AERA

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June 30, 2011

Ms. Adele Lagomarsino
Division of Oil, Gas and Geothermal Resources
801 "K" Street, MS 20-20
Sacramento, CA 95814-3530

SUBJECT: INITIAL STUDY/MITIGATED NEGATIVE DECLARATION
AQUIFER EXEMPTION AND DISPOSAL PROJECT APPLICATION
AERA ENERGY LLC (Aera) – SOUTH BELRIDGE OIL FIELD

Dear Ms. Lagomarsino:

Enclosed, please find an Initial Study/Mitigated Negative Declaration in support of Aera's proposed aquifer exemption and disposal project in the South Belridge Oil Field. Documentation from the District Office pertaining to the proposed injection project conditions, technical elements of the projects and prior reviews by the Environmental Protection Agency and Regional Water Quality Control Board were provided to the UIC Program Branch previously.

Please call me at (661) 665-5641 should you have any questions.

Sincerely,

Ron Chambers

R. L. Chambers
Lead Environmental, Health and Safety Advisor
Water, Waste & Remediation
Aera Energy LLC

cc: See Attached List

Copies with Enclosure – Certified Mail (Return Receipt Requested)

Ms. Lorelei Oviatt Kern County Planning Director 2700 "M" Street, Suite 100 Bakersfield, CA 93309	Mr. Dan Wermiel Division of Oil, Gas & Geothermal Resources, District 4 4800 Stockdale Hwy., Suite 417 Bakersfield, CA 93309
San Joaquin Valley APCD ISR/CEQA Department 1990 E. Gettysburg Ave. Fresno, CA 93726	Mr. Shelton Gray California Regional Water Quality Control Board 1685 "E" Street Fresno, CA 93706
Ms. Julie Vance California Department of Fish and Game 1234 E. Shaw Avenue Fresno, CA 93710	Beale Memorial Library 701 Truxtun Avenue Bakersfield, CA 93301
Mr. Michael Welsh U.S. Fish and Wildlife Service Sacramento Fish and Wildlife Office 2800 Cottage Way, W-2605 Sacramento, CA 95825-1846	Mr. George Robin, Engineer US EPA Region IX Ground Water Office, WTR-9 75 Hawthorne St. San Francisco, CA 94105

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Aera Energy LLC
10000 Ming Avenue
P.O. Box 11164
Bakersfield, CA 93389-1164

Initial Study/Mitigated Negative Declaration

Division of Oil, Gas, and Geothermal Resources

PROJECT TITLE

Class II Water Disposal Project and Aquifer Exemption – South Belridge Field

LEAD AGENCY

Department of Conservation
Division of Oil, Gas, and Geothermal Resources (DOGGR)
801 K Street, MS 20-20
Sacramento, CA 95814-3530
Contact: Adele Lagomarsino
(916) 323-2258

APPLICANT

Aera Energy LLC
10000 Ming Avenue
Bakersfield, California 93311
Contact: Ron Chambers
(661) 665-5641

PROJECT DESCRIPTIONS AND LOCATIONS

Aera Energy LLC (Aera) is proposing the establishment of a modified aquifer exemption for the Tulare aquifer in the area of the South Belridge oilfield and the adoption of a Class II disposal project authorizing the installation of up to 30 wells over a five year period injecting up to 150,000 barrels of water per day. Installation of an eight well pressure and water quality monitoring project is also specified as a mitigation measure for this project but will be permitted under the Kern County Environmental Health permitting program. The area that DOGGR is proposing to exempt is currently an underground source of drinking water (USDW) and described as follows:

1) the Tulare (Mid PAA and Below) zone to the base of the Tulare zone geologic strata (the zone) which occur at this location within the subsurface interval ranging approximately 800 feet to 1,550 feet below ground surface (bgs); and

2) laterally within the following sections of Township 28 South, Range 21 East, Kern County, California: Sections 7 (NE ¼), 8, 9, 14, 15, 16, 17, 20 (NE ¼), 21 (North ½), 22, 23, 26, 27 (East ½), 35 (North ½).

The USEPA initially received the aquifer exemption application and forwarded a copy to the DOGGR for joint review and processing. In coordination with EPA, the agencies have determined that the zone meets the criteria for aquifer exemption pursuant to 40 CFR §146.4: The zone does not currently serve as a source of drinking water and will not in the future serve as a source of drinking water because: the total dissolved solids content of the water within the zone is more

than 3,000 milligrams per liter (mg/l) and less than 10,000 mg/l and it is not reasonably expected to supply a public water system.

The proposed injection project site is comprised of the S½ Section 17; the NE¼ of Section 20; the N½ of Section 21, the SW¼ of Section 22 and the W½ of Section 27; Township 28 South, Range 21 East MD B&M – USGS 7.5 minute Lost Hills quadrangle map). The surface locations of the proposed injection project wells are on lands owned by Aera and are served by numerous, existing oilfield roads.

The terms "project site" and "project area" are used within this document. The term "project site" is used to define the proposed area of disturbance such as the possible injection well sites, any new access road, etc.; and the term "project area" includes the subsurface aquifer exemption boundary and the surface area surrounding the proposed project site.

INJECTION PROJECT:

Site preparation activities for the 30 potential injection well locations will include clearing, grading, and compaction of the site. Once the proposed project site has been cleared, it will be graded, watered and compacted to establish a level and solid foundation for the drilling rig. No surface disturbance is associated with the aquifer exemption as it affects only the designation of the groundwater.

The overall working pad needed during drilling operations to accommodate a typical Tulare disposal well drilling rig and accompanying temporary facilities is approximately 150 feet by 85 feet in size (12,750 sq. ft.) including the reserve pit. The reserve pit will either be constructed by mechanical compaction or lined with a polyethylene liner to prevent percolation. Compaction of the surface, combined with the deposition of bentonite drilling mud during drilling operations, will give the pit a bentonite seal with a maximum permeability of approximately 10-6 cm/sec.

Completing the site preparation process will require approximately 3 days per well. Water may be applied to access roads and the proposed project site to facilitate movement of heavy equipment and to control dust.

Following site preparation, the drilling rig will be mobilized and rigged up. Typically, this process is completed in a single day. Temporary facilities, equipment and materials necessary for the drilling operation will be set up and stored on site (i.e., drilling mud supplies, water, drilling materials and casing, crew support trailers, pumps and piping, portable generators, fuels and lubricants, etc.). All hazardous materials such as diesel fuel will be stored according to applicable federal, state and local regulations and the disposal of fluids will follow Regional Water Quality Control Board (RWQCB) regulations.

Surface casing will be set, cemented, and blowout prevention equipment installed at the wellhead and tested. Well casing is designed to protect shallow water zones. Anchor blowout prevention equipment (surface and sub-surface safety devices) will be regulated by DOGGR. DOGGR engineers will be notified for required tests and other operations. Sufficient weighted drilling fluid will be used to prevent any uncontrolled flow from the well and additional quantities of drilling

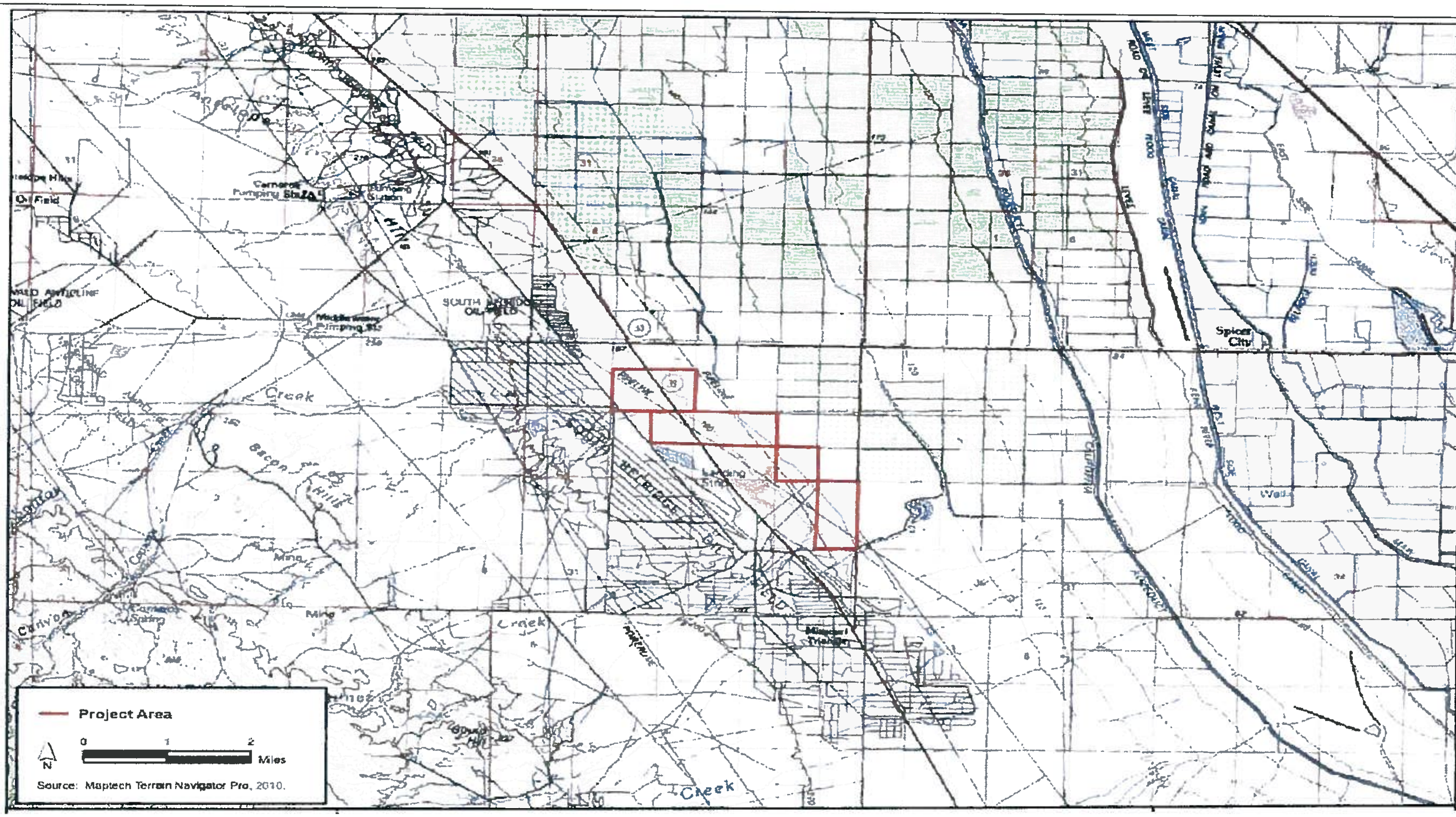


Figure 1
Vicinity Map

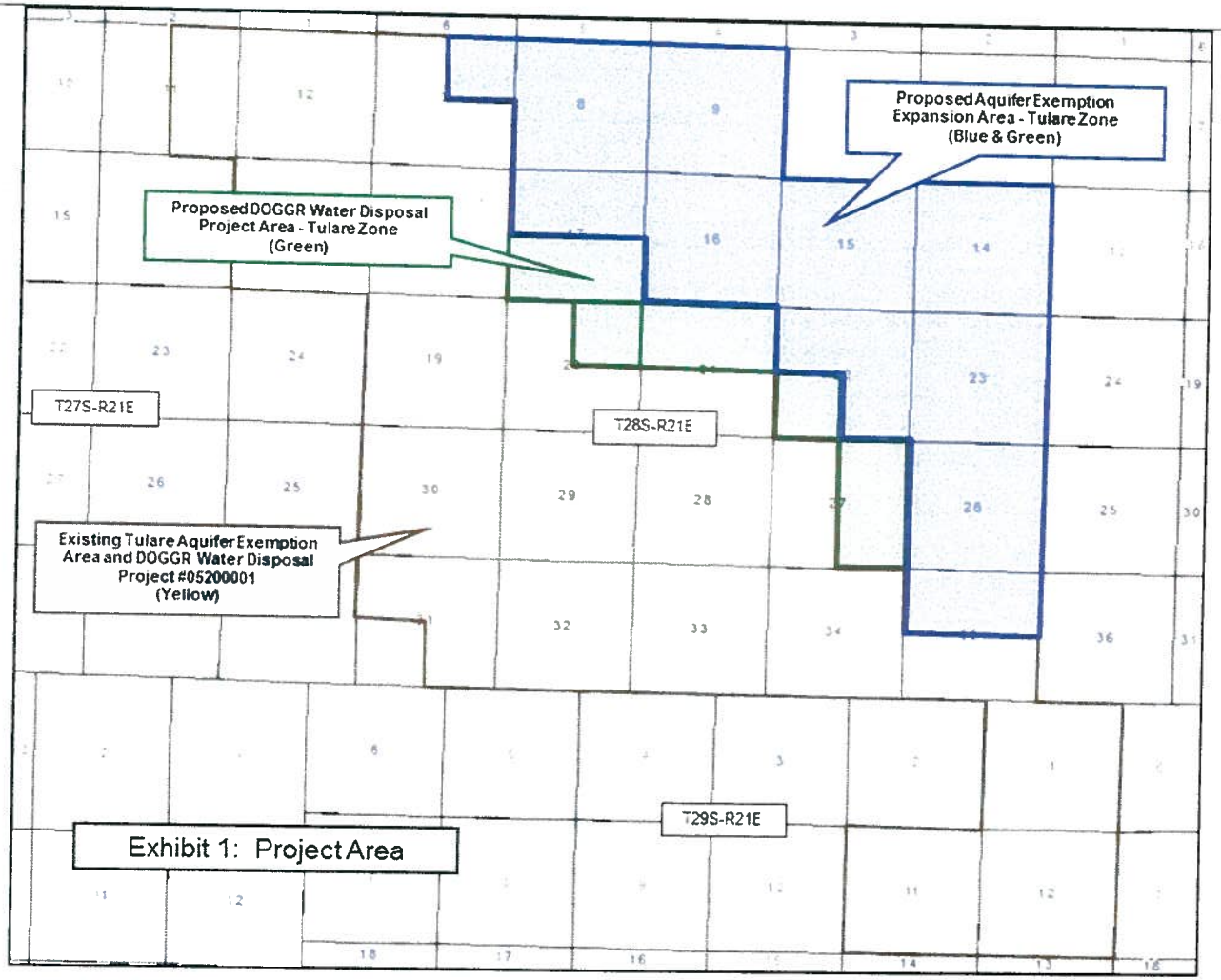


Figure 2
Location Map

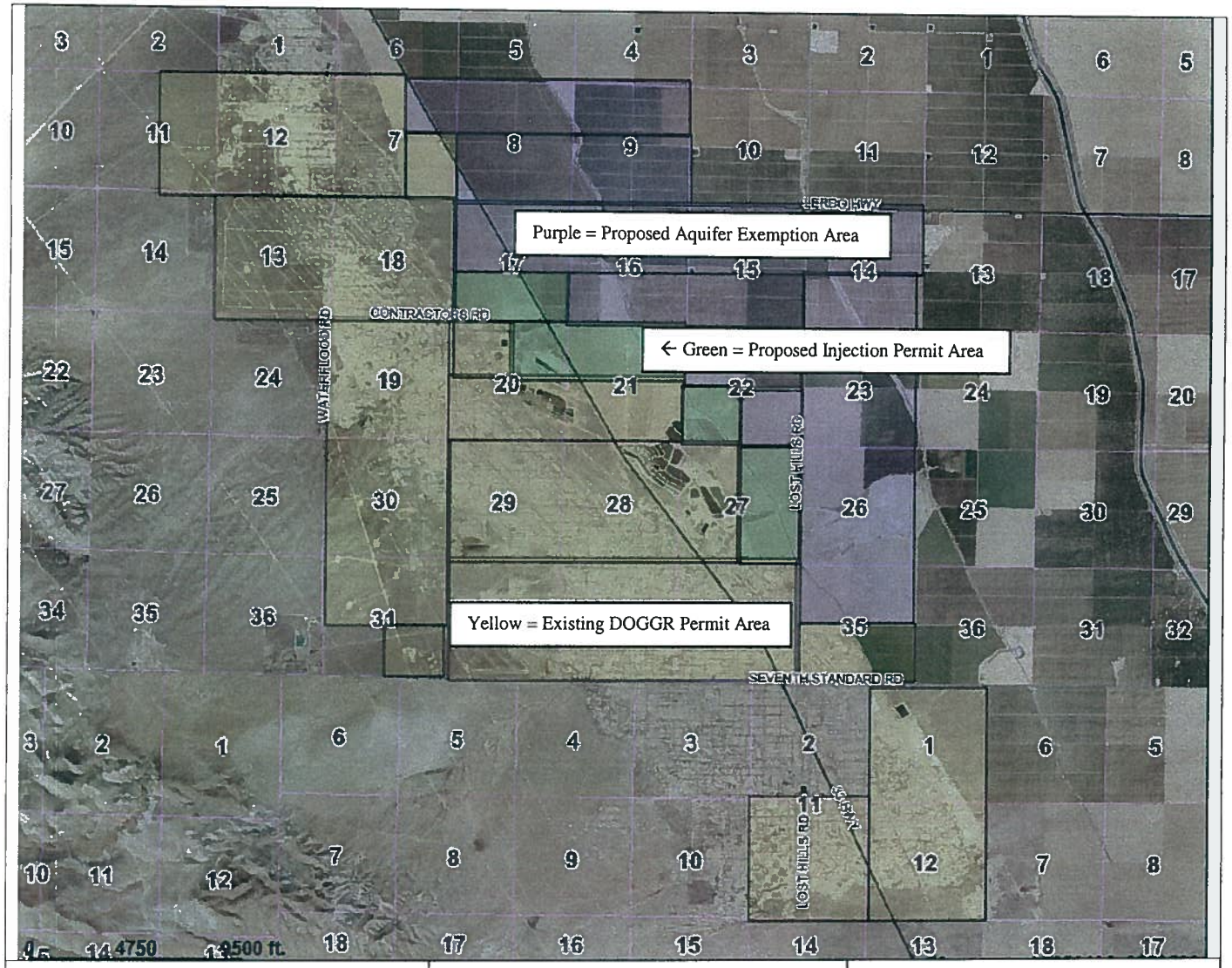
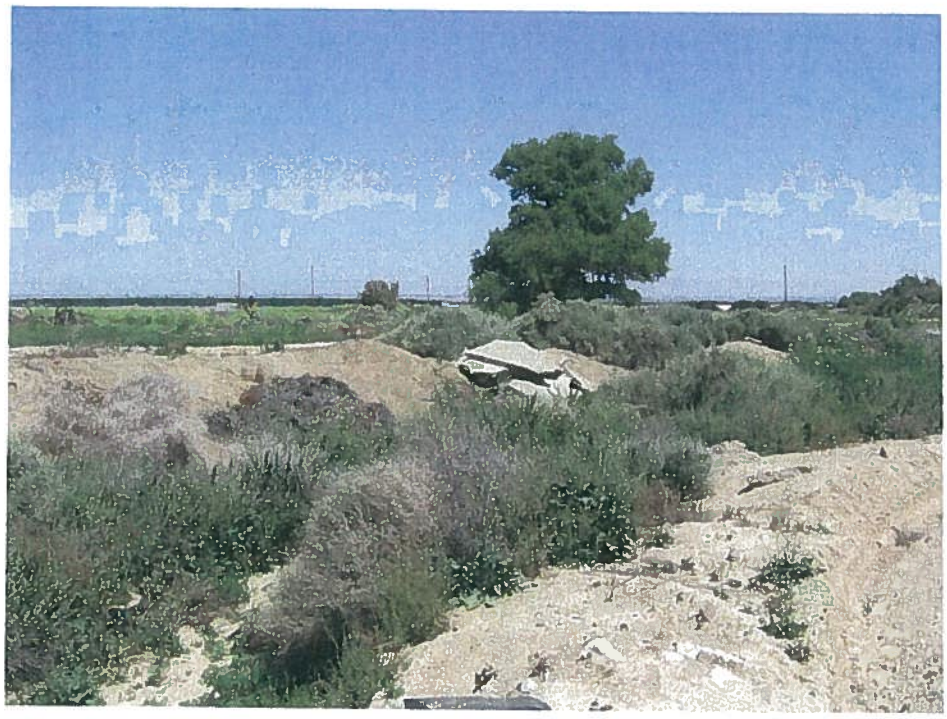


