and K. E. Miller. 2005. Stopover ecology of Nearctic-Neotropical migrant songbirds in hardwood hammocks of the Florida Keys. Final Report. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida, USA.

Trainings

Southwestern Willow Flycatcher Workshop (2002 and 2009) EPA's Rules on Compensatory Mitigation for Impact on Wetlands, Streams and Other Waters Seminar (2010) Quino Checkerspot Butterfly Test (passed in 2010 and 2012)

Professional History

2011 – Present Design + Planning at AECOM Biologist

2008 – 2011 HDR, Inc. Biologist

2002-2008 National Audubon Society Biologist Brynne Mulrooney's qualifications as a biologist include 14 years of experience as a wildlife biologist specializing in avian studies. More recently, Ms. Mulrooney has expanded her experience to include botany and wetland delineations. Ms. Mulrooney has worked in a variety of locations including Florida, Texas, Arizona, Mississippi, Alabama, New Jersey and California

Ms. Mulrooney currently works as a biologist conducting wildlife habitat assessments, avian presence/absence surveys, vegetation mapping, rare plant surveys, wetland delineations, and biological monitoring on various construction projects.

Project Experience

San Diego Gas and Electric (SDG&E) Natural Communities Conservation Plan On-Call Biological Services, San Diego, CA

As a biologist, conducting field surveys and reporting to SDG&E Land Planning and Natural Resources for habitat enhancement and monitoring associated with impacts as a result of routine operation and maintenance activities associated with electricity transmission and distribution line within the SDG&E service area. Specific duties include field surveys for sensitive plants and wildlife, assessment and delineation of least-impact access routes and work areas, recommending mitigation measures, and wirting project specific reports. Project description: 150 words maximum, incorporate individual role in project within text, size (if applicable) and client name. [10/2011 – Present]

City of Carlsbad, Carlsbad Boulevard Realignment and Land Exchange Project San Diego County, CA

Ms. Mulrooney conducted a habitat assessment for special status wildlife species and vegetation within the 700-acre

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project area. Ms. Mulrooney assisted with focused protocol surveys for listed vernal pool branchiopods (San Diego fairy shrimp and Riverside fairy shrimp) throughout the project area as a supervised biologist. [10/2011 – 1/2012]

NAVFAC Southwest, MCB Camp Pendleton Basewide Utilities Infrastructure Supplemental BAs and CERS and EIS, MCB Camp Pendleton, CA

Ms. Mulrooney assited with the preparation of supplemental Biological Assessments for BUI CERS projects. [12/2011 – 12/2012]

County of San Diego Department of Parks and Recreation, As-Needed Environmental Services, San Diego County, CA Ms. Mulrooney assisted with on-call tasks involving nesting bird surveys and vegetation mapping for Mission Trails Regional Park. [02/2012 – 03/2012]

Olivenhain Municipal Water District San Elijo Lagoon Pilot Well Project, Encinitas, CA

Ms. Mulrooney provided environmental consulting services for the OMWD by conducting a general biological survey, nesting bird survey, and preparation of a biological constraints report. [03/2012-07/2012]

Willow Street Bridge Replacement Project Chula Vista, CA

Ms. Mulrooney conducted nesting bird surveys and prepared a survey report for the Willow Street Bridge Replacement Project. [04/2012 – 08/2012]

Otay Truck Trail Road Expansion, Otay, CA

Ms. Mulrooeny conducted a habitat assessment and Western Burrowing Owl protocol surveys for the Otay Truck Trail Road Expansion project. [03/2012 – 08/2012]

Laurel Ridge Storm Drain Biological Assessment, San Diego, CA

Ms. Mulrooney directed the field surveys and conducted the habitat for the Laurel Ridge Storm Drain project. Ms. Mulrooney prepared a biological constraints report for the project. [02/12-current]

SDG&E Salt Creek Substation and Transmission Line Project, Chula Vista, CA

Ms. Mulrooney assisted with the general biological surveys and habitat assessments, Western Burrowing owl surveys, and assisted with the preparation of the PSR, PEA, and BTR. [02/2012 – current]

Otay Mesa Conveyance and Disinfection System Project, San Diego, Ca

Ms. Mulrooney conducted protocol Western Burrowing Owl, and least Bell's vireo surveys. Ms. Mulrooney prepared the Biological Technical Report for this project. [06/2013-Present]

San Diego County Water Authority Portal Reolcation Project, Chula Vista, CA

Ms. Mulrooney conducted biological monitoring and prepared the monitoring memo for the construction monitoring efforts involved with the portal relocation project. [07/2013 - 08/2013)

County of Los Angeles Department of Public Works, State Route126 and Commerce Centre Drive Freeway Interchange Project Wildlife Studies, Santa Clarita, CA

Ms. Mulrooney conducted pre-construction nesting bird surveys to determine potential breeding within the project area for a freeway interchange project. [07/2013-08/2013]

Iberdrola Renewables, Tule Wind Farm Project, County of San Diego, CA.

As a biologist, Ms. Mulrooney conducted a wetland delineation, rare plant survey and Quino Checkerspot butterfly survey (as a supervised assistant); prepared the Jurisdictional Wetland Delineation Report; and, assisted with the preparation of the Biological Technical Report for this project. [08/2009 – 12/2010]

Element Power - High Desert Solar Project, County of Kern, CA. As a biologist, Ms. Mulrooney has conducted a rare plant survey, general biological survey including an assessment of jurisdictional features and prepared the Biological Technical Report for this project. [05/2010 – 12/2010]

Marine Corps Base Camp Pendleton – Avian Power Line Protection Plan, Camp Pendleton, CA. Ms. Mulrooney created an Avian Power Line Protection Plan (APP) for Marine Corps Base Camp Pendleton (MCBCP). The APP developed strategies for reducing power line impacts on avian species on MCBCP as well as outlined a framework for implementation of such guidelines for reducing raptor electrocutions. [12/2008 – 02/2010]

City of San Diego Contract Services Division, Florida
Canyon Drainage and Erosion Improvements Project, San
Diego, CA. Ms. Mulrooney conducted a nesting bird survey,
provided biological monitoring during the construction process,
assisted with a wetland delineation and rare plant survey and

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assisted with the completion of the Biological Technical and Revegetation reports. [03/2009 – 10/2010]

Riverside County Transportation Commission, I-15 Corridor Environmental Planning, Riverside County, CA. Ms. Mulrooney conducted focused rare plant surveys for all Narrow Endemic Plant Species and Criteria Area plant species along both sides of Interstate 15 from Norco to Murrieta, CA. [12/2008 – 09/2010]

San Diego Co. General Services Department, Ramona Branch Library, On-Call Environmental Support, Ramona, CA. Ms. Mulrooney conducted a pre-construction avian nesting survey and report for the Ramona Branch Library. [4/2010 – 08/2010]

Callaway Golf, Callaway Golf Monitoring, Carlsbad, CA. Ms. Mulrooney conducted biannual monitoring of the revegetation site and prepared the annual monitoring report for this project. [12/2008 – 09/2010]

Environmental Land Solutions, Deer Canyon Conservation Bank, San Diego, CA. Ms. Mulrooney conducted biannual general biological assessment surveys to identify impacts to biological resources, monitored the general condition of the conservation bank and prepared an annual monitoring report per the agreement of the management plan. [12/2008 – 09/2010]

La Costa Resort and Spa, Jurisdictional Wetland Delineation, Carlsbad, CA. Ms. Mulrooney assisted with the wetland delineation survey and report for this project. [05/2010 – 06/2010]

Moulton Niguel Water District, Jurisdictional Wetland Delineation, Orange County, CA. Ms. Mulrooney assisted with the wetland delineation survey and report for this project. [05/2010 - 06/2010]

North County Transit District, Railway Improvement, San Diego County, CA. Ms. Mulrooney conducted a nesting bird survey, presented an Environmental Worker Awareness Training Program, and monitored construction activities for this project. [08/2010 – 12/2010]

City of Highland, Street Improvement Project, Highland, CA. Ms. Mulrooney assisted with the wetland delineation and general biological survey for this project. [05/2010 – 08/2010]

San Bernardino Associated Governments, Railway Improvement, Redlands, CA. Ms. Mulrooney conducted a general biological survey, opportunities and constraints survey, and prepared the associated reports, for this project. [05/2010 – 11/2010]

Roseate Spoonbill Monitoring Project, Tavernier, FL. As Field Crew leader, Ms. Mulrooney handled hiring, training and scheduling of seasonal field crew; performed data entry and analysis as well as report writing; maintained databases; deployed satellite transmitters on adult spoonbills; formatted hourly data transmissions and created maps using ArcGIS; surveyed and monitored breeding colonies by small boat, kayak and on foot; banded nestlings and resighted color banded birds throughout the state; conducted flight-line counts as well as surveys of colonies and adult foraging flights via fixed-wing aircraft; gave presentations to local groups. [11/2002 – 08/2008]

Florida Keys Stopover Ecology Study of Neotropical Migrant Birds, Cudjoe Key and Key Largo, FL. Ms. Mulrooney mist-netted and banded fall migrants; recorded age, sex, wing chord, and fitness; conducted foraging observations, analyzed diet via fecal samples; conducted prey availability studies; conducted vegetation surveys; recorded and entered data. [08/2002 – 10/2003]

Least Bell's Vireo and Southwestern Willow Flycatcher Monitoring Projects, San Diego, CA. Ms. Mulrooney mistnetted and banded adult LBVI's using playback; resighted color-banded birds; conducted nest searching and monitoring; mapped territories (spot-mapping); banded nestlings; assisted with video-monitoring study; surveyed SWFL's on MCB Camp Pendleton; recorded and entered data. [03/2003 – 08/2003]

Santa Margarita River Watershed Avian Surveys, San Diego, CA. Ms. Mulrooney conducted point counts for all bird species throughout the Santa Margarita watershed. [04/2003 – 07/2003]

Least Bell's Vireo and Southwestern Willow Flycatcher Surveys, San Diego, CA. Ms. Mulrooney conducted point counts for all bird species in Cleveland National Forest, MCB Camp Pendleton and Santa Margarita Ecological Reserve; surveyed fixed-transects for LBVI and SWFL's in Cleveland National Forest; mist-netted and banded passerines at MAPS stations; conducted vegetation surveys; recorded and entered data. [03/2002 – 08/2002]

Fall Migration Study of Neotropical Migrant Birds, Cape May, NJ. Ms. Mulrooney mist-netted and banded fall migrants; recorded age, sex, wing chord, and fitness; conducted

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vegetation surveys; conducted prey availability studies; recorded and entered data. [09/2000 – 11/2001]

Fragmentation Study of Breeding Birds on the San Pedro River, Fairbank, AZ. Ms. Mulrooney Conducted nest searching and monitoring for over 20 species of birds, focused mainly on Yellow-Breasted Chat, Bell's Vireo, and Abert's Towhee; conducted point counts; conducted prey availability studies; conducted vegetation surveys. [06/2001 – 08/2001]

Endangered Species Study of Golden-Cheeked Warbler, Fort Hood, TX. Ms. Mulrooney mist-netted and banded GCWA using playback; conducted nest searching and monitoring; resighted color-banded birds; mapped territories (spotmapping); collected nest and habitat use data through vegetation surveys; recorded data. [03/2000 – 06/2001]

Fall Migration Study of Neotropical Migrant Birds, Fort Morgan, AL. Ms. Mulrooney mist-netted and banded fall migrants; recorded age, sex, wing chord, and fitness; assisted with radio-telemetry project on Chuck-Will's Widow; assisted with behavioral experiments on Gray Catbird and Blue-Gray Gnatcatcher; recorded and entered data. [09/1999 – 10/1999]

Avian Community Dynamics and Conservation Study on Noxubee NWR and Tombigbee National Forest, Starkville, MS. Ms. Mulrooney mist-netted and banded breeding birds; conducted vegetation surveys; recorded and entered data. [07/1999 – 09/1999]

Rufous-crowned Sparrow Habitat Fragmentation Study, San Diego, CA. Ms. Mulrooney Conducted nest searching and monitoring; resighted color-banded birds; assisted with netting and color banding; mapped territories; conducted point counts and predator surveys; conducted insect transects and placed pit-fall traps; conducted vegetation surveys; recorded and entered data. [03/1999 – 07/1999]



Mark Roll Wildlife Biologist/Regulatory Analyst

Education

Masters, Environmental Law and Policy, Vermont Law School, 2010

B.S., Biology, San Diego State University, 2006

Permits and Trainings

Coastal California Gnatcatcher - USFWS 10(a) Recovery Permit San Diego Tracking Team Tracker/Naturalist series (2009) Continuing Law Education (CLE) Conference - Endangered Species Act (2006) Mark Roll has 6 years of experience specializing in wildlife biology and conservation planning efforts throughout Southern California. He recently earned his Master of Environmental Law and Policy degree from Vermont Law School, where his studies focused primarily on the intersection of energy planning and development, and environmental management and protection. His studies also focused on climate change policy, mitigation, and adaptation. Prior to joining AECOM, Mr. Roll prepared a variety of technical reports summarizing baseline ecological data, impacts, and mitigation requirements for planning and development projects; assisted in the development of various Natural Communities Conservation Programs (NCCP)/Habitat Conservation Plans (HCP) planning efforts; served as adjunct staff at San Diego Gas & Electric for administration of its NCCP; assisted in the development of monitoring protocols for land management plans; conducted endangered species surveys, general/baseline biological surveys, and habitat assessment surveys; and conducted environmental compliance monitoring for construction projects.

Project Experience

Avian Radar Evaluation Study at the Pine Tree Wind Farm, Los Angeles Department of Water and Power (LADWP), Kern County, CA

Wildlife biologist/regulatory analyst providing technical and project management support for an independent evaluation study of an avian radar system at the Pine Tree Wind

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Farm. Responsible for study design, data analysis, report preparation, and coordination/management tasks.

Confidential Wind Energy Project, San Diego County, CA

Wildlife biologist/regulatory analyst for a 160 MW wind energy project on federal land in the inner-montane region of eastern San Diego County. Provided Section 7 consultation support per the federal Endangered Species Act (lead author of Biological Assessment) and National Environmental Policy Act (NEPA) support (preparation of Biological Technical Report) and assisted in the preparation of an Avian and Bat Protection Plan. Assisted in the development of the project's mitigation strategy including on- and offsite requirements.

Confidential Solar Energy Project, San Diego County, CA

Wildlife biologist/regulatory analyst for three photovoltaic solar energy sites (2,500, 1,200, and 1,750 acres) located in eastern San Diego County. Lead author of the Biological Technical Reports prepared for each site in compliance with the County of San Diego reporting requirements for a Master Use Permit (MUP). Assisted in the development of the project's mitigation strategy.

Various Projects, Federal Emergency Management Agency (FEMA), Variety of Locations, CA

Wildlife biologist/regulatory analyst for a variety of Disaster Relief projects funded by FEMA. Provided Section 7 consultation support per the federal Endangered Species Act (lead author of Biological Assessments).

M2 NCCP/HCP, Orange County Transportation Authority, Orange County, CA

Conservation biologist for the development of a Natural Communities Conservation Program/Habitat Conservation Plan (NCCP/HCP) to address incidental take of threatened and endangered species associated with 13 highway improvement projects. Responsible for developing conservation strategy approach and guiding client through planning process. Lead author for plan. [Prior to AECOM]

Encroachment Partnering, Marine Corps Base Camp Pendleton, Oceanside, CA

Conservation biologist for the development of a Recovery Crediting System for three federally listed species occurring on Camp Pendleton to benefit species recovery and ease on-base training restrictions. Responsible for the development of species-specific crediting methodologies for coastal California gnatcatcher, Stephens' kangaroo rat, and arroyo toad. [Prior to AECOM]

Manchester Habitat Management Area (HMA) Long-Term Management Plan, San Diego County Water Authority, Encinitas, CA

Conservation biologist for the development of the Manchester HMA Long-Term Management Plan. Plan development in accordance with US Army Corps of Engineers and county guidelines. Lead author of plan. [Prior to AECOM]

San Diego Gas and Electric (SDG&E) NCCP, San Diego, CA

Adjunct program administrator for administration of the SDG&E Natural Communities Conservation Program (NCCP). Role involved desktop review of utility operation and maintenance and new facility activities to determine required environmental review. Served as a central hub for communications between project engineers and environmental staff. [Prior to AECOM]

Coastal Region Low-Effect Habitat Conservation Plan, Southern California Gas Company, Southern CA

Conservation biologist for the development of a Low-Effect Habitat Conservation Plan to address incidental take of threatened and endangered species associated with Southern California Gas Company's gas pipeline operations and maintenance activities in Santa Barbara, Ventura, Orange, Riverside, Los Angeles, and San Bernardino counties. Assisted in the development of the covered species list, best management practices to protect

Mark Roll Résumé

covered species, and development of habitat distribution models for covered species.
[Prior to AECOM]

Multiple Species Conservation Plan (MSCP) Monitoring: Tijuana River Valley Regional Park and Barnett Ranch, County of San Diego, CA

Wildlife biologist for development of a Biological Monitoring Report for Tijuana River Valley Regional Park and Barnett Ranch. Lead development and implementation of biological monitoring protocols for reptiles and amphibians. Assisted in vegetation mapping of preserves. [Prior to AECOM]

Multiple Species Conservation Plan (MSCP) Monitoring:

Del Dios Highlands and Hellhole Canyon, County of San Diego, CA

Wildlife biologist for development of Biological Baseline Report for Del Dios Highlands and Hellhole Canyon Preserves. Assisted in development and implementation of biological monitoring protocols related to reptiles and amphibians, mammals, and birds. Assisted in vegetation mapping efforts. Lead author for the Biological Baseline Report summarizing methods and results of biological surveys and management recommendations. [Prior to AECOM]

South Sacramento County Habitat Conservation Plan (HCP) Adaptive Management and Monitoring Plan,

Sacramento County, CA

Conservation biologist supporting the development of an adaptive management and monitoring plan for the South Sacramento County HCP. Assisted in the development of conceptual models for species and communities to identify management targets and supporting the development of experimental design studies for conservation targets based on recent research. [Prior to AECOM]

Wildcat Canyon Road Wildlife Movement Study, County of San Diego Department of Public Works, Lakeside, CA

Wildlife biologist for implementation of postconstruction wildlife movement study along Wildcat Canyon Road. Conducted field studies related to wildlife movement tracking and evaluation of project mitigation efforts, including wildlife fencing and undercrossings.
[Prior to AECOM]

Emergency Storage Project: San Vicente Dam Raise,

County of San Diego, CA

Wildlife biologist for development of the San Vicente Dam Raise Biological Technical Report (BTR) for the San Diego County Water Authority. Responsible for summarizing existing conditions, assessing project impacts, and proposing mitigation measures. Assistant author of the report. [Prior to AECOM]

University of California, San Diego (UCSD)
Medical Center Improvements, San Diego, CA
Wildlife biologist for construction monitoring
for UCSD Medical Center improvements.
Conducted compliance monitoring and coastal
California gnatcatcher clearance surveys.
[Prior to AECOM]

Santa Maria Creek Protection and Restoration Project, Ramona Grasslands Preserve, Ramona, CA

Wildlife biologist for arroyo toad surveys along Santa Maria Creek in the Ramona Grasslands Preserve. Assisted in design and implementation of focused arroyo toad surveys. Assisted in the development of associated biological survey/monitoring report. [Prior to AECOM]

San Pasqual Valley Trail Improvements, San Dieguito River Park, San Diego, CA Wildlife biologist responsible for performing focused least Bell's vireo and arroyo toad surveys per USFWS survey protocols for each species. Lead author of survey reports summarizing methods and results. [Prior to AECOM]

State Route 54/94 Road Improvements Project, County of San Diego Department of Public Works,

Rancho San Diego, CA

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Wildlife biologist for construction monitoring of State Route 54/94 road improvements. Conducted noise monitoring and best management practices monitoring during construction activities. Monitored least Bell's vireo activity within project area. Prepared monthly monitoring reports. [Prior to AECOM]

Myers Property Restoration and Erosion Control Project, Oceanside, CA

Wildlife biologist responsible for conducting focused coastal California gnatcatcher surveys and summarizing results. [Prior to AECOM]

Valley Center Road Bridge Replacement Project, County of San Diego Department of Public Works,

County of San Diego, CA

Wildlife biologist for the development of an arroyo toad relocation program for a bridge replacement project. Conducted arroyo toad surveys and was lead author of relocation program. [Prior to AECOM]



Michael Anguiano Wildlife Biologist

Education

MS, Ecology, San Diego State University, 2008 BA, Wildlife Biology, Kansas State University, 2001

Certification

California Scientific Collecting Permit SC-007314 CDFG Authorization for Flat-tailed Horned Lizard Surveys CDFG Authorization for State-listed Barefoot Banded Gecko Surveys

CDFG Authorization for State-listed Tehachapi Slender Salamander Surveys

Training

Flat-tailed Horned Lizard Survey and Monitoring Techniques, 2009, Bureau of Land Management

San Diego Tracking Team Tracker/Naturalist series, 2009 Desert Tortoise Council Workshop on Surveying, Monitoring, and Handling Techniques for Desert Tortoise, 2010 Michael Anguiano has 6 years of environmental experience and 3 years of academic research experience in the field of wildlife biology. This experience has included serving as an environmental specialist for a municipality, as well as academic coursework and research completed at Kansas State University and San Diego State University. While at San Diego State, Mr. Anguiano's research involved investigating the impact of urbanization on California kingsnake spatial ecology and on snake communities in the coastal sage scrub ecosystem. He used radiotelemetry methods to track California kingsnakes and drift fences with funnel traps to collect demographic, abundance, and population data on Southern California snakes.

Mr. Anguiano's expertise and experience in the consulting field includes conservation planning, sensitive habitat assessments, wildlife species surveys, wildlife tracking, data management/analysis, and assisting in managing projects. He has conducted protocol surveys for arroyo toad, least Bell's vireo, flat-tailed horned lizard, barefoot banded gecko, and desert tortoise. He has assisted in preparing species survey reports, Environmental Assessments, Environmental Impact Reports, Natural Environmental Studies, Biological Assessments, Application For California Endangered Species Act Section 2081(B) Incidental Take Permits, and other biological technical reports.

Confidential Wind Energy Project, San Diego County, CA

Lead biologist for arroyo toad US Fish and Wildlife Service (USFWS) protocol surveys. Included day and night surveys along with habitat assessment. Project biologist assisting in the development of data collection protocols. Assisting in data analyses to determine the seasonal use, abundance, and distribution of resident and migratory bird species as an indicator of potential impacts from a wind development project. Assisting in the preparation of an avian risk assessment, avian and bat protection, plan, and eagle conservation plan. [04/2010 - Ongoing]

Naval Facilities Engineering Command (NAVFAC) Southwest, San Nicolas Island Wind Turbine Project, San Nicolas Island, CA

As project biologist, assisted in preparing an avian risk assessment and avian and bat protection plan using data collected during preconstruction avian point count surveys in relation to wind power development. Also assisted with the preparation of the Environmental Assessment document. [01/2010 - 05/2011]

Confidential Solar Energy Project, Imperial County CA

Conducted protocol surveys for burrowing owls in agricultural habitat for a 250 megawatt solar project in Imperial County. Assisting in developing burrowing owl mitigation strategies and preparing the biological technical report [05/2011 - 05/2011]

Confidential Transmission Line Project, Colorado Desert, CA

Conducted protocol surveys for flat-tailed horned lizard (*Phrynosoma mcallii*) in the Colorado Desert for a 18-mile-long transmission line and substation expansion project in Riverside County. [05/2011 - 05/2011]

TAIC, Furby North Field Survey Project, San Diego, CA

Lead biologist for conducting herpetological field surveys for a mitigation parcel within coastal sage scrub habitat in south San Diego County. Installed and monitored pitfall arrays using modified US Geological Survey (USGS) design for herpetological monitoring. [4/2011 - 05/2011]

San Diego Association of Governments (SANDAG), Regional Transportation Plan Environmental Impact Report (EIR), San Diego, CA

As project biologist, assisted in the preparation of the biological section of the EIR and evaluated the environmental effects associated with the adoption and implementation of the 2050 Regional Transportation Plan, including its Sustainable Communities Strategy (2050 RTP/SCS) for all of San Diego County. [02/2011 - 05/2011]

California Department of Transportation (Caltrans), Morrison Property Mitigation Site Arroyo Toad Project, San Diego County, CA
As project biologist, participated in arroyo toad surveys for a mitigation site. Surveys included both day and night surveys. [04/2010 - 06/2011]

Imperial Irrigation District, Burrowing Owl Monitoring Project, Imperial County, CA

As project biologist, assisted in the preparation of the survey protocol and coordinating logistics for a burrowing owl monitoring project in the Imperial Valley. Participated in burrowing owl surveys and aided in field coordination. Will be assisting in the data analysis and report write up. [04/2011 - Ongoing]

Imperial Irrigation District, 230-KV Transmission Line Project, Imperial County, CA Conducted protocol surveys for flat-tailed horned lizard in the Colorado Desert for a 2.7-mile-long transmission line and substation project. [08/2009 - 08/2009]

Solar Millennium, Energy Project - Ridgecrest, Kern County, CA

Project biologist aiding in preparation of the Biological Technical Report and associated technical reports in preparation of an Application for Certification (AFC) for the California Energy Commission. The project proposes to develop a 250-megawatt (MW) commercial solar thermal electric-powergenerating project located in the high northern Mojave Desert, approximately 7 miles southwest of the city of Ridgecrest. The project would use solar parabolic trough technology to generate electricity. Major project species concerns include the desert tortoise (Mojave population), Mohave ground squirrel, and western burrowing owl. [07/2009 - 12/2010**]**

Solar Millennium, Energy Project - Blythe, Riverside County, CA

Project biologist aiding in preparation of the Biological Technical Report, Biological Assessment, Application For California Endangered Species Act Section 2081(B) Incidental Take Permit, and associated technical reports in preparation of an AFC for the California Energy Commission. Also conducted protocol surveys for the desert tortoise. The project proposes to develop a 1,000-MW commercial solar thermal electricpower-generating project located in the Southern California inland desert, near Blythe in Riverside County. The project would use solar parabolic trough technology to generate electricity. Major project species concerns include the desert tortoise (Mojave population) and western burrowing owl. [06/2009 - 12/2010**]**

Solar Millennium, Energy Project - Palen, Riverside County, CA

Project biologist aiding in preparation of the Biological Technical Report, Biological Assessment, Application For California Endangered Species Act Section 2081(B) Incidental Take Permit, and associated technical reports in preparation of an AFC for the California Energy Commission. Also,

conducted protocol surveys for the desert tortoise. The project proposes to develop a 500-MW commercial solar thermal electric power generating project located in the Southern California inland desert, near Desert Center in Riverside County. The project would use solar parabolic trough technology to generate electricity. Major project species concerns include the desert tortoise (Mojave population), Mojave fringe-toed lizard, and western burrowing owl. [06/2009 - 12/2010]

Confidential Transmission Line Project, Colorado Desert, CA

Conducted protocol surveys for flat-tailed horned lizard in the Colorado Desert for a 3-mile-long transmission line and substation expansion project in Imperial County. [08/2010 - 02/2011]

Caltrans, Barefoot Banded Gecko Surveys at the Interstate 8 Bridge Site at Myer Creek, Imperial County, CA

Conducted focused field surveys for the barefoot banded gecko (*Coleonyx switaki*) for the bridge site at Myer Creek, near the southwestern corner of Imperial County. Lead and organized survey efforts. Prepared survey report discussing the findings. [03/2010 - 09/2010]

Caltrans and South Bay Expressway, State Route 125 South Vernal Pool and Quino Checkerspot Butterfly Habitat Restoration, San Diego County, CA

As part of mitigation, retained to design, implement, and manage a 52-acre site for vernal pool and watershed restoration, and Quino checkerspot butterfly habitat restoration. As project biologist, responsible for scheduling and conducting pitfall trap monitoring for small mammals, reptiles, and amphibians. [04/2009 - 10/2010]

Caltrans, State Route 76 East Expansion Project, San Diego County, CA

As project biologist, participated in writing the Natural Environment Study document. [07/2009 - 09/2010]

NAVFAC Southwest, Grow the Force Environmental Studies, MCB Camp Pendleton, CA

As project biologist, participated in writing biological and environmental assessment documents. This project includes a basewide expansion of military housing and training facilities. [04/2009 - 01/2010]

San Diego Gas & Electric (SDG&E), Regional General Permit and Programmatic Permits for Operation and Maintenance and Minor New Construction Activities, San Diego, CA

As project biologist, prepared programmatic biological assessment needed to assist SDG&E in obtaining programmatic permits from the US Army Corps of Engineers, State Water Resources Control Board, and California Department of Fish and Game. These programmatic permits are intended to complement SDG&E's approved Natural Communities Conservation Plan (NCCP) and provide a streamlined permit process for minor routine activities. [09/2009 - 10/2010]

SDG&E, Natural Communities Conservation Plan On-Call Services, San Diego County, CA

As project biologist, provided on-call support to SDG&E Land Planning and Natural Resources Department for planned and emergency operations and maintenance activities associated with electricity transmission and distribution lines within San Diego and Orange Counties. This project involved evaluating potential biological impacts from operations and maintenance activities being conducted under SDG&E's Subregional NCCP. A thorough understanding of SDG&E operations and maintenance activities and operational protocols of the NCCP was required. The project consisted of ongoing multiple task orders. Mr. Anguiano performed fieldwork, including species monitoring, and document preparation. [05/2009 - 08/2009]

City of Escondido, Citracado Parkway -Andreasen Drive to West Valley Parkway, San Diego County, CA

As project biologist, helped manage field efforts for protocol listed wildlife species surveys, vegetation mapping, and rare plant survey. Completed protocol surveys and associated reports for least Bell's vireo. Additionally, was the lead biologist coordinating production of the biological technical report. This project spans a multijurisdictional area, including the City of Escondido and the County of San Diego, thus requiring consideration of draft subarea NCCPs. [05/2009 - 08/2010]

Yolo County, Joint Power Authority Natural Heritage Program (NCCP/HCP), Yolo County, CA

As project biologist, assisted in the development of the NCCP/Habitat Conservation Plan (HCP) for Yolo County. Responsibilities included working with species experts to develop species accounts and detailed habitat models for 69 species. Assisted in the development of conservation strategies, including preserve design for upland and wetland habitats, and innovative new approaches to conservation of species on actively cultivated croplands, including rice, grain, and hay, and field crops. [Prior to AECOM; 2008 - 2009]

Joint Water Agencies (JWA), Natural Community Conservation Plan/Habitat Conservation Plan, San Diego County, CA

As project biologist, assisted in the preparation of the JWA NCCP/HCP for approximately 6,910 acres of land owned by the three JWA Partners in San Diego County. Responsibilities included preparation and editing the subregional plan, subarea plans, conservation analysis, and biological section of the EIR/environmental impact statement (EIS). [Prior to AECOM; 2008 - 2009]

County of San Diego, East County Multiple Species Conservation Program (MSCP), San Diego County, CA

As project biologist, assisted in the preparation of East County MSCP Plan for the 1.6 million acres of land in East San Diego County. Responsibilities included developing

baseline GIS data inventory, preserve design and planning, and conservation analysis.

[Prior to AECOM; 2007 - 2009]

County of San Diego, Wildcat Canyon Before-After-Control-Impact (BACI) Postconstruction Study, San Diego County, CA

As project biologist, assisted in the collection of roadkill and tracking data. Developed data forms for data collection using PDAs. [Prior to AECOM; 2009]

City of Santee, Multiple Species Conservation Program (MSCP) Subarea Plan, Santee, CA

As project biologist, assisted in the preparation of an MSCP Plan. Responsibilities included review and editing the Subarea Plan and Conservation Analysis in coordination with wildlife agencies and city staff. [Prior to AECOM; 2008 - 2009]

Hellhole Canyon and Del Dios Highlands Preserves Biodiversity Study, San Diego County, CA

Lead biologist for the design of herpetological sampling methods, location of herpetological trap arrays, and implementation of herpetological surveys. Trap arrays used drift fences with pitfall and funnel traps. [Prior to AECOM; 2008]

County of San Diego, Willows Road Bridge Project,

San Diego County, CA

As project biologist, conducted arroyo toad focused surveys according to USFWS protocol. Included day and night surveys along with habitat assessment. [Prior to AECOM; 2008]

SDG&E, Coast Region Habitat Conservation Plan, San Diego, CA

As staff biologist, assisted in the preparation of a habitat conservation plan (HCP) to address incidental endangered species take issues associated with the operations and maintenance activities in the counties of San Luis Obispo, Santa Barbara, Ventura, Orange, Riverside, Los Angeles, and San Bernardino.

Responsibilities included preparation of species accounts, aiding in vegetation mapping, and identifying and modeling factors for species distributions. [Prior to AECOM; 2007 - 2008]

County of San Diego, Valley Center Bridge Replacement Arroyo Toad Relocation, Valley Center, CA

Staff biologist for the preparation of a USFWS-approved arroyo toad relocation program. Developed monitoring protocol. Conducted arroyo toad habitat assessments with San Diego Natural History Museum biologists. [Prior to AECOM; 2007]



Andrew Fisher Wildlife Biologist

Education

BS, Wildlife, Fish, and Conservation Biology, University of California, Davis, 2006

Training

Wildlife Trailing Workshop, San Diego Tracking Team, 2007
California Fairy Shrimp Identification Course and Practical
Exam for all Species of Fairy Shrimp in California,
University of California, Davis, 2007
Flat-tailed Horned Lizard Worksop, BLM, 2008
Southwestern Willow Flycatcher Workshop, Southern Sierra
Research Station, 2008
Bat Ecology and Field Techniques Workshop, The Wildlife
Society, Western Section, 2008
Desert Tortoise Council Workshop on Surveying, Monitoring,
and Handling Techniques for Desert Tortoise, 2009
Quino Checkerspot Butterfly Identification Test, USFWS, 2011
Remote Wildlife Camera Techniques Workshop, The Wildlife
Society, 2011

Certification

Professional Affiliations

Member, East African Wildlife Society Member, The Wildlife Society-Western Section Member, Wildlife Research Institute

spring loggerhead shrike surveys 2009-2010

Presentations

Distribution of Least Bell's Vireo in Border Field State Park, ESRI International User Conference, 2009

Volunteer Organizations

Wildlife Research Institute, golden eagle banding in San Diego County 2008-2011
Wildlife Research Institute, raptor migration surveys, golden eagle trapping and banding, Rodgers Pass, Montana, Oct 2010 and 2011
Cabrillo National Monument, Monitoring Avian Productivity and Survival, songbird banding 2008-2010
National Park Service, Santa Rosa and Santa Cruz Islands,

Institute for Wildlife Studies, San Clemente Island, spring loggerhead shrike surveys, 2009, 2010, 2011

Andrew Fisher has 7 years experience as a professional wildlife biologist in California. Skills include biological surveys for California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) documentation, avian identification, herp and small mammal surveys, mist netting and bird banding, wildlife movement surveys (roadkill and remote camera surveys), wildlife habitat assessments, biological monitoring, global positioning system data gathering and processing, photo documentation, wildlife tracking and trailing, large mammal radiotelemetry, and raptor rehabilitation. He conducts and assists with federally listed wildlife species surveys for the following species: listed vernal pool branchiopods, Quino checkerspot butterfly (Euphydryas editha quino), arroyo toad (Anaxyrus californicus), Coachella Valley fringe-toed lizard (Uma inornata), desert tortoise (Gopherus agassizii), least Bell's vireo (Vireo bellii pusillus), southwestern willow flycatcher (Empidonax traillii extimus), coastal California gnatcatcher (Polioptila californica californica), Pacific pocket mouse (Perognathus longimembris pacificus), and Stephens' kangaroo rat (Dipodomys stephensi). He also conducts surveys for state species of special concern, including flat-tailed horned lizard (Phrynosoma mcallii), burrowing owl (Athene cunicularia), mountain plover (Charadrius montanus), and coastal cactus wren (Campylorhynchus brunneicapillus sandiegensis). He has also worked implementing human/wildlife conflict resolution measures in Kenya.

He regularly conducts wildlife surveys to support CEQA and NEPA documents, which includes writing biological technical reports, biological assessments, avian risk assessments, and other technical documents. He is currently working on his 10(a)(1)(A) permits for Stephens' kangaroo rat and Pacific pocket mouse, and has a passion for wildlife photography.

Project Experience City of Escondido, Lake Wohlford Dam Replacement Project Wildlife Studies, Escondido, CA

As lead wildlife biologist, conducted a detailed habitat assessment for various federally listed species that may be impacted by the creation of a new dam at Lake Wohlford. Upon completion of the habitat assessment, conducted protocol surveys for coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher. Documented findings in reports to the US Fish and Wildlife Service. [02/2013-Present]

Naval Facilities Engineering Command (NAVFAC), Wildlife Studies for Naval Outlying Landing Field Imperial Beach Perimeter Fence Replacement Project, Naval Base Coronado, San Diego, CA

As lead wildlife biologist, he conducted protocol wet and dry season listed vernal pool branchiopod surveys and assisted with light-footed clapper rail surveys (Rallus longirostris levipes). He wrote various biological reports and NEPA documents.
[12/2012 - Present]

NAVFAC, Wildlife Studies for Marine Corps Special Operations Command Expansion Project, Marine Corps Base (MCB) Camp Pendleton, CA

As lead wildlife biologist, conducted protocol wet- and dry-season listed vernal pool branchiopod surveys and coastal California gnatcatcher surveys, and assisted with surveys for Pacific pocket mouse. Wrote various biological reports and interacted between the US Fish and Wildlife Service and the Navy. [11/2012-Present]

Otay Municipal Water District, Otay Raw Water Conveyance Pipeline Project Wildlife Studies, San Diego, CA

As project biologist, conducted a detailed habitat assessment for various federally listed species. Was the primary field biologist for Quino checkerspot butterfly surveys. Also conducted protocol burrowing

owl, coastal California gnatcatcher, and least Bell's vireo surveys. [02/2012-Present]

NAVFAC, Wildlife Studies and NEPA Documentation for the Naval Base Coronado Coastal Campus Environmental Impact Statement, Naval Base Coronado, San Diego, CA

As lead wildlife biologist, conducted biological surveys in support of environmental documentation. Conducted 1 year of avian surveys (using bird point counts and transects) and protocol Pacific pocket mouse surveys, and assisted with bat surveys. Was the primary author for the biological resources sections for the environmental impact statement and biological assessment. Met with US Fish and Wildlife Service and Navy representatives to discuss biological surveys. [11/2011-Present]

California Department of Transportation (Caltrans), State Route 76 Middle Expansion Project Biological Surveys, San Diego County,

As lead field wildlife biologist, installed wildlife camera stations at wildlife undercrossings to understand the use of newly installed wildlife undercrossings by various wildlife species. This was coupled with roadkill surveys to determine the efficiency of wildlife directional fencing along a newly aligned section of State Route 76. [06/2013-Present]

Genesis Solar, LLC, Genesis Solar Power Project, San Bernardino County, CA

As a project biologist, conducted preconstruction nesting bird, Couch's spadefoot toad (Scaphiopus couchii), and other biological surveys for construction of a large-scale solar thermal power project in the Colorado Desert. Assisted with radio telemetry for desert kit fox (Vulpes macrotis), and conducted biological monitoring activities during construction of the solar plant. [04/2012-Present]

U.S. Army Corps of Engineers, Santa Ana Nonnative Vegetation Removal Project, Orange County, CA

As biologist, conducted focused protocol-level surveys for least Bell's vireo and southwestern willow flycatcher as part of a 5-year study to measure the effects of invasive nonnative vegetation removal within a 250-acre section of the Santa Ana River Valley on federally listed and resident bird species. Also conducted monthly bird use counts to determine avian use of the restored habitat throughout the year by resident and migrant species. [04/2010-Present]

County of Los Angeles Department of Public Works, State Route126 and Commerce Centre Drive Freeway Interchange Project Wildlife Studies, Santa Clarita, CA

As project biologist, conducted protocol arroyo toad, least Bell's vireo, and southwestern willow flycatcher surveys. Surveys were pre-construction surveys to determine potential breeding within the project area for a freeway interchange project. [04/2013-07/2013]

NAVFAC, Wildlife Studies for the P-1046 Supplemental Environmental Assessment, MCB Camp Pendleton, CA

As lead wildlife biologist, conducted protocol wet-season surveys for listed vernal pool branchiopods and coastal California gnatcatcher. [11/2012-08/2013]

ACE Phoenix, Avian Surveys for Proposed Solar Energy Project, Trona, CA

As lead avian biologist he set-up and conducted avian point counts for a year to document the habitat use by resident and migrating birds for a proposed solar facility. [07/2012-05/2013]

NAVFAC, Wildlife Surveys for Continuing Environmental Review Studies for Basewide Utility Infrastructure Improvements, MCB Camp Pendleton, CA

As biologist, conducted habitat assessments and presence/absence surveys for coastal California gnatcatcher and listed vernal pool

branchiopods throughout MCB Camp Pendleton as part of continuing environmental review studies. Drafted habitat assessment documents and biological assessments, and been involved in meetings with NAVFAC and MCB Camp Pendleton staff to ensure project success. [11/2011-07/2012]

NAVFAC, Listed Vernal Pool Branchiopod Surveys for the San Onofre Lease Area Vernal Pool Mesa Conservation Plan, MCB Camp Pendleton, CA

As biologist, conducted biological surveys for listed vernal pool branchiopods in support of environmental documentation for a conservation plan. Lead biologist for vernal pool surveys and involved in the reporting to help determine mitigation locations for impacts from various other projects on MCB Camp Pendleton. [11/2011-7/2012]

Imperial Irrigation District (IID), A-B ECSS Transmission Line Surveys, Riverside and Imperial County, CA

As biologist, conducted protocol focused surveys for the burrowing owl. Responsible for field crew coordination, data management, and reporting (NEPA compliance reports). [05/2011-08/2011]

Caltrans, Wildlife Surveys for Morrison Mitigation Site, San Diego County, CA

Conducted protocol arroyo toad and southwestern willow flycatcher surveys for a restoration site to offset impacts from the State Route 76 expansion project. [4/2011-6/2013]

IID, Path-42 Transmission Line Surveys, Riverside and Imperial County, CA

As biologist, conducted protocol focused surveys for the flat-tailed horned lizard and Coachella Valley fringe-toed lizard along a linear transmission line within habitat also suitable for burrowing owl, desert kit fox, and desert tortoise. Responsible for field crew coordination, data management, and reporting (NEPA compliance reports). [04/2011-06/2011]

IID, Burrowing Owl Surveys, Imperial County, CA

As biologist, was responsible for field crew coordination, data management, and surveys across the Imperial Valley within IID's right-of-way. Led the field effort for 16 biologists to survey randomly selected 3- by 3-kilometer grids in a double independent observer methodology. [04/2011-06/2012]

TID, Dixieland to Imperial Valley Substation Transmission Line Project, Imperial County, CA As biologist, conducted focused protocol-level burrowing owl and flat-tailed horned lizard surveys to assess impacts to these species from a new 230-kilovolt transmission line and substation expansion project. Also conducted winter mountain plover (Charadrius montanus) surveys. Completed species survey reports and assisted in further environmental documentation required for NEPA. [04/2010-03/2011]

NAVFAC, Wildlife Surveys for Basewide Water Improvements and Stuart Mesa Bridge Replacement Project, MCB Camp Pendleton, CA As biologist, conducted habitat assessments and presence/absence surveys for coastal California gnatcatcher and listed vernal pool branchiopods (San Diego fairy shrimp and Riverside fairy shrimp) throughout the MCB Camp Pendleton. Also conducted habitat assessments and surveys for other threatened and endangered species, including surveys for Pacific pocket mouse and Stephens' kangaroo rat. Wrote several sections in NEPA compliance documents. [03/2010-08/2012]

NAVFAC, San Nicolas Island Wind Turbines Study, San Nicolas Island, Ventura County, CA As a project biologist, conducted preconstruction avian point count surveys to determine the risk to avian species from construction of a wind power project. Was involved in data entry, analysis, and write-up to understand the implications for resident

and migratory bird species and how potential impacts could be minimized and mitigated. [09/2009-02/2011]

Solar Millennium, Blythe, Palen, and Ridgecrest Solar Power Projects, Mojave Desert, Riverside/Kern County, CA

As biologist, assisted with focused Mojave Desert tortoise and avian point count surveys for various large solar array projects. Conducted numerous nesting bird, burrowing owl, Mojave fringe-toed lizard, and kit fox surveys. Assisted with setting-up and conducting avian point counts for the Bureau of Land Management, conducted contractor training, and wrote technical documents. [04/2009-07/2011]

San Diego Association of Governments (SANDAG), Chollas Creek Restoration Project, San Diego County, CA

Conducted focused coastal cactus wren surveys for several years within native and restored habitat in Encanto and Radio Canyons on the north side of Market Street. Surveys included nest monitoring, setting up wildlife cameras to monitor nesting success, and monitoring use of restored habitat by cactus wrens. [4/2009-7/2013]

Olivenhain Municipal Water District, Various Pipeline Projects, San Diego County, CA

As biologist, conducted focused protocol-level coastal California gnatcatcher surveys at pipeline projects. Assisted with focused protocol-level surveys for least Bell's vireo and southwestern willow flycatcher. [04/2009-07/2010]

Invenergy, Shu'luuk Wind Project, San Diego County, CA

As a project biologist, conducted bird use counts, bird area searches, and all-day raptor point counts with a focus on golden eagle to determine the seasonal use, abundance, and distribution of resident and migratory bird species as an indicator of potential impacts from a wind development project in eastern San Diego County. In addition, conducted focused protocol-level surveys for arroyo toad, least Bell's vireo, and southwestern willow flycatcher, and assisted with nest surveys for

raptors and other large avian species. Completed surveys with other biologists for the federally endangered Quino checkerspot butterfly. [03/2009-10/2012]

California Department of Corrections and Rehabilitation, Lethal Electrified Fence Monitoring Project, San Diego, Imperial, San Bernardino, Kern, and Los Angeles Counties, CA As biologist, worked at various state correctional institutions to monitor lethal electrified fences for "take" of all vertebrate wildlife species. This included identifying carcasses of avian and mammalian species that contacted the lethal electrified fence and were killed. Identified carcasses to species as part of a take permit for the Department of Corrections and Rehabilitation. Conducted annual training for custody staff on how to collect, tag, and store carcasses that were found in and adjacent to the lethal electrified fence. [01/2009-11/2011]

Caltrans, Wildlife Studies for Dennery Canyon Restoration Site, San Diego County, CA Conducted protocol surveys for federally listed vernal pool branchiopods for a Caltrans restoration site on Otay Mesa. Conducted monthly burrowing owl surveys to determine use of artificially created burrows. [11/2008-7/2010]

Caltrans, Wildcat Canyon Road Enhancement Project Before-After-Control-Impact Study -Pre-Construction, San Diego County, CA As biologist, assisted with a postconstruction wildlife movement study for the Wildcat Canyon Road Enhancement Project Before-After-Control-Impact Study. The project involved defining current movement trends through the use of control vs. construction sample sites. The project was designed to identify movement patterns and focal species, and to establish baseline conditions for wildlife use of the project area to compare against post-construction data. Methods included conducting unbaited tracking station, camera station, tracking transect, and roadkill surveys. Roadkill surveys consisted

of conducting meandering transects on either side of a section of Wildcat Canyon Road in search of wildlife that had been hit by vehicles and left in the road or thrown into adjacent vegetation. Surveys were conducted twice a month for three consecutive days for one year. Surveys were designed to capture spatial clusters of mortality and reduce scavenging bias. [07/2008-11/2009]

California Department of Parks and Recreation, Border Field State Park Sediment Basin Restoration Project,

San Diego County, CA

As biologist, monitored least Bell's vireo populations via protocol surveys enhanced with spot-mapping techniques to delineate territories. Used ArcPad GIS software to complete spot-mapping surveys and spatially compare territories over 3 years. Conducted focused protocol surveys, and then analyzed results compared with vegetation success criteria. Presented results at a paper session at the 2009 ESRI International User Conference in San Diego. [04/2008-07/2008]

Los Angeles Department of Water and Power, Pine Canyon Wind Development Project, Kern County, CA

As biologist, assisted in biological surveys in support of environmental documentation for a wind energy project in the foothills of the Sierra Nevada, south of Kings Canyon National Park and north of the city of Tehachapi. Conducted avian point count surveys and bat acoustic monitoring for a spring session and fall session. [04/2008-11/2008]

SANDAG and Caltrans, State Route 52 Managed Lanes Project, San Diego County, CA

As biologist, conducted focused protocol surveys for least Bell's vireo as mitigation for a freeway expansion project. Helped coordinate and schedule field surveys. Work was completed in support of a Natural Environmental Study and Biological Assessment. [04/2008-07/2008]

California Health Care Facilities, R.J. Donavan State Correctional Facility, San Diego, CA

As biologist, conducted focused protocol-level surveys for coastal California gnatcatcher, least Bell's vireo, listed vernal pool branchiopods, and burrowing owl on lands proposed for a new hospital and firing range. Wrote the 45-day summary reports for the species surveys. [03/2008-07/2009]

Caltrans, Lake Jennings Open Space Preserve/Restoration Area Land Management and Post-Fire Recovery Monitoring, San Diego County, CA

As biologist, conducted focused surveys for coastal cactus wren on burned and then restored habitat as part of post-fire monitoring and long-term management of the preserve. The preserve was mitigation associated with the State Route 125 South Project. Completed sensitive species survey reports. [03/2008-07/2008]

NAVFAC, Wildlife Surveys for Basewide Utility Infrastructure Improvements Project, MCB Camp Pendleton, CA

As biologist, conducted protocol surveys for federally listed wildlife species on MCB Camp Pendleton. Surveys for species included coastal California gnatcatcher, listed vernal pool branchiopods, Stephens' kangaroo rat, and Pacific pocket mouse. Was an integral part of drafting NEPA documentation (Environmental Impact Statements and Biological Assessments) for large projects. Involved in meetings with key project management staff and natural resource specialists on MCB Camp Pendleton to ensure project success. [02/2008 - 11/2012]

NAVFAC, Wildlife Surveys for Grow-the Force and Basewide Utility Infrastructure Improvements Project,

MCB Camp Pendleton, CA

As biologist, conducted presence/absence surveys for coastal California gnatcatcher throughout MCB Camp Pendleton. Also conducted habitat assessments and surveys for other threatened and endangered species, including

Pacific pocket mouse and Stephens' kangaroo rat. [02/2008-06/2010]

Caltrans, Johnson Canyon Open Space Preserve Habitat Management Plan for State Route 125 South.

San Diego County, CA

As biologist, conducted focused protocol-level surveys for coastal California gnatcatcher, listed vernal pool branchiopods, and Quino checkerspot butterfly. Prepared survey reports and contributed to the annual report. [01/2008-06/2010]

Caltrans, State Route 125 South Quino Checkerspot Butterfly and Vernal Pool Mitigation Area, San Diego County, CA

As biologist, conducted focused protocol surveys for listed vernal pool branchiopods and burrowing owls. Additionally participated in general wildlife surveys for coastal cactus wren, reptiles, and small mammals. Prepared 45-day survey reports and contributed to the annual restoration monitoring report. [01/2008-06/2010]

NAVFAC, Basewide Vernal Pool Floral and Faunal Surveys,

MCB Camp Pendleton, CA

As biologist, conducted field collection of listed vernal pool branchiopod species in various training areas on MCB Camp Pendleton. Assisted with lab identification of Lindahl's fairy shrimp (*Branchinecta lindahli*), San Diego fairy shrimp, and Riverside fairy shrimp. Also assisted with entering and maintaining data collected during these surveys. [01/2008-07/2008]

Abengoa Solar, LLC, Mojave Solar Power Project, Mojave Desert, San Bernardino County, CA

As biologist, conducted winter raptor and common raven (*Corvus corax*) surveys for preconstruction baseline survey data for a large solar power project. Surveys focused on transmission towers around the project site and documented all raptor and raven nests.

Organized and conducted winter golden eagle (Aquila chrysaetos) surveys using carcasses and wildlife cameras to estimate the abundance of wintering golden eagles on the project site and an 10-mile buffer. Conducted Swainson's hawk (Buteo swainsoni) surveys around the project site and a 5-mile buffer. Coordinated and conducted spring and summer nesting bird surveys around the project site; all documented nests were monitored to determine necessary avoidance buffers. Composed weekly nesting bird reports and assisted in drafting various avian-related compliance plans. [12/2007-05/2012]

San Diego Gas & Electric, Various Widget Monitoring Projects, San Diego County, CA

As biologist, has been involved in various monitoring tasks with SDG&E in habitats for various listed and sensitive wildlife species. Provided on-site construction monitoring for pole replacement projects to avoid sensitive wildlife habitats. After the Harris Fire (October 2007), monitored Quino checkerspot butterfly and coastal California gnatcatcher habitat on the San Diego National Wildlife Refuge to minimize impacts to these sensitive habitats. Monitored crews during pole replacement projects in Stephens' kangaroo rat habitat, and assessed potential impacts to flat-tailed horned lizard habitat. [10/2007-04/2012]

Los Angeles County Sanitation Districts, Common Raven and Avian Point Count Surveys for Mesquite Regional Landfill Habitat Monitoring Plan, Imperial County, CA

As biologist, conducted pre-construction baseline common raven surveys in the Sonoran Desert for a new regional landfill. Surveys included all-day bi-monthly surveys for a year at various points where common ravens may congregate (water and garbage locations) and at control points. This data was used to estimate pre-landfill common raven populations and daily trends. Also assisted in setting up and conducting avian point count surveys around the proposed landfill as part of a baseline wildlife study to compare avian

population changes in the desert around the landfill. [10/2007-05/2008]

Los Angeles County Sanitation Districts, Small Mammal Trapping, Mesquete Regional Landfill Habitat Monitoring Plan, Imperial County, CA As biologist, assisted in trapping, handling, processing, sexing, weighing, and toe-clipping various small mammal species in the Colorado Desert. Species included Dipodomys merriami, Chaetodipus pencillatus, Chaetodipus baileyi, Chaetodipus spinatus, and Neotoma lepida intermedia. Grids totaling 150 traps were trapped for three consecutive nights during a spring and fall trapping session. Handled more than 100 small mammals during each trapping session. [10/2007-05/2008]

Caltrans, State Route 76 East Expansion Project Biological Surveys, San Diego County, CA

As project biologist, assisted with a preconstruction wildlife movement study for the expansion of State Route (SR) 76 using tracking stations, tracking transects, and roadkill surveys. Roadkill surveys consisted of conducting meandering transects on either side of a section of SR-76 in search of wildlife that had been hit by vehicles and left in the road, or thrown into adjacent vegetation. Surveys were conducted twice a month for three consecutive days for one year. Surveys were designed to capture spatial clusters of mortality and reduce scavenging bias. [09/2007-09/2008]

Biological Science Technician, Carlsbad, CA As biological science technician, conducted point count surveys for coastal California gnatcatcher throughout San Diego County. Recoded weather measurements and used GPS to locate points and track routes. Hiked in rugged terrain and in remote areas to access survey points. Collected and analysed soil samples for texturing and bulk density. Familiar with plants of San Diego and conducted vegetation surveys throughout the county. Kept detailed field notes, entered scientific data into Access databases,

performed quality assurance/quality control on data, and assisted in data presentation.
[Prior to AECOM]

Raptor Rehabilitator, Davis, CA

As a raptor rehabilitator, fed, treated, and rehabilitated sick and injured birds of prey. Practiced veterinary techniques and proper handling methods. Assisted in cage cleaning; improved holding facilities; and practiced methods for prevention of imprinting, proper rehabilitation, and release techniques. Conducted health exams and weight checks, and learned to diagnose illness and injury. Initiated and conducted an independent study and analysis of red-tailed hawk weight fluctuations during rehabilitation. Formulated hypotheses for bird weight fluctuations and how weight correlates with overall fitness and releaseability. Practiced methods for release and physical therapy. [Prior to AECOM]

Museum Mammal Taxidermist, Davis, CA

As mammal taxidermist, practiced various techniques for the proper preparation of scientific mammal specimens. Took measurements, skinned, and then stuffed various small mammals for entry into the museum collection. [Prior to AECOM]

Tsavo East National Park Research Volunteer, Voi, Kenya

As a research volunteer, monitored a population of African elephants (Loxodonta africana) in the Tsavo Conservation Area using radio telemetry from collared elephants. Studied the social structure, habitat preference, behavior, and general ecology of translocated and local elephant populations inside the Tsavo East National Park. Assisted with and conducted vegetation surveys, GPS road mapping, animal road counts, rainfall data collection, and statistical analyses. Learned how to age and sex animals based on osteological evidence. Drafted methodologies to conduct vegetation surveys in and around animal exclosure plots. Used monthly road count data in conjunction with rainfall data to interpret animal abundance and

distributions. Used poaching data and talked with stakeholders to discuss ways to alleviate poaching pressure in and around the national park. Created fish sampling tools and data sheets, and compiled graphs and charts from analyzed data for presentations by park staff. [Prior to AECOM]



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15 November 2013

Mr. Tyler Lonsdale San Diego Gas & Electric Company 8316 Century Park Court, CP-52G San Diego, California 92123

Subject: Corrosion Data Evaluation

69KV Transmission Line TL6965

Salt Creek Substation to Miguel Substation

Chula Vista, California

Dear Mr. Lonsdale:

Geosyntec Consultants (Geosyntec) is pleased to provide the San Diego Gas & Electric Company (SDG&E) this letter presenting an evaluation of the existing corrosion data included in previous investigations for SDG&E projects in the vicinity of the proposed 69 kilovolt (kV) Transmission Line TL6965 alignment between the proposed Salt Creek Substation and the existing Miguel Substation in Chula Vista, California.