Figure 3
Aerial Photograph

fluid will be available at the drill site. Drilling will continue until the target injection depth is reached. Equipment, personnel, and supply deliveries will continue through the course of the drilling program. Aera estimates that approximately 15 days will be required for drilling and completing a typical injection well.

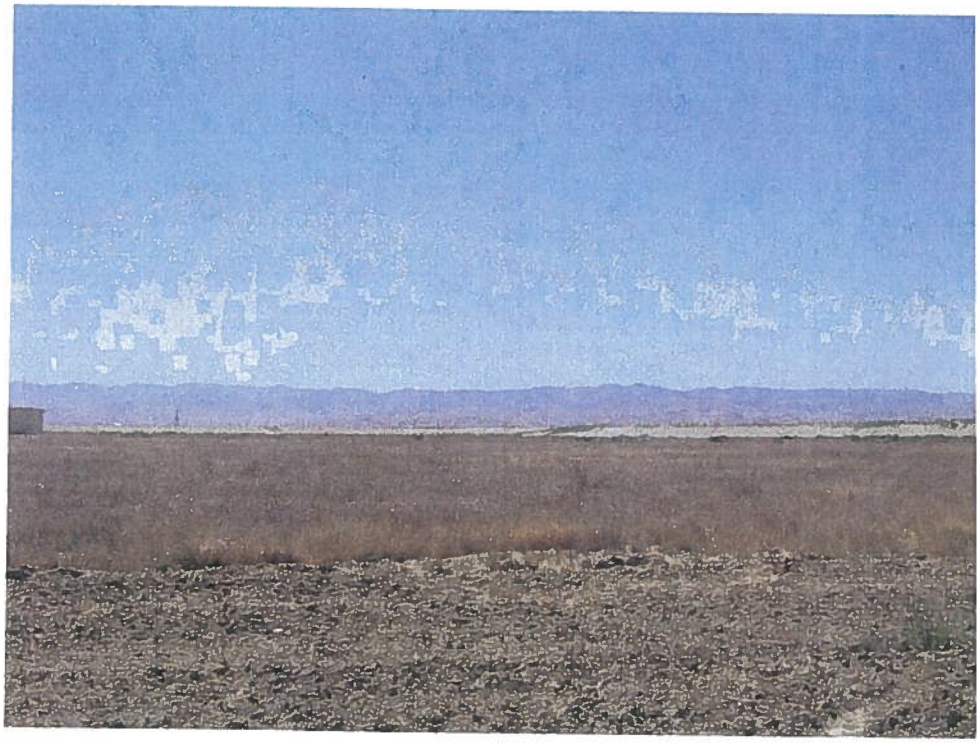
Although the proposed area of disturbance (~8.8 acres for all 30 wells) exceeds 1 acre, there are no federal or state receiving waters in the project area. Accordingly, no coverage under the General Permit to Discharge Storm Water with Construction Activity (WQ Order No. 99-08-DWQ) is required.

Photographs representative of the proposed injection project areas are attached.

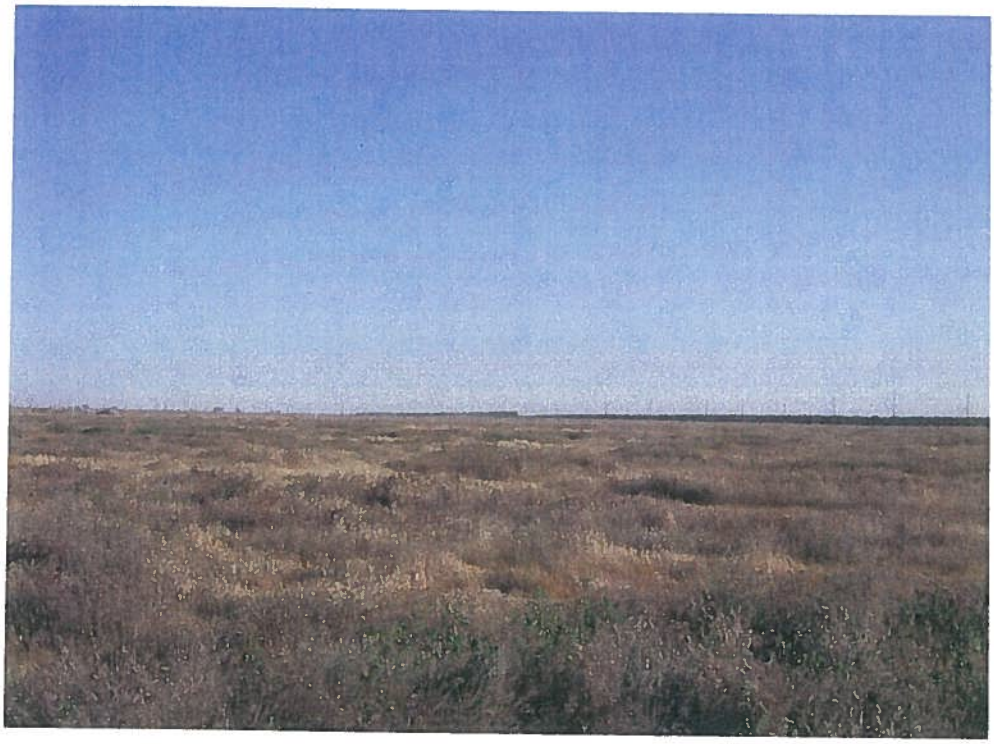


Photograph 1
View looking east from stream channel.

Photograph 2
View looking south from Contractors Road.

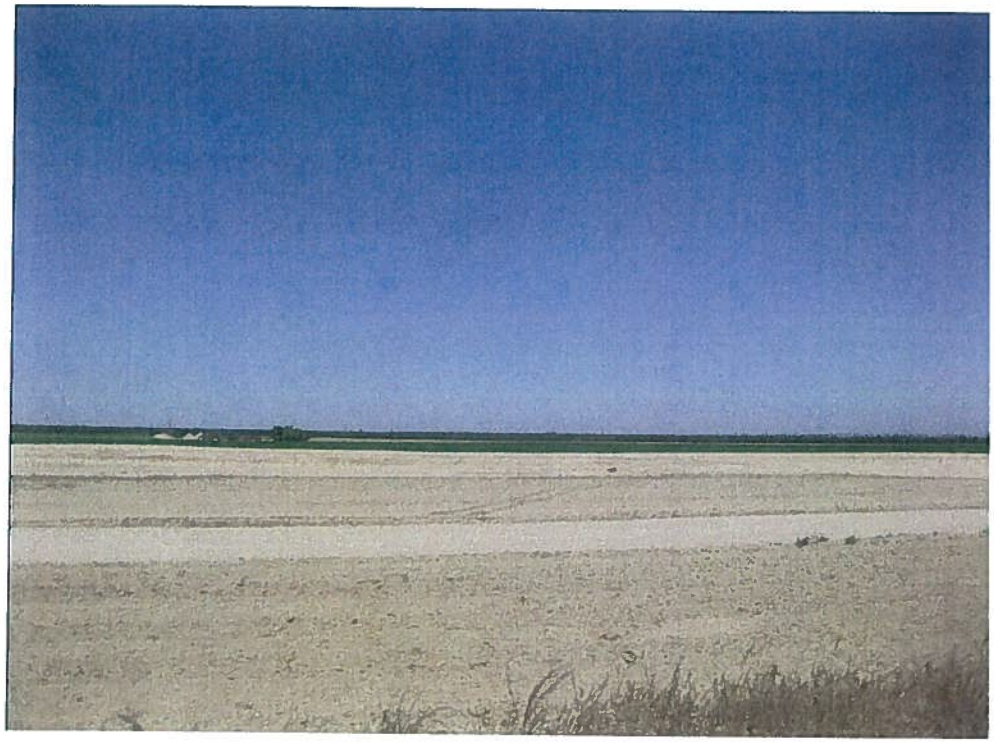


Photograph 3
View looking southwest from northern edge of grassland habitat.



Photograph 4
View looking north from Contractor's Road.

Photograph 5
View looking east from northern portion of proposed project site.



Photograph 6
View looking north from near the center of the proposed project site.

AQUIFER EXEMPTION:

The zone that DOGGR is proposing to exempt is currently an underground source of drinking water (USDW) and described as follows: 1) the Tulare (Mid PAA and Below) zone to the base of the Tulare zone geologic strata (the zone) which occur at this location within the subsurface interval ranging approximately 800 feet to 1,550 feet below ground surface (bgs); and 2) laterally within the following sections of Township 28 South, Range 21 East, Kern County, California: Sections 7 (NE ¼), 8, 9, 14, 15, 16, 17, 20 (NE ¼), 21 (North ½), 22, 23, 26, 27 (East ½), 35 (North ½). The entire aquifer exemption area plus a one mile buffer to the east is located on property owned by Aera or property in which Aera owns all pore spaces and all pore space rights below a depth of thirty (30) feet below the surface along with the right to use such pore space for the storage or disposal of oil field brines. No surface disturbances are anticipated as a consequence of the aquifer exemption process. Potential environmental impacts are limited to hydrogeological effects and are evaluated in Section IX of the Initial Study.

GENERAL PLAN DESIGNATION:

The proposed project site is located on lands designated in the Kern County General Plan as Intensive Agriculture - minimum 20-acre parcel size (8.1), Mineral and Petroleum - minimum 5-acre parcel size (8.4) and Flood Hazard (2.5). The proposed project is consistent with the Kern County Land Use, Open Space and Conservation Element of the Kern County General Plan.

ZONING

The project is consistent with the Exclusive Agriculture (A) and Limited Agriculture (A-1) zoning designation per Kern County, California Municipal Code Chapters 19.12.020 and 19.98.020.

ENVIRONMENTAL ANALYSIS
Aera Aquifer Exemption and Class II Disposal Project

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
I. AESTHETICS				
Would the project:				
a. Have a substantial adverse effect on a scenic vista?	____	____	____	X
b. Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	____	____	____	X
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	____	____	____	X
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	____	____	X	____

Discussion: The proposed project sites consist primarily of undeveloped lands immediately east of, and adjacent to the South Belridge Oil Field properties operated by Aera. There are no nearby scenic vistas. The proposed project sites are flat, and provide views of agricultural fields to the east, the South Belridge Oil field to the west, with similar vistas to the north and south. Local and state roads are visible from the proposed project sites. No scenic roadways are located adjacent to the proposed project sites. No significant scenic resources are located at or near the proposed project sites. The project is consistent with land use and zoning designation for the area, and is therefore considered consistent with the associated visual resource for planning purposes and General Plan requirements.

Ia. Implementation of the proposed project would involve the construction of up to 30 well sites and the drilling and completion of the injection wells. These activities would be conducted immediately to the east of an extensively developed oil field. Proposed project sites are more than 1.3 miles from any residential structures. A drill rig, tanks, and other equipment would be located on each well site during the project. Oil and gas exploration and production equipment and farm buildings, water tanks, and other agricultural facilities related to agricultural activities are present within the vicinity of the proposed project sites. Many of these oil field and agricultural facilities are similar in shape and size to the proposed project equipment. The equipment proposed for use on the proposed project sites is similar in visual character to existing facilities located throughout the proposed project area. Therefore, the proposed project is not expected to have an adverse effect on scenic vistas.

Ib. The proposed project sites are not located adjacent to a state scenic highway. Therefore, the proposed project will not damage the scenic resources within a state scenic highway.

Ic. A water disposal injection well and associated piping will only slightly change the existing quality and visual character at the proposed project sites by initially introducing a tall structure at each well site during drilling and later being completed with a low profile wellhead and associated piping. The project does not conflict with any applicable vista protection standards, scenic resource protection requirements or design criteria of federal, state or local agencies, and is consistent with the Kern County Zoning Plan and General Plan designations for the project area. Therefore, neither the temporary drilling structure nor the injection wells will change the existing visual quality and character of the project area.

Id. Night lighting may be required during drilling operations but not during injection well operations. Night lighting supporting the drilling rig will be directed inward and downward to minimize potential offsite impacts. As observed on May 2 and 3, 2011 the nearest residence is located approximately 1.3 miles (6,830 feet) north-northeast of the proposed Section 21 disposal project site. This residence won't likely be impacted by the temporary presence of night lighting during the drilling phase. Additionally, the drilling phase for each of the proposed wells is short (less than 4 days) and temporary in nature. Therefore, the proposed project would not adversely affect day or nighttime views in the area.

Conclusion: As visual impacts associated with night lighting during drilling activities would be short term and temporary, the impacts would be less than significant.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
II. AGRICULTURAL AND FOREST RESOURCES				
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	_____	_____	X	_____
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	_____	_____	_____	X
c. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland, to non-agricultural use, or conversion of forestland to non-forest use?	_____	_____	_____	X
d. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined by Public Resources Code section 4526)?	_____	_____	_____	X
e. Result in the loss of forest land or conversion of forest land to non-forest use?	_____	_____	_____	X

Discussion: The proposed project sites consist primarily of undeveloped oil field lands (base zoning Ag–I). The project is consistent with land use and zoning designation for the area. The project is located in agricultural cropland identified in the General Plan as General Agriculture.

IIa. If all 30 disposal wells are drilled and completed in the farmed area of the Project boundary, the project will potentially convert approximately 9.0 acres of Prime Farmland to non-agricultural use. Based on the information presented in the Kern County Important Farmland 2008, Rural Land Edition, Sheet 1 of 3, approximately

626,217 acres of Prime Farmland are present within Kern County. Accordingly, the proposed project sites will impact less than 0.001 % of these agricultural lands.

IIb. No agricultural cropland classified as the Williamson Act Farmland Security Zone Property will be impacted.

IIc. See to IIa and IIb.

IId. There are no forest lands within the proposed project sites. Therefore, no impacts are expected.

IIe. There are no forest lands within the proposed project sites. Therefore, no impacts are expected.

Conclusion: As the proposed use is considered compatible with applicable General Plan policies and zoning designations, impacts are considered to be less than significant.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
III. AIR QUALITY				
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	_____	_____	X	_____
b. Violate any air quality standard or contribute to an existing or projected air quality violation?	_____	_____	X	_____
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors?	_____	_____	X	_____
d. Expose sensitive receptors to substantial pollutant concentrations?	_____	_____	_____	X
e. Create objectionable odors affecting a substantial number of people?	_____	_____	_____	X

Discussion: The project site lies within the southern portion of the San Joaquin Valley Air Basin (SJVAB), which is the second largest air basin in the state. The SJVAB encompasses eight counties, and is divided into three regions; San Joaquin, Stanislaus, and Merced Counties in the Northern Region; Madera, Fresno, and Kings Counties in the Central Region; and Tulare County and the Valley portion of Kern County in the Southern Region. The SJVAB is managed by the San Joaquin Valley Air Pollution Control District (SJVAPCD) and is defined by the Sierra Nevada Mountains in the east, the Coast Ranges in the west, and the Tehachapi Mountains in the south. The San Joaquin Valley opens to the Pacific Ocean at the Carquinez Straits, where the San Joaquin-Sacramento Delta empties into the San Francisco Bay. Although marine air generally flows into the basin from the San Joaquin River Delta, the region's topographic features restrict air movement through and out of the basin. The SJVAPCD is the primary local agency responsible for protecting human health and property from the harmful effects of air pollution for Kern County.

The California Clean Air Act (CCAA), adopted in 1988, requires all air pollution control districts and air quality management districts in the state to adopt and enforce regulations to achieve and maintain air quality that is within the State air quality standards. Kern County is in non-

attainment for the State Ambient Air Quality Standards for ozone and inhalable particulate matter (PM_{10}). The County is in attainment for the federal 8-hour ozone standard and has adopted a 2007 Federal Maintenance Plan for maintaining this designation.

Pursuant to the CCAA, the SJVAPCD prepared a Clean Air Plan (CAP) in 2007 showing how the State ozone standard would be met with subsequent updates every three (3) years.

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by state and federal law. These regulated air pollutants are known as "criteria air pollutants" and are categorized into primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_X), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb) are primary air pollutants. VOC and NO_X go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and nitrogen dioxide (NO_2) are the principal secondary pollutants. Other pollutants, such as carbon dioxide (CO_2), a natural by-product of animal respiration that is also produced in the combustion process, have been linked to such phenomena as global climate change. These emissions are unregulated and there are no thresholds for their release. These pollutants do not jeopardize the attainment status of the SJVAB. A discussion of CO_2 and greenhouse gases is included in Section VII, Greenhouse Gas Emissions.

The public's exposure to toxic air contaminants (TACs) is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the federal Clean Air Act (42 USC Sec. 7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency (Cal/EPA), acting through California Air Resources Board (CARB), is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or to an increase in serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions.

Since the last update to the TAC list in December 1999, CARB has designated 244 compounds as TACs. Additionally, the CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the

estimated health risks from TACs can be attributed to a relatively few compounds, one of the most important in California being particulate matter from diesel-fueled engines. In 1998, CARB identified particulate emissions from diesel-fueled engines (diesel PM) as a TAC. Previously, the individual chemical compounds in the diesel exhaust were considered as TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. The SJVAPCD defines sensitive receptors as locations where there are human populations and where there is a reasonable expectation of continuous human exposure according to the averaging period for the Ambient Air Quality Standards (AAQS). The most sensitive portions of the population are children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases. Residential areas are considered to be sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Other sensitive receptors include retirement facilities, hospitals, and schools. The closest sensitive receptors to the project site are approximately 1.3 miles away. The project will not create objectionable odors that would affect a substantial number of people.

The SJVAPCD has established Thresholds of Significance: Criteria for Determining Environmental Significance. These thresholds separate a project's short-term emissions from its long-term emissions. Short-term emissions are mainly related to the construction phase of the project and are recognized to be short in duration. Long-term emissions are primarily related to activities that will occur indefinitely as a result of project operations. For the purposes of water injection wells, air quality impacts are considered short-term as no air pollutant emissions are associated with their long-term operation.

As a result of implementation of project design elements, compliance with local Air Pollution Control District permit requirements, and implementation of the identified minimization and avoidance measures, project related impacts on air quality will be reduced to less than significant.

IIIa. The SJVAPCD has prepared an Air Quality Attainment Plan to enable the San Joaquin Valley to attain air quality standards by the earliest practicable date. Short-term emission impact is anticipated as part of the proposed project, but with measures included in the project it will be a less than significant impact. Particulate matter emissions can be expected to occur during the construction of each drill pad and from daily ingress and egress of vehicles on existing and proposed unpaved access roads. This project will exceed the non-residential project limit of 5.0 or more acres but will not move, deposit, or relocate more than 2,500 cubic yards per day of bulk materials on at least three days. Therefore, a Dust Control Plan will not be required as specified in Section 6.3.1of Rule 8021. The operator will provide written notification to the SJVAPCD at least 48 hours prior to beginning earthmoving operations as required. Construction also will produce exhaust emissions with transport of workers and machinery to and from each site as well as operation of equipment on-site. Typical

equipment used for this project may include diesel drill rig motors, grader, loader, roller, heavy-duty trucks, pumps, generators, etc.

IIIb,c. Emissions were calculated to determine the quantity of criteria pollutants emitted by the proposed project. Criteria pollutant emissions were estimated using Road Construction Emissions Model, Version 6.3.2 software, which is recommended by the SJVAPCD for use in calculating air emissions for this type of project. Criteria pollutant emissions for the project were estimated based upon lists of equipment for each phase of the project provided by the project proponent. Equipment used for the project is summarized in Tables 3 and 4.

The following paragraphs summarize the short-term emissions associated with the proposed project. All activities associated with the proposed project are considered short-term with no long-term impacts to the environment.

Short-term emissions anticipated for this project are associated with the activities required to prepare each drill site for equipment placement and the drilling and completion activities for each water injection well. Each well is expected to take no more than 15 days for drilling and completion; no testing is required for an injection well. Although the maximum number of wells (30) has been determined, each well will be completed separate and apart from the others, so the information provided herein is based on a typically proposed well within the disposal project operating area. Minor differences between each well location may result due to mileage from main roads to each site and site configuration, but these differences are minimal and not considered significant. As such, the impacts presented herein are based on a typical, "per well" basis.

Preparation of each well site for drilling activities will generate air pollutant emissions from vehicles and heavy equipment operating up to 12 hours per day for some pieces of equipment. Site preparation for each site is expected to take no more than two (2) days and is expected to take less for some sites as the sites are already cleared and level. Fugitive dust and oxides of nitrogen (NO_x) emissions (as well as other criteria pollutants) would result from automobiles, trucks, back hoes, and other heavy equipment used to transport workers and drilling-related equipment.

Emissions from site preparation activities are expected to vary substantially from day to day; however, due to the short period of time, impacts are expected to be minimal. Many variables are factored into the calculation of site preparation emissions such as length of the work period, number of each type of equipment, site characteristics, area climate, and work personnel activities. In order to present the most conservative approach to estimating site preparation emissions from the project, all equipment was assumed to be in use 12 cumulative hours per day at full power. In reality, much of this equipment will be used significantly less than this due to idling time, operator

breaks, equipment breakdowns, etc. Dust emissions caused by site preparation activities can be significantly reduced and controlled provided recommended dust control measures are fully implemented.

Emissions from drilling operations includes off-road heavy equipment, work vehicles, drilling equipment, drilling mud production and storage equipment, logging and wire line equipment, and all associated employees operating up to 24 hours per day. As each well is expected to take only 15 days from start-up to completion, these associated emissions are considered short-term and will pose no long-term impacts to the air quality in the area.

After each well is drilled and completed, a low profile injection well-head assembly will be installed. No air pollution emissions would be generated during the operating phase of the proposed project.

Table 5 summarizes the tons per year of criteria pollutant emissions that could be produced during the construction of a single well site, and the drilling and completion of a single water injection well from the well site. Aera is proposing to drill a total of 30 injection wells during the proposed project. Aera would construct six (6) well sites per year, and drill a single water injection well from each well site for a total of six (6) water injection wells per year. Aera estimates that it will take five (5) years to complete the drilling of the 30 water injection wells. Table 6 summarizes the tons per year of criteria pollutant emissions that could be produced during the construction of six (6) well sites, and the drilling and completion of six (6) water injection wells from the well sites.

Table 3
Equipment Usage Site Preparation Phase for Each Well Site

Equipment Type and Number of Each	Days of Operation	Hours Operation Daily
Grader/ Front loader (1)	2	12
Backhoe (1)	2	12
Roller/Compactor (1)	2	12
Water Truck (1)	2	4
Passenger Car/Pickup Truck Roundtrips (6)	2	1 per vehicle trip
Dump Trucks	2	4
Heavy Truck/Semi (4)	2	4

Assumptions:
- Site preparation activities for each of the 30 well sites will take two (2) days to complete.
- Heavy Truck/Semi trips will occur during site preparation activities during the delivery and removal of construction equipment.
- Mileage for vehicle/truck/semi trips is based on round trip mileage to and from Contractor's Road, part of Aera's Belridge Producing Complex, to the project site.

Table 4
Equipment Usage Drilling Phase for Each Water Injection Well

Equipment Type and Number of Each	Days of Operation	Hours Operation Daily
Water Truck (1)	15	2
Drill Rig Motor (Internal Combustion Engine 500 horse power) (1)	15	24
Generator (1) – 490 horse power (1)	15	24
Mixing Pump – 75 horse power (1)	15	24
Pump – 525 horse power (2)	15	24
Crane (1)	4	4
Passenger Car/Pickup Truck Roundtrips (15)	15	2 per vehicle trip
Heavy Truck/Semi - Normal Operations (2)	15	4
Heavy Truck/Semi - Mobilization and Demobilization of Equipment (10)	4	4
Small Generators – 45 horse power (2)	15	4

Assumptions:

- Approximately four days will be required for mobilizing/demobilizing of drilling equipment prior to and after drilling/completion activities.
- Drilling and completion activities will last for 15 days for each well.
- Crane will be used for two (2) days at the beginning and end of drilling phase to rig up and take down drilling equipment.
- Heavy Truck/Semi trips include delivery of equipment, delivery of drilling mud, delivery of fuel for internal combustion engines, delivery and installation of cement for pipe casing, delivery of drilling pipe, etc.
- Passenger car/truck roundtrips assume 7-8 trips for each 12-hour work shift.
- Drilling activities will operate for 24 hours per day during the entire drilling phase.
- Mileage for vehicle/truck/semi trips is based on round trip mileage to and from Contractor's Road, part of Aera's Belridge Producing Complex, to the project site.

Table 5
Criteria Pollutant Emissions Calculations for Construction of Single Well Site, and the Drilling and Completion of a Single Water Injection Well from the Well Site

Project Phase	ROG Emissions (Tons/ Year/Phase)	NO_X Emissions (Tons/ Year/Phase)	PM_{10} Emissions (Tons/ Year/Phase)
Site Preparation Phase	0.01	0.04	0.01
Drilling Phase	0.42	1.52	0.09
Total	0.43	1.56	0.10

Table 6
Yearly Criteria Pollutant Emissions Calculations for Construction of Six (6) Well Sites, and the Drilling and Completion of Six (6) Water Injection Wells from the Well Sites

Project Phase	ROG Emissions (Tons/ Year/Phase)	NO_X Emissions (Tons/ Year/Phase)	PM_{10} Emissions (Tons/ Year/Phase)
Site Preparation Phase	0.06	0.24	0.06
Drilling Phase	2.52	9.12	0.54
Total	2.58	9.36	0.60

The SJVAPCD has established thresholds of significance for three (3) specific criteria pollutants in regards to the operation of specific projects, as shown below:

Table 7
SJVAPCD Significance Thresholds for Criteria Pollutants

Air Pollutant	*Tons/Year*
Reactive Organic Gas (ROG)	10
Nitrogen Oxides (NO_X)	10
Particulates (PM_{10})	15

Based on the emissions significance thresholds described previously above, the proposed project would be in compliance with the significance thresholds for NO_x, ROG and PM_{10}.

Engines and generators used during implementation of the proposed project will be registered under the CARB Portable Engine Registration Program. This program was officially implemented in March 1997. Aera shall comply with the air emissions control measures described in the SJVAPCD *Guide for Assessing and Mitigating Air*

access roads to 15 mph.

9. Limit and remove the accumulation of mud and/or dirt from adjacent public roadways at the end of each workday.

10. Establish a Dust Control Plan, if required, and maintain compliance with same.

11. Fleet owners of mobile construction equipment are subject to the CARB Regulation for in-use Off-road Diesel Vehicles to reduce diesel particulate matter (PM) and criteria pollutant emissions from in-use off-road diesel-fueled vehicles.

12. All commercial diesel vehicles must limit engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading shall be limited to five minutes; electric auxiliary power units should be used whenever possible.

13. Diesel equipment meeting California Air Resources Board (CARB) Tier 1 emissions standards for off-road heavy-duty diesel engines shall be used. Equipment meeting CARB Tier 2 or higher emission standards should be used to the maximum extent feasible.

14. If feasible, diesel construction equipment shall be equipped with selective catalytic reduction systems, diesel oxidation catalysts and diesel particulate filters as certified and/or verified by EPA or CARB.

15. Maintain all equipment as recommended by manufacturer manuals.

16. Shut down equipment when not in use for extended periods.

17. The engine size of construction equipment shall be the minimum practical size.

18. All construction workers shall be encouraged to shuttle (car-pool) to retail establishments or to remain on-site during lunch breaks.

19. SJVAPCD Rule 2280 Portable Equipment Registration for certain portable emissions units shall be required for well drilling, service or workover rigs, pumps, compressors, generators and field flares.

Mr. Leland Villalvazo, an air-modeling specialist with the SJVAPCD, was consulted with to identify the appropriate calculation method that would determine if the proposed project would violate the District's CEQA significance criteria for TACs. Mr. Villalvazo indicated that the *Air Toxics "Hot Spots" Information and Assessment Act of 1987 Facility Prioritization Scores Prioritization Version 2.0* model would be

the appropriate method to determine if the project would violate significance criteria for TACs. Additionally, Mr. Villalvazo recommended that the *Oilfield Equipment Heavy Crude Oil Fugitives* spreadsheet be used to determine the specific quantities of benzene, toluene, and xylene, TACs that would be emitted by the project (per Mr. Villalvazo). According to Mr. Villalvazo, after entering the required data in the *Air Toxics "Hot Spots" Information and Assessment Act of 1987 Facility Prioritization Scores Prioritization Version 2.0* model, the model would produce carcinogen and non-carcinogen prioritization scores for the project. If the prioritization scores produced by the model are less than 10, then the project is considered to have a less than significant impact, and no further analysis is required.

Data was input into the model, assuming a worst case scenario that six (6) wells would be drilled in a single year for the drilling phase of the proposed project. This is the phase of the project that would generate the greatest quantity of TACs during project implementation. According to the results of the model, the carcinogen prioritization score for the drilling phase was 0, while the non-carcinogen prioritization score was 0.00015. As such, the proposed drilling activities would have a less than significant impact, and no further modeling of TAC emissions is required. The *Air Toxics "Hot Spots" Information and Assessment Act of 1987 Facility Prioritization Scores Prioritization Version 2.0* model and *Oilfield Equipment Heavy Crude Oil Fugitives* spreadsheet are attached.

IIId. The proposed project site is located within an unincorporated area of Kern County. Scattered rural residences are located throughout the project area. The proposed project site would be located away from rural residences. Rural residences are considered a sensitive receptor. The nearest residence to the proposed project site is approximately 1.3 miles. Project activities would create pollutants that would be released to the localized area of the proposed project site. However, these pollutants would greatly disperse prior to reaching a sensitive receptor. Due to the distance of the proposed project site from sensitive residential receptors in the project area, the project is not expected to subject sensitive receptors to substantial pollutant concentrations. As such, impacts are considered less than significant.

IIIe. The proposed project site is located within an unincorporated area of Kern County. Scattered rural residences are located throughout the project area. The proposed project site would be located away from rural residences. Rural residences are considered a sensitive receptor. The nearest residence to the proposed project site is approximately 1.3 miles. Project activities may create odors, but they would only be perceptible in close proximity to the project site. Due to the distance of the proposed project site from residences, the project is not expected to create objectionable odors that would be noticeable at these residences. As such, impacts from odors would be considered less than significant.

Conclusion: Project design shall reduce potential impacts to Air Quality to a level of less than significant.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
IV. BIOLOGICAL RESOURCES				
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	_____	_____	X	_____
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	_____	_____	_____	X
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	_____	_____	_____	X
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	_____	_____	_____	X
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	_____	_____	_____	X
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community, Conservation Plan, or other approved local, regional, or state habitat conservation plan?	_____	_____	_____	X

Discussion: A biological survey report was prepared for the proposed project in June of 2011 band is attached to this initial study/negative declaration. This report provides a detailed discussion of the biological resources present and potentially present within the project area. Field surveys were conducted to determine if special-status plant or animal species or suitable habitats occurred within the project area.

Special status species and their habitat have been documented in the general vicinity of the proposed project sites. Small pockets of valley saltbush scrub or annual grassland habitat are present within the proposed injection project boundary, any disturbance to those habitat types associated with well drilling will be mitigated at a ratio of 1.1:1 at Aera's Coles Levee Ecological Preserve. Much of the area identified as potential well sites and existing access roads is agricultural cropland where no habitat disturbance will occur. It is highly unlikely that construction of the proposed project well sites will have impacts on listed or sensitive species or habitats at the proposed project sites.

As indicated in the biological study, the majority of the proposed project site and adjacent areas are agricultural and do not represent habitat. As is the case with other USGS quadrangle maps, the current conditions on the ground do not necessarily reflect the conditions shown on the USGS quadrangle map. Current site conditions are documented based upon visual observation as well as existing aerial photographs and site photographs.

In order to ensure that no impacts to special-status wildlife and plant species occur, Aera will implement the *AERA ENERGY ENDANGERED SPECIES PROGRAM* (attached) which includes avoidance and minimization measures. These measures have been utilized by Aera for oil development activities occurring on private lands.