BACKGROUND

Geosyntec previously performed a geotechnical investigation for the proposed transmission line and provided the results of that investigation in a report titled "Geotechnical Investigation, 69kV Transmission Line TL6965, Salt Creek Substation to Miguel Substation, Chula Vista, California," dated 22 August 2012, Geosyntec Project No. SC0368-26. That investigation was performed to provide geotechnical foundation design recommendations for selected structures along the proposed alignment and included review of previous investigation reports provided by SDG&E, exploratory borings, and geotechnical laboratory testing. However, no corrosion testing was performed for the Geosyntec 2012 geotechnical investigation and no discussion, conclusions or recommendations were provided with regard to potential corrosivity. Appendix A of the Geosyntec (2012) investigation report provided excerpts from previous geotechnical investigations, including one corrosivity test result from a URS (2011) geotechnical investigation for Transmission Line 13826.



We understand that SDG&E submitted a Proponent's Environmental Assessment (PEA) for the TL6965 project to the California Public Utilities Commission (CPUC), including Appendix 4.6-B to the PEA which provided a copy of the referenced 2012 Geosyntec geotechnical investigation. We understand that the CPUC referenced Appendix 4.6-B and requested either a submittal of corrosion testing data within the proposed Salt Creek Substation area and the proposed TL6965 alignment, or an indication when corrosion data will be collected.

PURPOSE AND SCOPE

The purpose of this evaluation is to review and summarize the existing corrosion data in the available information provided by SDG&E and to provide a discussion of potential soil corrosivity within the proposed Salt Creek Substation area and the proposed TL6965 alignment based on the existing corrosion data identified.

PREVIOUS INVESTIGATIONS

For the current corrosion evaluation, Geosyntec reviewed previous investigations for SDG&E projects in the vicinity of the proposed transmission line alignment. The following documents provided by SDG&E included corrosion information pertinent to the current evaluation:

- URS Corporation (URS), 2011. "Geotechnical Investigation, New Steel Poles-TL-13826 Miguel to Proctor Valley, San Diego, California," dated 17 March, URS Project Number 27661044.10000;
- Kleinfelder, 2007. "Geotechnical Investigation, Proposed SDG&E Otay Ranch Substation, Chula Vista, California," dated 7 March, Kleinfelder Project No. 67735;
- URS, 2005. "Geotechnical Investigation, Otay Mesa Power Purchasing Agreement (OMPPA), San Diego, California," dated 25 February, URS Project Number 27664035.00010;
- SES Consulting, Inc. (SES) and ARK Engineering and Technical Services (ARK), 1996. "Changed pages to the SDG&E Pipeline 2000/Phase IV 230KV Corridor (Part I) and 69KV Corridor (Part II) Report," dated 2 January; and
- Harco Technologies Corporation (Harco), 1994. "Corrosion Control SDG&E Pipeline 2000 Project, Harco Project No. 025051-53590," dated 3 August.



The attached Table 1 summarizes the existing corrosion data from these sources. The attached Figures 1 and 2 present the approximate location of soil samples collected for corrosivity testing or the location of field resistivity testing and a histogram of the results of minimum reported resistivity values at these locations. Excerpts from these studies pertaining to soil corrosion potential are provided in Attachment A to this letter. A synopsis of each of the reviewed investigation components pertaining to corrosion data are provided below.

The URS (2011) geotechnical investigation for TL13826 included one laboratory corrosivity test suite (minimum resistivity, pH, sulfate content, and chloride content) on a soil sample of colluvium from Boring B-2 near the Miguel Substation. The laboratory data sheet references California Test Method (CTM) 643, "Method for Estimating the Service Life of Steel Culverts" as issued by the California Department of Transportation (Caltrans), which also includes procedures for measuring pH. The test procedures for measuring sulfate content and chloride content tests are not referenced, but are believed to be CTM 417, "Method of Testing Soils and Waters for Sulfate Content" and CTM 422, "Method of Testing Soils and Waters for Chloride Content," respectively.

The Kleinfelder (2007) geotechnical investigation for the Salt Creek Substation included one laboratory corrosivity test suite on a composite soil sample of the Otay Formation from Boring B-3. The corrosion test data report references CTM 643, CTM 417, and CTM 422.

The URS (2005) investigation for the Otay Mesa Power Purchasing Agreement included two laboratory corrosivity test suites on soil samples from Boring B-14 (Otay Formation) and Boring B-19 (Sweetwater Formation) near the Miguel Substation.

The SES/ARK evaluation for Phase IV of the SDG&E Pipeline 2000 project included field soil resistivity measurements based on the 4-pin Wenner method. Per the SES (1996) cover letter, changed pages were provided to this study report, including the attached pages regarding soil resistivity measurement methodology and measurement results. Soil resistivity data was collected from six sites along the Pipeline 2000 alignment (Figure 1); however, the precise locations of the testing are not discernible from the available information, and the pipeline alignment diverges from the proposed TL6965 transmission line area generally north of Otay Lakes Road.

The Harco (1994) corrosion control study for Phases IIB and III of the SDG&E Pipeline 2000 project included 23 soil resistivity measurements. The methodology of these measurements is not referenced; however, these are assumed to be field measurements based on references to spacing and Barnes layer analysis in the Harco summary table. Soil resistivity data was collected from 23



sites along the Pipeline 2000 alignment (Figure 1); however, the precise locations of the testing are not discernible from the available information, and the pipeline alignment diverges from the proposed TL6965 transmission line area generally north of Otay Lakes Road. The minimum resistivity measurements summarized in the attached Table 1 are the lowest resistivity values from the range of depths listed under the heading "Barnes Layer Analysis" in the Harco summary table.

EVALUATION OF EXISTING CORROSION DATA

Resistivity data is generally available at the ends of the proposed TL6965 alignment and along the alignment south of Otay Lakes Road. Other test data supporting potential corrosivity evaluation (pH, sulfate content, and chloride content) is available at the ends of the alignment near the existing Miguel Substation and the proposed Salt Creek Substation.

In general, the lower the soil resistivity values, the greater the potential for corrosion of underground metallic structures. As summarized in the attached Table 1 and presented graphically in a histogram format in Figure 2, the majority of soils along the proposed transmission line alignment have minimum resistivity values less than 2,000 ohm-centimeters (ohm-cm). Minimum resistivity values less than 500 ohm-cm, between 500 and 1,000 ohm-cm, and between 1,000 and 2,000 ohm-cm are considered to be very corrosive, corrosive, and fairly corrosive, respectively. A corrosion engineer should be consulted if additional corrosion design information is needed.

Concrete in contact with soil or water that has high concentrations of soluble sulfates can be subject to chemical deterioration. The four sulfate content test results (less than 1,000 parts per million [ppm]) indicate that the potential for sulfate attack can be considered negligible as referenced to Table 4.2.1 of the 2011 American Concrete Institute Manual. Chloride contents less than 200 ppm are generally considered to be negligible with respect to potential for chloride attack.

LIMITATIONS

The previous studies by others referenced in this report observed only a small portion of the pertinent subsurface conditions. The evaluation of the data provided herein is based on the assumption that soil conditions do not deviate appreciably from those found during previous investigations by others. This geotechnical investigation report has been prepared in accordance with current practices and the standard of care exercised by scientists and engineers performing



similar tasks in this area. We cannot make any assurances concerning the correctness or completeness of the data presented to us.

No warranty, expressed or implied, is made regarding the professional opinions expressed in this report. Geosyntec is not liable for any use of the information contained in this report by persons other than SDG&E or their subconsultants, or the use of information in this report for any purposes other than referenced in this report without the expressed, written consent of Geosyntec.

CLOSURE

We appreciate the opportunity to provide geotechnical consulting services to SDG&E. If you have any questions or require additional information, please contact me at (858) 716-2932.

Sincerely,

Jennifer L. Nevius, G.E. 2825

Senior Engineer

Attachments

Table 1

Figures 1 and 2

Attachment A - Excerpts from Previous Studies

Table 1. Summary of Existing Corrosion Information 69kV Transmission Line TL6965 Salt Creek Substation to Miguel Substation Chula Vista, California

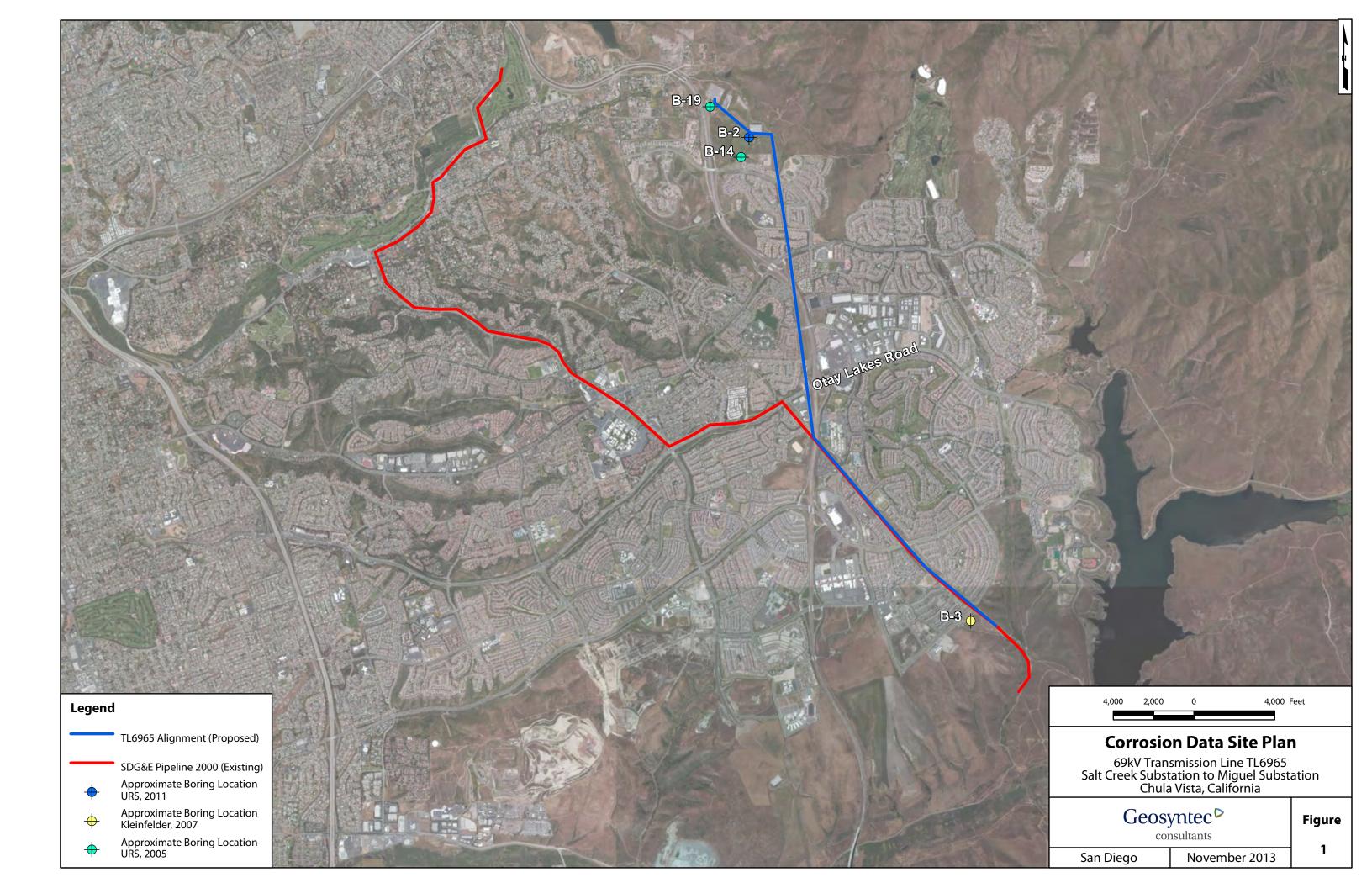
Company	Report Date	Location ID	Depth (feet)	Approximate General Location	pН	Sulfate Content (ppm)	Chloride Content (ppm)	Minimum Resistivity (ohm-cm)	Resistivity Methodology
URS	2011	B-2	5	Miguel Substation	8.1	42	345	360	CTM 643
Kleinfelder	2007	B-3	3-10	Salt Creek Substation	9.4	<10	10	1,400	CTM 643
URS	2005	B-14	5	Miguel Substation	8.4	185	105	320	CTM 643
URS	2005	B-19	15	Miguel Substation	8.1	1,010	60	260	CTM 643
SES/Ark	1996	S1	>4	Pipeline 2000	NA	NA	NA	560	4-pin Wenner
SES/Ark	1996	S2	1.5-50	Pipeline 2000	NA	NA	NA	1,420	4-pin Wenner
SES/Ark	1996	S3	<97	Pipeline 2000	NA	NA	NA	700	4-pin Wenner
SES/Ark	1996	S4	>7	Pipeline 2000	NA	NA	NA	690	4-pin Wenner
SES/Ark	1996	S5	>4	Pipeline 2000	NA	NA	NA	560	4-pin Wenner
SES/Ark	1996	S6	>1	Pipeline 2000	NA	NA	NA	500	4-pin Wenner
Harco	1994	1	2.5-5	Pipeline 2000	NA	NA	NA	889	Field
Harco	1994	2	0-2.5	Pipeline 2000	NA	NA	NA	766	Field
Harco	1994	3	2.5-5	Pipeline 2000	NA	NA	NA	1,034	Field
Harco	1994	4	0-2.5	Pipeline 2000	NA	NA	NA	10,054	Field
Harco	1994	5	0-2.5	Pipeline 2000	NA	NA	NA	1,628	Field
Harco	1994	6	5-10	Pipeline 2000	NA	NA	NA	1,467	Field
Harco	1994	7	0-2.5	Pipeline 2000	NA	NA	NA	4,069	Field
Harco	1994	8	0-2.5	Pipeline 2000	NA	NA	NA	1,101	Field
Harco	1994	9	2.5-5	Pipeline 2000	NA	NA	NA	2,922	Field
Harco	1994	10	0-2.5	Pipeline 2000	NA	NA	NA	910	Field
Harco	1994	11	5-10	Pipeline 2000	NA	NA	NA	2,000	Field
Harco	1994	12	5-10	Pipeline 2000	NA	NA	NA	3,511	Field
Harco	1994	13	2.5-5	Pipeline 2000	NA	NA	NA	1,556	Field
Harco	1994	14	0-2.5	Pipeline 2000	NA	NA	NA	1,819	Field
Harco	1994	15	5-10	Pipeline 2000	NA	NA	NA	817	Field
Harco	1994	16	2.5-5	Pipeline 2000	NA	NA	NA	1,367	Field
Harco	1994	17	2.5-5	Pipeline 2000	NA	NA	NA	1,103	Field
Harco	1994	18	5-10	Pipeline 2000	NA	NA	NA	1,162	Field
Harco	1994	19	0-5	Pipeline 2000	NA	NA	NA	958	Field
Harco	1994	20	2.5-5	Pipeline 2000	NA	NA	NA	1,285	Field
Harco	1994	21	2.5-5	Pipeline 2000	NA	NA	NA	2,293	Field
Harco	1994	22	5-10	Pipeline 2000	NA	NA	NA	2,197	Field
Harco	1994	23	5-10	Pipeline 2000	NA	NA	NA	4,924	Field

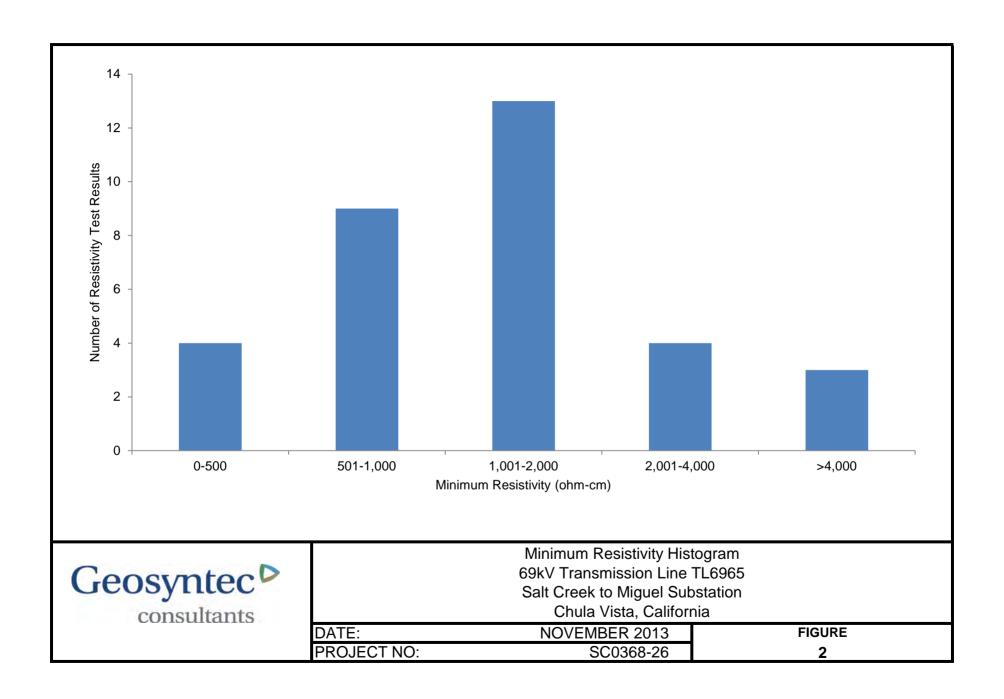
Average 1,715 ohm-cm Minimum 260 ohm-cm Maximum 10,054 ohm-cm

Notes:

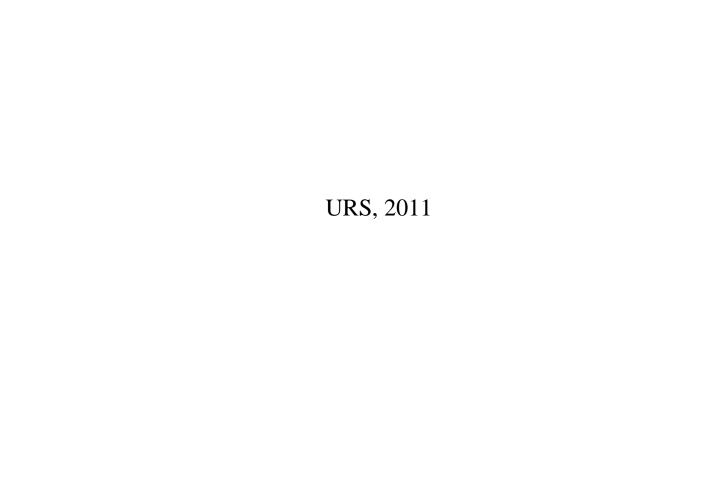
a. NA = Not Available, ppm = parts per million, ohm-cm = ohms-centimeters.

b. Harco values assumed to be field measurements; unknown methodology.





ATTACHMENT A EXCERPTS FROM PREVIOUS STUDIES



GEOTECHNICAL INVESTIGATION NEW STEEL POLES-TL-13826 MIGUEL TO PROCTOR VALLEY SAN DIEGO, CALIFORNIA

Prepared for

San Diego Gas & Electric Company Mr. Bradley Carter 8316 Century Park Court, CP-52G San Diego, CA 92123

URS Project No. 27661044.10000

March 17, 2011

URS

4225 Executive Square, Suite 1600 La Jolla, CA 92037 858.812.9292 Fax: 858.812.9293 The results of our site observations, seismic refraction traverses, exploratory borings, and laboratory testing have been used to develop estimates of the required analytical parameters. Correlations were also developed between the presented compression wave velocity ranges and soil strength parameters. Additional correlations were developed to estimate elastic pressuremeter moduli for anticipated subsurface materials along the alignment. Our correlations used indirect, theoretical methods and engineering judgment.

The estimated design parameters presented in Table 1 have been developed from the generalized stratigraphy of the subsurface materials. Where massive clayey materials are anticipated, it is recommended that a shear strength reduction factor of 0.8 be used in analysis and design of pole foundations. Where massive clayey materials are not anticipated, it is recommended that a strength reduction factor, a, of 1.0 be used. The recommended shear strength reduction factor for each pole is shown on Table 3.

Additionally, it is recommended that a depth of surface material be discounted in all cases of the foundation analyses. This recommendation is based on the presumption that the loose, weathered, near surface materials inherently have lower strengths with an associated higher uncertainty. Additionally, foundations located in sloping terrain and in areas with expansive, clayey surface soils have the potential for erosion or creep. In all cases, we recommend that the upper 3 feet of surface material should be discounted. Table 3 presents the recommended discount depth based on the compression wave velocity of surficial materials.

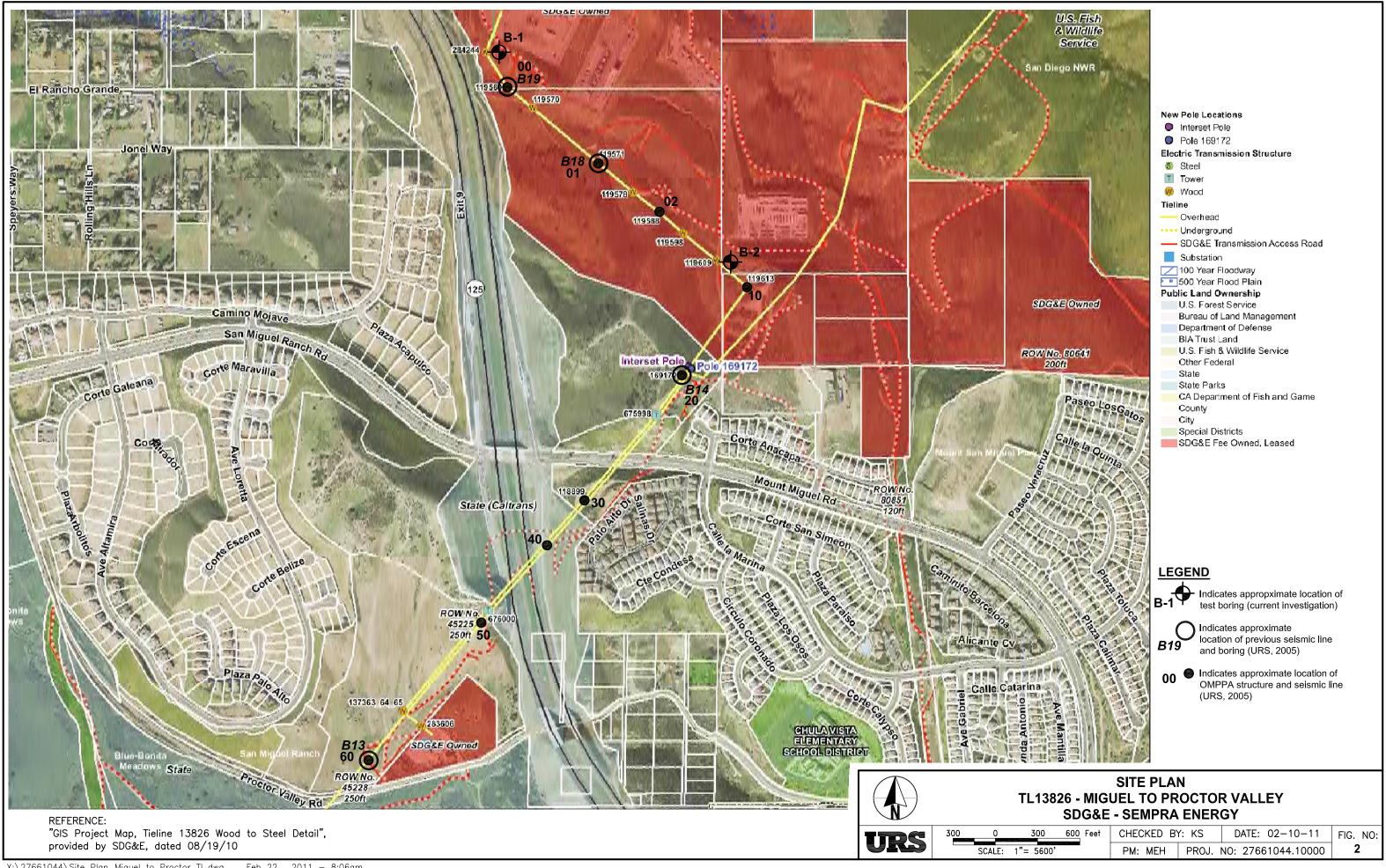
It should be noted that the design soil parameters presented in Table 3 are intended for use in the MFAD computer program and may not reflect actual strengths. Pressuremeter testing was not performed as part of this project.

5.3 CORROSIVITY

The results of pH, resistivity, and water-soluble sulfate and chloride tests from the current and OMPPA investigations are summarized in Table 4.

It has been our experience with local corrosion engineers that resistivity results between 0 and 500 ohm-cm may be considered very corrosive to metallic utility piping and conduits. Resistivity results between 1,000 and 2,000 ohm-cm may be considered fairly corrosive. A corrosion engineer should be consulted for additional design information. The results of these near surface tests primarily indicate that sulfate attack to concrete may be considered negligible.

We recommend that Type II Portland cement be used in the concrete placed against soil. The durability and low permeability properties of the concrete can be greatly improved by maintaining the water cement ratio recommended in the California Building Code (CBC).



Project: TL 13826 Miguel to Proctor Valley

Project Location: San Diego, CA Project Number: 27661044.10000 **Key to Logs**

Sheet 1 of 1

	SA	MPLES				تر	•
<u>ē</u> <u>ē</u>	e La	Blows per foot	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	Dry Density, p	REMARKS AND OTHER TESTS
1	2 3 4	1 5	6	7	8	9	10

COLUMN DESCRIPTIONS

- Elevation: Elevation in feet referenced to mean sea level (MSL) or site datum.
- 2 Depth: Depth in feet below the ground surface.
- **Sample Type:** Type of soil sample collected at depth interval shown; sampler symbols are explained below.
- **Sample Number:** Sample identification number. Unnumbered sample indicates no sample recovery.
- Blows per foot: Number of blows required to advance driven sampler 12 inches beyond first 6-inch interval, or distance noted, using a 140-lb hammer with a 30-inch drop.
- **Graphic Log:** Graphic depiction of subsurface material encountered; typical symbols are explained below.
- **Material Description:** Description of material encountered; may include relative density/consistency, moisture, color, particle size; texture, weathering, and strength of formation material.

- Water Content: Water content of soil sample measured in laboratory, expressed as percentage of dry weight of specimen.
- **Dry Unit Weight:** Dry density of soil sample measured in laboratory, expressed in pounds per cubic feer (pcf).
- Remarks and Other Tests: Comments and observations regarding drilling or sampling made by driller or field personnel.

Sieve Analysis, %<#200 sieve
Wash Analysis, %<#200 sieve

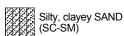
Liquid Limit, from Atterberg limits test, % Plasticity Index (LL-PL), %

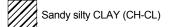
Plasticity Index (LL-PL), %
UC Unconfined Compression test

CORR Corrosivity test

TYPICAL MATERIAL GRAPHIC SYMBOLS

Clayey SAND to sandy CLAY (SC/CL)











TYPICAL SAMPLER GRAPHIC SYMBOLS



2.5" ID sampler



Standard Penetration sample

OTHER GRAPHIC SYMBOLS

- First water encountered at time of drilling and sampling (ATD)
- Static water level measured in boring or well at specified time after drilling
- Change in material properties within a lithologic stratum
- __ Inferred contact between strata or gradational change in lithology

GENERAL NOTES

- Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive; actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
- Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.