Conclusion: Project design shall reduce potential impacts to Biological Resources to a level of less than significant.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
V. CULTURAL RESOURCES				
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	_____	_____	_____	X
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	_____	_____	_____	X
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	_____	_____	_____	X
d. Disturb any human remains, including those interred outside of formal cemeteries?	_____	_____	_____	X

Discussion: Brunzell Cultural Resource Consulting (BCR Consulting) in May 2011 conducted a cultural resources record and information search and a pedestrian survey of the proposed project area. BCR Consulting also requested a search of the "Sacred Lands Inventory" maintained by the Native American Heritage Commission (NAHC) for the project area.

The cultural resources record and information search for the project area was conducted with the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System at the California State University, Bakersfield and included a review of:

- National Register of Historic Places (Directory of Determinations of Eligibility, California, Office of Historic Preservation, Volumes I and II, 2001);
- California Historical Landmarks (State of California 1996);
- California Points of Historical Interest listing (State of California 1992);
- Historic Property Data File (State of California 2005);
- Other pertinent historic data on file with BCR Consulting.

The records search revealed that four (4) cultural resource studies had been previously conducted, resulting in the recording of no historic or prehistoric cultural resources within one mile of the proposed project (See Table 8).

BCR Consulting requested a search of the Sacred Lands File maintained by the Native American Heritage Commission (NAHC) on May 28, 2011. The request included a brief project description and location maps sent by email to David Singleton of the NAHC. Mr. Singleton performed the Sacred Lands File search, and provided names of potentially interested tribes and

individuals to BCR Consulting on June 1, 2011. BCR Consulting then communicated via certified letters, emails, and phone calls with the potentially interested parties. The list included Rueben Barrios, Chairperson of the Santa Rosa Rancheria; Katherine Montes-Morgan, Chairperson of the Tejon Indian Tribe; Ryan Garfield, Chairperson of the Tule River Indian Tribe; David Laughinghorse Robinson, Kawaiisu Tribe of Tejon Reservation; Ron Wermuth; Delia Dominguez, Chairperson of the Kitanemuk & Yowlumne Tejon Indians; Arianne Garcia, Chairperson of the Chumash Council of Bakersfield; Robert Robinson, Co-Chairperson of the Kern Valley Indian Council; Kenneth Woodrow, Chairperson of the Esohm Valley Band of Indians/Wuksache Tribe; Donna Begay, Tribal Chairwoman of the Tubatulabals of Kern Valley; Lalo Franco, Cultural Coordinator of the Santa Rosa Tachi Rancheria. No responses have been received to date, but any responses received will be forwarded to Robert A. Booher Consulting.

Table 8
Records Search Results

USGS	Archaeological Sites	Built Environmental Resources	Reports
Belridge, CA (1973) 7.5 Minute USGS Quadrangle	None	None	KE-172*, 1813*, 2278*, 3777*

*Assessed portions of the proposed project.

Va,d Based on the cultural survey conducted by BCR Consulting, cultural and historical resources were not found within the proposed well sites, a 200-foot buffer area around the proposed well sites, existing access roads, or areas immediately adjacent to the existing access roads. In the event any undetected (i.e., buried) cultural resources, including human remains, are encountered on the proposed project sites, a qualified archaeologist shall be contacted to evaluate the find in conformance with CEQA Section 15064.5. A copy of the BCR's report is attached to this initial study/negative declaration.

Conclusion: No Impact to Cultural Resources.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VI. GEOLOGY AND SOILS				
Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
a. Landslides?	____	____	____	X
b. Strong seismic ground shaking?	____	____	____	X
c. Seismic-related ground failure, including liquefaction?	____	____	____	X
b. Result in substantial soil erosion or the loss of topsoil?	____	____	____	X
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as result of the project, and potentially result in on-or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	____	____	____	X
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1194), creating substantial risks to life or property?	____	____	____	X
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	____	____	____	X

Discussion: The proposed project sites consist primarily of agricultural lands. Several paved and dirt access roads exist within the vicinity of the proposed well sites which currently provides access for local farmers. Topography at the proposed well sites is flat. Based on the results of the site visits conducted on May 2 and 3, 2011, slope at the proposed project sites average less than 2 percent. No buildings or structures are currently present on the proposed project sites. The proposed project will not involve the construction of any structures. The proposed water disposal wells will be drilled to approximately 800 to 1,000 feet below ground surface (bgs).

VIa. The proposed project will not expose people or structures to potential adverse effects from landslides as the project topography is flat and there are no inhabited structures that would be impacted by strong seismic ground shaking, or seismic-related ground failure (including liquefaction and lateral spreading). The closest known active fault

in geographic relation to the proposed project sites is the San Andreas Cholame located approximately 15.4 miles west of the closest proposed well site.

The drilling of an injection well simulates the effects of an earthquake, and causes shaking of the rig while rotary drilling (especially hard, high torque formations). Many small capacity drilling rig and/or production rigs are anchored via guy wires for stability, while most large capacity (deep drilling) rig have a low center of gravity with heavy base sub-structures that taper up to smaller top member. This design, with low center of gravity, effectively allows the rig to with stand shaking and movement without falling over.

VIb. Because each of the proposed project sites is located in a flat area, the proposed project will not result in substantial soil erosion or the loss of topsoil. Existing drainage patterns will be maintained within each of the proposed disposal well sites.

VIc. Implementation of the proposed project will not increase ground subsidence in the project area as a result of water usage.

During the site preparation and drilling phases for each project site, water would be supplied from a system supplied by the California Aqueduct, not a local groundwater source. Accordingly water use during each of these phases would have no impact on subsidence.

The proposed disposal wells will be drilled to approximately 800 to 1,000 feet below ground surface (bgs). Due to the fact that Aera is injecting water into oil field zones and not extracting water from oil field zones, no subsidence anticipated

As the topography is flat, the proposed project sites will not be subject to landslide risks; therefore, there are no impacts expected.

VId. The proposed project sites are underlain by Kimberlina fine sandy loam, Panoche clay loam and Milham sandy loam deposits derived from the Temblor Range to the west. These sediments can have low to moderate expansive characteristics which are limiting to some construction activities. However, with proper moisture conditioning during compaction activities, and the fact that drilling activities require no foundations for mobile equipment, there will be no impacts due to expansive soils.

VIe. The proposed project does not involve the construction of any facilities requiring the use of septic tanks or any waste disposal systems. Excess drilling water is the only potential wastewater that will be generated during project activities, and it will be transported offsite to another drilling location on Aera property.

Conclusion: No Impact.

ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. GREENHOUSE GAS EMISSIONS				
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	_____	_____	X	_____
b. Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	_____	_____	X	_____

Discussion: Greenhouse gas (GHG) is any gas that absorbs infrared radiation in the atmosphere. GHGs include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), halogenated fluorocarbons (HCFCs), ozone (O_3), perfluorinated carbons (PFCs), hydrofluorocarbons (HFCs), and sulfur hexafluoride (SF_6). On December 7, 2009, the U.S. Environmental Protection Agency (EPA) issued an Endangerment Finding on the above referenced key well-mixed GHGs. These GHGs are considered "pollutants" under the Endangerment Finding. However, these findings do not themselves impose any requirements on industry or other entities.

The Global Warming Solutions Act (AB32) was passed by the California Legislature and signed into law by the Governor in 2006. AB32 requires that GHG emissions in 2020 be reduced to 1990 levels. GHG rules and market mechanisms for emissions reduction are required to be in place by January 1, 2012. At present, certain stationary source facilities are required to report GHG emissions on an annual basis. The proposed project is for drilling water injection wells. As such, the project is temporary in nature, and is not classified as a stationary source facility. Therefore, Aera would not be required to report GHG emissions.

In August 2008, the SJVAPCD Governing Board adopted the Climate Change Action Plan (CCAP). The CCAP directed the District's Air Pollution Control Officer to develop guidance to assist the District staff, valley businesses, land–use agencies, and other permitting agencies in addressing GHG emissions as part of the CEQA process. In support of this guidance, the SJVAPCD released a staff report titled "*Addressing Greenhouse Gas Emissions under the California Environmental Quality Act*" on December 17, 2009. The staff report provided a summary of background information on global climate change, the current regulatory environment surrounding GHG emissions, and the various concepts in addressing the potential impacts of Global Climate Change under CEQA. The report also evaluated different approaches for estimating impacts, and summarized potential GHG emission reduction measures. District staff concluded in the report that existing science is inadequate to support quantification of impacts that project specific GHG emissions have on global climatic change.

The SJVAPCD has developed an approach intended to streamline the process of determining if project specific GHG emissions would have a significant effect. The methodology relies on the use of best performance standards (BPSs) that would be applicable to projects that result in increased GHG emissions. Use of performance-based standards is not a method of mitigating emissions. Rather it is a method of determining significance of project specific GHG emission impacts using established specifications or project design elements. Establishing BPSs would help project proponents, lead agencies, and the public by proactively identifying effective, feasible GHG emission reduction measures. Emission reductions achieved through implementation of BPS would be pre-quantified, thus negating the need for project specific quantification of GHG emissions.

BPSs are defined as the most effective achieved-in-practice means of reducing or limiting GHG emissions from a GHG emissions source. For traditional stationary source projects, BPS includes equipment type, equipment design, and operational and maintenance practices for the identified service, operation, or emissions unit class and category. According to the SJVAPCD, projects implementing BPSs in accordance with this guidance would be determined to have a less than significant individual and cumulative impact on global climate change and would not require project specific quantification of GHG emissions.

VIIa,b. Emissions were calculated to determine GHGs emitted by the proposed project. GHG emissions were estimated using Road Construction Emissions Model, Version 6.3.2 software, which is recommended by the SJVAPCD for use in calculating air emissions for this type of project. This program determined that the only GHGs emitted by the project would be CO_2. None of the other GHGs previously listed would be produced by the proposed project.

GHG emissions for the project were estimated based on lists of equipment for each phase of the project and the corresponding assumptions provided by Aera. Equipment proposed for use during the proposed project and corresponding assumptions are found in Tables 3 and 4 in Section III, Air Quality.

Table 9 summarizes the tons per year of GHG emissions that could be produced during the construction of a single well site, and the drilling and completion of a single water injection well from the well site. Table 10 summarizes the tons per year of GHG emissions that could be produced during the construction of six (6) well sites, and the drilling and completion of six (6) water injection wells from the well sites. Table 11 summarizes the tons of GHG emissions that could be produced during complete project build out [the construction of 30 well sites, and the drilling and completion of 30 wells from the well sites. As stated previously, the operation phase of the water injection wells will not produce air pollutants, including GHGs.

Table 9
GHG Emissions Calculations for Construction of a Single Well Site, and the Drilling and Completion of a Single Water Injection Well

Project Phase	CO_2 Emissions (Tons per Phase)
Construction Phase	4.93
Drilling Phase	321.79
Total Emissions	**326.72**

Table 10
Yearly GHG Emissions Calculations for Construction of Six (6) Well Sites, and the Drilling and Completion of Six (6) Water Injection Wells

Project Phase	CO_2 Emissions (Tons per Phase)
Construction Phase	29.58
Drilling Phase	1,930.74
Total Emissions	**1,960.32**

Table 11
GHG Emissions Calculations for Complete Project Build-out (Construction of 30 Well Sites, and the Drilling of 30 Water Injection Wells)

Project Phase	CO_2 Emissions (Tons)
Construction Phase	147.90
Drilling Phase	9,653.70
Total Emissions	9,801.60

As previously discussed, Aera is proposing to construct six (6) well sites and drill six (6) water injection wells from the well sites yearly for approximately five (5) years until 30 water injection wells are drilled and completed. The well sites would be prepared, and the water injection wells would be drilled completed. Therefore, under the worst-case scenario of complete project implementation, a total of 9,801.60 tons of GHGs would be emitted.

Since quantitative GHG guidelines, regulations, methodologies, significance

thresholds, standards, or analysis protocols for the assessment of GHG emissions and climate change have not been developed or adopted by the SJVAPCD, DOGGR, or other regulatory bodies, these emission calculations are provided for informational purposes only. The methodology to establish an appropriate baseline by which to develop a project-level inventory for the proposed project has not yet been established that would allow for an appropriate analysis of the impact of the project on climate change or the impact of climate change on the project.

Global climate change is a cumulative impact. A project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHG emissions. However, the impacts on global warming and climate change are indirect, not direct, and the emissions cannot be correlated with specific impacts based on currently available science. Climate change is a worldwide phenomenon, and local government currently lacks the expertise to develop the scientific tools and policy needed to select quantitative CEQA significance thresholds for climate change or GHG emissions.

While it is not possible to determine whether the proposed project individually would have a significant impact on global warming or climate change, the project would contribute to cumulative GHG emissions in California. Kern County and the SJVAPCD currently do not have GHG inventories. On December 6, 2007, CARB established a GHG emissions limit based on the 1990 level for 2020 and adopted regulations requiring mandatory reporting of GHGs for large facilities. After a year of investigation, CARB has established that the state's 1990 emissions were approximately 471 million tons of CO_2. Preliminary estimates indicate that 2020 emissions could be approximately 600 million tons of CO_2 if no actions are taken to reduce GHGs.

As stated previously, the proposed project would emit a total of 1,960.32 tons of CO_2 into the atmosphere yearly during project implementation. This represents less than 0.0004 % of the yearly contribution of CO_2 into the atmosphere in the State of California under 1990 emissions levels, and even less under the estimated levels for 2020. The proposed project's main contribution to GHG emissions would be from motor vehicles, heavy trucks, construction equipment, and other stationary internal combustion engines used to power drilling operations. The proposed project's emissions would contribute to an increase in GHG emissions. The effect of anticipated actions by CARB to address transportation issues, such as the development of fuels with less carbon, is not known at this time. However, without the necessary science and analytical tools, it is impossible to assess with certainty whether the proposed project's contribution would be cumulatively considerable within the meaning of the CEQA Guidelines, Sections 15065(a) (3), 15130, and 21083.

Section 15130 of the CEQA Guidelines notes that sometimes the only feasible mitigation for cumulative impacts may involve the adoption of ordinances or regulations rather than the imposition of conditions on a project-by-project basis and

global climate change is this type of issue. Causes and effects are not just regional or statewide, they are worldwide.

Aera would limit or mitigate its release of GHGs through a combination of the following BPSs/operational measures:

- All engines used shall be maintained in compliance with the U.S. Environmental Protection Agency (USEPA) and the CARB engine standards.
- SJVAPCD Rule 2280 Portable Equipment Registration for certain portable emissions units shall be required for site preparation and well drilling activities.

Because Aera is implementing the above operational measures/BPSs as suggested by the SJVAPCD, the proposed project would have a less than significant individual and cumulative impact on global climate. Implementation of these measures also ensures that the project is in compliance with the Climate Change Action Plan being implemented by the SJVAPCD.

Conclusion: Project design shall reduce potential impacts to Air Quality to a level of less than significant.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VIII. HAZARDS & HAZARDOUS MATERIALS				
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	_____	_____	_____	X
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	_____	_____	X	_____
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	_____	_____	_____	X
d. Be located on a site which is included on a list of hazardous materials compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment?	_____	_____	_____	X
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	_____	_____	_____	X
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	_____	_____	_____	X
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	_____	_____	_____	X
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	_____	_____	_____	X

Discussion: The proposed project site consists primarily of agricultural lands. Potential hazardous materials uses in the project area that may affect the implementation of the proposed project are former and existing oil and gas wells, pesticides and herbicides from agricultural uses, residential storage and usage and private farm workshops. Drilling a water disposal well requires minimal transportation, use or storage of hazardous materials including fuels, oils, lubricants, hydraulic fluids and solvents used at each well location.

VIIIa. There is potential for accidental releases of hazardous materials during project operations. There is also potential for an accidental release during drilling operations if there is a blowout; however, surface casing will be set, cemented, and blowout prevention equipment will be installed at each wellhead and tested to minimize the potential releases associated with blowouts. Potential impacts associated with the accidental release of these materials depend on the quantity and type, the location where it is used, the toxicity or other hazardous characteristics of the material, and whether it is transported, stored, and used in a solid, liquid, or gaseous form.

During site preparation, a reserve pit may be excavated within each of the proposed well sites. Compaction of the surface, combined with the deposition of bentonite drilling muds during drilling operations, will give the pit a seal. Completing the site preparation process for the proposed well sites will require approximately 2 days per site. Water may be applied to access roads and the proposed well sites to facilitate movement of heavy equipment and to control dust.

The following procedures will be implemented to avoid and/or minimize potential impacts resulting from hazards or hazardous materials:

1. All hazardous materials such as diesel fuel shall be stored according to applicable federal, state and local regulations and Material Safety Data Sheets shall be on each site. Waste materials shall be managed properly in accordance with applicable federal, state and local requirements. Training shall be provided to all personnel involved in handling of hazardous materials/waste.

2. In order to minimize potential impacts associated with a blowout, surface casing shall be set, cemented, and blowout prevention equipment installed at each wellhead and tested. Requirements for well casing design and blowout prevention equipment are regulated by DOGGR. DOGGR engineers shall be notified for required tests and other operations.

3. A project specific emergency response plan shall be prepared for the project and a copy of the plan shall be kept on each site. The plan shall discuss methods to avoid and/or minimize impacts in the event of a release. The purpose of the plan shall be to ensure that adequate containment would be provided to control accidental spills, that adequate spill response equipment and absorbents would be readily available, and that personnel would be properly trained in how to control and clean up any spills.