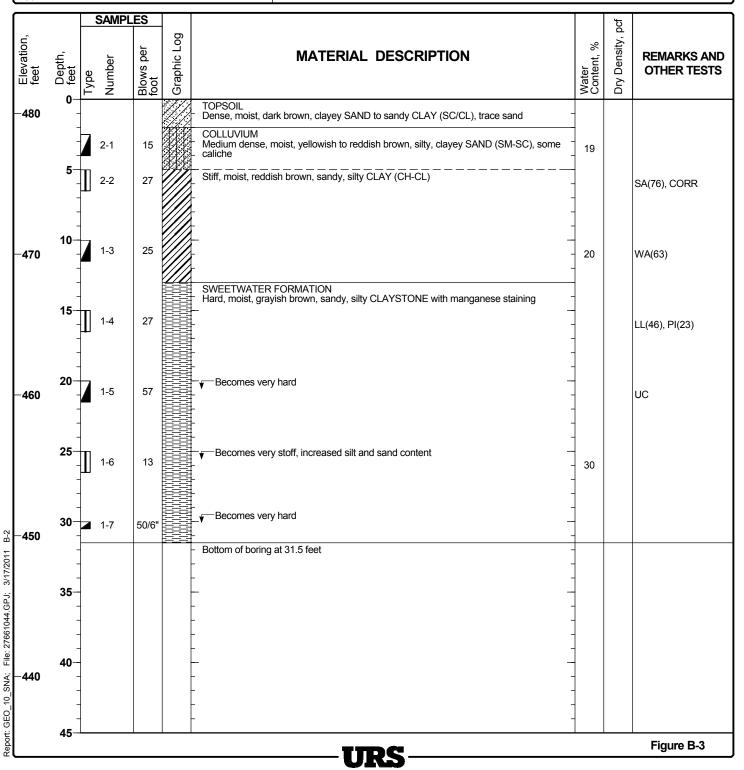
Project: TL 13826 Miguel to Proctor Valley

Project Location: San Diego, CA Project Number: 27661044.10000

Log of Boring B-2

Sheet 1 of 1

Date(s) 01/14/11	Logged By	K. Shaner	Checked By M. Hatch
Drilling Method Hollow Stem Auger	Drill Bit Size/Type	7 inches	Total Depth of Borehole 31.5 feet
Drill Rig Type ATC	Drilling Contractor	Tri-County Drilling, Inc.	Approximate Surface Elevation 481 feet
Water Level Depth (Feet) Not encountered	Sampling Method(s)	SPT/2.5" ID	Hammer Data 140 lbs/30-inch drop
Borehole Backfill Soil cuttings	Location	See Site Plan	



CORROSIVITY TEST ANALYSIS

Project Name: TL 13826 Miguel to Proctor Project Engineer: KAS Depth (ft): 5.0	Project Number: 27661	1044	Boring No.: B2				
Initial Visual Classification Symbol: State of Specimen before Processing X Passing soil through #8 sieve X Moist State Air Dried Air Dr	Project Name: TL 13	826 Miguel to Pr	Sample No.: 2				
State of Specimen before Processing X Passing soil through #8 sieve X Moist State Container No. \$25	Project Engineer: K	AS	Depth (ft): 5.0				
State of Specimen before Processing X Passing soil through #8 sieve X Moist State Container No. \$25							
Moist State	Initial Visual Classification Symbol	ol: CH					
Moist State	State of Specimen b	efore Processing	,	Set-Up		Minus No. 8	
Air Dried	X Passing soil through #8 si	eve		Water Conte	or ()		
Mass Container + Dry Soil (g), Mo Mass Container (g), Mo Mo Mo Mo Mo Mo Mo Mo	x Moist State						
Mass Container + Dry Soil (g), M2 114.49 Mass Container (g), M3 99 Mass Container (g), M5 99 Mass Container (g), M5 20.98 Mass Container (g), M5 20.98	Air Dried			Mass Container -	117.74		
Mass Container (g), M3 99 20.98					114.49		
Water Content, w (%) 20.98	<u> </u>						
Resistivity Test: California Test Method 643 Mininum Resistence value: 360 ohm-cm							
Weight of Soil in bowl (g): Trial 1 Trial 2 Trial 3 Trial 4 Trial 5 Weight of mixing bowl (g): 318.93 318.15 325.32 331.25 Weight of mixing bowl (g): 151.04 151.04 151.04 151.04 Wet weight of Soil (g): 167.89 167.11 174.28 180.21 Amount of water added (ml): 0 10 10 10 Soil Box + Wet Soil (g), M5 239.99 262.47 270.64 272.56 Weight of Soil Box (g), M6 130.40 130.40 130.40 130.40 Wt. of Wet Soil for test (g), M7 109.59 132.07 140.24 142.16 Volume of Soil Box (cm³) 79.2 </td <td></td> <td></td> <td>•</td> <td></td> <td>, , ,</td> <td></td>			•		, , ,		
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Wet weight of Soil (g): 167.89 167.11 174.28 180.21 Amount of water added (ml): 0 10 10 10 Soil Box + Wet Soil (g), M5 239.99 262.47 270.64 272.56 Weight of Soil Box (g), M6 130.40 130.40 130.40 130.40 Wt. of Wet Soil for test (g), M7 109.59 132.07 140.24 142.16 Volume of Soil Box (cm³) 79.2 80.7 94.6 80.7 9	· · · · · · · · · · · · · · · · · · ·						
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Sulfate Content: $100g \text{ of soil mixed with } 300 \text{ mL of de-ionized water.} \qquad \text{SO}_4 \text{ (ppm)}: \qquad 42$ $\text{recorded mg of SO}_4 \text{ in sample, } x, = \qquad 14 \qquad \text{mg}$ $\text{soil / water ratio, } r, = \qquad 3$ $\text{number of dilutions to obtain above value, } d, = \qquad = \qquad \text{mg/L} = \text{ppm}$ $\text{Dilution Equation, } d > 0; \text{SO}_4 = ((x / 80)^* (r 80 * 2^{d} - r 80 * 2^{(d-1)})) + r 80 * 2^{(d-1)}}$ Chloride Content: $100g \text{ of soil mixed with } 300 \text{ mL of de-ionized water.}$ $\text{mg/L of Cl}^- = ((A-B) \times N \times 35453) \times 3$ $A = \text{mL of AgNO}_3 \qquad A = \qquad 23$ $B = 23 \text{ mL of the blank}$ $N = 0.0493 \text{ N, normality of the titrant}$ $\text{Cl}^- \text{ (mg/L)} = \text{A} * 5 * 3$	•	-					
100g of soil mixed with 300 mL of de-ionized water. $ SO_4 \text{ (ppm)} : \underline{\hspace{1cm}} 42 \underline{\hspace{1cm}} $ recorded mg of SO_4 in sample, $X_7 = \underline{\hspace{1cm}} 14 \underline{\hspace{1cm}} $ mg $ SOII / \text{ water ratio, } r_7 = \underline{\hspace{1cm}} 3 \underline{\hspace{1cm}} $ number of dilutions to obtain above value, $d_7 = \underline{\hspace{1cm}} 14 \underline{\hspace{1cm}} $ mg/L = ppm $ Dilution \ Equation, \ d_7 > 0; \ SO_4 = ((x / 80)^* (r 80^* 2^{d} - r 80^* 2^{(d-1)})) + r 80^* 2^{(d-1)}) $ Chloride Content: $ 100g \ of \ SOII \ mixed \ with 300 \ mL \ of \ de-ionized \ water. $ CI´ (ppm): $ \underline{\hspace{1cm}} 345 \underline{\hspace{1cm}} $ mg/L of CI¯ = ((A-B) x N x 35453) x 3 $ A = mL \ of \ AgNO_3 \qquad A = \underline{\hspace{1cm}} 23 \underline{\hspace{1cm}} $ B = 23 mL of the blank $ N = 0.0493 \ N, \ normality \ of \ the \ titrant $ CI¯ (mg/L) = A * 5 * 3	oog not noight of con time	30 30 2 0. 3					
100g of soil mixed with 300 mL of de-ionized water. $ SO_4 \text{ (ppm)} : \underline{\hspace{1cm}} 42 \underline{\hspace{1cm}} $ recorded mg of SO_4 in sample, $X_7 = \underline{\hspace{1cm}} 14 \underline{\hspace{1cm}} $ mg $ SOII / \text{ water ratio, } r_7 = \underline{\hspace{1cm}} 3 \underline{\hspace{1cm}} $ number of dilutions to obtain above value, $d_7 = \underline{\hspace{1cm}} 14 \underline{\hspace{1cm}} $ mg/L = ppm $ Dilution \ Equation, \ d_7 > 0; \ SO_4 = ((x / 80)^* (r 80^* 2^{d} - r 80^* 2^{(d-1)})) + r 80^* 2^{(d-1)}) $ Chloride Content: $ 100g \ of \ SOII \ mixed \ with 300 \ mL \ of \ de-ionized \ water. $ CI´ (ppm): $ \underline{\hspace{1cm}} 345 \underline{\hspace{1cm}} $ mg/L of CI¯ = ((A-B) x N x 35453) x 3 $ A = mL \ of \ AgNO_3 \qquad A = \underline{\hspace{1cm}} 23 \underline{\hspace{1cm}} $ B = 23 mL of the blank $ N = 0.0493 \ N, \ normality \ of \ the \ titrant $ CI¯ (mg/L) = A * 5 * 3	Sulfate Content:						
recorded mg of SO ₄ in sample, x, =14mg soil / water ratio, r, =3 =mg/L = ppm number of dilutions to obtain above value, d, = =mg/L = ppm Dilution Equation, $d > 0$; SO ₄ = $((x / 80)^* (r 80^* 2^d - r 80^* 2^{(d-1)})) + r 80^* 2^{(d-1)}$ Chloride Content: 100g of soil mixed with 300 mL of de-ionized water. mg/L of Cl = $((A-B) \times N \times 35453) \times 3$ A = mL of AgNO ₃ A=23 B = 23 mL of the blank N = 0.0493 N, normality of the titrant Cl (mg/L) = A * 5 * 3) mL of de-ionize	ed water.	SO₄ (ppr	n): 42		
number of dilutions to obtain above value, d, = $\frac{3}{1000}$ mg/L = ppm Dilution Equation, d > 0; SO ₄ = ((x / 80)* (r 80 * 2 ° -	_			7 (1)	, 		
number of dilutions to obtain above value, d, = $ = mg/L = ppm $ Dilution Equation, d > 0; SO ₄ = $((x/80)^*(r/80^*2^d - r/80^*2^{(d-1)})) + r/80^*2^{(d-1)} $ Chloride Content: 100g of soil mixed with 300 mL of de-ionized water. mg/L of Cl ⁻ = $((A-B) \times N \times 35453) \times 3$ A = mL of AgNO ₃ A = $ 23 $ B = 23 mL of the blank N = 0.0493 N, normality of the titrant Cl ⁻ $(mg/L) = A * 5 * 3 $		•					
Chloride Content: 100g of soil mixed with 300 mL of de-ionized water. Cl^- (ppm): 345 mg/L of Cl^- = ((A-B) x N x 35453) x 3 A = mL of AgNO ₃ A= 23 B = 23 mL of the blank N = 0.0493 N, normality of the titrant Cl^- (mg/L) = A * 5 * 3		•		mq/l = ppm			
Chloride Content: 100g of soil mixed with 300 mL of de-ionized water. Cl^- (ppm): 345 mg/L of Cl^- = ((A-B) x N x 35453) x 3 A = mL of AgNO ₃ A= 23 B = 23 mL of the blank N = 0.0493 N, normality of the titrant Cl^- (mg/L) = A * 5 * 3	Dilution Equation, d > 0; SO	$_{4} = ((x / 80)^{*} (r)^{*})$	80 * 2 ^d - r 80 * 2	$\frac{1}{(d-1)}$) + r 80 * 2 ^(d-1)	1)		
100g of soil mixed with 300 mL of de-ionized water. mg/L of Cl^- = ((A-B) x N x 35453) x 3 A = mL of AgNO ₃ A =23 B = 23 mL of the blank N = 0.0493 N, normality of the titrant Cl^- (ppm) :345		, , ,		, ,			
mg/L of Cl $^-$ = ((A-B) x N x 35453) x 3 A = mL of AgNO $_3$ A= 23 B = 23 mL of the blank N = 0.0493 N, normality of the titrant Cl $^-$ (mg/L) = A * 5 * 3		0 ml of de-ionize	d water	Cl ⁻ (nn	m) · 345		
A = mL of AgNO ₃ A= 23 B = 23 mL of the blank N = 0.0493 N, normality of the titrant Cl^{-} (mg/L) = A * 5 * 3			a water.	Oi (ppi	, . <u>040</u>		
$B = 23 \text{ mL}$ of the blank $N = 0.0493 \text{ N}$, normality of the titrant $Cl^{-}(mg/L) = A * 5 * 3$	• • • • • • • • • • • • • • • • • • • •	· .	23				
$N = 0.0493 \text{ N}$, normality of the titrant $Cl^{-}(mg/L) = A * 5 * 3$	•	•					
			nt Cl ⁻ (mg/L)	= A * 5 * 3			
Tested By: TIO Date: 1/28/2011 Chacked By: TIO	IN — U.UTOU IN, HUIH	ianty or the titran	it Oi (ilig/L)	-7. 5 5			
	Tested By: TJO		Date: 1/28/	2011	Checker	d Bv: TJO	



GEOTECHNICAL INVESTIGATION PROPOSED SDG&E OTAY RANCH SUBSTATION CHULA VISTA, CALIFORNIA

March 7, 2007

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control joints should be constructed by saw-cutting, hand forming, or placing premolded filler such as zip strips. Longitudinal or transverse construction joints should be keyed or doweled to mitigate differential movement. In general, longitudinal or transverse construction joints should be keyed or doweled to mitigate differential movement.

4.12 FLATWORK

To reduce the potential manifestation of distress to exterior concrete flatwork due to movement of the underlying soil, we recommend that such flatwork be constructed with crack-control joints at appropriate spacing as designed by the structural engineer. Subgrade should be prepared in accordance with the earthwork recommendations presented earlier in this report. Positive drainage should be established and maintained adjacent to flatwork.

4.13 PRELIMINARY CORROSIVE SOIL SCREENING

A preliminary corrosive soil screening for representative on-site soil materials was completed to evaluate their potential effect on concrete and ferrous metals. The corrosion potential was evaluated using the results of laboratory testing on a composite soil sample of the Otay Formation obtained during our subsurface evaluation. We do not anticipate that concrete and ferrous metals will be in contact with the more corrosive topsoil and colluvium.

Table 7
Corrosion Test Results

Boring	Depth (ft)	рН	Sulfate (ppm)	Chloride (ppm)	Minimum Resistivity (ohm-cm)
B-3	3-10	9.4	<10	10	1,400

Concrete in contact with soil or water that contains high concentrations of soluble sulfates can be subject to chemical deterioration. Based on the UBC criteria (UBC, 2001), the potential for sulfate attack is negligible for water-soluble sulfate contents in soil ranging from 0.00 to 0.10 percent by weight (0 to 1,000 ppm), and moderate for water-soluble sulfate contents ranging from 0.10 to 0.20 percent by weight (1,000 to 2,000 ppm). The potential for sulfate attack is severe for water-soluble sulfate contents

ranging from 0.20 to 2.00 percent by weight (2,000 to 20,000 ppm) and very severe for water-soluble sulfate contents over 2.00 percent by weight (greater than 20,000 ppm). Based on the corrosion test results, the sulfate content is less than 10 ppm, therefore the potential for sulfate attack is considered negligible.

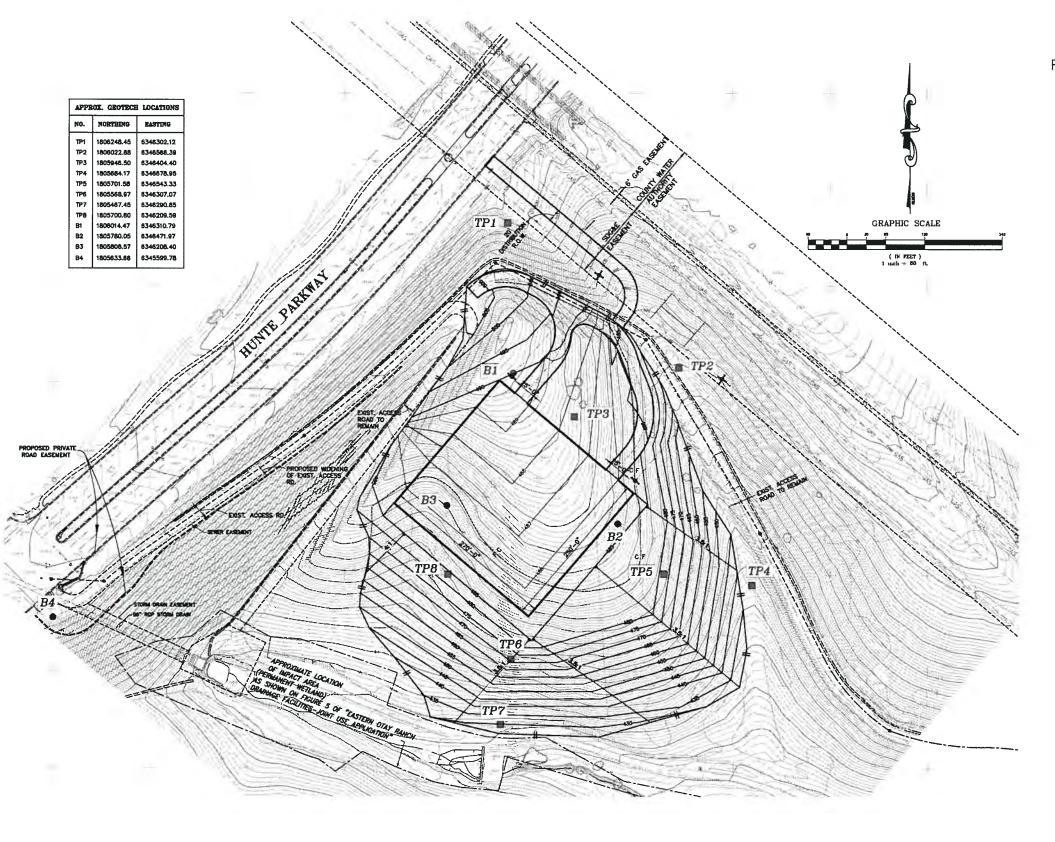
Our corrosion screening tests are preliminary in nature. Additional sampling and testing may be warranted after completion of grading if improvements will be in contact with soils other than the granular Otay Formation.

4.14 SURFACE DRAINAGE

Foundation performance depends greatly on how well the runoff waters drain from the site. This drainage should be maintained both during construction and over the entire life of the project. Final elevations at the site should be planned so that positive drainage is established around structures. Positive drainage is defined as a slope of 2 percent or more for a distance of 5 feet or more away from structure foundations.

4.15 SLOPE PROTECTION AND MAINTENANCE

Although graded slopes on this site are anticipated to be grossly stable, the surficial soils may be somewhat erodible due to low cohesion of the sands. For this reason, the finished slopes should be planted as soon as practical after the end of construction. Cut slopes into the Otay Formation may be difficult to plant. Preferably, deep-rooted plants adapted to semi-arid climates should be used. Due to the close proximity to a natural drainageway, we anticipate that aggressive erosion control measures should be implemented. In general, runoff water should not be permitted to drain over the edges of slopes unless that water is confined to properly designed and constructed drainage facilities.



PRELIMINARY FOR PLANNING PURPOSES ONLY

LEGEND	
RETAINING WALL	
SEWER MANHOLE	•
SEWER LINE	
CUT/FILL LINE	
ELEC. TRANSMISSION LINE	-tt-
FINISHED CONTOUR LINES	 478
EXISTING COUNTER LINES	-170-
GAS TRANSMISSION LINE	GAS
WATER	w
DRAINAGE SWALE	==3===
NEW TRANSMISSION STEEL CABLE POLE	
NEW TRANSMISSION	+
STEEL POLE	
SOIL BORING	⊕ Bx
TEST PIT	TPx

PRELIMINARY

KLEINFELDER

5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

CHECKED BY: SHR FN: 67735SITE
PROJECT NO. 67735 DATE: 10/2007

SITE PLAN

OTAY RANCH SUBSTATION SITE OTAY, CALIFORNIA

FIGURE

2

MAJOR DIVISIONS		SYMBOLS		TYPICAL	
[MAJOR DIVISIO)NS 	GRAPH	LETTER	DESCRIPTIONS
	GRAVEL	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
	AND GRAVELLY SOILS	(LITTLE OR NO FINES)		GP	POORLY—GRADED GRAVELS, GRAVEL — SAND MIXTURES, LITTLE OR NO FINES
COARSE GRAINED SOILS	MORE THAN 50% OF COARSE	GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL — SAND — SILT MIXTURES
30123	FRACTION RETAINED ON NO. 4 SIEVE	(APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL — SAND — CLAY MIXTURES
	SAND	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	AND SANDY SOILS	(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
a.	MORE THAN 50% OF COARSE FRACTION	SANDS WITH FINES		SM	SILTY SANDS, SAND — SILT MIXTURES
	PASSING ON NO. 4 SIEVE	(APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND — CLAY MIXTURES
				ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
FINE GRAINED	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
SOILS	05/10			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS				МН	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
SMALLER THAN NO. 200 SIEVE SIZE		LIQUID LIMIT GREATER THAN 50		СН	INORGANIC CLAYS OF HIGH PLASTICITY
				ОН	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
H	IIGHLY ORGANIC S	OILS		PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS



5015 SHOREHAM PLACE SAN DIEGO, CALIFORNIA 92122

CHECKED BY: KW FN: 67735_Keys
PROJECT NO. 67735 DATE: 06/2007

SOIL CLASSIFICATION CHART

SDG&E SUBSTATION ORAY RANCH SUBSTATION CHULA VISTA, CALIFORNIA **A1**

FIGURE

LOG SYMBOLS:

BULK/BAG SAMPLE



MODIFIED CALIFORNIA SAMPLER (2-1/2 inch outside diameter)



CALIFORNIA SAMPLER (3 inch outside diameter)



STANDARD PENETRATION SPLIT SPOON SAMPLER (2 inch outside diameter)



NO SAMPLE RECOVERY



SHELBY TUBE

¥

WATER LEVEL (level after completion)



WATER LEVEL (level where first encountered)

ABBREVIATIONS:

SA - (38%) SIEVE ANALYSIS (PERCENT PASSING #200 SIEVE)

WA - (38%) - ONE POINT GRAIN SIZE ANALYSIS (PERCENT PASSING #200 SIEVE)

PI - PLASTICITY INDEX

AL - ATTERBERG LIMITS

DS - DIRECT SHEAR TEST

'R' - R-VALUE TEST

CORR - CORROSIVITY TEST

EI - UBC EXPANSION INDEX

LC - LABORATORY COMPACTION TEST

M&D - MOISTURE & DENSITY

PP - POCKET PENETROMETER

GENERAL NOTES:

- 1. Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual.
- 2. No warranty is provided as to the continuity of soil conditions between individual sample locations.
- 3. Logs represent general soil conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification designations presented on the logs were evaluated by visual methods only. Therefore, actual designations (based on laboratory tests) may vary.

CONSISTENCY CRITERIA BASED ON FIELD TESTS

RELATIVE DENSITY	SPT* (# blows/ 300 mm)	RELATIVE DENSITY (%)
Very Loose Loose Medium Dense Dense	<4 4 - 10 10 - 30 30 - 50	0 - 15 15 - 35 35 - 65 65 - 85
Very Dense	>50	85 - 100

<u> </u>	ON TIELD TESTS		TORVANE	POCKET** PENETROMETER
	CONSISTENCY	SPT (# blows/ 300 mm)	UNDRAINED SHEAR STRENGTH (MPo)	UNCONFINED COMPRESSIVE STRENGTH
	Very Soft Soft Medium Stiff Stiff Very Stiff Hard	<2 2 - 4 4 - 8 8 - 15 15 - 30 >30	0.012 0.012 - 0.024 0.024 - 0.05 0.05 - 0.10 0.10 - 0.20 >0.2	0.024 0.024 - 0.05 0.05 - 0.10 0.10 - 0.20 0.20 - 0.40 >0.40

NUMBER OF BLOWS OF 63 kg HAMMER FALLING 750 mm TO DRIVE A 50 mm O.D. (34 mm I.D.) SPLIT BARREL SAMPLER (ASTM-1386 STANDARD PENETRATION TEST)

** UNCONFINED COMPRESSIVE STRENGTH IN MPa READ FROM POCKET PENETROMETER

MOISTURE CONTENT

DESCRIPTION	FIELD TEST		
Dry	Absence of moisture, dusty, dry to the touch		
Moist	Damp but no visible water		
Wet	Visible free water, usually soil is below water table		

CEMENTATION

DESCRIPTION	FIELD TEST			
Weakly	Crumbles or breaks with handling or slight finger pressure			
Moderately	Crumbles or breaks with considerable finger pressure			
Strongly	Will not crumble or break with finger pressure			



KLEINFELDER

5015 SHOREHAM PLACE SAN DIEGO, CALIFORNIA 92122

CHECKED BY: KW	FN: 67735_Keys
PROJECT NO. 67735	DATE: 06/2007

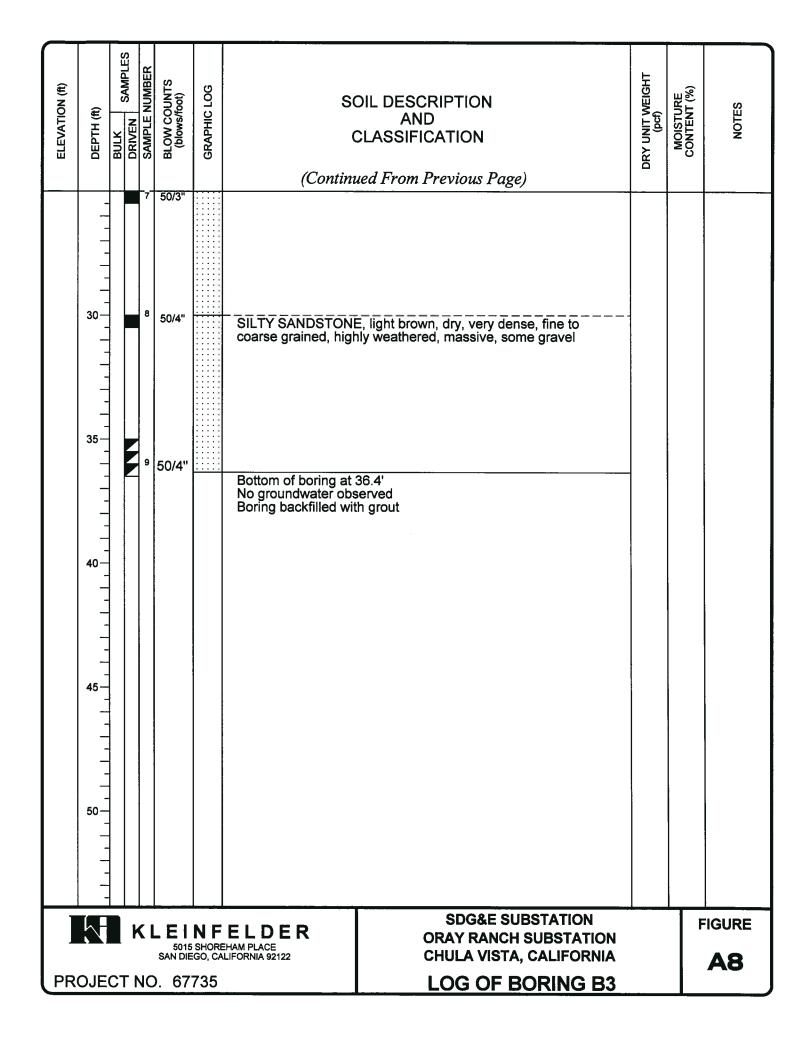
KEY TO LOGS

SDG&E SUBSTATION
ORAY RANCH SUBSTATION
CHULA VISTA, CALIFORNIA

FIGURE

A2

DATE DRILLED: 1/18/2007 WATER DEPTH: None **DRILLING COMPANY: Tri-County Drilling** DATE OBSERVED: 1/18/2007 **DRILLING METHOD:** ATV Auto Hammer, 140 lb hammer, 30" **GROUND ELEVATION:** 480' MSL LOGGED BY: JL **HOLE DIAMETER:** 8" Hollow Stem Auger (HSA) SAMPLES SAMPLE NUMBER DRY UNIT WEIGHT (pcf) BLOW COUNTS (blows/foot) ELEVATION (ft) MOISTURE CONTENT (%) GRAPHIC LOG SOIL DESCRIPTION NOTES DEPTH (ft) AND DRIVEN BULK **CLASSIFICATION** TOPSOIL: SANDY CLAY (CL), dark brown, dry, stiff **OTAY FORMATION:** 50/5" 96 6 SILTY SANDSTONE, light brown, dry, very dense, fine to CORR coarse grained with silt, massive, highly weathered, trace of gravels, well graded 50/2" Greenish angular gravel, light brown with mottled red and black, dry, very dense, massive, highly weathered Gravel and cobble layer at approximately 6 to 7 feet 10 50/5" 15 50/3" No recovery No recovery NR 50/5" 50/3" 20 No recovery 50/3" SDG&E SUBSTATION **FIGURE** KLEINFELDER **ORAY RANCH SUBSTATION** 5015 SHOREHAM PLACE SAN DIEGO, CALIFORNIA 92122 CHULA VISTA, CALIFORNIA **A7 LOG OF BORING B3** PROJECT NO. 67735



Date: 2/23/2007 Time: 1:52:34 PM

LABORATORY REPORT

Telephone (619) 425-1993

Fax 425-7917 Established 1928

CLARKSON LABORATORY AND SUPPLY INC. 350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com ANALYTICAL AND CONSULTING CHEMISTS

Date: February 22, 2007

Purchase Order Number: 67735 Sales Order Number: 87394

Account Number: KLE

Kleinfelder Inc. 5015 Shoreham Drive San Diego, CA 92122

Attention: Uly Panuncialman

Laboratory Number: SO2161 Customers Phone: 858-320-2000

Fax: 858-320-2001

Sample Designation:

*-----

One soil sample received on 02/21/07, taken on 02/21/07 taken from SDG&E Substation Otay Ranch marked as B3/1, B3/2, B3/4 @ 2'.5' '0' Respectivity

Analysis By California Test 643, Department of Transportation Division of Construction, Method for Estimating the Service Life of Steel Culverts.

pH 9.4

Water Added (ml)

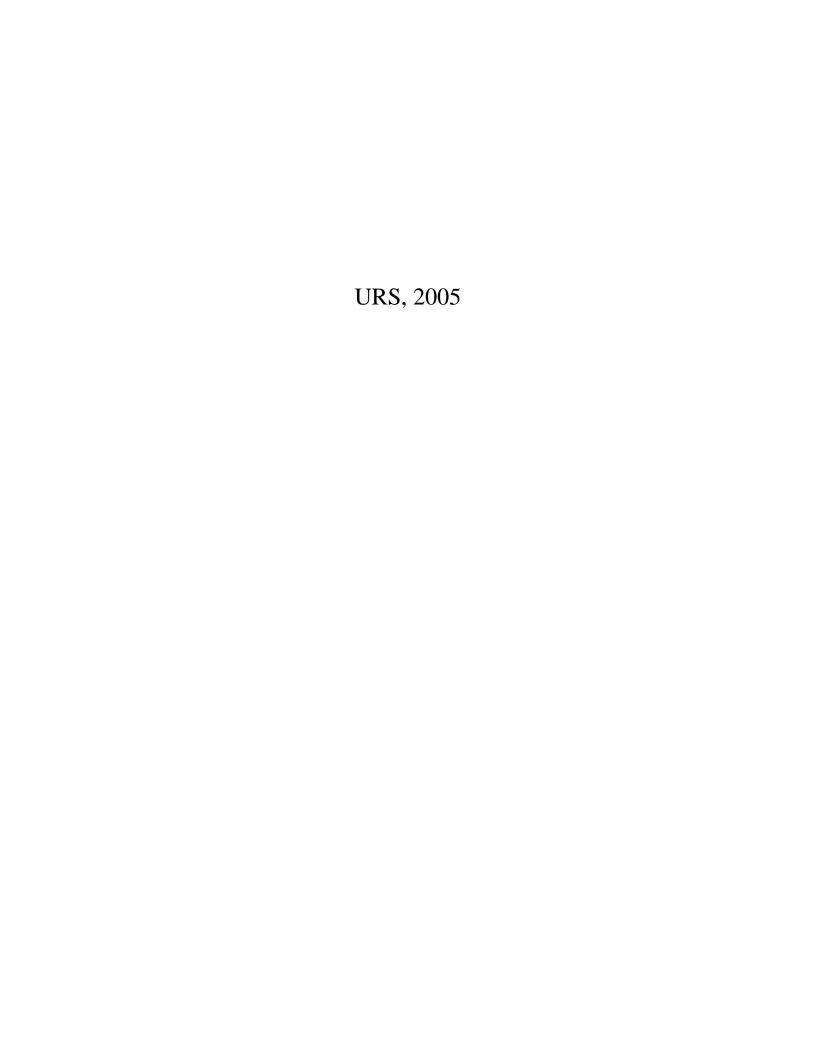
Resistivity (ohm-cm)

10	3,100
5	1,700
5	1,400
5	1,800
5	1,900

35 years to perforation for a 16 gauge metal culvert. 46 years to perforation for a 14 gauge metal culvert. 63 years to perforation for a 12 gauge metal culvert. 81 years to perforation for a 10 gauge metal culvert. 98 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417 <0.001% Water Soluble Chloride Calif. Test 422 0.001%

LT/ovv



REPORT

GEOTECHNICAL INVESTIGATION OTAY MESA POWER PURCHASING AGREEMENT (OMPPA) SAN DIEGO, CALIFORNIA

Prepared for

Sargent & Lundy, L.L.C. 55 East Monroe Street Chicago, IL 60603-5780

URS Project No. 27664035.00010

February 25, 2005

URS

1615 Murray Canyon Road, Suite 1000 San Diego, CA 92108-4314 619.294.9400 Fax: 619.293.7920 Correlations were also developed between the presented compression wave velocity ranges and soil strength parameters. Additional correlations were developed to estimate elastic pressuremeter moduli for the anticipated subsurface materials along the alignment. Our correlations used indirect theoretical elastic methods and engineering judgment.

The estimated design parameters presented in Table 1 have been developed from the generalized stratigraphic profiles presented in Figures 4a and 4b. Where massive clayey materials are anticipated it is recommended that a shear strength reduction factor, α , of 0.8 be used in analysis and design of the pole foundations. Where massive clayey materials are not anticipated along the alignments, it is recommended that a strength reduction factor, α , of 1.0 be used. The recommended shear strength reduction factor for each pole location is shown in Table 1.

Additionally, it is recommended that a depth of surface material be discounted in all cases of the foundation analyses. This recommendation is based on the presumption that the weathered near surface materials inherently have lower strengths with an associated higher uncertainty. Additionally, foundations located in sloping terrain have the potential for erosion. In all cases, at least the upper 1 foot of surface material should be discounted. Table 1 presents the recommended discount depth based on the compression wave velocity of surficial materials.

In our opinion, high groundwater conditions are not a design consideration along the proposed alignment except at the western end. Table 2 presents a summary of alluvial pole sites and an assumed depth to water for use in MFAD. These depths are based on the geologic setting or on subsurface explorations. Surface water or groundwater seeps, however, may be encountered during construction.

It should be noted that the design soil parameters presented in Table 1 are intended for use in the MFAD computer program and may not reflect actual strengths. Pressuremeter testing was not performed as a part of this project.

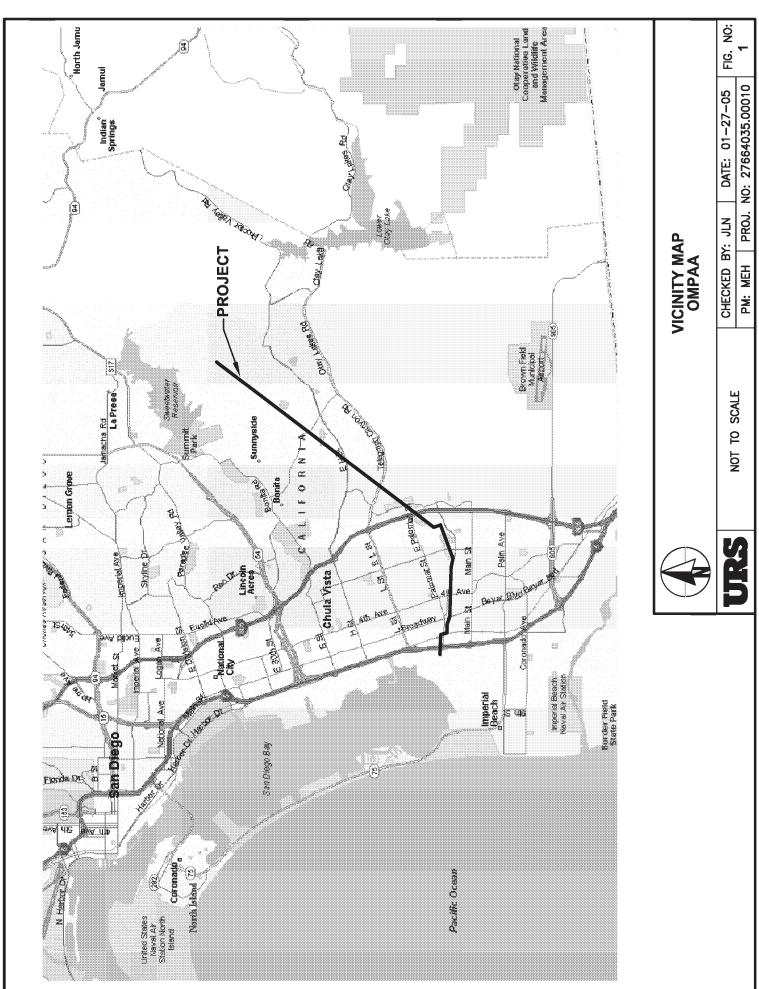
5.4 CORROSION POTENTIAL

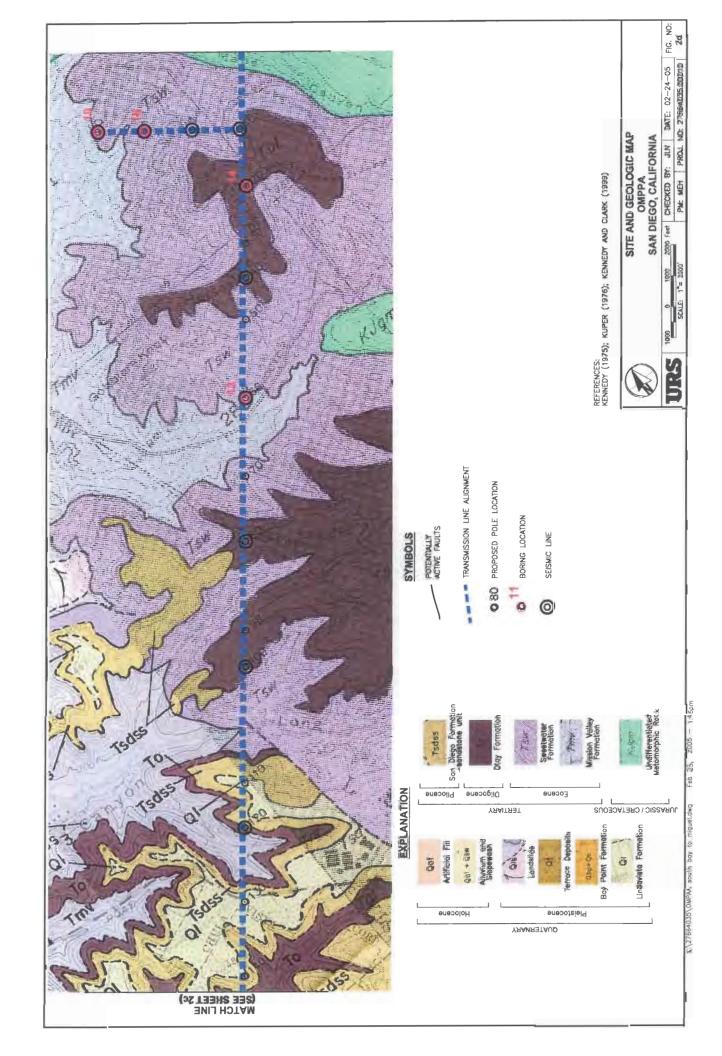
The results of pH, resistivity, and water soluble sulfate and chloride tests are presented in Appendix C. Table 3 summarizes the results of this testing.

It has been our experience with local corrosion engineers that resistivity results between 0 and 500 ohmom may be considered very corrosive to metallic utility piping and conduits. Resistivity results between 1,000 and 2,000 ohmom may be considered fairly corrosive to metallic utility piping and conduits. A corrosion engineer should be consulted for additional design information. The results of these near surface tests primarily indicate that sulfate attack to concrete may be considered negligible. Table 19A-4 of the 1997 UBC, Requirements for Concrete Exposed to Sulfate Containing Solutions, indicates that sulfate exposure from concentrations less than 0.10 percent is considered negligible. One sample from B-19 at a depth of 15 feet had a sulfate content at 0.10 percent.

We recommend that Type II Portland cement be used in the concrete placed against soil. The durability and low permeability properties of the concrete can be greatly improved by maintaining the water to cement ratio recommended in the UBC.

URS





Project: OMPPA

Project Location: San Diego County, CA

Project Number: 27664035.00010

Key to Logs

Sheet 1 of 1

Project Number. 27004033.00010					
0.000					
Elevation, feet Depth, feet Type Number Number Graphic Log Graphic Log	L DESCRIPTION	%, water Content, % Dry Density, pcf OTHER TESTS			
1 2 3 4 5 6	7	8 9 10			
COLUMN DESCRIPTIONS					
Elevation: Elevation in feet referenced to mean sea level (MSL) or site datum. Depth: Depth in feet below the ground surface. Sample Type: Type of soil sample collected at depth interval shown; sampler symbols are explained below. Sample Number: Sample identification number. Unnumbered sample indicates no sample recovery. Sampling Resistance: Number of blows required to advance driven sampler 12 inches beyond first 6-inch interval, or distance noted, using a 140-lb hammer with a 30-inch drop. Graphic Log: Graphic depiction of subsurface material encountered; typical symbols are explained below. Material Description: Description of material encountered; may include relative density/consistency, moisture, color, particle size; texture, weathering, and strength of formation material.	laboratory, expressed as perc 9	Comments and observations regarding iriller or field personnel. Other field and the following abbreviations: Atterberg limits test), % L - PLJ, %; NP=nonplastic #200 sieve ressive strength test, Qu in ksf sieve, %<#200 sieve			
TITICAL MATERIAL GRAFITIC STMBOLS					
Silty SAND (SM) Clayey SAND (SC)	SAND (SP)	SANDSTONE with silt (SP-SM)			
CLAY (CL) Fat CLAY (CH)	Sandy CLAY (CL/CH)	SAND to SILT (SM/ML)			
SAND with silt (SM-SP) SAND with gravel and cobbles (SC/GC)	Silty SAND with gravel ar cobbles (SM/GM)	nd SILT (ML)			
TYPICAL SAMPLER GRAPHIC SYMBOLS OTHER GRAPHIC SYMBOLS					
2.5-inch-OD Modified Standard Penetration sampler	¥ (ATD)	at time of drilling and sampling			
	Water level measured a drilling and sampling	t specified time after completion of			

GENERAL NOTES

- 1. Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive; actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
- 2. Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

Minor change in material properties within a stratum

Inferred or gradational contact between strata

Project: OMPPA

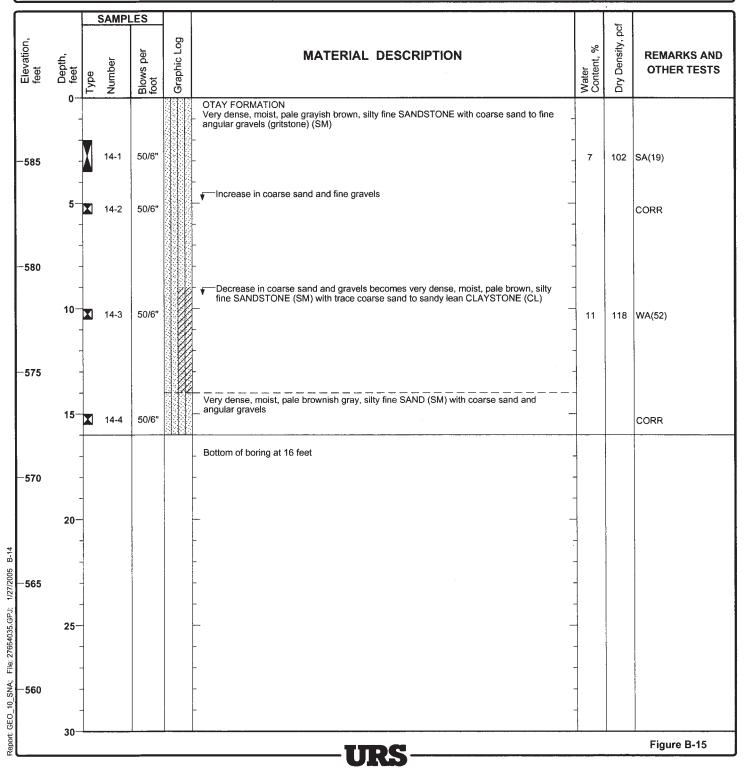
Project Location: San Diego County, CA

Project Number: 27664035.00010

Log of Boring B-14

Sheet 1 of 1

Date(s) Drilled 11-15-	-04	Logged By	A. Greene	Checked J. Nevius
Drilling Method Hollov	w Stem Auger	Drill Bit Size/Type	8"	Total Depth of Borehole 16 feet
Drill Rig Type Mobile	e B-61	Drilling Contractor	F&C Drilling	Approximate 588' MSL
Groundwater Level at Time of Drilling	None encountered	Sampling Method(s)	ModCal	Hammer Data 140 lbs/30" drop
Borehole Soil co	euttings	Location	STR 20	



Project: OMPPA

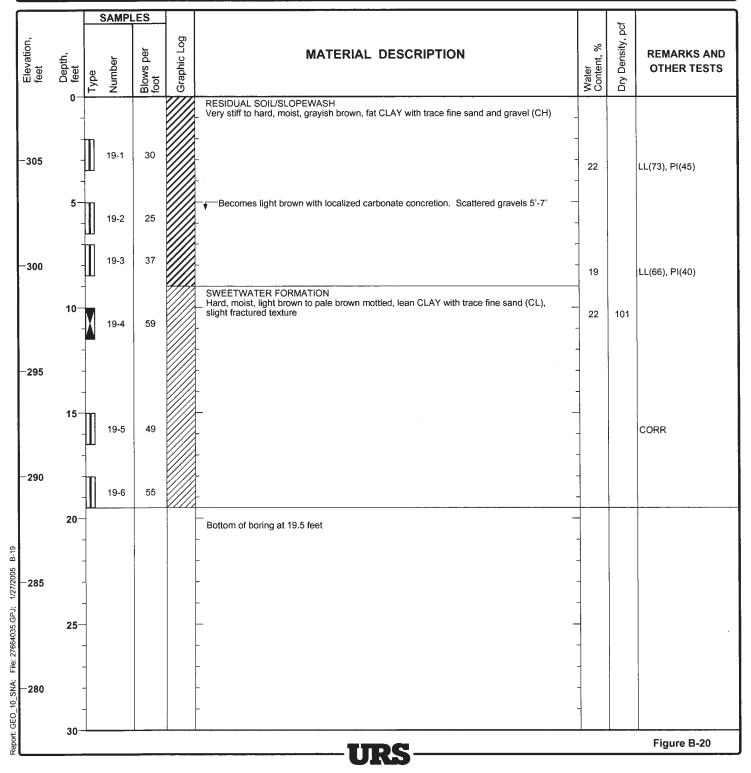
Project Location: San Diego County, CA

Project Number: 27664035.00010

Log of Boring B-19

Sheet 1 of 1

Date(s) Drilled 12-20-04	Logged By	A. Greene	Checked J. Nevius
Drilling Method Hollow Stem Auger	Drill Bit Size/Type	8"	Total Depth of Borehole 19.5 feet
Drill Rig Type Mobile B-61	Drilling Contractor	F&C Drilling	Approximate Surface Elevation 308' MSL
Groundwater Level at Time of Drilling None encountered	Sampling Method(s)	ModCal/SPT	Hammer Data 140 lbs/30" drop
Borehole Backfill Soil cuttings	Location	STR 00	





CORROSIVITY TEST RESULTS

Resistivity Test and PH: Califiornia Test Methods 532 and 643

Sulfate Content: California Test Method 417 Chloride Content: California Test Method 422

Project Name : OMPPA Location: San Diego, CA

roject No. <u>27664035.00010</u> Tested By : <u>RIT</u>

Date: 2/6/2005 Data Input By: RIT

Boring No.	Sample No.	Soil Description	Depth	Depth Resistivity		Sulfate Content	Chloride Content
140.	110.		(ft.)	(ohm-cm)		(ppm)	(ppm)
B-4	2	Light brown clayey Sand (SC)	5	1400	8.4	843	75
B-9	3	Olive brown silty Sand (SM)	10	1100	8.2	250	60
B-12	1	Light brown clayey Sand (SC)	5	410	8.1	324	120
B-14	2	Light brown clayey Sand (SC)	5	320	8.4	185	105
B-17	4-1	Brown clayey Sand with gravel (SC)	15	1300	8.1	180	90
B-19	5	Yellow sandy Clay (CL)	15	260	8.1	1010	60





Head Office:

800 West Napa St., Dept. 454 Sonoma, CA 95476

Tel: 1(800) 737-8544 (USA & CANADA)

or: (707) 935-6200 Fax: (707) 935-0875 **Branch Office:**

712 S.E. Evans Avenue Port St. Lucie, FL 34984 Tel: (407) 340-3140 Fax: (407) 340-3580

January 2, 1996

San Diego Gas & Electric (SDG&E) Mr. Alan Dusi Project Engineer 101 Ash Street P.O. Box 1831 San Diego, CA. 92112-4150

Subject:

SDG&E Pipeline 2000/Phase IV

Dear Mr. Dusi:

I am providing you with the final changes for the SDG&E Pipeline 2000/Phase IV 230 KV Corridor (Part I) and 69 KV Corridor (Part II) Report. The pages that you are receiving are based on the changes requested by agreement with Ark Engineering, Bechtel Corp. and SDG&E.

Four copies of each of the pages in the report are being provided according to your four copies of the report. These pages have been spiral bound punched and require that you insert them in replacement of the pages in the document. There are also some new pages to be added to the report.

The following are the new pages to be replaced and added to the report:

PARTI

CONTENTS APPENDICES FIGURES	I-II II III-V
TABLES EXECUTIVE SUMMARY	vi S-1 All pages
CHAPTER 1 INTRODUCTION CHAPTER 2 SOIL RESISTIVITY ANALYSIS	2-1 2-3 Figure 2-2 (Pg 2-4)
CHAPTER 3 INTERFERENCE LEVELS WITHOUT MITIGATION	3-1 Figure 3-1 (Pg 3-2) 3-5
	3-6 3-7 Figure 3-5 (Pg 3-9)

CHAPTER 3 INTERFERENCE LEVELS WITHOUT MITIGATION (Cont.) Figure 3-6 (Pg 3-11) Figure 3-8 (Pg 3-13) Figure 3-9 (Pg 3-14) Page 3-15 Figure 3-12 (Pg 3-18) Figure 3-13 (Pg 3-19) Figure 3-14 (Pg 3-20) Figure 3-15 (Pg 3-21) Page 3-22 Page 3-23 Page 3-24 CHAPTER 4 INTERFERENCE LEVELS WITH MITIGATION All Pages **All Pages** CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS PART II i-ii CONTENTS ii **APPENDICES** iii-iv FIGURES **TABLES** S-1 - S-2 **EXECUTIVE SUMMARY** All pages CHAPTER 1 INTRODUCTION 2-1 CHAPTER 2 SOIL RESISTIVITY ANALYSIS Figure 2-2 (Pg 2-4) 3-1 CHAPTER 3 INTERFERENCE LEVELS WITHOUT MITIGATION Figure 3-1 (Pg 3-2) 3-4 3-6 Figure 3-4 (Pg 3-8) Page 3-9 Figure 3-5 (Pg 3-10) Figure 3-7 (Pg 3-12) Figure 3-8 (Pg 3-13) Page 3-14 Figure 3-10 (Pg 3-16) Figure 3-11 (Pg 3-17) Figure 3-12 (Pg 3-18) Figure 3-13 (Pg 3-19) Page 3-20 Page 3-21 Page 3-22 All Pages CHAPTER 4 INTERFERENCE LEVELS WITH MITIGATION **All Pages** CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS APPENDIX C Plots of Pipeline Potentials Generated by Induction

Under Steady - State & Fault Conditions - Part I

All Pages

APPENDIX D Plots of Pipeline Potentials Generated by Induction Under Steady - State & Fault Conditions - Part II

All Pages

APPENDIX F TRANSMISSION LINE DATA (New Section)

F-1

F-2

If you have any questions, please let me know.

Sincerely yours,

Kurt Bell, P.E.

President, SES Consulting, Inc.

2.2 SOIL RESISTIVITY MEASUREMENT METHODOLOGY

Measurements were conducted based on the industry recognized 4-pin Wenner method in accordance with IEEE Standard 81, "IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System", using the SYSCAL R2 Deep Resistivity/IP System from Terraplus shown in Figure 2-1.

The SYSCAL R2 effectively rejects noise induced in the leads connected to the potential probes by the magnetic field surrounding the transmission lines, as well as the noise due to transmission line return currents circulating in the earth and causing a voltage drop across the potential probes. The noise is worst at large electrode spacings, because the voltage drop along the earth's surface due to circulating ground currents is greatest across two distant electrodes. Furthermore, the length of the test leads, which act as receiving antennas for the magnetically induced potentials, is also greatest in this case.

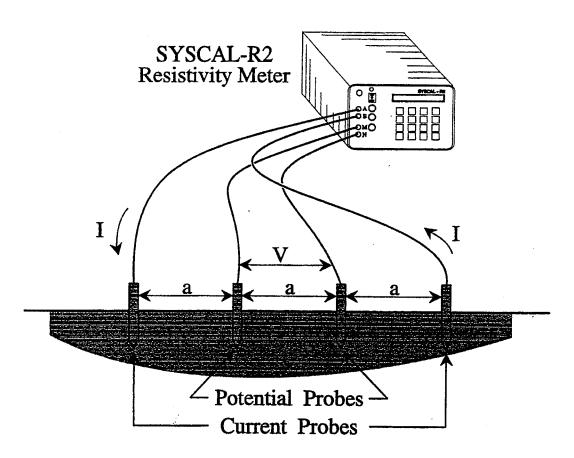


Figure 2-1: Equipment Used for Soil Resistivity Measurements

The electrode spacings varied from 1 to 300 feet. The electrode depths ranged from 12-15 inches for spacings up to and including 10 feet and 18-24 inches for electrode spacings from 15 feet up to and including 300 feet. The apparent resistivity values corresponding to the measured resistance values can be calculated using the expression:

$$\rho = \frac{4\pi aR}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Where: ρ = Apparent soil resistivity, in Ω -Meters

a = Electrode separation, in meters
 R = Measured resistance, in ohms

b = Electrode depth, in meters

This equation applies only to small electrodes buried at a depth "b," with insulated connecting wires. In practice, four rods are usually placed in a straight line at intervals "a," driven to a depth not exceeding 0.1a. Then we can assume b=0 and the formula becomes:

$$\rho = 2\pi aR$$

This results in the approximate average resistivity of the soil to a depth "a."

2.3 MEASUREMENT RESULTS

Soil resistivity data was collected from 6 sites, at the locations shown in Figure 2-2. Equivalent multilayer soil models were computed using the RESAP computer program for these sites and are listed in Table 2-1. Appendix B shows the agreement achieved between the equivalent soil model (dashed curves) and the measured resistivities (points) at each site.