4. Fluid disposal shall follow RWQCB regulations.

5. If project development uncovers any previously unknown oil, gas, or injection wells, DOGGR shall be notified. Part of project approval includes the re-abandonment of two wells, "Jacobs"57 (029-36367) and SWEPI 45-22 (029-35032) identified during the Area of Review (AOR) as requiring additional work prior to initiating injection in the disposal well project area.

With the implementation of the operational procedures, the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

VIIIb. See VIIIa.

VIIIc. No existing or proposed schools are located within one-quarter mile of any of the proposed well sites. Belridge Elementary School is located approximately 1.2 miles west of the proposed project sites. Therefore, the proposed project would not have the potential to emit hazardous emissions or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

VIIId. The proposed project sites are not located on listed hazardous material sites. Therefore, the proposed project would not create a significant hazard to the public or environment.

VIIIe,f. The proposed project sites are not located within an airport land use plan or within two miles of a public airport or public use airport. The Lost Hills Kern County Airport is located approximately 8.8 miles northeast of the proposed well sites. Therefore, the proposed project would not result in a safety hazards for people residing or working in the project area related to public airport activities.

VIIIg. Implementation of the proposed project will not alter any existing and/or adopted emergency response plans or emergency evacuation plans for the local area.

VIIIh. The proposed project is not located in wildland areas. Therefore, the proposed project will not increase fire risk in wildland areas.

Conclusion: Project design shall reduce any potential impacts relative to hazards and hazardous materials to a level of less than significant.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
IX. HYDROLOGY AND WATER QUALITY *Would the project:*				
a. Violate any water quality standards or waste discharge standards?	____	____	X	____
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	____	____	____	X
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on-or off-site?	____	____	____	X
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site?	____	____	____	X
e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	____	____	____	X
f. Otherwise substantially degrade water quality?	____	X	____	____
g. Place housing within a 100-year flood hazard area?	____	____	____	X
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	____	____	____	X
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	____	____	____	X
j. Inundation by mudflow?	____	____	____	X

Discussion: The proposed project sites fall within the Tulare-Buena Vista Lakes Watershed. The watershed supports a variety of water uses including municipal and agricultural supply systems and recreation. Surface water in many areas is intimately connected with the ground water along the nearby alluvial valleys, thereby having a profound effect on local groundwater supplies. The proposed project will not alter current drainage patterns in the project area and will be short term in nature. All water required during implementation of drilling will be imported to the proposed well sites from local surface water sources with existing entitlements.

IXa. The project area does not conflict with applicable water quality and waste discharge standards relating to hydrology and water quality. The project will comply with all requirements established by the RWQCB. RWQCB Waiver Resolution No. R5-2008-0182 waives the requirement to file a Report of Waste Discharge and/or issue Waste Discharge Requirements for the temporary discharge of drilling mud to a sump (pit). Resolution No. R5-2008-0182 includes several conditions such as a sump design must assure no overflow; drilling mud can remain in a sump only if it can be demonstrated to be non-hazardous; drilling mud in a sump must be dried by evaporation or pumping; and, the site must be restored to pre-sump conditions and the area shall be restored within 60 days of completion of a well. The solids that accumulate in the mud pits/tanks can be reused if it is demonstrated that they are nonhazardous. If any wastes test positive for hazardous material they will be disposed of in the appropriate licensed site. These waste materials would be disposed of at a Class 1 through Class 3 disposal site depending on the results of analytical testing at the conclusion of the project. It is not possible at this time to determine the appropriate class of waste facility to be used without analytical data.

All disposal well operations will be regulated by DOGGR to protect groundwater. The EPA and RWQCB have commented on numerous occasions regarding measures necessary to protect underground sources of drinking water and other groundwater beneficial uses as mentioned above. The EPA requested that the aquifer exemption area extend at least one mile beyond (down-gradient) the permissible injection project area. As an additional protection of USDWs, between the injection project and potential receptors, Aera controls one mile of the aquifer beyond the aquifer exemption boundary. During negotiations with the RWQCB, Aera has committed to a minimum depth of injection and the installation of a pressure and water quality monitoring network to protect beneficial uses of waters of the State existing beyond the exemption boundary. Finally, the RWQCB conditions include reporting of monitoring network pressure and water quality results annually.

IXb. Compliance with applicable statutes, regulations, aquifer exemption and injection project permit conditions will verify that groundwater utility is not being degraded and that the project will not interfere with groundwater recharge, or deplete groundwater resources in a manner that will cause water-related hazards such as subsidence. In compliance with DOGGR regulations, Aera will install and cement surface casing to prevent blowouts and contamination of fresh water aquifers. DOGGR regulations specify that the base of fresh water must be protected with cemented casing to prevent any contamination from migrating fluids encountered in

oil and gas zones. The regulations also specify that oil and gas zones must be protected with cemented casing to prevent any contamination from infiltrating water. DOGGR engineers review the drilling and completion operations to ensure these requirements have been met. Therefore, the project would not be expected to alter groundwater supplies or their utility.

IXc,e. The project will not alter the current drainage pattern in a manner that will promote flooding, erosion or siltation either on or off the sites. The project will maintain existing agricultural and oil field drainage patterns. The project will create minimal runoff as the injection well sites are less than 1 acre in size and are not completely impervious. Accordingly, no existing or planned stormwater drainage systems will be altered and the capacity of the existing systems will not be exceeded.

IXf. See IXa-e.

IXg,h. The proposed project would not involve the construction of any structures within a 100-year flood plain, and therefore, would not impede or redirect any water flow within a 100-year flood plain.

IXi,j. There is no potential for seiche or tsunami due to the lack of a significant water body near the proposed project sites. The project area is flat eliminating the possibility of mudflow. No evidence of past mudflows was observed within or adjacent to the proposed project area. Flooding is not known to occur within the project area.

Conclusion: Less than significant impact with mitigations included as Aquifer Exemption and Injection Project approval.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
X. LAND USE AND PLANNING *Would the project:*				
a. Physically divide an established community?	____	____	____	X
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	____	____	____	X
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	____	____	____	X

Discussion: Primary land use for the proposed project area is agriculture. Additional land uses within and adjacent to the proposed project area include drilling, production and transportation of oil and natural gas. The proposed project is compatible with existing land uses.

Xa. The proposed project sites will not physically divide an established community because the proposed project sites are located in un-incorporated agricultural areas.

Xb. The proposed project is consistent with the Kern County General Plan land use and zoning designations for the project area and is therefore considered consistent with associated agricultural resource planning purposes and General Plan requirements. The Kern County General Plan Land Use and Resource Conservation Elements state that petroleum exploration and extraction, mineral and petroleum, petroleum fields and mineral deposits of regional and statewide significance are "compatible" uses with agricultural designations.

Xc. The proposed project does not conflict with any Habitat Conservation Plans, Natural Communities Conservation Plans other approved local, regional, or state habitat conservation plans in the project area.

Conclusion: No Impact

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XI. MINERAL RESOURCES				
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	_____	_____	_____	X
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	_____	_____	_____	X

Discussion: Kern County including the general project area serves as an important regional source of oil and natural gas. Previously identified oil fields in the general project area include the North and South Belridge Fields. The proposed aquifer exemption and disposal project sites are located east of and adjacent to the South Belridge Field. Two wells Jacobs"57 (029-36367) and SWEPI 45-22 (029-35032) require re-abandonment attempts prior to approval of the proposed injection project.

The proposed project is consistent with the Kern County Land Use, Open Space and Conservation Element of the Kern County General Plan. It is also consistent with the Kern County Zoning Ordinance, Chapter 19.98 (Oil and Gas Production which includes operating a disposal well).

XIa,b. The proposed project will not result in the loss of availability of a known mineral resource, or the loss of a locally important mineral resource recovery site.

Conclusion: No Impact.

ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. NOISE				
Would the project:				
a. Exposure of people to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	_____	_____	X	_____
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	_____	_____	_____	X
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	_____	_____	_____	X
d. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	_____	_____	_____	X
e. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	_____	_____	_____	X

Discussion: The proposed project is compatible with existing land uses in the project area and areas immediately adjoining the project parcels. However, the Kern County Energy Element of the General Plan states that any kind of energy development generates significant noise levels.

The proposed project will result in short term noise impacts. Site preparation and drilling and completion activities are expected to use the following types of equipment: drilling equipment, truck-mounted crane, pumps, pneumatic tools, loaders, and a variety of miscellaneous equipment including air compressors. The number and type of equipment used during project activities will vary from day to day.

The U.S. EPA has found that the noisiest equipment types operating at construction sites typically range from 88 dBA to 101 dBA at a distance of 50 feet. Table 12 below lists noise levels typically generated by construction equipment.

Based on the data in Tables 12 and 13, equipment anticipated to be associated with the construction of the proposed project sites and drilling of the proposed disposal wells will produce maximum sound levels of 85 dBA at a distance of 50 feet from the proposed project site during construction and 87 dBA during drilling. The nearest residence is located approximately 1.3 miles (6,830 feet) north-northeast of the proposed Section 21 disposal project site.

Noise level at the closest residence to the proposed Section 21 disposal project site was calculated using the equation below.

$$L_1 = L_2 + 20\log_{10}(R_2/R_1)$$
$$L_2 = L_1 - 20\log_{10}(R_2/R_1)$$
$$L_2 = 87 - 20\log_{10}(6{,}830'/50')$$
$$L_2 = 87 - 43$$
$$L_2 = 44 \text{ dBA}$$

L_1 = Sound level at Object 1, the dosimeter due northeast of the noise source (87 dBA)
L_2 = Estimated sound Level at Object 2, the nearest residence
R_1 = Distance from the source of noise to the northeast dosimeter (50 feet)
R_2 = Distance from the source of noise to the nearest residence (6,830 feet)

XIIa. Based upon the results presented above, the average outdoor noise level at the proposed Section 21 disposal site is expected to be 44 dBA during drilling activities at the closest residence. The proposed wells will be in compliance with the Noise Control Ordinance in the Kern County Code (Section 8.36.020 et seq.) and with Kern County General Plan Noise Element. The Noise Control Ordinance in the Kern County Code (Section 8.36.020 et seq.) prohibits a variety of nuisance noises but does not specifically mention construction or related noise. The Kern County General Plan Noise Element establishes a 65 dBA maximum Day-Night Average Noise Level (Ldn) as being considered compatible with residential uses or development.

XIIb. The proposed project is expected to create ground-borne vibration as a result of project activities (i.e., during site preparation and well drilling activities). Vibration is sound radiated through the ground. The rumbling sound caused by the vibration is called ground-borne noise. The ground motion caused by vibration is measured as particle velocity in inches per second and is referenced as vibration decibels (VdB). The background vibration velocity level in residential areas is usually around 50 VdB. The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity level of 75 VdB is the approximately dividing line between barely perceptible and distinctly perceptible levels for many people (Federal Railroad Administration 1998). The general human response to different levels of ground-borne vibration velocity levels is described in the following table:

Bio Survey

Biological Survey
Aera Energy LLC
South Belridge Water Disposal and Aquifer Exemption Project
Kern County, California

Prepared for:

Aera Energy LLC
10000 Ming Avenue
Bakersfield, CA 93311-1302
Contact: Ron Chambers
(661) 665-5367

Prepared by:

Robert A. Booher Consulting
Environmental Planning and Management
3221 Quail Hollow Drive
Fairfield, California 94534
Contact: Bob Booher, R.E.A.
(707) 399-7835

June 2011

PROJECT INTRODUCTION, LOCATION, AND ENVIRONMENTAL SETTING

Aera Energy LLC (Aera) is proposing the establishment of a modified aquifer exemption for the Tulare aquifer in the area of the South Belridge oilfield and the adoption of a Class II disposal project authorizing the installation of up to 30 wells injecting up to 150,000 barrels of water per day. The proposed injection wells project site is comprised of the southern half of Section 17; the northeast one-quarter of Section 20; the northern one-half of Section 21, the southwest one-quarter of Section 22, and the western one-half of Section 27 located within Township 28 South, Range 21 East MDB&M – USGS 7.5-minute Lost Hills quadrangle map). It is our understanding that no surface disturbances will occur as a consequence of the Aquifer Exemption so this analysis is limited to the proposed Class II disposal project. Based on typical drilling location (85'x150') and maximum anticipated access road (20'x1320') dimensions, the total surface disturbance for the 30 wells is approximately 28.5 acres of the 1,280 acre project site.

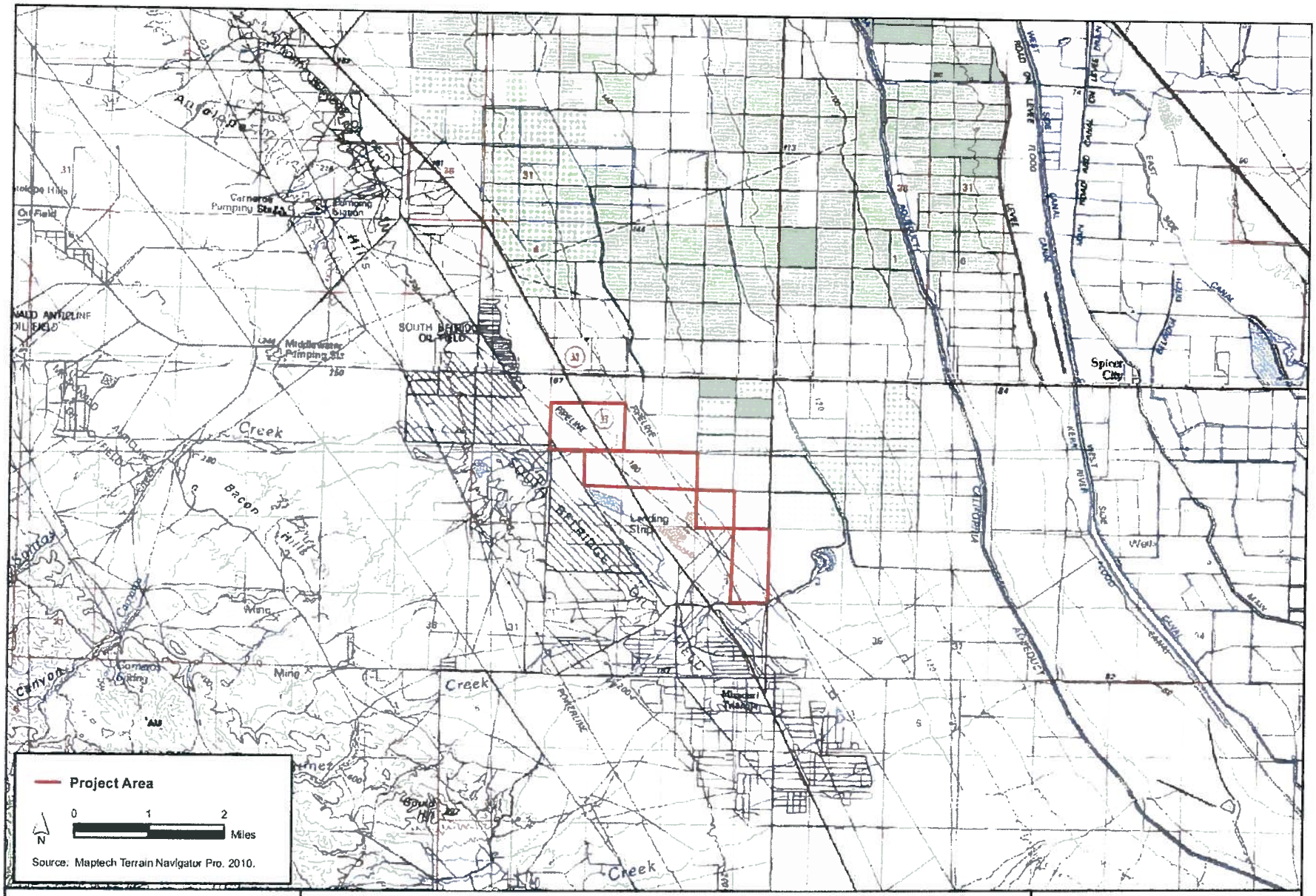
The project site is illustrated on Figures 1, 2, and 3. The surface locations of the proposed injection project wells are on lands owned by Aera and are served by numerous, existing oilfield roads. The proposed project site is located in southern Kern County. Aera retained the services of Robert A. Booher Consulting (RAB Consulting) to conduct a biological surveyt of the proposed water injection wells project site for submittal to the State of California, Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR). Surveys were also conducted within the buffer areas of the project site.

On May 2 and 3, 2011, RAB Consulting conducted biological surveys of the proposed project site as well as buffer areas to identify known or potential habitat for special-status wildlife and plant species. This report presents the results of our biological surveys.
The proposed project site is located in annual grassland, agricultural cropland, saltbrush scrub, farm pond, stream/agricultural drainage canal, and ruderal/disturbed habitat areas. The areas surrounding the proposed project site consist of similar habitat types. Existing access roads (paved and unpaved) are present throughout the project site and area. Surrounding land uses include cattle grazing, agricultural crop growing, and oil/natural gas exploration and production activities.

Representative photographs of the proposed project site are presented in Appendix A.