Site No. (See Figure 2-2)	Multilayer Soil Model								
(See Figure 2-2)	Layer No.	Apparent Resistivity (Ω-meter)	Layer Thickness (Feet)						
S1	1 2	34.6 5.6	4.0 Infinite						
S2	1 2 3	95.0 14.2 6.2	1.5 50.7 Infinite						
S3	1 2	7.0 6.3	97.3 Infinite						
S4	1 2	12.9	6.8 Infinite						
S5	1 2	17.3 5.6	4.4 Infinite						
\$6	1 2 3	19.6 20.8 5.0	0.6 0.5 Infinite						

Table 2-1: Multilayer Soil Models Derived from Soil Resistivity Measurements Made Along the SDG&E Pipeline 2000/Phase IV Pipeline Corridor

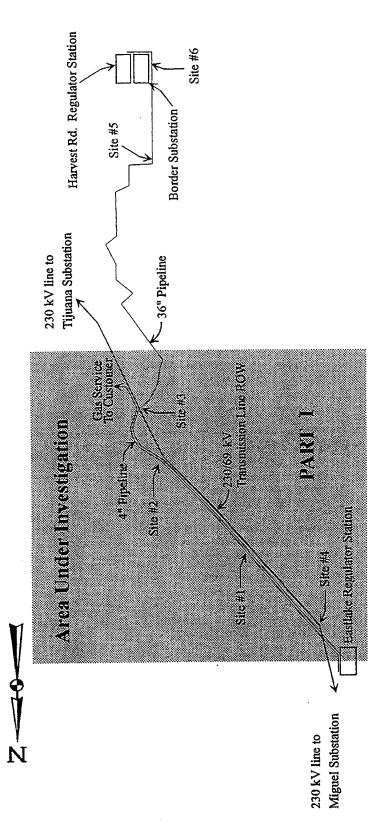
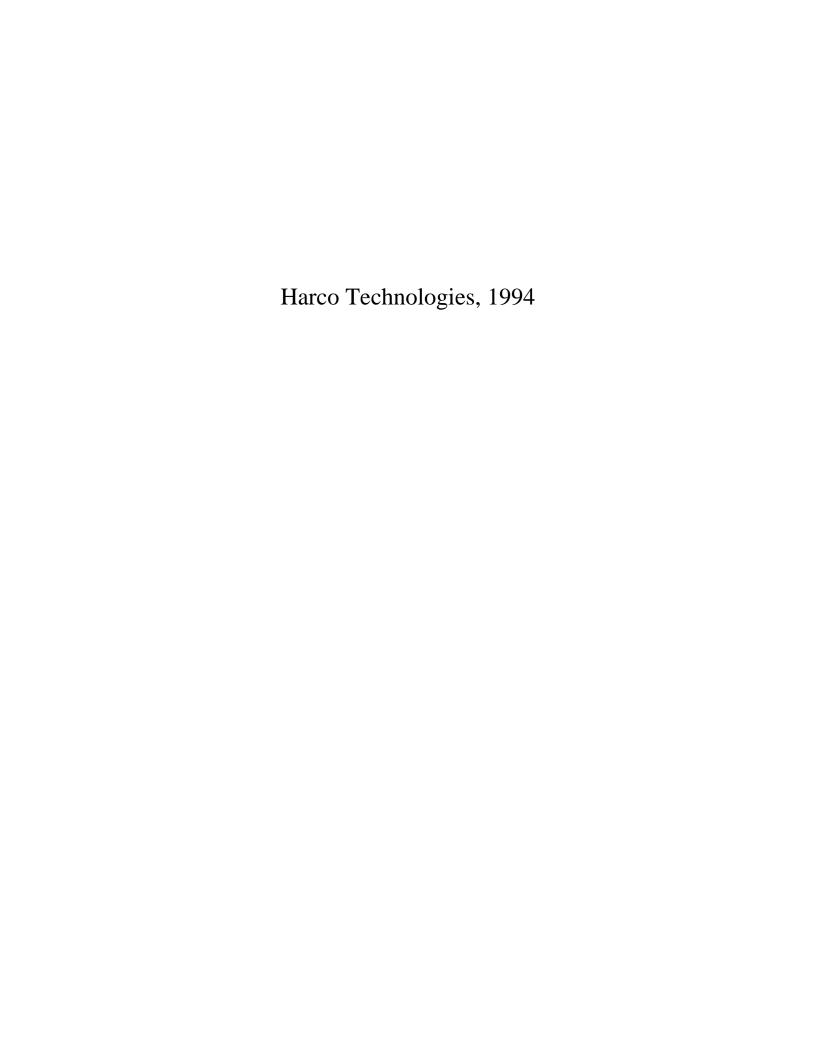


Figure 2-2: Plan View of Transmission Line, Pipelines and Soil Resistivity Measurement Locations



CC: GH VERDUZCO NG-KOHLS

FYI, comments?





4110 Tigris Way Riverside, CA 92503 Phone: (909) 279-4428 Fax: (909) 279-8578

August 3, 1994

MARMAC

15621 Red Hill Avenue - Suite 200

Tustin, California 92680

- Dusi

Attention:

Richard Brown, P.E.

Subject:

Corrosion Control - SDG&E Pipeline 2000 Project

Harco Project No. 025051-53590

Dear Mr. Brown:

Following is a summary of our pre-design evaluation and design recommendations for Phases IIB and III of the SDG&E Pipeline 2000 project. This information should be conveyed to SDG&E for their review and records.

PRE-DESIGN EVALUATION I.

Soil Corrosivity

- The majority of soils along the pipeline route are considered in the moderately 1. corrosive to corrosive range. The corrosivity of the soil reinforces the basic decision by SDG&E to provide cathodic protection for this piping.
- Soil resistivity measurements are summarized in Exhibit I and range from approximately 900 ohm-centimeter to 18000 ohm-centimeter at typical utility depths (2.5 to 5 feet below grade). Generally speaking, the lower the soil resistivity, the greater the tendency for corrosion of underground metallic structures.
- The range of measured soil resistivities is reasonable for the particular route of the 3. Phase IIB and Phase III piping. There is no specifically identifiable section or sections along the pipeline route that have soil resistivity characteristics much different from the remaining sections.
- The soil resistivities along the Phase IIB and Phase III route are conducive to 4. cathodic protection of the SDG&E piping using galvanic current supplied from magnesium anodes.

Stray Electrical Currents

- 5. The Phase III piping may be subjected to low-level stray current interference effects caused by operation of an existing cathodic protection rectifier and deep anode groundbed owned by Sweetwater Authority at the intersection of Bonita Road and Central Avenue. The rectifier provides cathodic protection current for a 36-inch water transmission main in Central Avenue; the rectifier operates at a direct current output of 30 amperes and 6 volts. Surface earth voltage gradients of approximately 0.0005 volt per foot were measured along Bonita Road in the immediate vicinity of the Sweetwater Authority rectifier unit. Specific stray current mitigation requirements for the SDG&E main in this area are expected to be minor, if any. Details will have to determined as the Phase III design work progresses.
- Orive and Jackson vary over time and ranged from -1 to -1.3 volts (referenced to coppercopper sulfate) during our 20 minute monitoring period. The 0.3 volt fluctuations in potential are related to operation of the direct current powered San Diego Trolley along Fletcher Parkway. The noted stray current effects at the existing vault (northern terminus of Phase IIA) are not expected to significantly detract from the existing or planned cathodic protection systems for the SDG&E main. These effects will, however, have to be a consideration during routine monitoring of the protection systems.
 - 7. SDG&E piping in the vicinity of the Telegraph Canyon Regulator Station is not expected to experience notable electrical interference effects from operation of the overhead high voltage tension lines in this area. No specific provisions to control induced alternating current effects are recommended for the pipeline at this time.

II. CORROSION CONTROL MEASURES

The following basic corrosion control provisions have been included in the Phase IIB piping design:

- Use of a high-grade dielectric coating in accordance with SDG&E standards.
- * Pipe insulating joints at the Sweetwater Springs Boulevard valve vault and within the Sweetwater Regulator Station to electrically subdivide the transmission main and separate the transmission main from interconnecting grounded structures.
- * Cathodic protection using 17-pound high potential magnesium anodes connected to the pipe through at-grade monitoring stations installed typically along the pipe at 1500-foot intervals. Each test station includes a permanent copper-copper sulfate reference electrode buried at pipe depth to facilitate future monitoring.

* Test points installed on both sides of the cased piping at the I-94 Freeway Crossing to monitor the electrical effectiveness of the casing insulators and casing end seals installed at this location.

Similar corrosion control provisions are planned for the Phase III piping. Specific requirements will have to be developed as the Phase III design work progresses.

Please advise should you have any questions or need additional input regarding the above information. We appreciate the opportunity to be of assistance.

Very truly yours,

HARCO TECHNOLOGIES CORPORATION

Dale D. Lindemuth, P.E. Manager Of Engineering

Marmac 1.doc DL:dl

EXHIBIT I

SOIL RESISTIVITY TEST SUMMARY

Client: Marmac

Project: SDG&E Pipeline 2000, Phases IIB and III

Date: 4/14/94

Comments		er Analysis		n	vity, ohm-cn	Soil Resisti	ing ft	vity at Spac	oil Pacieti	Toot IS
	5-10 ft.	2.5-5 ft.	0-2.5 ft.	10	5	2.5	10	5	2.5	Test S
Begin Phase III		889	1293	1149	1053	1293	0.6	1.1	2.7	1
	1218	1685	766	1130	1053	766	0.59	1.1	1.6	2
	1609	1034	1293	1341	1149	1293	0.7	1.2	2.7	3
	20575	13405	10054	14746	11490	10054	7.7	12	21	4
	40215	2629	1628	3830	2011	1628	2	2.1	3.4	5
	1467	2305	2490	1819	2394	2490	0.95	2.5	5.2	6
	20209	17549	4069	9958	6607	4069	5.2	6.9	8.5	- 9
· · · · · · · · · · · · · · · · · · ·	3351	1713	1101	1915	1341	1101	1	1.4	2.3	
	4700	2922	3016	3639		3016	1.9	3.1	6.3	9
	1135	1971	910	1187		910	0.62	1.3	1.9	10
	2000	14315	11011	3447	12448	11011	1.8	13	23	
	3511	5266	5266	4213		5266	2.2	5.5	<u>- 23 </u>	11 12
	17235	1556	2490	3447		2490	1.8	2	5.2	13
	13692	3942	1819	4213	 	1819	2.2	2.6	3.8	
	817	4800	4069	1379		4069	0.72	4.6	8.5	14
2	5290	1367	2011	2490		2011	1.3	1.7	4.2	
	2873	1103	2059	1915		2059	1.0	1.5	4.3	16
Begin Phase IIB		1392	1293	1245		1293	0.65	1.4	2.7	17
				1226		958	0.64	1 1.4	2.7	18
		1285	3112	1915		3112	1	1.9	6.5	19
		2293	6224	2873		6224	1.5	3.5	13	20
		2316				3782	1.3	3.5	7.9	21
	4924	12012				11011	3.6	12		22
						1 101	1 3.0	12	23	23

Corrosivity	Resis	stivit	у	No. In	Total	Cumulative
Category	(Ohn		- [Category	%	
Very Corrosive	0 t	lo	1000	4	6%	6%
Corrosive	1001 t	to	2000	16	23%	29%
Moderately Corrosive	2001 t	to	5000	29	42%	71%
Mildly Corrosive	5001 1	to	10000	7	10%	81%
Slightly Corrosive	10001	to	25000	9	13%	94%
Progressively Less Corrosive	Abov	/e	25000	4	6%	100%

Attachment AD.79-1

Noise Monitoring Data

C:\LARDAV\SLMUTIL\SALTCK.bin Interval Data

Meas																		
Site	Number		Date	Time	Duration	Leq	SEL	Lmax	Lmin	Peak	Uwpk	L(5)	L(10)	L(33)	L(50)	L(90)	L(99)	loads
	0	0	05Jun 12	16:36:43	1224.2	60.	3 91.2	71.7	49.3	91	100.6	65.2	63	60	58.4	53.7	50.5	0
	0	0	06Jun 12	12:48:24	695.7	48.	1 76.6	61.4	35.9	76	0	56.2	51.2	43.2	40.8	37.8	36.2	0
	0	0	06Jun 12	13:00:00	381.5	53.	2 79	69.3	36.8	86.5	0	58.3	51.7	41.1	40.1	37.7	37	0
	0	0	06Jun 12	13:09:26	1170.8	54.	5 85.2	67.6	38.3	84.4	0	60.7	58.9	53.8	50.9	42.8	40.1	0
	0	0	06Jun 12	13:37:49	1223.5	47.	4 78.3	61	39.9	82.8	103.1	53.3	50.1	45.4	43.9	41.4	40.2	0
	0	0	06Jun 12	14:14:56	903.5	50.	5 80.1	66	37.9	82.2	0	57.8	50.2	44.3	42.8	40.2	38.5	0
	0	0	06Jun 12	14:30:00	186.5	44.	5 67.2	51.6	40.5	81	0	48.2	47.1	44.3	43.3	41.4	40.5	0
	0	0	06Jun 12	14:47:44	735.5	5	7 85.6	71.6	42.6	82.8	0	61.5	59.8	56.7	54.9	46.8	43.2	0
	0	0	06Jun 12	15:00:00	234	55.	4 79.1	62.7	43.6	75.9	0	60.4	59.2	55.7	53.3	46.6	43.8	0
	0	0	06Jun 12	15:30:54	1206.5	4	7 77.8	57.2	39.5	86.2	0	52	50	46.3	44.8	42.4	40	0
	0	0	06Jun 12	16:16:23	816	50.	1 79.2	68.2	36.1	96.6	0	57.4	53.9	44.2	41.5	38.3	37	0
	0	0	06Jun 12	16:30:00	400.2	5	2 78	63.5	36.6	79.8	0	58.7	57.2	48.9	44.3	39	37	0

Attachment AD.80-1

Noise Modeling

Substation Clearing Roadway Construction Noise Model (RCNM), Version 1.0

08/19/2010 Substation Clearing Report date: Case Description:

**** Receptor #1 ****

		Basel	ines (dBA)	
Description	Land Use	Dayti me	Eveni ng´	Ni ght
Distance at 50 feet	Resi denti al	55. 0	45.0	40.0

Equi pment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Di stance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81. 7	50.0	0.0
Dump Truck	No	40		76. 5	50.0	0.0
Front End Loader	No	40		79. 1	50.0	0.0

Resul ts -----

$C \sim 1$	Cul	ated	(ADA)
Cai	Cui	ateu	(UDA)

Equi pment	Lmax	Leq
Dozer	81. 7	77. 7
Dump Truck	76. 5	72. 5
Front End Loader	79. 1	75. 1
Total	81. 7	80. 4

Substation Below Ground Roadway Construction Noise Model (RCNM), Version 1.0

08/19/2010 Substation Below Grade Report date: Case Description:

**** Receptor #1 ****

		Basel	ines (dBA)	
Descri pti on	Land Use	Dayti me	Eveni ng	Ni ght
Distance at 50 feet	Resi denti al	55.0	45. 0	40.0

Equi pment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80. 7	50. 0	0. 0
Dump Truck	No	40		76. 5	50. 0	0. 0
Front End Loader	No	40		79. 1	50.0	0.0
Concrete Mixer Truck	No	40		78.8	50.0	0.0
Flat Bed Truck	No	40		74.3	50.0	0.0

Resul ts

Calculated (dBA)

Lmax	Leq
80. 7	76. 7
76. 5	72.5
79. 1	75. 1
78. 8	74.8
74.3	70. 3
80. 7	81. 4
	80. 7 76. 5 79. 1 78. 8 74. 3

Substation Construction Roadway Construction Noise Model (RCNM), Version 1.0

Report date: 08/19/2010 Case Description: Substation

**** Receptor #1 ****

		Basel	ines (dBA)	
Descri pti on	Land Use	Daytime	Eveni ng	Ni ght
Distance at 50 feet	Resi denti al	55.0	45. 0	40.0

Equi pment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Man Lift	No	20		74. 7	50. 0	0.0
Man Lift	No	20		74. 7	50.0	0.0
Crane	No	16		80. 6	50.0	0.0
Welder / Torch	No	40		74. 0	50. 0	0.0
Pneumatic Tools	No	50		85. 2	50. 0	0. 0
Pickup Truck	No	40		75. 0	50. 0	0.0
Flat Bed Truck	No	40		74. 3	50. 0	0.0

Results

Calculated (dBA)

Equi pment	Lmax	Leq
Man Lift Man Lift Crane Welder / Torch Pneumatic Tools Pickup Truck Flat Bed Truck	74. 7 74. 7 80. 6 74. 0 85. 2 75. 0	67. 7 67. 7 72. 6 70. 0 82. 2 71. 0 70. 3
Total	85. 2	83. 6

 $\begin{array}{c} \text{Paving} \\ \text{Roadway Construction Noise Model (RCNM), Version 1.0} \end{array}$

08/19/2010 Pavi ng Report date: Case Description:

**** Receptor #1 ****

		Basel	ines (dBA)	
Description	Land Use	Daytime	Eveni ng´	Ni ght
Distance at 50 feet	Resi denti al	55. 0	45.0	40.0

Equi pment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Roller	No	20		80. 0	50.0	0.0
Roller	No	20		80.0	50.0	0.0
Paver	No	50		77. 2	50.0	0.0
Dump Truck	No	40		76. 5	50.0	0.0
Pickup Truck	No	40		75.0	50.0	0.0
Pickup Truck	No	40		75.0	50.0	0.0
Flat Bed Truck	No	40		74. 3	50.0	0.0

Resul ts _____

Cal cul ated	(dBA)

Equipment Lmax	Leq	
Roller 80.0 Roller 80.0 Paver 77.2 Dump Truck 76.5 Pickup Truck 75.0 Pickup Truck 75.0 Flat Bed Truck 74.3 Total 80.0	73. 0 73. 0 74. 2 72. 5 71. 0 71. 0 70. 3 80. 8	

TSP

Roadway Construction Noise Model (RCNM), Version 1.0

Report date: Case Description: 08/19/2010 TSP

**** Receptor #1 ****

		Basel	ines (dBA)	
Descri pti on	Land Use	Dayti me	Eveni ng	Ni ght
Distance at 50 feet	Resi denti al	55. 0	45.0	40.0

Equi pment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80. 7	50.0	0.0
Crane	No	16		80. 6	50.0	0.0
Front End Loader	No	40		79. 1	50.0	0.0

Resul ts _____

Calculated (dBA)

Equi pment	Lmax	Leq
Excavator Crane Front End Loader Total	80. 7 80. 6 79. 1 80. 7	76. 7 72. 6 75. 1 79. 9

LSW and Wood Roadway Construction Noise Model (RCNM), Version 1.0 $\,$

Report date: Case Description: 07/19/2010

**** Receptor #1 ****

			Basel i nes	s (dBA)
Description	Land Use	Daytime	Eveni ng	Ni ght
r	Resi denti al	55.0	50.0	45.0

Equi pment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77. 6	50.0	0.0
Auger Drill Rig	No	20		84. 4	50. 0	0.0
Crane	No	16		80. 6	50.0	0.0

Results

Calculated (dBA) -----Equipment Lmax Leq

Equi pment	LM	ax Leq
Backhoe Auger Drill Rig Crane	77. 84. 80. tal 84.	4 77. 4 6 72. 6

PUBLIC WORKS DEPARTMENT

INSPECTION SERVICES DIVISION

1800 Maxwell Road Chula Vista CA 91911

619-397-6128 619-397-6254 FAX

FORM 5512

REQUEST FOR INITIAL **INSPECTION OR APPROVAL TO COMMENCE WORK**

Project Location: Hunte Pw & Mt Miguel Rd	Permit No.: 2012-106	3
Description of Work: Permit extended til 10/3		
install electric facilities. No digging.		
Permit Applicant:	Phone No.:	Í
Site Superintendent:		
Contractor:	Phone No.:	
	FAX No.:	
Work Begins on (Date & Time):an	am/pm and Ends on:	
THIS FORM MUST BE RECEIVED BY		
PUBLIC WORKS INSPECTION SECTION		
INSPECTION SECTION WILL CONTACT		STOR
PRIOR TO THE APPROVAL OF	THE START OF WORK.	
 The City's Public Works Inspector may require a Pre-Constructio All work must be in accordance with San Diego Area Regil Construction Standards, Standard Specifications for Public Work thereto. Barricades and traffic control devices and measures and must be approved by the City Engineer. Contractor must contact the city's Traffic Signal Maintenance Ser 	egional Standard Drawings, Chula Vista (orks Construction and all supplements and a s shall conform to CalTrans Manual of Traf	Design and mendments fic Controls
street light conduits and UNDERGROUND SERVICE ALERT (1-wiring, and traffic signal loops within and adjacent to the proj construction must be restored within 5 days of damage.	roject/area of work. Traffic signal loops d	amaged by
 Contractor shall give forty-eight (48) hours notice prior to comm twenty-four (24) hours notice on all subsequent requests for insper 		ection, and
 Temporary storage of material within the public right-of-way shall of Chula Vista Municipal Code. 	nall be in accordance with Section 12.12.090	of the City
 Any work performed without the benefit of City inspection shall Contractor's expense. 	all be subject to rejection, removal, and repl	acement at
FOR ADDITIONAL INFORMATION/QUE	ESTIONS CALL (619) 397	-6128
FOR OFFICIAL USE ONLY		J. 24. V
Date Received: Inspect	ctor:	
Date Received: Inspect Approved Traffic Control Plan? Yes	No Not Required	
Comments:		

Revised: 05/03/2012

1. Job Location HUNTE PKWY $\&$ M	IT
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APPLICANT -- PLEASE DO NOT WRITE IN THIS SECTION

MIGUEL RD

UTILITY PERMIT CITY OF CHULA VISTA DEPARTMENT OF PUBLIC WORKS

2.	Permit No.	
2	2012 -	10

3. Permit Fee

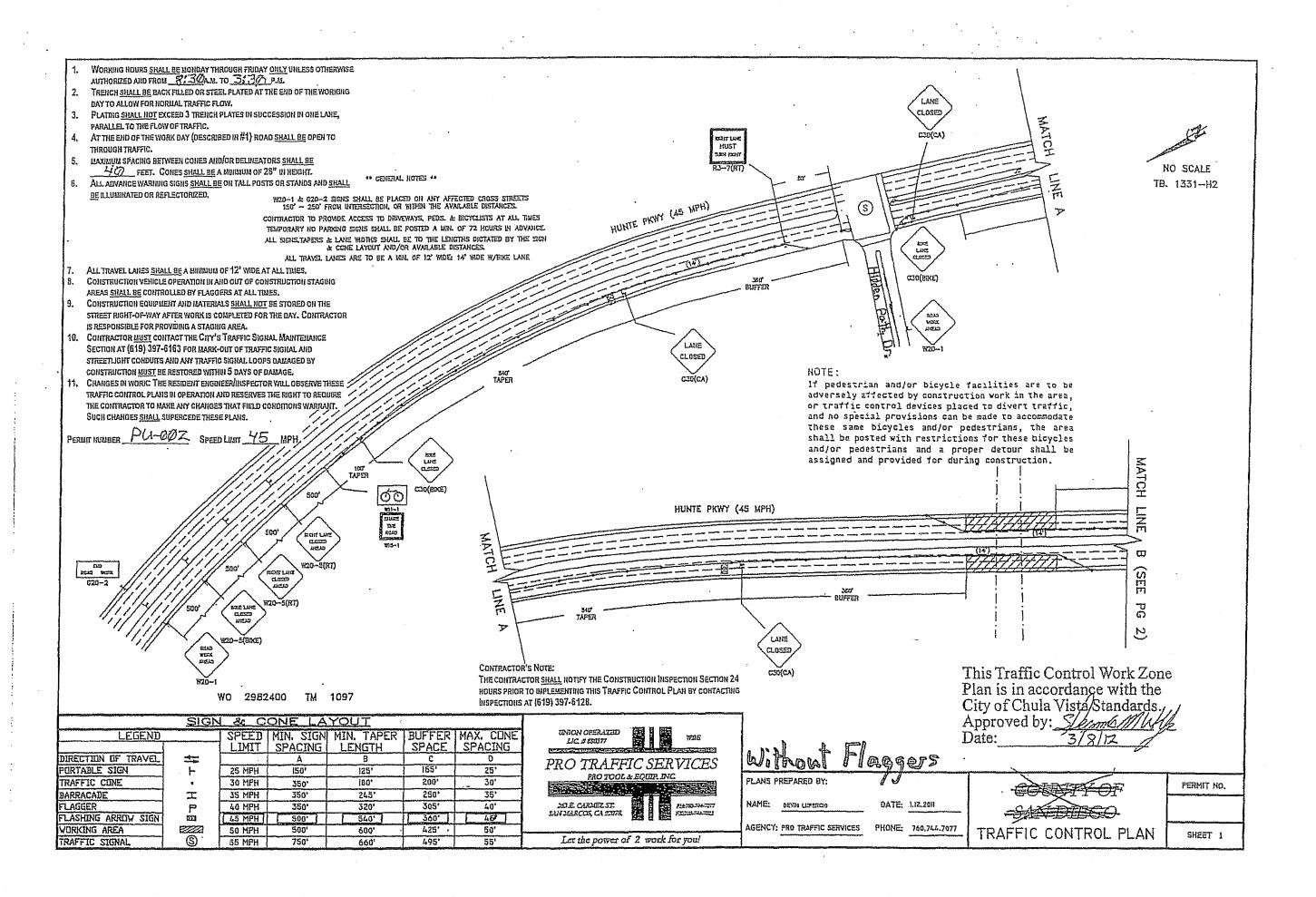
NO FEE

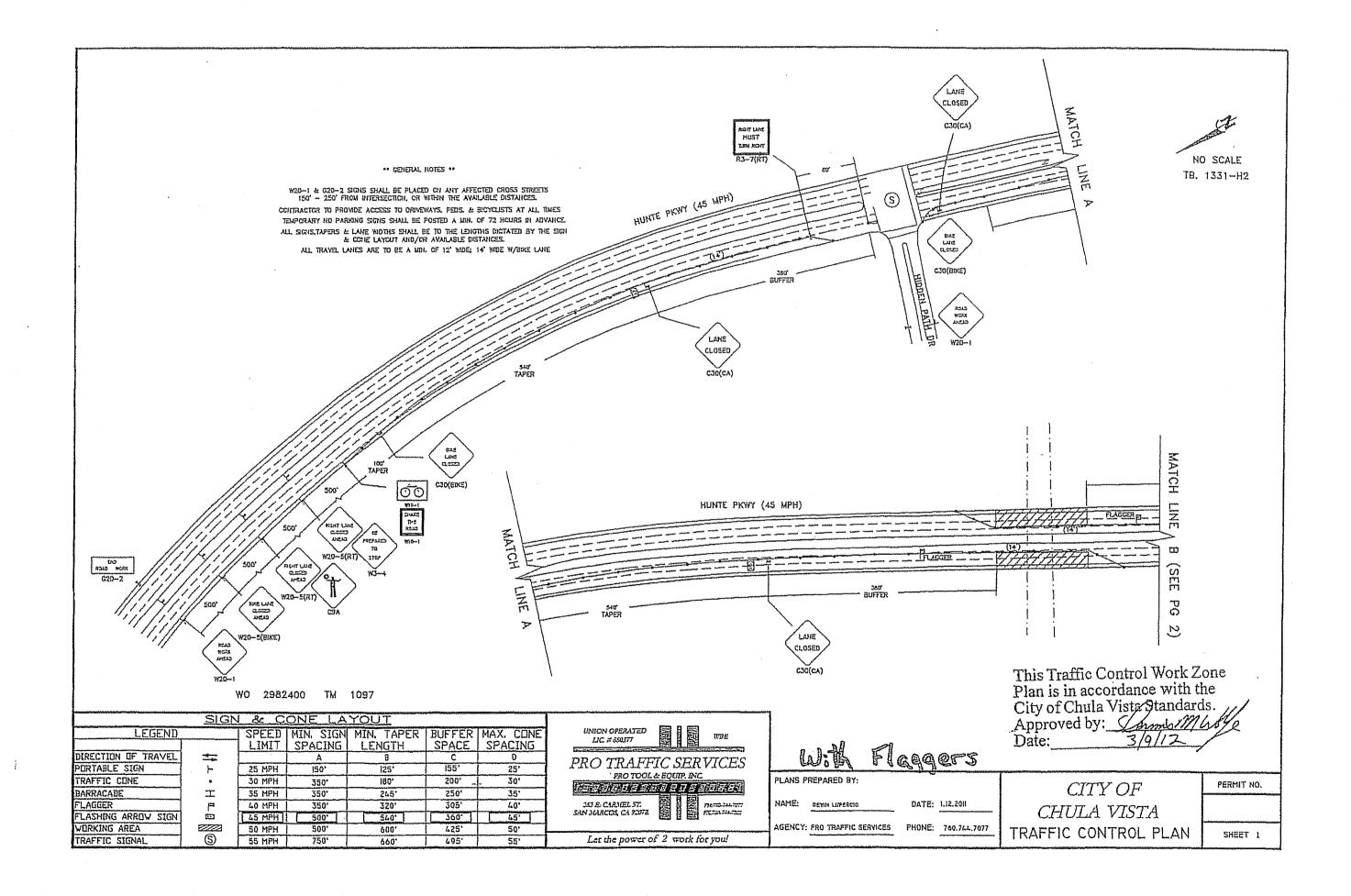
4. Receipt No.

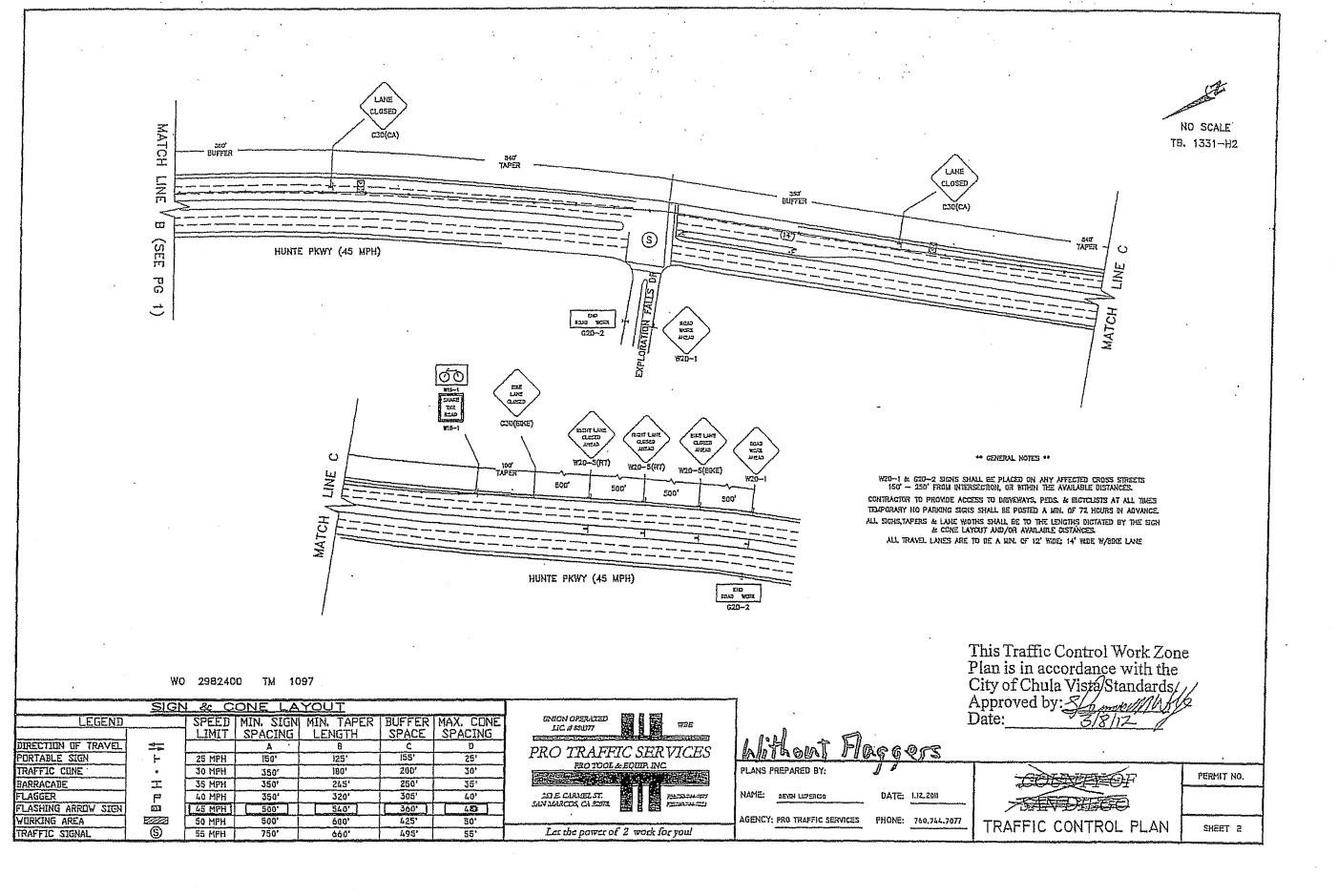
- A. All work must be in accordance with San Diego Area Regional Standard Drawings, Chula Vista Design and Construction Standards, Standard Specifications for Public Works Construction and all supplements and amendments thereto. Barricades and traffic control devices and measures shall conform to CalTrans Manual of Traffic Controls and must be approved by the City Engineer. Work must be completed within 90 days of approval of this permit, unless otherwise specified in Section 19, below.
- B. Contractor must contact the City's Traffic Signal Maintenance Section at (619) 397-6163 for mark-out of traffic signal and street light conduits and UNDERGROUND SERVICE ALERT (1-800-422-4133) for mark-out of underground utilities at least 48 hours in advance of any work under this Permit. Contractor is responsible for protecting all utilities, conduit, wiring, and traffic signal loops within and adjacent to the project/area of work. Traffic signal loops damaged by construction must be restored within 5 days of damage.
- C. Contractor shall give forty-eight (48) hours notice prior to commencement of work / request for initial inspection, and twenty-four (24) hours on all subsequent calls for inspection. Call (619) 397-6128 Notice of Commencement of Work: Request for Initial Inspection form to (619) 397-6254 for inspection.
- D. Contractor shall identify, protect and preserve all survey monuments. Surveying shall be performed by a Licensed Land Surveyor licensed in the State of California or a Registered Professional Civil Engineer authorized to practice Land Surveying registered in the State of California and shall conform to the requirements of the Land Surveyor's Act.
- E. Temporary storage of material within the public right-of-way shall be in accordance with Section 12.12.090 of the City's Municipal Code.
- F. Any work performed without the benefit of City inspection shall be subject to rejection, removal, and replacement at Contractor's expense.
- G. Permittee should be aware that this permit may create a possessory interest in the property, in favor of the permittee. If such a possessory interest is created, it may be subject to property taxation for which the permittee will be responsible.

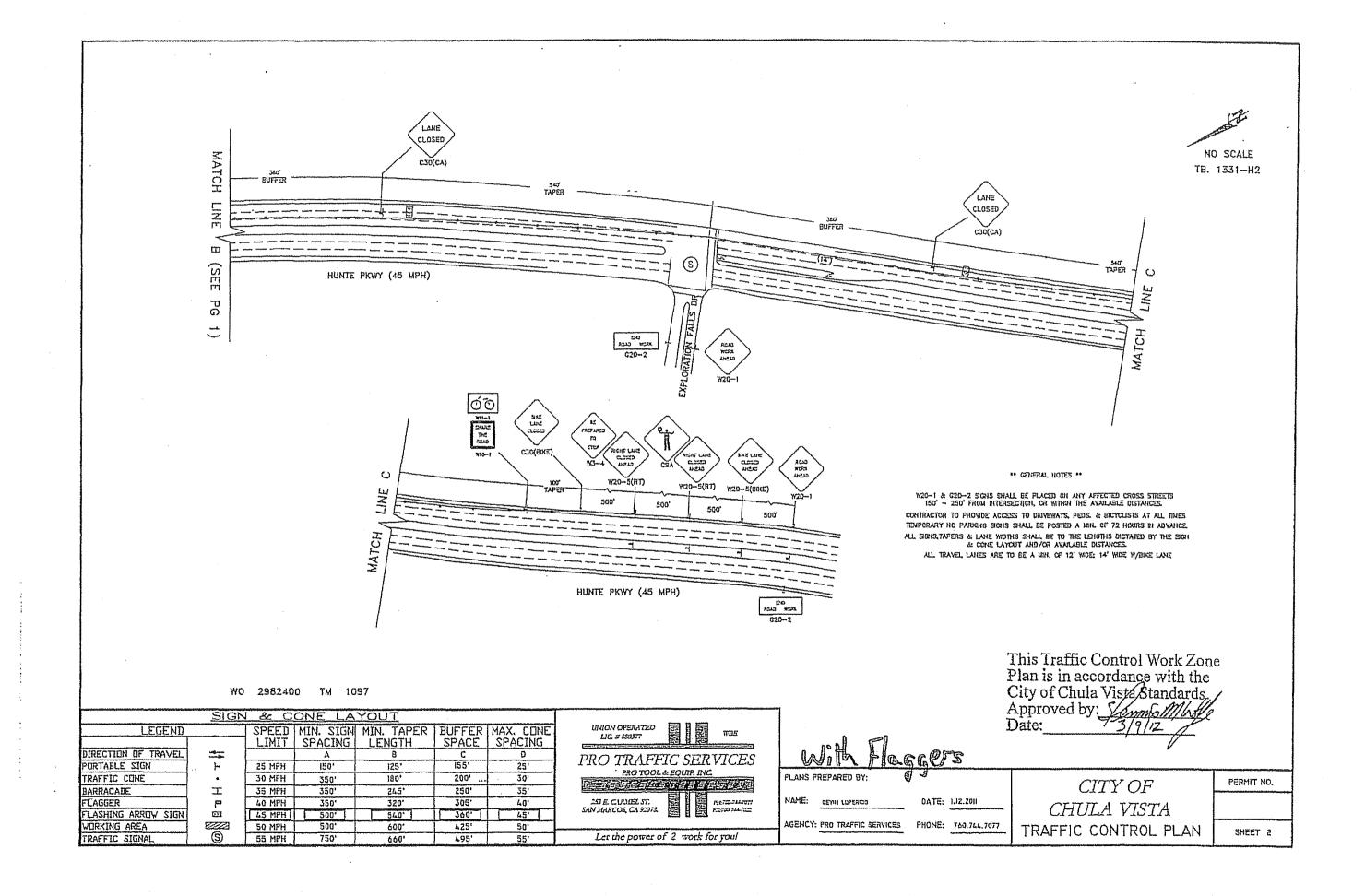
interest is created, it may b	interest is created, it may be subject to property taxation for which the permittee will be responsible.						
5. Utility Company ("Pern San Diego Gas & Electr	•	6. Utility Company's Address 8315 Century Park Ct, Ste 210 San Diego CA 92123-1548 7. Utility Compa Phone No. 858-636-3913					
8. Agent's Name (Contac	ct Person)	9. Agent's Phone No.		10. Date Submitted			
Betty Blanford		858-636-3982 / 61	9-819-7352	05/03/12			
If work is to be performed	by someone other than	the above stated Utility C	ompany, complete ite	ms 11 through 14.			
11. Contractor's Name		12. Contractor's Addres	S	13. Contractor's Phone #			
14. Contractor's License T	ype & Number	15. Traffic Plan Attached	d? (Yes) N	o N/A			
	ing Dept.? (Yes) No N/A						
16. Date Submitted	17. Contractor or Utilit	y Company Agent's Signa	ture	18. Location Plat Attached?			
05/03/12				Yes No			
	(1	DESCRIPTION OF WO	RK)				
FACILITIES. NO DIGGIN	G.	OF OCTOBER 2012. SE	OG&E ENCROACHIN	G TO INSTALL ELECTRIC			
PROJECT #955 920-04	10			TB – 1331H2			
19. Special Conditions S	EE APPROVED TRAF	FIC CONTROL PLAN.					
(TO BE FILLED IN BY DIRECTOR OF PUBLIC WORKS OR DESIGNEE) PERMIT: 'X APPROVED □ NOT APPROVED							
20. Director of Public Works' or Designee's Signature 21. Date Approved 22. Expiration Date							
21. Vista 05/03/12 10/31/12							
23. Inspector's Signature	· how		24. Date Completed	25. Date Accepted			
J:\Engineer\FORMS\Permits\Utility	y Permit.doc						

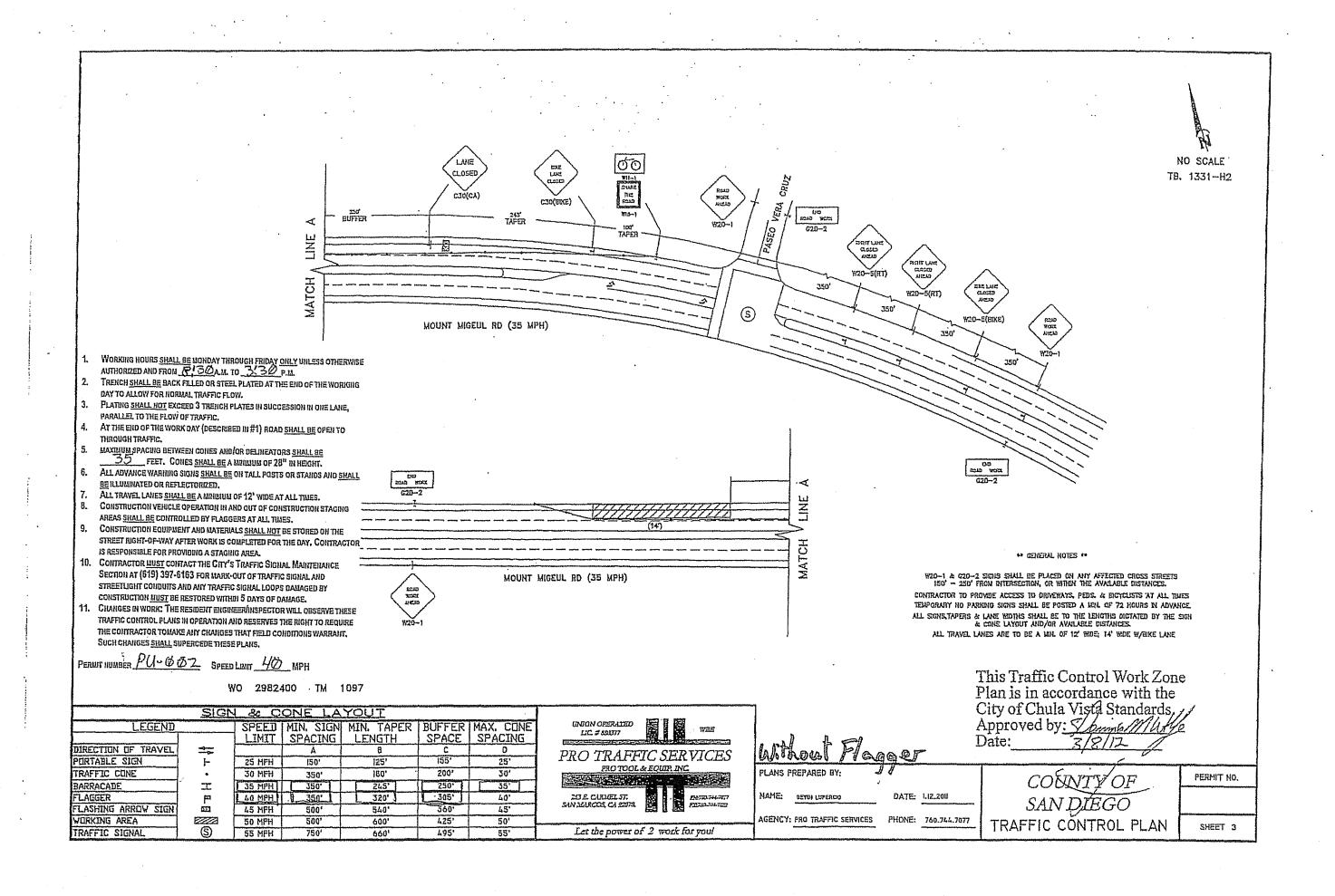
1. Job Location C	Kwu 4 M	Mayor R		2. Permit No. 2012 - 06 7
w 9 h		APPLICANT - PLEASE DO N WRITE IN THIS SECTION		3. Permit Fee
		ILITY PER		4495.2
			•	4. Recelpt No.
CHULA VISTA		OF CHULA		
	DEPARIM	ENT OF PUB	FIC AAOUVO	
Specifications for Public \ measures shall conform to 90 days of approval of the	Works Construction and a CalTrans Manual of Traff In in the call of the call o	all supplements and amen ic Controls and must be app wise specified in Section	dments thereto. Barricades proved by the Clty Engineer. I 19, below.	Construction Standards, Standard and traffic control devices and Nork must be completed within
UNDERGROUND SERVIC Permit. Contractor is resp work. Traffic signal loops	DE ALERT (1-800-422-41: onsible for protecting all t damaged by construction	33) for mark-out of undergro utilitles, conduit, wiring, and must be restored within 5	und ulllities at least 48 hours traffic signal loops within an days of damage.	and street light conduits and in advance of any work under this d adjacent to the project/area of
C. Contractor shall give forty all subsequent calls for ins 6254 for inspection.	-eight (48) hours notice pr pection. Call (619) 397-6	lor to commencement of wo 128 Notice of Commencem	rk / request for initial inspecti ant of Work: Request for Initi	on, and twenty-four (24) hours on al Inspection" form to (619) 397-
D. Contractor shall identify, p the State of California or a and shall conform to the re	Registered Professional (Civil Engineer authorized to	g shall be performed by a Lic practice Land Surveying reg	ensed Land Surveyor licensed in Istered in the State of California
				of the Cily's Municipal Code. ement at Contractor's expense.
	ire that this narmit may cri	eate a nossessory interest in	the property, in favor of the	permittee. If such a possessory
5. Utility Company ("Perr		6. Utility Company's A	ddress	7. Utility Company's Phone No.
San Diego Gas & Electric	, , ,	8315 Century Park Ct, Ste San Diego, CA 92123-15	858-636-3913	
8. Agent's Name (Contac	ot Person)	9. Agent's Phone No.	. 6198197357	10. Date Submitted
Both If work is to be performed	y Blanford		149-5870 fax	3/10/10
11. Contractor's Name	by someone other than	12. Contractor's Addres	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	13. Contractor's Phone #
		•		
14. Contractor's License T	ype & Number	15. Traffic Plan Attache	d? Yes No	N/A
			by the City's Engineering	
16. Date Submitted	17. Contractor or Utility	Company Agent's Signa	ature	18. Location Plat Attached?
2/18/19/		DESCRIPTION OF WO	DIC!	Yes No
Wide on	TOWNING.	JESCRIPTION OF WE	il class	acitha
MIRRIA OT	1	10 11 1010	you do de la	, Cit vi viiz
Provide # 95	-0692	040		B-1331HA
19. Special Conditions	SEE APPROVED TE	RAFFIC CONTROL PLA	٧.	
PERMIT: X APPR	OVED NOT	BY DIRECTOR OF PUBLIC V APPROVED	ORKS OR DESIGNEE)	
20. Director of Public Work	s' or Designee's Signal	ure	0011	22. Expiration Date
21 Viotro)	•	03/12/12	06/12/12
23. Inspector's Signature			24. Date Completed	25. Date Accepted

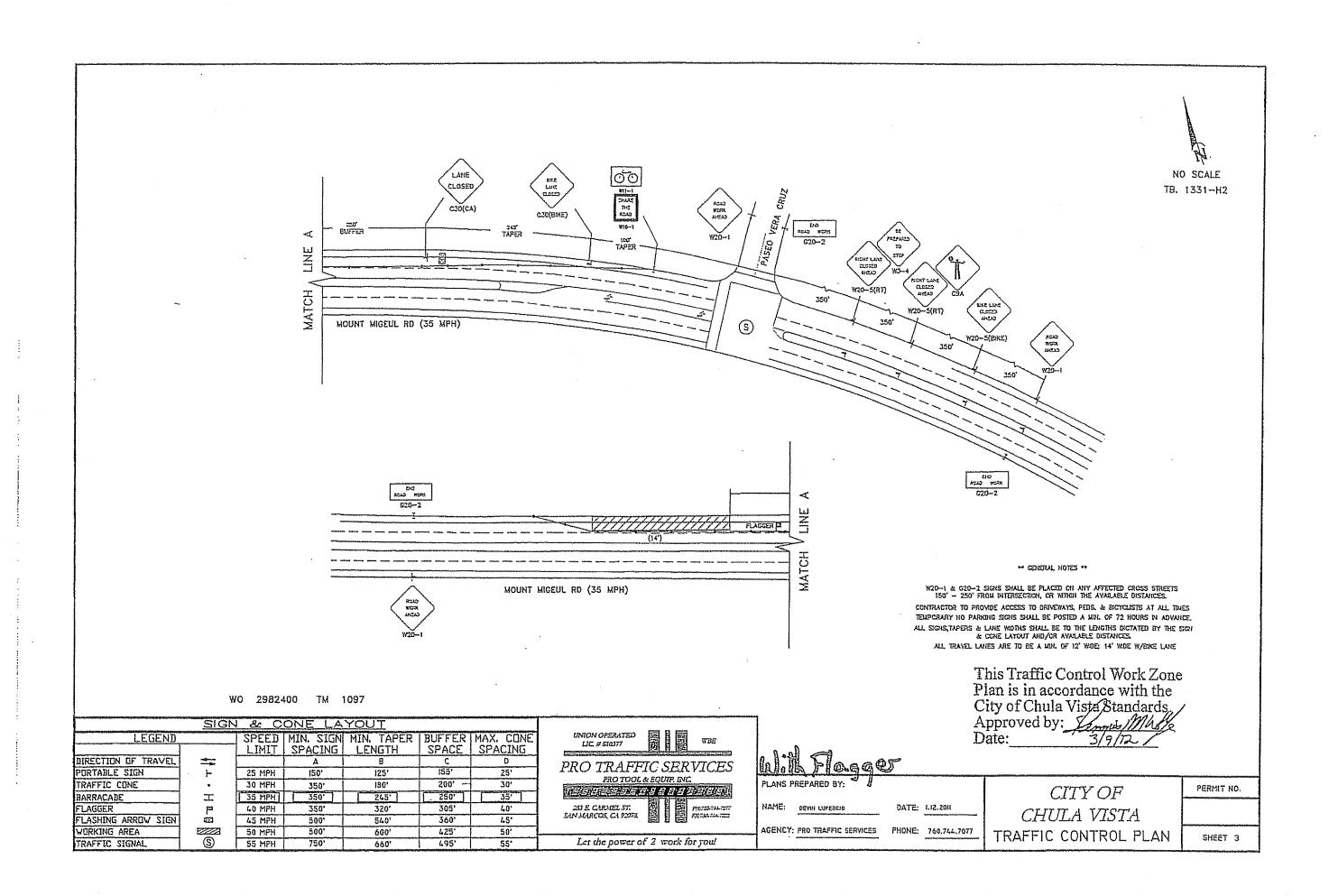


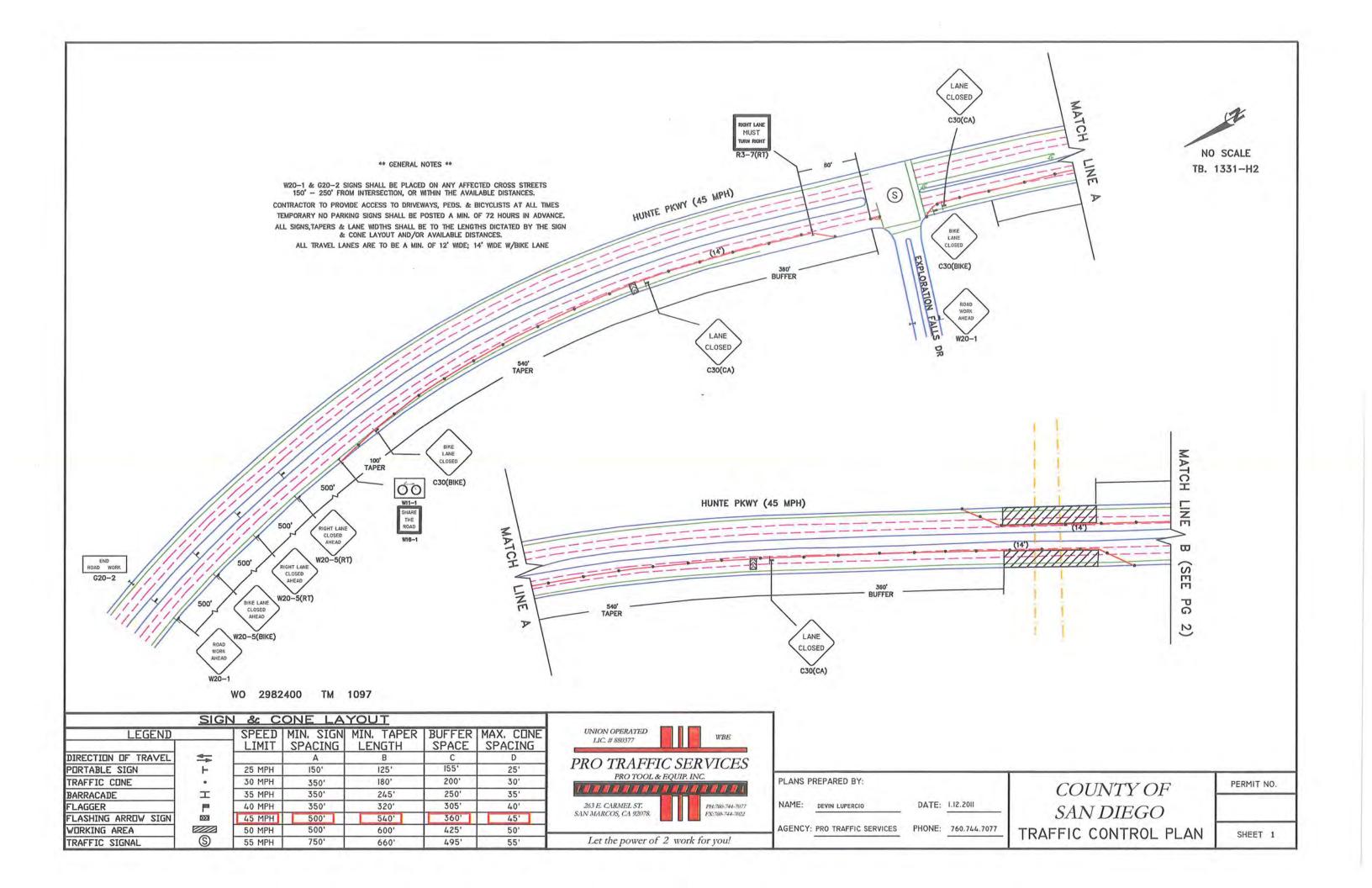




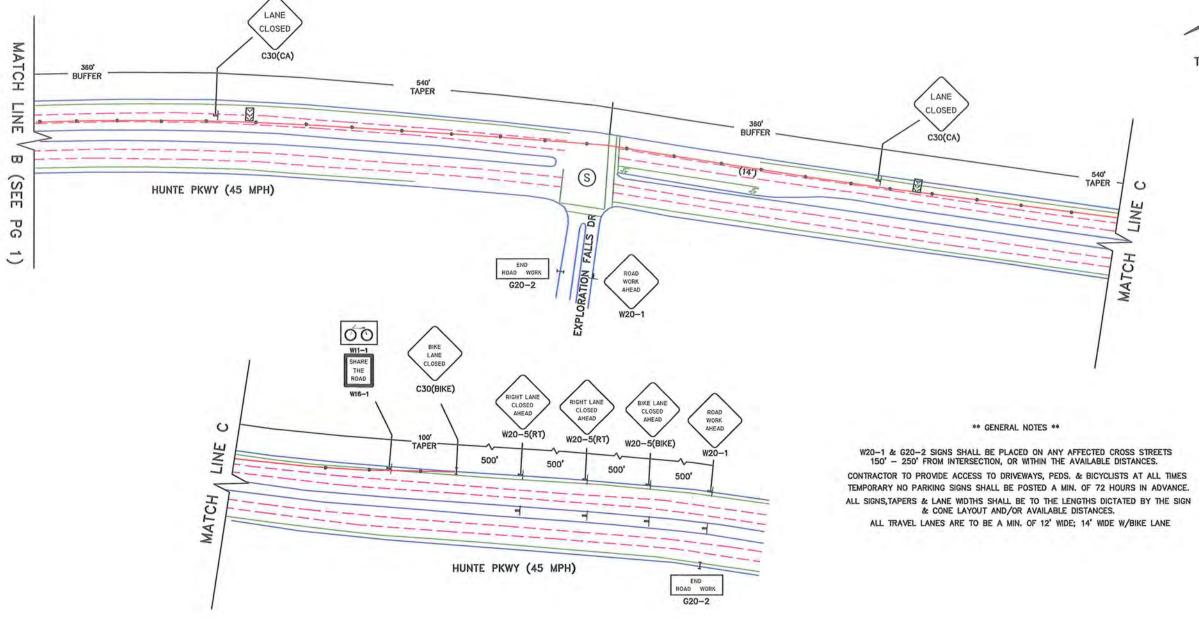












WO 2982400 TM 1097

	SIG	1 &c C	ONE LA	YOUT			
LEGEND		SPEED	MIN, SIGN	MIN. TAPER LENGTH	BUFFER SPACE	MAX, CONE SPACING	UNION OPERATED LIC. # 880377 WBE
DIRECTION OF TRAVEL	4	LIMIT	SPACING	B	C	D	DD O MD A FERG CEDIMORS
PORTABLE SIGN	H	25 MPH	150'	125'	155'	25'	PRO TRAFFIC SERVICES
TRAFFIC CONE		30 MPH	350'	180'	200'	30'	PRO TOOL & EQUIP. INC.
BARRACADE	工	35 MPH	350'	245'	250'	35'	
FLAGGER	P	40 MPH	350'	320'	305'	40'	263 E. CARMEL ST. PH:760-744-7077
FLASHING ARROW SIGN	DD3	45 MPH	500'	540'	360'	45'	SAN MARCOS, CA 92078. FX:760-744-7022
WORKING AREA		50 MPH	500'	600'	425'	50'	
TRAFFIC SIGNAL	S	55 MPH	750'	660'	495'	55'	Let the power of 2 work for you!