SURVEY METHODOLOGIES

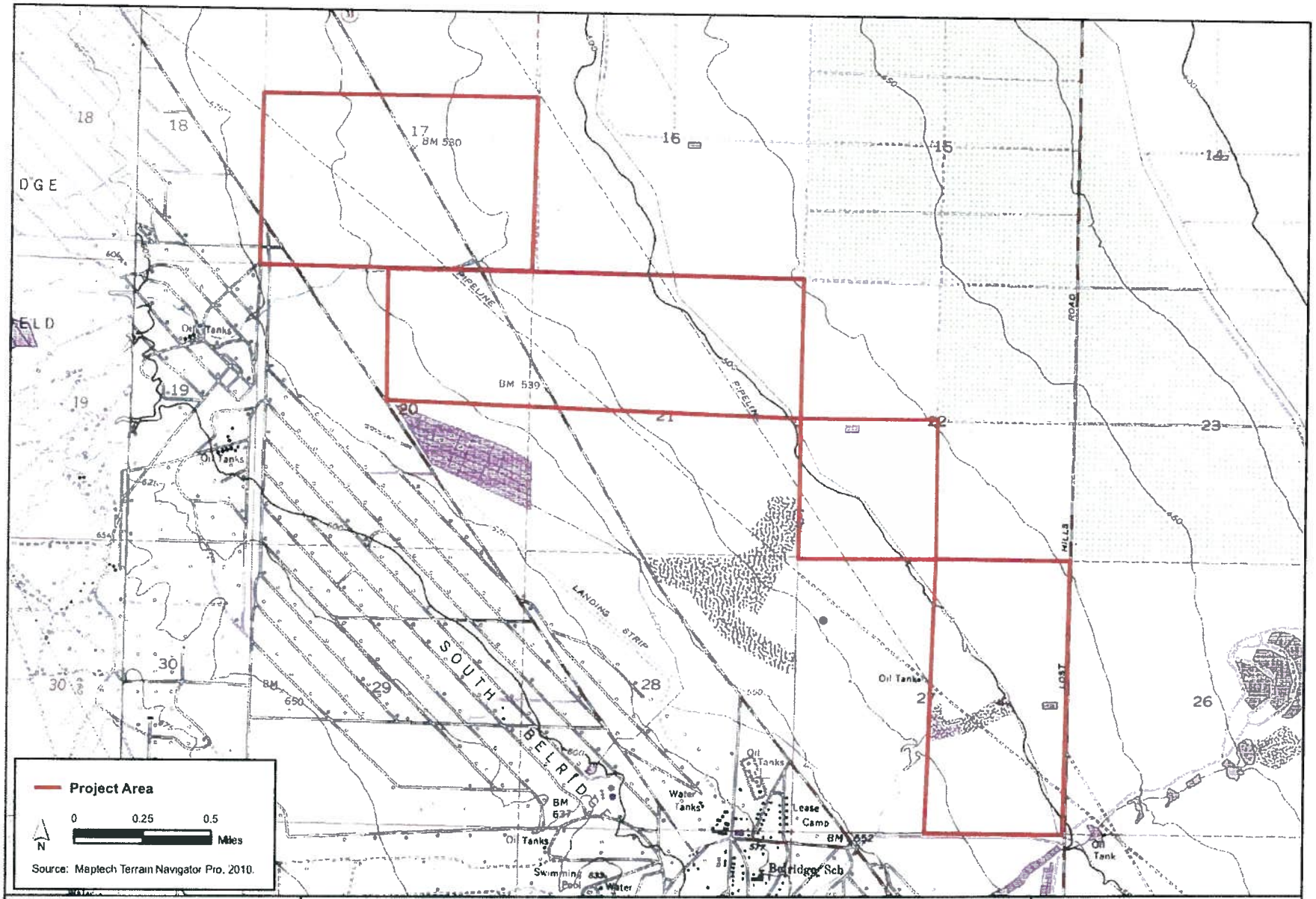
Literature Review: We reviewed RAB Consulting data files, records from the California Natural Diversity Database (CNDDB) (California Department of Fish and Game [CDFG] 2011), the United States Fish and Wildlife Service (USFWS) online electronic database of threatened and endangered species (USFWS 2011), and the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2011) for special-status species that have potential to occur within the project area. Special-status species that potentially occur within and/or adjacent to the project site and buffer areas are identified in Table 1. Figure 4 illustrates the location of documented special-status plant and animal occurrences within the project area.



Robert A. Booher Consulting
Environmental Planning & Management
3221 Quail Hollow Drive
Fairfield, California 94533
Telephone (707) 399-7835

Figure 1
Project Vicinity Map

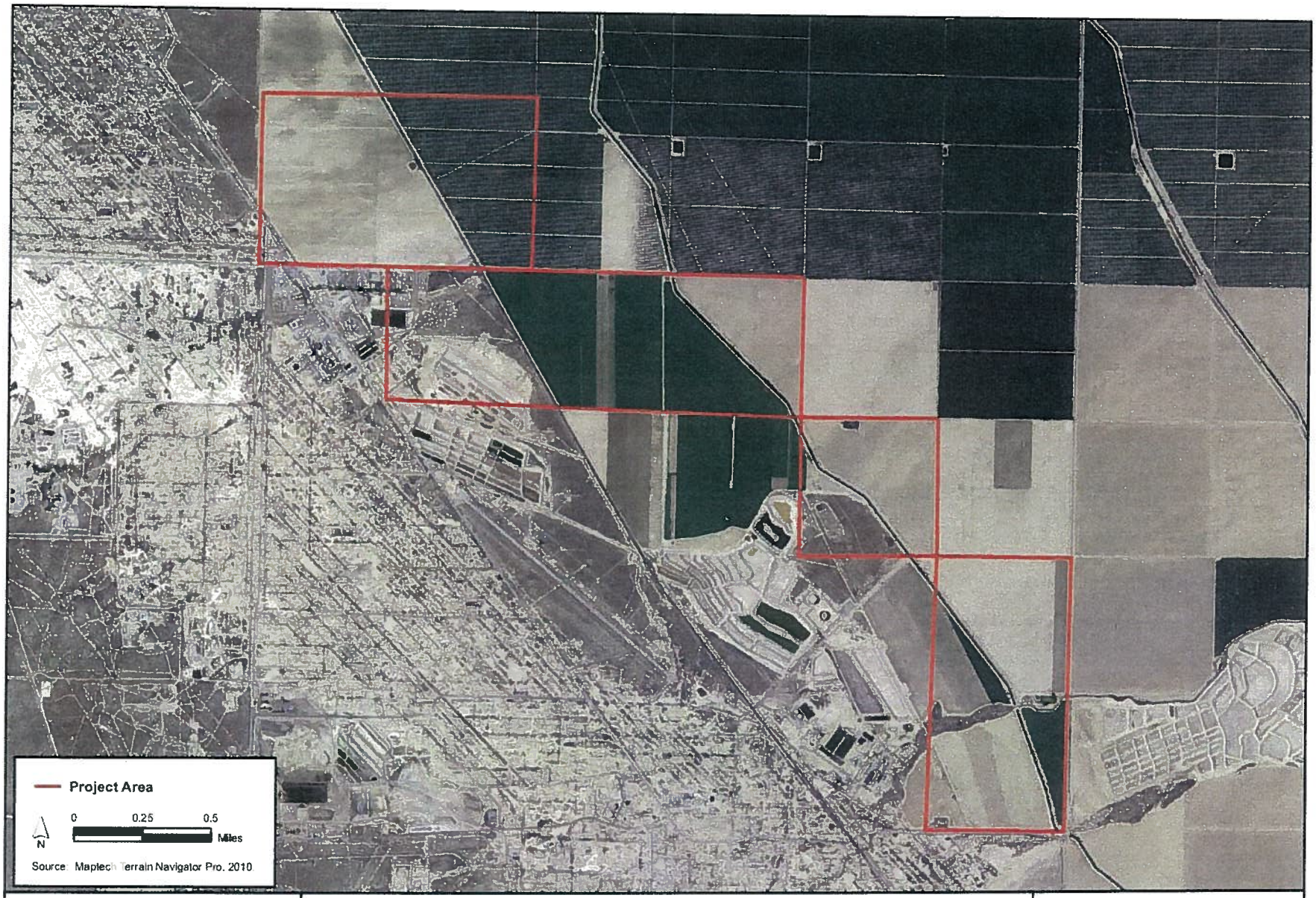
Aera Energy LLC
10000 Ming Avenue
Bakersfield, California 93311-1302
Telephone (661) 665-5367



Robert A. Booher Consulting
Environmental Planning & Management
3221 Quail Hollow Drive
Fairfield, California 94533
Telephone (707) 399-7835

Figure 2
Project Location Map

Aera Energy LLC
10000 Ming Avenue
Bakersfield, California 93311-1302
Telephone (661) 665-5367



Robert A. Booher Consulting Environmental Planning & Management 3221 Quail Hollow Drive Fairfield, California 94533 Telephone (707) 399-7835	**Figure 3** **Project Aerial Map**	Aera Energy LLC 10000 Ming Avenue Bakersfield, California 93311-1302 Telephone (661) 665-5367

Background information for listed wildlife and plant species (including biology, reasons for decline, limiting factors, etc.) that have potential to occur within and/or adjacent to the project site and buffer areas is found in the recovery plan for upland species of the San Joaquin Valley, California (Williams et al. 1998). Species that do not have potential to occur are not discussed within this report.

Sources consulted for information on distribution of special-status wildlife species, as well as local and regional sensitive fauna include Remsen 1978 [birds], Williams 1986 [mammals], Jennings and Hayes 1994 [reptiles and amphibians], and Moyle et al. 1989 [fish] and Williams et al. (1998) for federal and state listed animal and plant species.

Special-Status Species - Special-status species are those taxa that are legally protected under the State or Federal Endangered Species Act (ESAs) or other regulations and considered sufficiently rare by the scientific community to qualify for such listing. Special-status plants and animals generally fall into one or more of the following categories:

- Plants or animals listed or proposed for listing as threatened or endangered under the federal ESA (50 Code of Federal Regulations [CFR] 17.12 [listed plants], 1711 [listed animal] and various notices in the Federal Register [FR][proposed species]);
- Plants or animals that are candidates for possible future listing as threatened or endangered under the federal ESA (61 FR 40, February 28, 1996);
- Plants or animals listed or proposed for listing by the State of California as threatened or endangered under the California ESA (14 California Code of Regulations [CCR] 670.5);
- Animal species of special concern to the California Department of Fish and Game (CDFG) (Remsen 1978 [birds], Williams 1986 [mammals], Jennings and Hayes 1994 [reptiles and amphibians], Moyle et al. 1989 [fish]);
- Animals fully protected in California (California Fish and Game Code, Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]);
- Plants considered under the CNPS to be rare, threatened, or endangered in California (Lists 1B and 2) in CNPS (2001 and 2011) and Skinner and Pavlik (1994); and

Plants identified by CNPS for which more information is needed to determine their status (List 3) and plants of limited distribution (List 4) in CNPS (2001 and 2011) and Skinner and Pavlik (1994) – these taxa may be included as special-status species on the basis of local significance or recent biological information.

Table 1
Special-Status Species Potentially Occurring in the Project Area

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur in Project Area
Mammals					
San Joaquin antelope squirrel	*Ammospermophilus nelsoni*	-	CT	Found in western San Joaquin Valley from 200 to 1,200 feet elevation. Found on dry sparsely vegetated loam soils. Dig burrows or use kangaroo rat burrows. Require widely scattered shrubs, forbs, and grasses in broken terrain with gullies and washes.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. Potential burrows for this species were observed within annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. No individual antelope squirrels or signs of their activity observed during surveys. This species has been documented approximately 1.5 miles west of the proposed project site (see Figure 4).
Pallid bat	*Antrozous pallidus*	-	CSC	Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Potentially present. Suitable foraging habitat for this species was observed in all habitat types within the proposed project site and buffer areas. Potential nesting habitat was observed in an almond orchard within the northern portion of the proposed project site during biological surveys. No individual bats or signs of their activity observed during surveys. This species has not been documented in the project area (see Figure 4).

Table 1
Special-Status Species Potentially Occurring in the Project Area

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur in Project Area
Giant kangaroo rat	*Dipodomys ingens*	FE	CE	Prefer annual grassland on gentle slopes of generally less than 10°, with friable, sandy-loam soils. However, most remaining populations are found on poorer, marginal habitats which include shrub communities on a variety of soil types and on slopes up to about 22°. Giant kangaroo rats develop burrow systems with one to five or more separate openings. Utilize two types of burrow: 1) a vertical shaft with a circular opening and no dirt apron, and 2) a larger, more horizontally-opening shaft, usually wider than high with a well-worn path leading from the mouth.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. Potential burrows for this species were observed within annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. No individual giant kangaroo rats observed during surveys. This species has not been documented in the proposed project area (see Figure 4).
Short-nosed kangaroo rat	*Dipodomys nitratoides brevinasus*	-	CSC	Found on western side of San Joaquin Valley in grassland and desert shrub associations, especially in *Atriplex*. Occurs in highly alkaline soils around soda lakes. Require friable soils. Favor flat to gently sloping terrain.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. Potential burrows for this species were observed within annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. No short-nosed kangaroo rats or signs of their activity observed during surveys. This species has been documented approximately 3.7 miles northeast of the proposed project site (see Figure 4).
Tipton kangaroo rat	*Dipodomys nitratoides nitratoides*	FE	CE	Found in saltbrush scrub and sink scrub communities in the Tulare Lake Basin of the southern San Joaquin Valley. Require soft friable soils which escape seasonal flooding. Dig burrows in elevated soil mounds at bases of shrubs.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. Potential burrows for this species were observed within annual grassland and saltbush scrub habitat within the proposed project site and

Table 1
Special-Status Species Potentially Occurring in the Project Area

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur in Project Area
					buffer areas. No Tipton kangaroo rats or signs of their activity observed during surveys. This species has not been documented in the project area (see Figure 4).
Western mastiff bat	*Eumops perotis californicus*	-	CSC	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees & tunnels.	Potentially present. Suitable foraging habitat for this species was observed in annual grassland and saltbush scrub habitat types within the proposed project site and buffer areas. Potential nesting habitat was observed in an almond orchard within the northern portion of the proposed project site during biological surveys. No individual bats or signs of their activity observed during surveys. This species has been documented approximately 2.8 miles east of the proposed project site (see Figure 4).
Hoary bat	*Lasiurus cinereus*	-	CSC	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees, feeds primarily on moths, requires water.	Potentially present. Suitable foraging habitat for this species was observed in all habitat types within the proposed project site and buffer areas. Potential nesting habitat was observed in an almond orchard within the northern portion of the proposed project site during biological surveys. No individual bats or signs of their activity observed during surveys. This species has not been documented in the project area (see Figure 4).

Table 1
Special-Status Species Potentially Occurring in the Project Area

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur in Project Area
Tulare grasshopper mouse	*Onychomys torridus tularensis*	-	CSC	Hot, arid valleys and scrub deserts in the southern San Joaquin Valley. Require abundant supply of insects.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. Potential burrows for this species were observed within annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. No individual Tulare grasshopper mice or signs of their activity observed during surveys. This species has not been documented in the project area (see Figure 4).
American badger	*Taxidea taxus*	-	CSC	Found in drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Require uncultivated ground. Prey on burrowing rodents. The American badger digs their own burrows.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. No potential burrows for this species were observed within the biological survey area. No individual badgers or signs of their activity observed during surveys. This species has not been documented within the proposed project site or buffer areas (see Figure 4).
San Joaquin kit fox	*Vulpes macrotis mutica*	FE	CT	Inhabit annual grasslands or grassy open stages with scattered shrubby vegetation. Require loose-textured sandy soils for burrowing, and a suitable prey base.	Potentially present. Suitable habitat for this species was observed in annual grassland, saltbush scrub, and agricultural habitat within the proposed project site and buffer areas. No potential burrows for this species were observed within the biological survey area. No individual San Joaquin kit foxes or signs of their activity observed during surveys. This species has been documented approximately 0.8 miles southwest of the proposed project site (see Figure 4).
Birds					
Burrowing owl	*Athene cunicularia*	-	CSC	Open grasslands, prairies, farmlands,	Potentially present. Suitable habitat for this

Table 1
Special-Status Species Potentially Occurring in the Project Area

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur in Project Area
				and deserts.	species was observed in annual grassland, saltbush scrub, and agricultural habitat within the proposed project site and buffer areas. No potential nesting burrows or signs of their presence were observed during biological surveys. This species has been documented approximately 3.7 miles northeast of the proposed project site.
Mountain plover	*Charadrius montanus*	-	CSC	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sod farms. Prefer short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	Potentially present. Suitable foraging habitat for this species was observed in annual grassland and agricultural field habitat within the proposed project site and buffer areas. No individual mountain plovers observed during surveys. This species has not been documented in the project area (see Figure 4).
Prairie falcon	*Falco mexicanus*	-	CSC	Inhabits dry open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield.	Potentially present. Suitable foraging habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. No potential nesting habitat for this species is present within the proposed project site or buffer areas. No individual falcons were observed during field surveys. This species has been documented approximately 0.4 miles west of the proposed project site (see Figure 4).
Le Conte's thrasher	*Toxostoma lecontei*	-	CSC	Desert resident. Primarily found in open desert washes, desert scrub, alkali desert scrub, and desert succulent scrub habitats. Commonly nests in dense, spiny shrub or densely branched cactus in desert wash habitat, usually 2 to 8 feet above ground.	Potentially present. Suitable nesting and foraging habitat for this species was observed in saltbush scrub and stream habitat within the proposed project site and buffer areas. No individual thrashers observed during surveys. This species has been documented in the southern portion of the proposed project site (see Figure 4).