PLANS PREPARED BY:

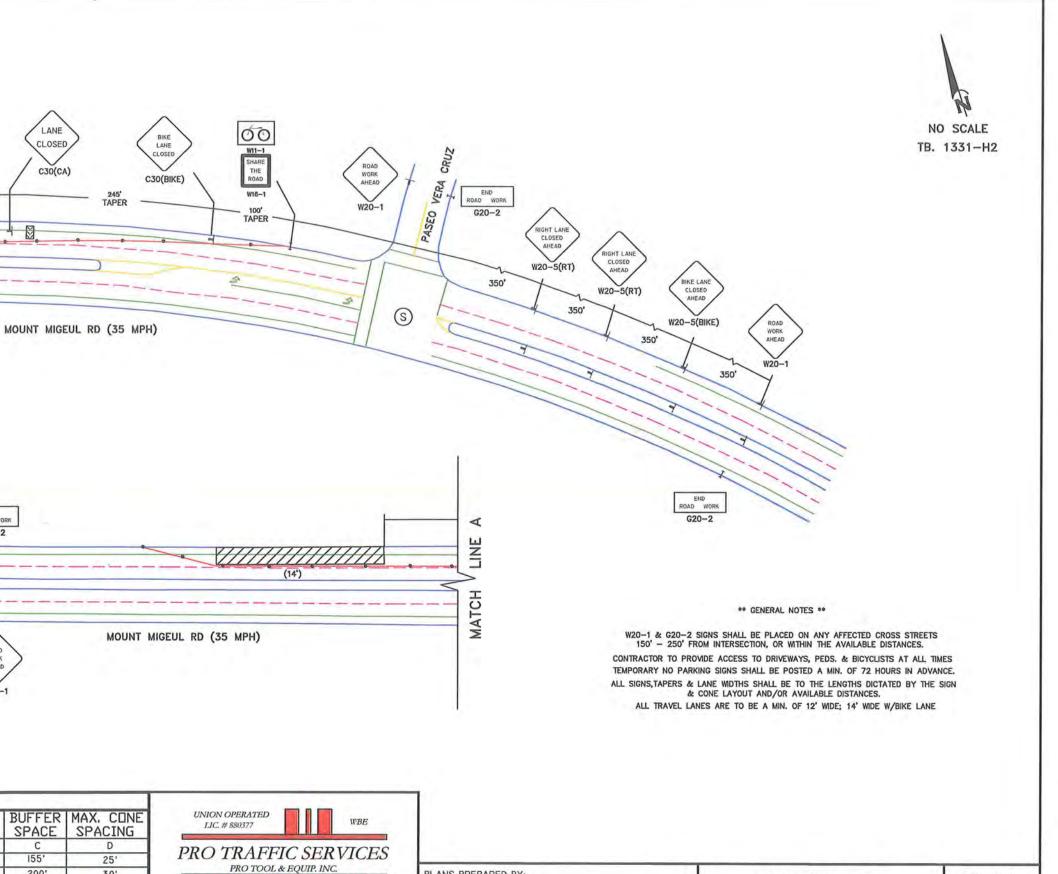
NAME: DEVIN LUPERCIO DATE: 1.12.2011

AGENCY: PRO TRAFFIC SERVICES PHONE: 760.744.7077

COUNTY OF
SAN DIEGO
TRAFFIC CONTROL PLAN

PERMIT NO.

SHEET 2



WO	2982400	TM	1097

250' BUFFER

V

LINE

MATCH

245' TAPER

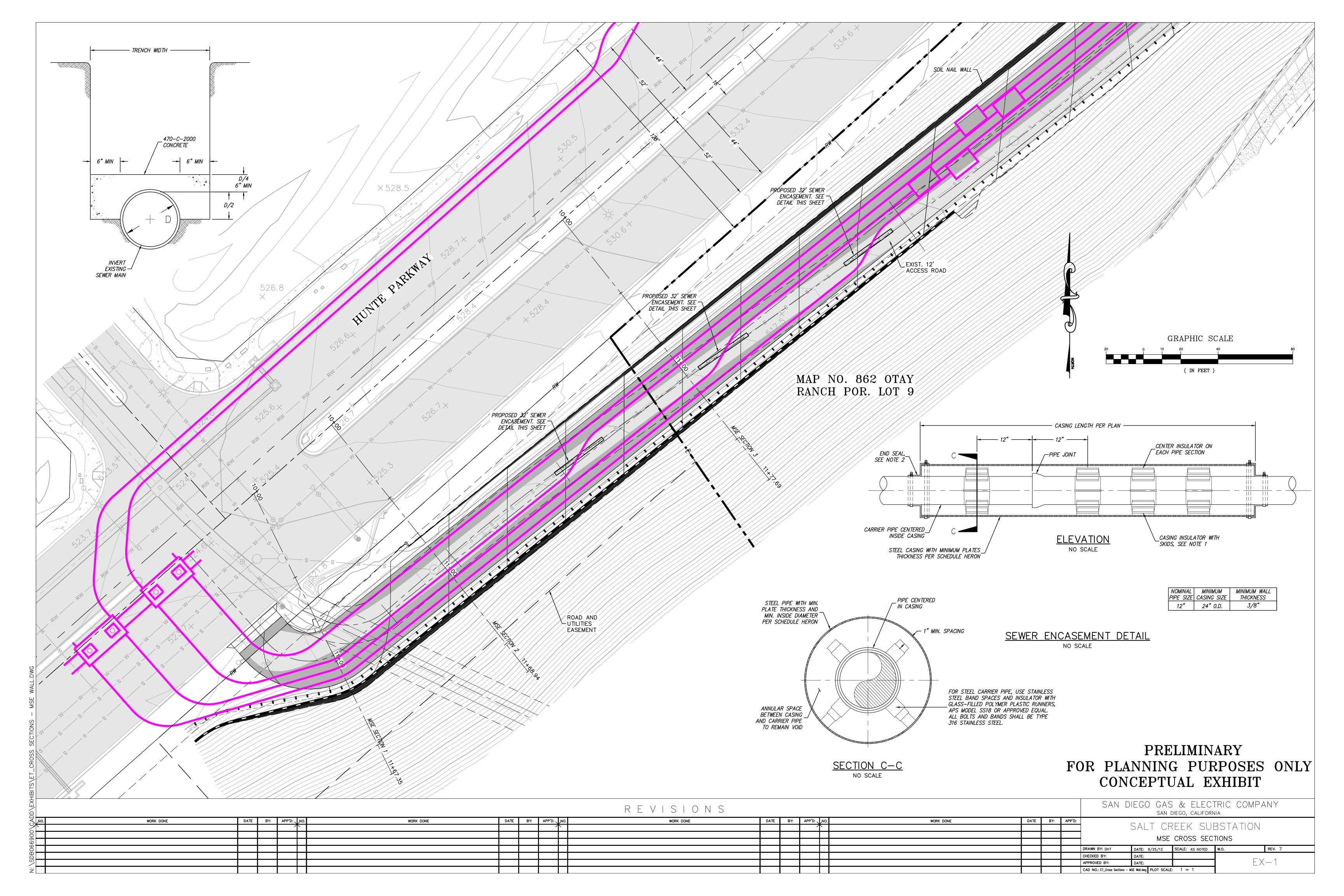
				AND DESCRIPTION OF THE PARTY OF		
	SIGN	1 & C	ONE LA	YOUT		
LEGEND		SPEED	MIN. SIGN	MIN. TAPER	BUFFER	MAX, CONE
		LIMIT	SPACING	LENGTH	SPACE	SPACING
DIRECTION OF TRAVEL	4₩		Α	В	С	D
PORTABLE SIGN	-	25 MPH	150'	125'	155'	25'
TRAFFIC CONE		30 MPH	350'	180'	200'	30'
BARRACADE	I	35 MPH	350'	245'	250'	35'
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WORKING AREA		50 MPH	500'	600'	425'	50'
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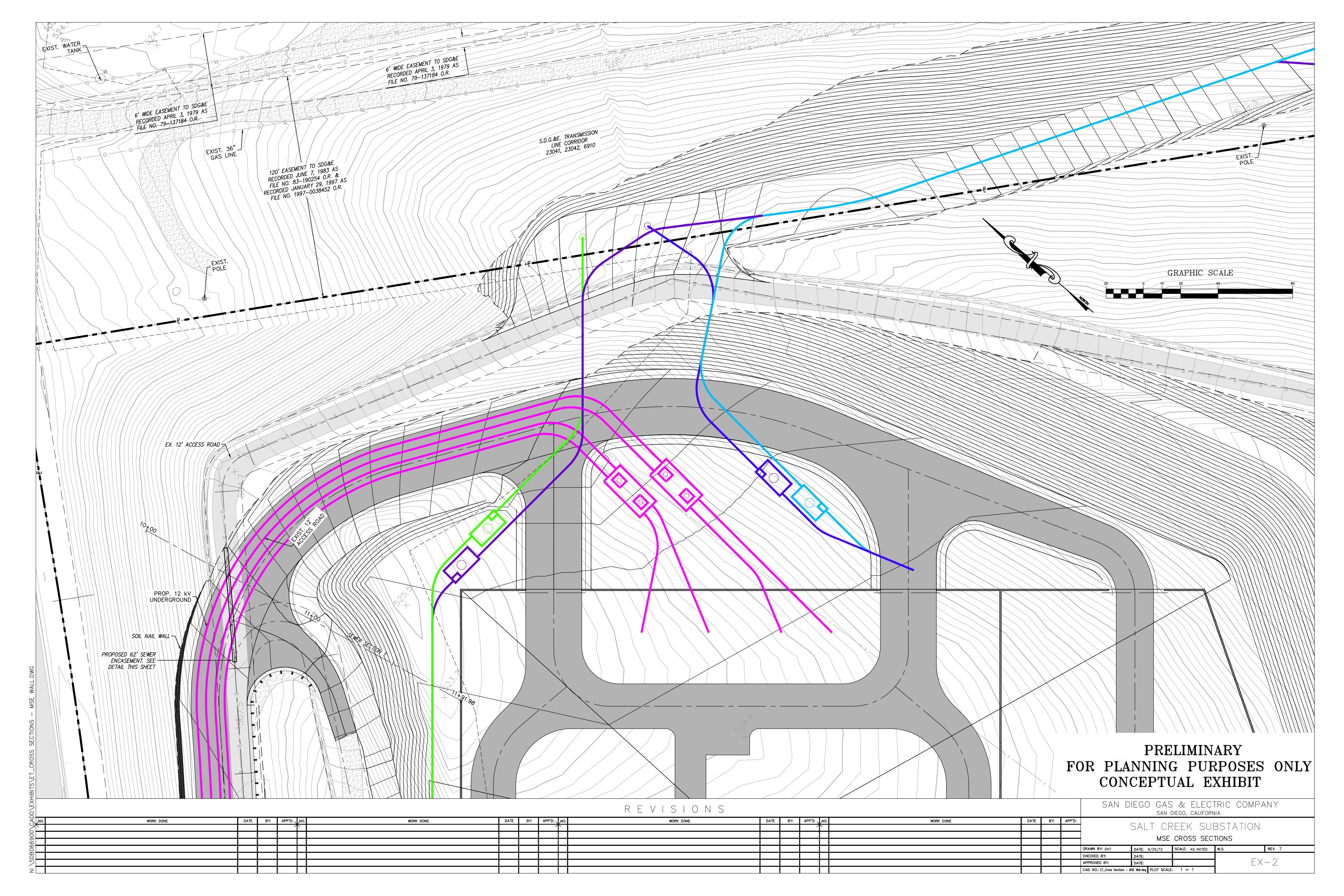
UNION OPERATED LIC. # 880377	WBE
PRO TRAFFIC PRO TOOL & EG	QUIP. INC.
263 E. CARMEL ST.	PH:760-744-7077

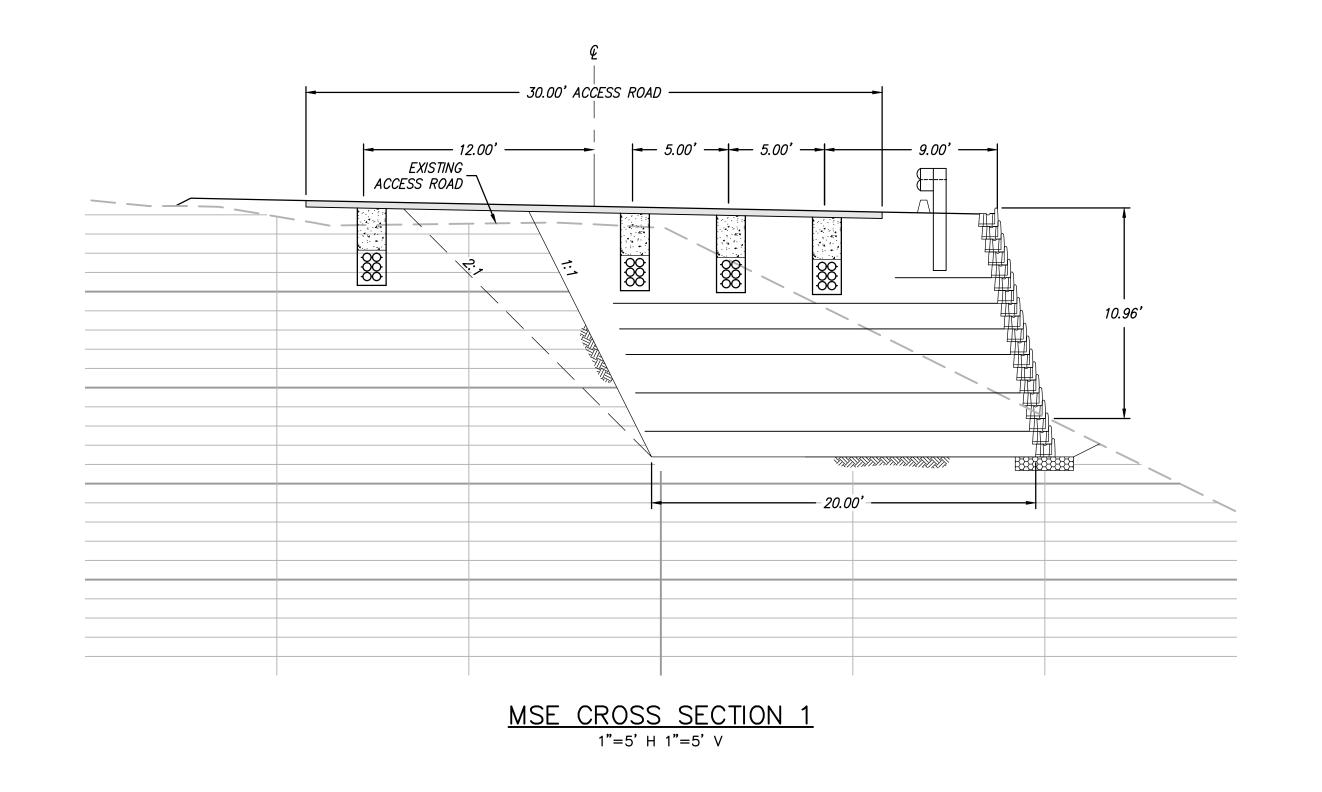
PLANS PREPARED BY: NAME: DEVIN LUPERCIO DATE: 1.12.2011 AGENCY: PRO TRAFFIC SERVICES PHONE: 760.744.7077

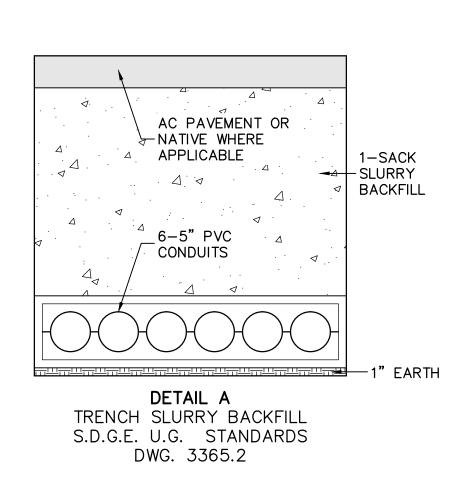
COUNTY OF SAN DIEGO TRAFFIC CONTROL PLAN PERMIT NO.

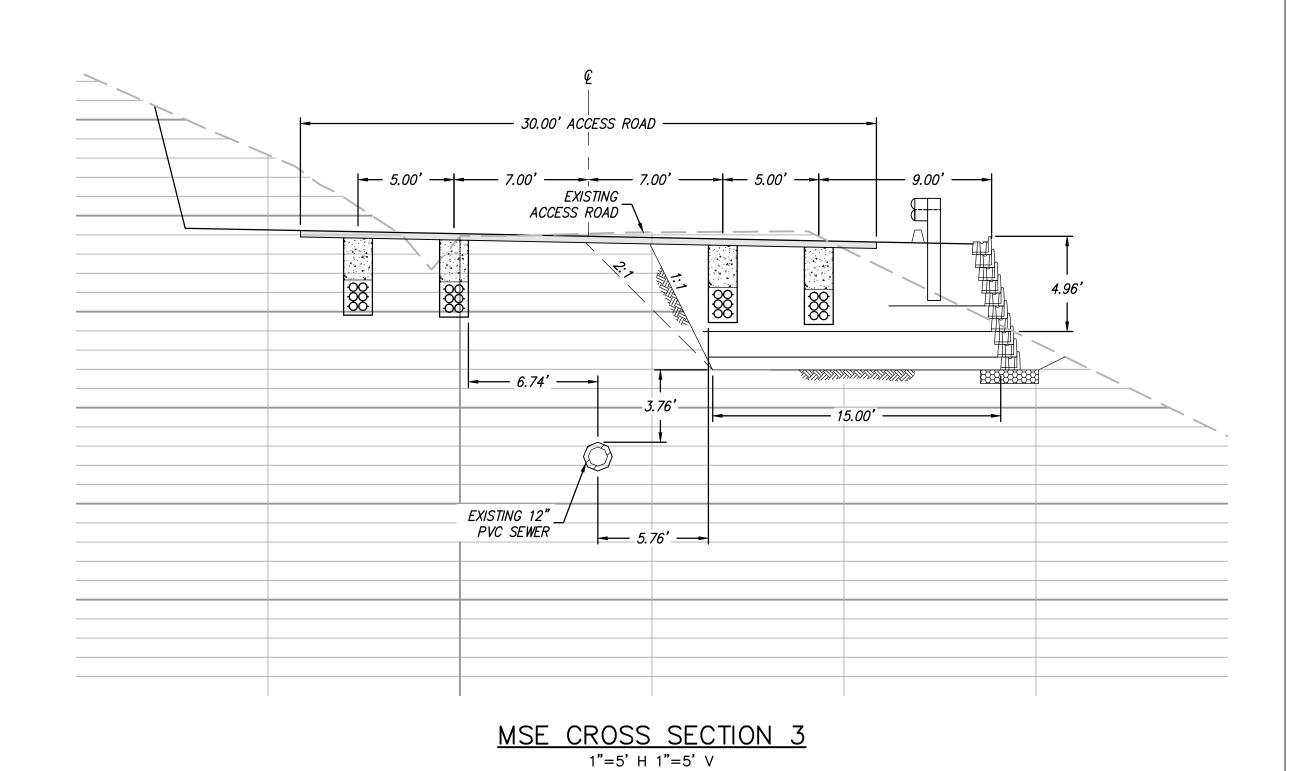
SHEET 3

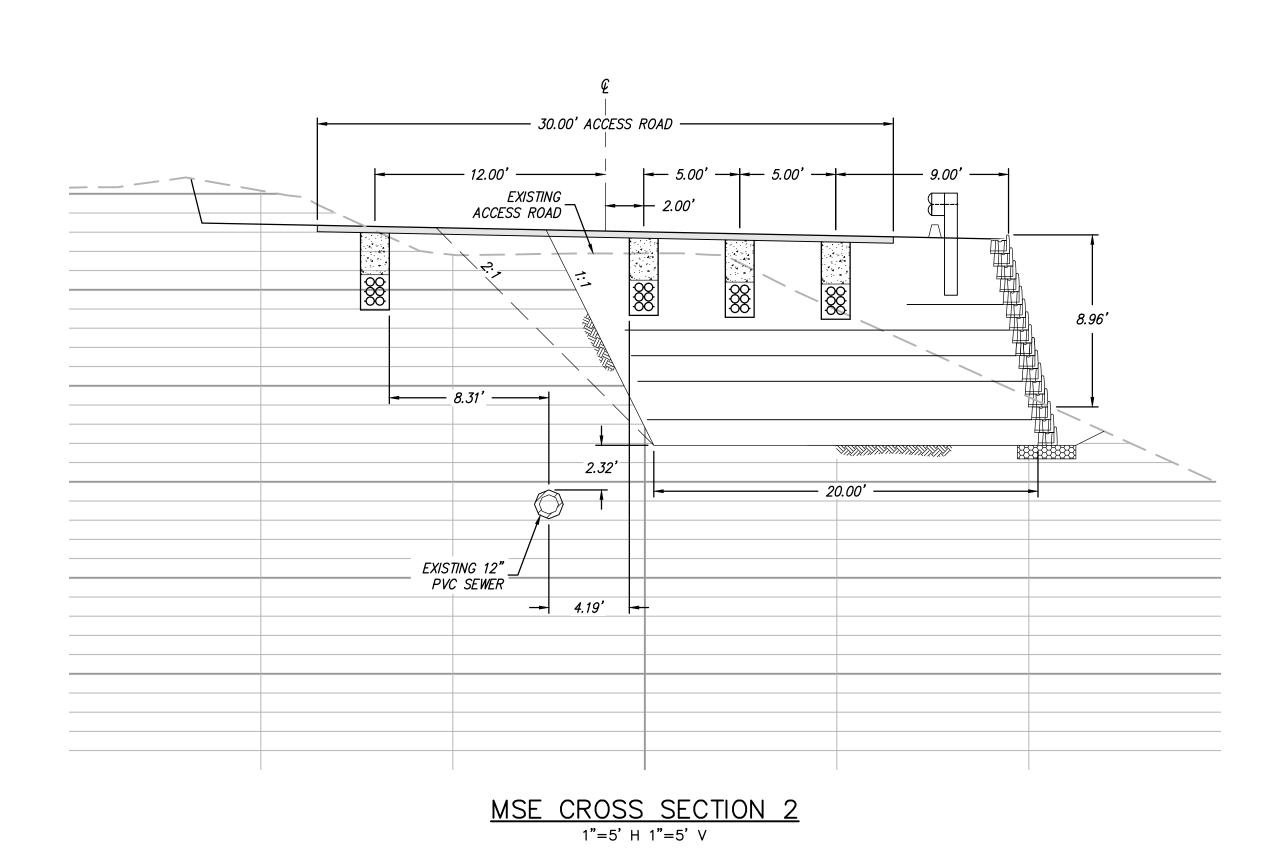


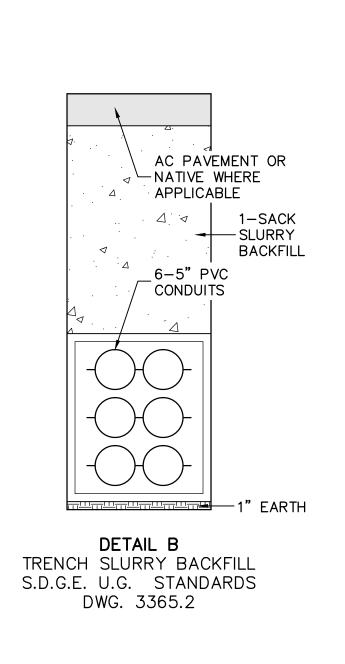


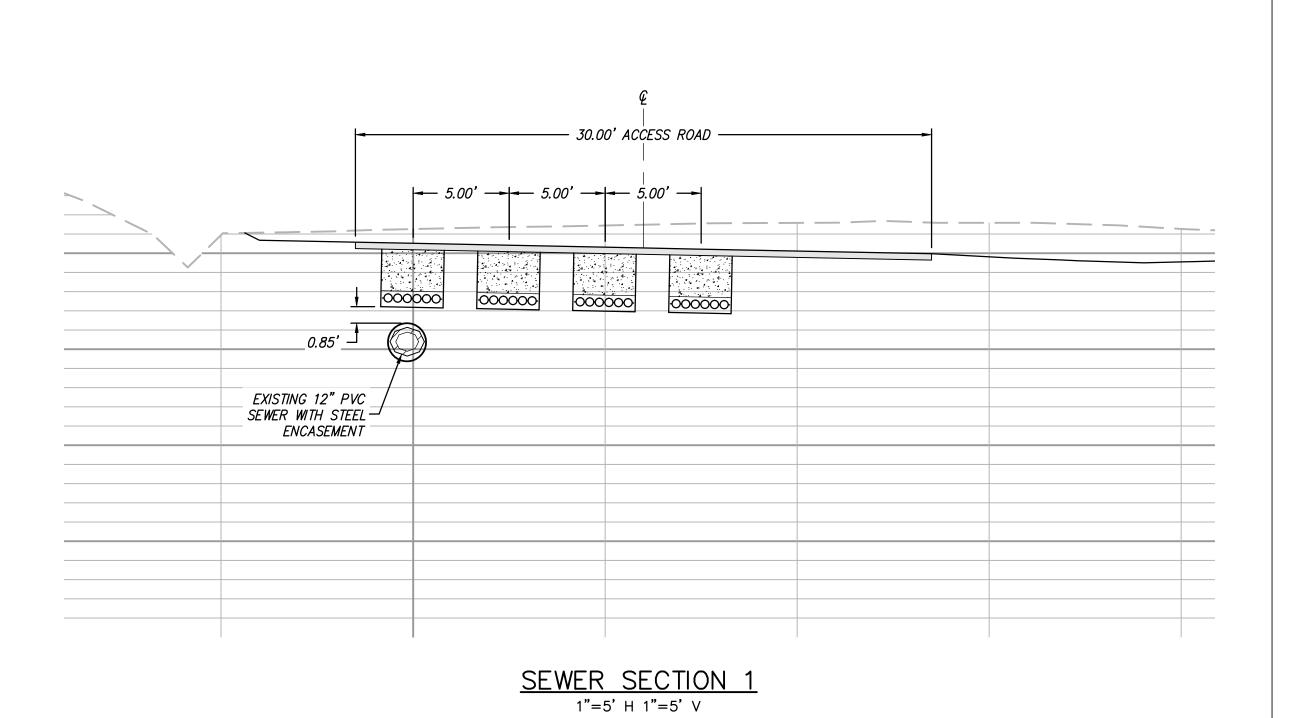












PRELIMINARY
FOR PLANNING PURPOSES ONLY
CONCEPTUAL EXHIBIT

OD EXH	REVISIONS								SAN DIEGO GAS & ELECTRIC COMPANY san diego, california			
NO.	WORK DONE	DATE BY: APP'D: NO.	WORK DONE	DATE BY: APP'D: NO.	WORK DONE	DATE BY: APP'D: NO.	WORK DONE	DATE BY:	APP'D:			
									SALI C	REEK SUBS	STATION	
									MSE	CROSS SECTIO	NS	
999									IVISE	- 010000 020110		
									DRAWN BY: DHT DATE: 9/25/12	SCALE: AS NOTED W.C	D. REV. 7	
									CHECKED BY: DATE:			
⁹ /									APPROVED BY: DATE:		EX-3	
<i>∴</i>									CAD NO : ET Cross Sections - MSE Wall dwg PLOT SCA	F: 1 = 1		