Table 1
Special-Status Species Potentially Occurring in the Project Area

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur in Project Area
Invertebrates					
Vernal pool fairy shrimp	*Branchinecta lynchii*	FT	-	Found in short-lived seasonal cool-water vernal pools with low to moderate dissolved solids.	No potential. No suitable habitat found within the project site or buffer area.
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	-	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus mexicana*). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for stressed elderberry shrubs.	No potential. No suitable habitat (elderberry bushes) found within the project site or buffer area.
Amphibians and Reptiles					
Western pond turtle	*Actinemys marmorata*	-	CSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Require basking sites and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	Potentially present. Suitable habitat for this species was observed in the farm pond and agricultural drainage canal in the proposed project site and buffer areas. No individual turtles observed during surveys. This species has not been documented in the proposed project site or buffer areas (see Figure 4).
Blunt-nosed leopard lizard	*Gambelia sila*	FE	CE, Fully Protected	Resident of sparsely vegetated alkali and desert scrub habitats, in areas of low topographic relief. Seeks cover in mammal burrows, under shrubs or structures such as fence posts. They do not excavate their own burrows.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. Potential burrows for this species were observed within annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. No individual blunt-nosed leopard lizards observed during surveys. This species has been documented approximately 2.0 miles south of the proposed project site (see Figure 4).
San Joaquin whipsnake	*Masticophis flagellum ruddocki*	-	CSC	Occurs in open, dry, treeless areas, including grassland and saltbush scrub. Takes refuge in rodent burrows, under shaded vegetation,	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. Potential

Table 1
Special-Status Species Potentially Occurring in the Project Area

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur in Project Area
Horn's milk vetch	*Astragalus hornii var. hornii*	-	List 1B	Meadows, seeps, playas, and lake margins. Elevational range: 60 to 850 meters. Blooming period: May through October.	Potentially present. Suitable habitat for this species was observed in non-native annual grassland, stream, and farm pond habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).
Salinas milk-vetch	*Astragalus macrodon* (H. & A.) Gray	-	List 4	Chaparral, cismontane woodland, and valley and foothill grassland. Elevational range: 250 to 950 meters. Blooming period: April through July.	Potentially present. Suitable habitat for this species was observed in annual grassland habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).
Heartscale	*Atriplex cordulata*	-	List 1B	Chenopod scrub, meadows, alkaline flats and scalds, valley and foothill grasslands. Usually found on sandy soils. Elevational range: 1 to 600 meters. Blooming period: April through October.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).
Crownscale	*Atriplex coronata* Wats. var. *coronata*	-	List 4	Chenopod scrub, valley and foothill grassland, and vernal pools. Elevational range: 1 to 590 meters. Blooming period: March through October.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).
Earlimart orache	*Atriplex erecticaulis*	-	List 1B	Valley and foothill grassland. Elevational range: 40 to 100 meters. Blooming period: August through September.	Potentially present. Suitable habitat for this species was observed in annual grassland habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see

Table 1
Special-Status Species Potentially Occurring in the Project Area

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur in Project Area
					Figure 4).
Lesser saltscale	*Atriplex minuscula* Standl.	-	List 1B	Chenopod scrub, playas, and Valley and foothill grassland. Elevational range: 15 to 200 meters. Blooming period: May through October.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).
Lost Hills crownscale	*Atriplex vallicola*	-	List 1B	Chenopod scrub, valley and foothill grassland, vernal pools, Found in powdery, alkaline soils that are vernally moist. Elevational range: 0 to 605 meters. Blooming period: April through August.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).
California jewel-flower	*Caulanthus californicus*	FE	CE/List 1B	Chenopod scrub, pinyon and juniper woodlands, and valley and foothill grasslands. Elevation range: 61 to 1,000 meters. Blooming period: February through May.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has been documented approximately 1.5 miles southeast of the proposed project site (see Figure 4).
Lemmon's jewelflower	*Caulanthus coulteri var. lemmonii*	-	List 1B	Pinyon and juniper woodland, valley and foothill grassland. Elevational range: 80 to 1,220 meters. Blooming period: March through May.	Potentially present. Suitable habitat for this species was observed in annual grassland habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).
Slough thistle	*Cirsium crassicaule*	-	List 1B	Chenopod scrub, marshes, swamps, and riparian scrub. Elevational range: 3 to 100 meters. Blooming period: May through August.	Potentially present. Suitable habitat for this species was observed in saltbush scrub and stream, and farm pond habitat within the proposed project site and buffer areas. This species was not observed during biological

Table 1
Special-Status Species Potentially Occurring in the Project Area

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur in Project Area
					surveys. This species has not been documented in the project area (see Figure 4).
Gypsum-loving larkspur	*Delphinium gypsophilum* Ewan ssp. *gypsophilum*	-	List 4	Chenopod scrub, cismontane woodland, and valley and foothill grasslands. Elevation range: 100 to 995 meters. Blooming period: February through May.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).
Recurved larkspur	*Delphinium recurvatum*	-	List 1B	Chenopod scrub, valley and foothill grassland, and cismontane woodland. Found on alkaline soils, often in valley saltbush or valley chenopod scrub. Elevational range: 3 to 685 meters. Blooming period: March through June.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).
Kern mallow	*Eremalche kernensis*	FE	List 1B	Chenopod scrub, valley and foothill grasslands. Elevation range: 70 to 1,000 meters. Blooming period: March through May.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has been documented approximately 1.7 miles south of the proposed project site (see Figure 4).
Hoover's eriastrum	*Eriastrum hooveri*	Delisted	List 4	Chenopod scrub, pinyon and juniper woodlands, and valley and foothill grasslands. Elevation range: 50 to 915 meters. Blooming period: March through July.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has been documented approximately 2.0 miles southwest of the proposed project site (see Figure 4).
Tremblor buckwheat	*Eriogonum temblorense*	-	List 1B	Valley and foothill grassland. Found on barren clay or sandstone substrate.	Potentially present. Suitable habitat for this species was observed in annual grassland

Table 1
Special-Status Species Potentially Occurring in the Project Area

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur in Project Area
				Elevational range: 300 to 1,000 meters. Blooming period: May through September.	habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).
Tejon poppy	*Eschscholzia lemmonii ssp. kernensis*	-	List 1B	Chenopod scrub, valley and foothill grasslands. Elevational range: 160 to 1,000 meters. Blooming period: March through May.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).
Diamond-petalled California poppy	*Eschscholzia rhombipetala* Greene	-	List 1B	Valley and foothill grassland. Elevational range: 0 to 975 meters. Blooming period: March through April.	Potentially present. Suitable habitat for this species was observed in annual grassland habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).
Coulter's goldfields	*Lasthenia glabrata ssp. coulteri*	-	List 1B	Coastal salt marsh, playas, valley and foothill grassland and vernal pools. Usually found on alkaline soils in playas, sinks, and grasslands. Associated with low-lying alkali habitats in inland valleys. Elevational range: 1 to 1,400 meters. Blooming period: February through June.	Potentially present. Suitable habitat for this species was observed in annual grassland habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).
Pale-yellow layia	*Layia heterotricha*	-	List 1B	Pinyon and juniper woodland, valley and foothill grassland, and cismontane woodland. Elevational range: 300 to 1,750 meters. Blooming period: March through June.	Potentially present. Suitable habitat for this species was observed in annual grassland habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).

Table 1
Special-Status Species Potentially Occurring in the Project Area

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur in Project Area
Munz's tidy-tips	*Layia munzii*	-	List 1B	Chenopod scrub and valley and foothill grasslands. Hillsides in white-gray alkaline soils with grasses and chenopod scrub associates. Elevational range: 45 to 760 meters. Blooming period: March through April.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).
Showy golden madia	*Madia radiata*	-	List 1B	Valley and foothill grassland, cismontane woodland, and chenopod scrub. Found mostly on Adobe clay in grassland or among shrubs. Elevational range: 25 to 1,125 meters. Blooming period: March through May.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).
San Joaquin woollythreads	*Monolopia congdonii*	FE	List 1B	Chenopod scrub, valley and foothill grasslands. Elevation range: 60 to 800 meters. Blooming period: February through May.	Potentially present. Suitable habitat for this species was observed in annual grassland and saltbush scrub habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).
Oil netstraw	*Stylocline citroleum*	-	List 1B	Chenopod scrub and coastal scrub. Found on flat areas with clay soils in oil-producing areas. Elevational range: 50 to 300 meters. Blooming period: March through April.	Potentially present. Suitable habitat for this species was observed in saltbush scrub habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).
Kings gold	*Tropidocarpum californicum* Al-Shehbaz	-	List 1B	Chenopod scrub. Elevation range: not known. Blooming period: March.	Potentially present. Suitable habitat for this species was observed in saltbush scrub habitat within the proposed project site and buffer areas. This species was not observed during biological surveys. This species has not been documented in the project area (see Figure 4).

Table 1
Special-Status Species Potentially Occurring in the Project Area

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur in Project Area
Golden violet	*Viola aurea*	-	List 2	Great basin scrub, pinyon-juniper woodland, dry, sandy slopes. Elevational period: 835 to 1,800 meters. Blooming period: April through June.	No potential. No suitable habitat found within the project site or buffer area.

Status Codes:

Federal
FE = Federally listed as Endangered
FT = Federally listed as Threatened
FC = Federal Candidate species

State
CE = California listed as Endangered
CT = California listed as Threatened
CR = California listed as Rare

California Native Plant Society
CNPS 1B = Plants rare or endangered in California and elsewhere
CNPS 2 = Plants rare or endangered in California, but more common elsewhere
CNPS 3 = Plants about which we need more information
CNPS 4 = Plants of limited distribution; a watch list.

Status and habitat information from California Natural Diversity Database (CDFG 2011), California Native Plant Society Electronic Inventory (CNPS 2011), and USFWS Online Endangered Species Database (USFWS 2011).

Table 3
Plants Observed within the Project Area

Blow wives - *Achyrachaena mollis*	Fiddleneck - *Amsinckia intermedia*
Ranchers fireweed - *Amsinckia menziesii*	Mt. Diablo locoweed - *Astragalus oxyphysus*
Saltbush (*Atriplex polycarpa*)	Slender wild oats - *Avena barbata*
Wild oat - *Avena fatua* L.	Black mustard - *Brassica nigra* (L.) Koch
Soft chess brome - *Bromus hordeaceus*	Red brome - *Bromus madritensis ssp. rubens*
Rip-gut brome - *Bromus rigidus* Roth	Red maids - *Calandrinia ciliata*
Shepherd's-purse - *Capsella bursa-pastoris*	Carrot (*Daucus carota*)
Redstem filaree - *Erodium cicutarium*	Broadleaf filaree - *Erodium botrys*
California poppy - *Eschscholzia californica*	Hare barley - *Hordeum leporinum*
Goldfields - *Lasthenia californica*	Tidy tips - *Layia fremontii*
Shiny peppergrass - *Lepidium nitidum*	Hill lotus - *Lotus humistratus*
Common mallow - *Malva neglecta* Wallr.	Horehound - *Marrubium vulgare*
Pineapple-weed - *Matricaria matricariodes*	Baby blue-eyes - *Nemophila menziesii*
Almond (*Prunus dulcis*)	Willow (*Salix spp.*)
Common groundsel - *Senecio vulgaris* L.	Blue-eyed grass - *Sisyrinchium bellum*
Perennial sowthistle - *Sonchus arvensis* L.	Spiny sowthistle - *Sonchus asper* (L.) Hill
Annual sowthistle - *Sonchus oleraceus* L.	Lacepod - *Thysanocarpus curvipes*
Red clover - *Trifolium pratense*	Narrow-leaved cattail (*Typha angustifolia*)
Broad-leaved cattail (*Typha latifolia*)	

CONCLUSION

Special-status species and their habitat have been documented within and in the general vicinity of the proposed project site. No special-status plant or animal species were observed during biological surveys. However, potential habitat and burrows observed within the project site could be used by special-status animal species. Based on the results of our biological surveys within the project site, areas vegetated with annual grassland and saltbush scrub habitat generally contained a moderate to heavy concentration of burrows that were of adequate size to support special-status small mammal species and BNLL. It is our understanding that the majority of the well sites will be placed within agricultural fields, existing oilfields, or within previously disturbed areas vegetated with ruderal/disturbed vegetation, which comprise the majority of the proposed project area. It is also our understanding that Aera will implement the *AERA ENERGY ENDANGERED SPECIES PROGRAM* (attached) which includes avoidance and minimization measures. These measures have been utilized by Aera for oil development activities occurring on private lands.

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USFWS (U.S. Fish and Wildlife Service). 1990. Endangered and threatened wildlife and plants. Federal Register. 50(35): 6184-6229.

USFWS (U.S. Fish and Wildlife Service). 1995. Standardized recommendations for the protection of the San Joaquin kit fox.

USFWS (U.S. Fish and Wildlife Service). 1996a. Endangered and threatened wildlife and plants; Review of plant and animal taxa that are candidates for listing as endangered or threatened species. Federal Register. 61(40): 7596-7613.

USFWS (U.S. Fish and Wildlife Service). 1996b. Guidelines for conducting and reporting botanical inventories for federally listed, proposed and candidate plants. Unpublished Field Survey Protocol by U.S. Fish and Wildlife Service. 3 pp.

USFWS (U.S. Fish and Wildlife Service). 1999. Standardized recommendations for the protection of the San Joaquin kit fox prior to or during ground disturbance. Unpublished protocol prepared by U.S. Fish and Wildlife Service, Sacramento, California. 7 pp.

USFWS (U.S. Fish and Wildlife Service). 2000. Guidelines for conducting and reporting botanical inventories for federally listed, proposed and candidate plants. United States Fish and Wildlife Service. January 2000.

USFWS (U.S. Fish and Wildlife Service). 2001. Revised Formal Consultation on the Oil and Gas Programmatic Biological Opinion in Kings and Kern Counties, California. Biological

Opinion (1-1-01-F-0063) issued by U.S. Fish and Wildlife Service, Sacramento, California. 76 pp.

USFWS (United States Fish and Wildlife Service). 2011. Website Address: http://sacramento.fws.gov/es/spp_lists/QuickList.cfm.

Weinstein, M. 1978. Impact of off-road vehicles on the avifauna of Afton Canyon, California. Report to Bureau of Land Management, California Desert Plan Program, Riverside California. Contract Number CA-0606-CT7-2734. 34 pp.

Williams, D. F. 1980. Distribution and population status of the San Joaquin antelope squirrel and the giant kangaroo rat. California Department of Fish and Game, Nongame Wildlife Investigation Report E-W-4, IV-10.1. 45 pp.

Williams, D. F. 1986. Mammalian species of special concern in California. California Department of Fish and Game, Wildlife Management Division, Administrative Report. 86-1. 112 pp.

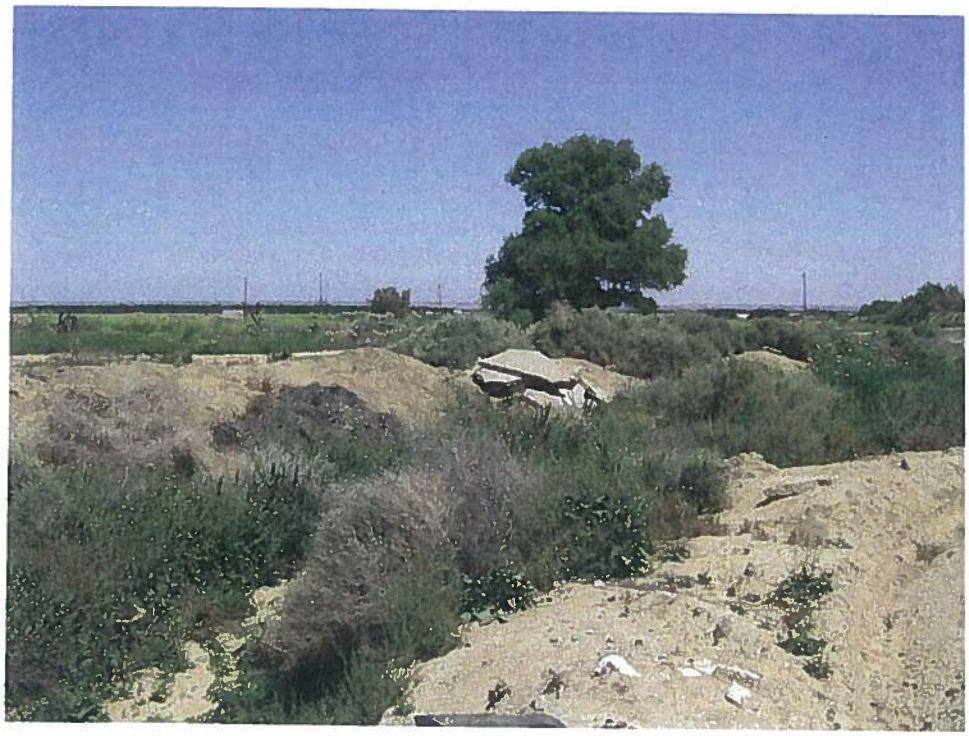
Williams, D.F. and K.S. Killburn. 1991. *Dipodomys ingens*. Mammal Species. 377:1-7.

Williams, D. F., E. A. Cypher. P. A. Kelly, K. J. Miller, N. Norvell, S. E. Phillips, C. D. Johnson, and G. W. Colliver. 1998. Recovery plan for upland species of the San Joaquin Valley, California. U.S. Department of the Interior, Fish and Wildlife Service, Portland, Oregon. 319 pp.

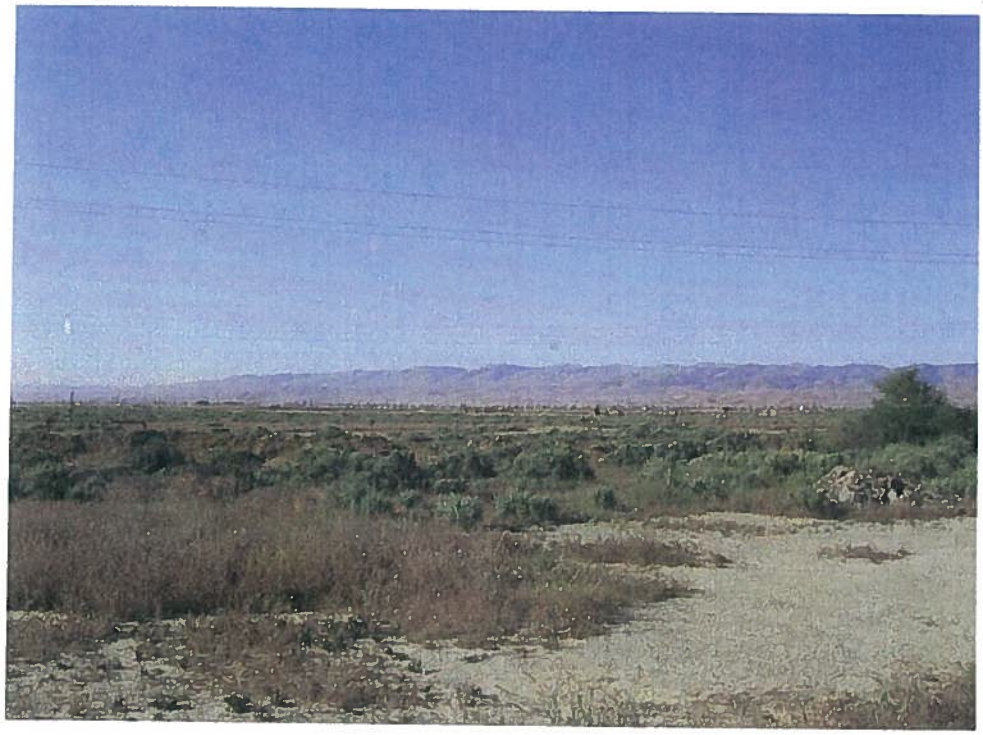
Zarn, M. 1974. Habitat management for unique or endangered species. Burrowing owl, *Speotyto cunicularia hypugaea*, Report Number 11. Technical Note, U. S. Department of Interior, Bureau of Land Management. Denver, Colorado. 25 pp.

Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer and M. White. 1990. California's wildlife. Volume I - amphibians and reptiles. Volume II - birds, and Volume III - mammals. California Department of Fish and Game. Sacramento, California.

APPENDIX A
REPRESENTATIVE PHOTOGRAPHS



Photograph 1
View of stream channel in southern portion of proposed project site. View looking east from stream channel.

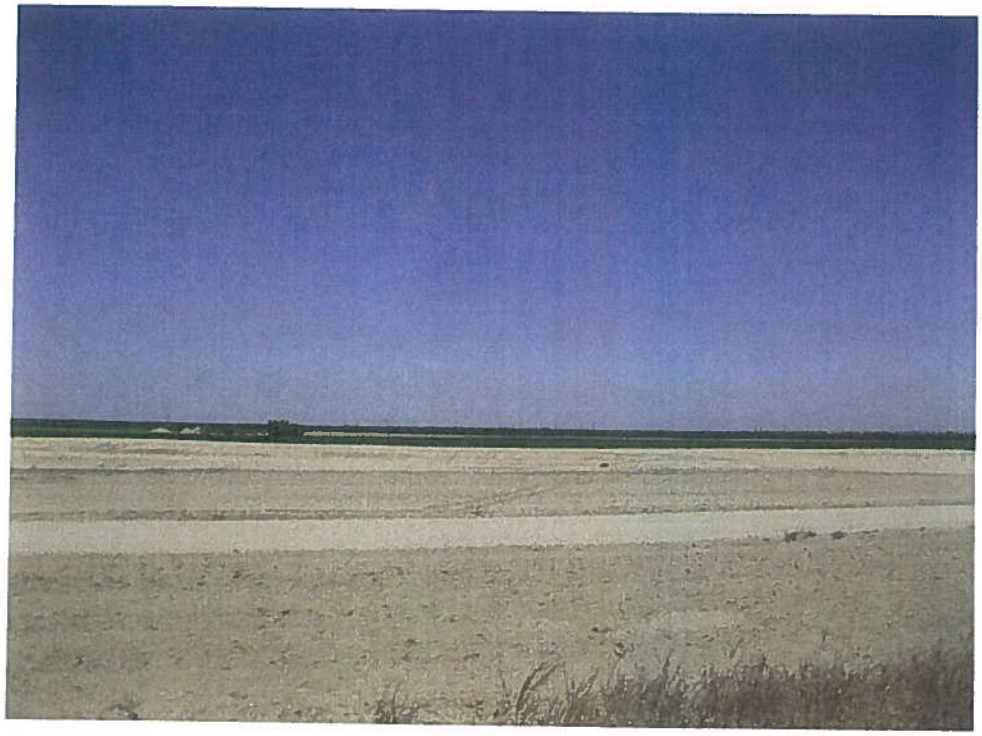


Photograph 2
View of typical saltbush scrub habitat found in the center portion of the proposed project suite. View looking south from Contractors Road.

Photograph 3
View of typical annual grassland habitat found in the center portion of the proposed project site. View looking southwest from northern edge of grassland habitat.

Photograph 4
View of typical annual grassland habitat found in the northern portion of the proposed project site. View looking north from Contractor's Road.

Photograph 5
View of typical annual grassland habitat found in the proposed project site. View looking east from northern portion of proposed project site.



Photograph 6
View of plowed and planted agricultural fields, in this case carrots. View looking north from near the center of the proposed project site.

Photograph 7
View of small mammal burrows in annual grassland habitat that could provide habitat for small mammal species including blunt-nosed leopard lizards.

Photograph 8
View of small mammal burrows in annual grassland habitat that could provide habitat for small mammal species including blunt-nosed leopard lizards.

Cultural Survey

May 29, 2011

Mr. Robert Booher
Robert A. Booher Consulting
3221 Quail Hollow Drive
Fairfield, California 94534

Subject: Cultural Resources Assessment of Aera Energy LLC Water Disposal Project and Aquifer Exemption - South Belridge Field, Kern County, California (BCR Consulting Project Number SYN1108)

Dear Mr. Booher:

Brunzell Cultural Resource Consulting (BCR Consulting) was retained by Robert A. Booher Consulting (RAB Consulting) to conduct a cultural resources records search, Native American consultation, and pedestrian survey of the Aera Energy LLC (Aera) Water Disposal Project and Aquifer Exemption - South Belridge Field, Kern County, California (proposed project). This letter report presents those results. The purpose of this study was to identify prehistoric or historic resources within the proposed project site that may be impacted by project activities, pursuant to the California Environmental Quality Act (CEQA). The lead agency under the California Environmental Quality Act (CEQA) for the project is the California Division of Oil, Gas, and Geothermal Resources (DOGGR).

A pedestrian survey and archaeological records search for the proposed project site was completed and failed to reveal the presence of prehistoric or historic resources. Based on these results the proposed project is not anticipated to affect any archaeological or historical resources. Therefore, no significant impact related to archaeological or historical resources is anticipated and no further investigations are recommended for the proposed project unless:

- The proposed project is changed to include areas that have not been subject to this cultural resource assessment;
- The proposed project is changed to include the construction of additional facilities;
- Cultural materials are encountered during project activities.

Project Description and Location

Aera Energy LLC (Aera) is proposing the establishment of a modified aquifer exemption for the Tulare aquifer in the area of the South Belridge oilfield and the adoption of a Class II disposal project authorizing the installation of up to 30 injection project wells injecting up to 150,000 barrels of water per day. Installation of an eight well pressure and water quality monitoring project is also specified as a mitigation measure for this project. The proposed injection project wells and pressure and water quality

monitoring wells are located within the following sections of Township 28 South, Range 21 East (MDBM), Kern County, California: Sections 17 (S ½), 20 (NE ¼), 21 (N ½), 22 (SW ¼), and 27 (E½). The proposed project is depicted on the U.S. Geological Survey (USGS) *Belridge, California* (1973) 7.5-minute quadrangle (see Attachment A). The southeast corner of the proposed project site is located approximately 11 miles north of the community of McKittrick in Kern County, California. West Side Highway (State Route 33) bisects the project. The surface locations of the proposed wells are on lands owned by Aera and are served by numerous, existing oilfield roads.

Archaeological Records Search

The archaeological records search was conducted by BCR Consulting Principal/Archaeologist David Brunzell at the Southern San Joaquin Valley Information Center (SSJVIC) located at California State University, Bakersfield on April 18, 2011. The records search included a review of all recorded historic and prehistoric archaeological sites, as well as recorded built environment resources within one mile of the proposed project site. The research also reviewed known cultural resources reports completed in the vicinity. In addition, BCR Consulting examined the California State Historic Property Data File (HPD), which includes the National Register of Historic Places (National Register), California Historical Landmarks (CHL), California Points of Historical Interest (CPHI), and various local historic registers. The following are the results of the records search:

USGS	Archaeological Sites	Built Environment Resources	Reports
Belridge, CA (1973) 7.5 Minute USGS Quadrangle	None	None	KE-172*, 1813*, 2278*, 3777*

*Assessed portions of the proposed project.

The records search revealed that four cultural resource studies have taken place, resulting in the recording of no historic or prehistoric cultural resources within one mile of the proposed project site.

Native American Consultation

BCR Consulting requested a search of the Sacred Lands File maintained by the Native American Heritage Commission (NAHC) on May 28, 2011. The request included a brief project description and location maps sent by email to David Singleton of the NAHC. Mr. Singleton performed the Sacred Lands File search, which failed to indicate any record of Native American cultural resources within one-half mile of the proposed project. Mr. Singleton has also provided names of potentially interested tribes and individuals to BCR Consulting. BCR Consulting has communicated with those tribes and individuals via certified letters, emails, and phone calls. A record of all communications is provided in Attachment B to this letter report.

Pedestrian Field Survey

BCR Consulting Archaeologist/Principal David Brunzell conducted an intensive pedestrian inventory of the proposed project site on May 2, 3, and 4, 2011. During the survey, Mr. Brunzell walked 15-meter transects across the portions of the proposed project site not currently under cultivation (approximately 406 acres; see Attachment A). Rodent back dirt and other natural soil exposures were carefully inspected for cultural remains. Site soils visible within such exposures included light brown

powdery silts with some gravels intermixed. The terrain was relatively flat and was covered with dense grasses that afforded approximately five percent surface visibility. The general area has been minimally altered by recent erosion. Disturbances related to modern road maintenance have been noted throughout the project, and some recent mechanical excavation and dumping was noted within the drainage surveyed in the E ½ of Section 27. Modern installations impacting the natural environment are particularly evident within the NE ¼ of Section 20. These impacts include the installation of artificial settling ponds, modern buildings and structures, a dirt parking lot, and portions of a pipeline distribution system. The southern portion of this area was also being graded by large earthmovers during the pedestrian field survey. No cultural resources were recorded within the proposed project boundaries.

Results and Recommendations

The records search and field survey did not identify any cultural resources within the proposed project site. Based on these results the proposed project is not anticipated to affect any archaeological or historical resources. Therefore, no significant impact related to archaeological or historical resources is anticipated and no further investigations are recommended for the proposed project unless:

- The proposed project is changed to include areas that have not been subject to this cultural resource assessment;
- The proposed project is changed to include the construction of additional facilities;
- Cultural materials are encountered during project activities.

The current study attempted to determine whether archaeological deposits were present on the proposed project site. Although none were yielded during the records search and field survey, ground-disturbing activities have the potential to reveal buried deposits not observed on the surface. Prior to the initiation of ground-disturbing activities, field personnel should be alerted to the possibility of buried prehistoric or historic cultural deposits. In the event that buried cultural materials are encountered by field personnel, work in the immediate vicinity of the find should cease and a qualified archaeologist should be retained to assess the significance of the find. The qualified archaeologist shall have the authority to stop or divert construction excavation as necessary. If the qualified archaeologist finds that any cultural resources present meet eligibility requirements for listing on the California Register of Historical Resources or the National Register of Historic Places, plans for the treatment, evaluation, and mitigation of impacts to the find will need to be developed. Prehistoric or historic cultural materials that may be encountered during ground-disturbing activities include:

- historic artifacts such as glass bottles and fragments, cans, nails, ceramic and pottery fragments, and other metal objects;
- historic structural or building foundations, walkways, cisterns, pipes, privies, and other structural elements;
- prehistoric flaked-stone artifacts and debitage (waste material), consisting of obsidian, basalt, and or cryptocrystalline silicates;
- groundstone artifacts, including mortars, pestles, and grinding slabs;

- dark, greasy soil that may be associated with charcoal, ash, bone, shell, flaked stone, groundstone, and fire affected rocks;
- human remains.

If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

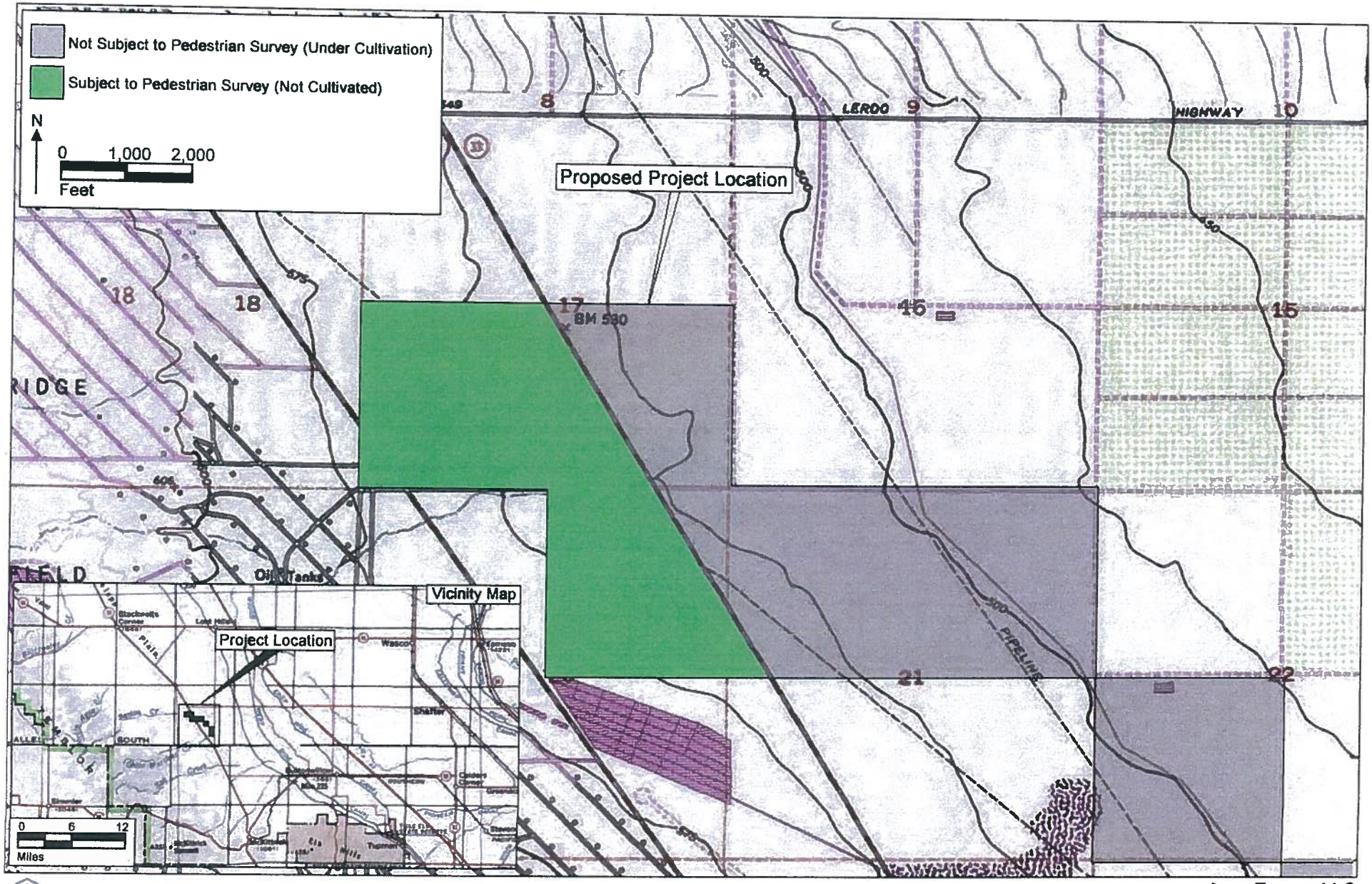
Please contact me by phone at 909/525-7078 or e-mail at david.brunzell@yahoo.com with any questions or comments.

Sincerely,

David Brunzell, M.A./RPA
Principal Investigator/Archaeologist

Attachment A: Regional and Project Location Maps
Attachment B: Native American Heritage Commission Consultation Correspondence
Attachment C: Photographic Documentation

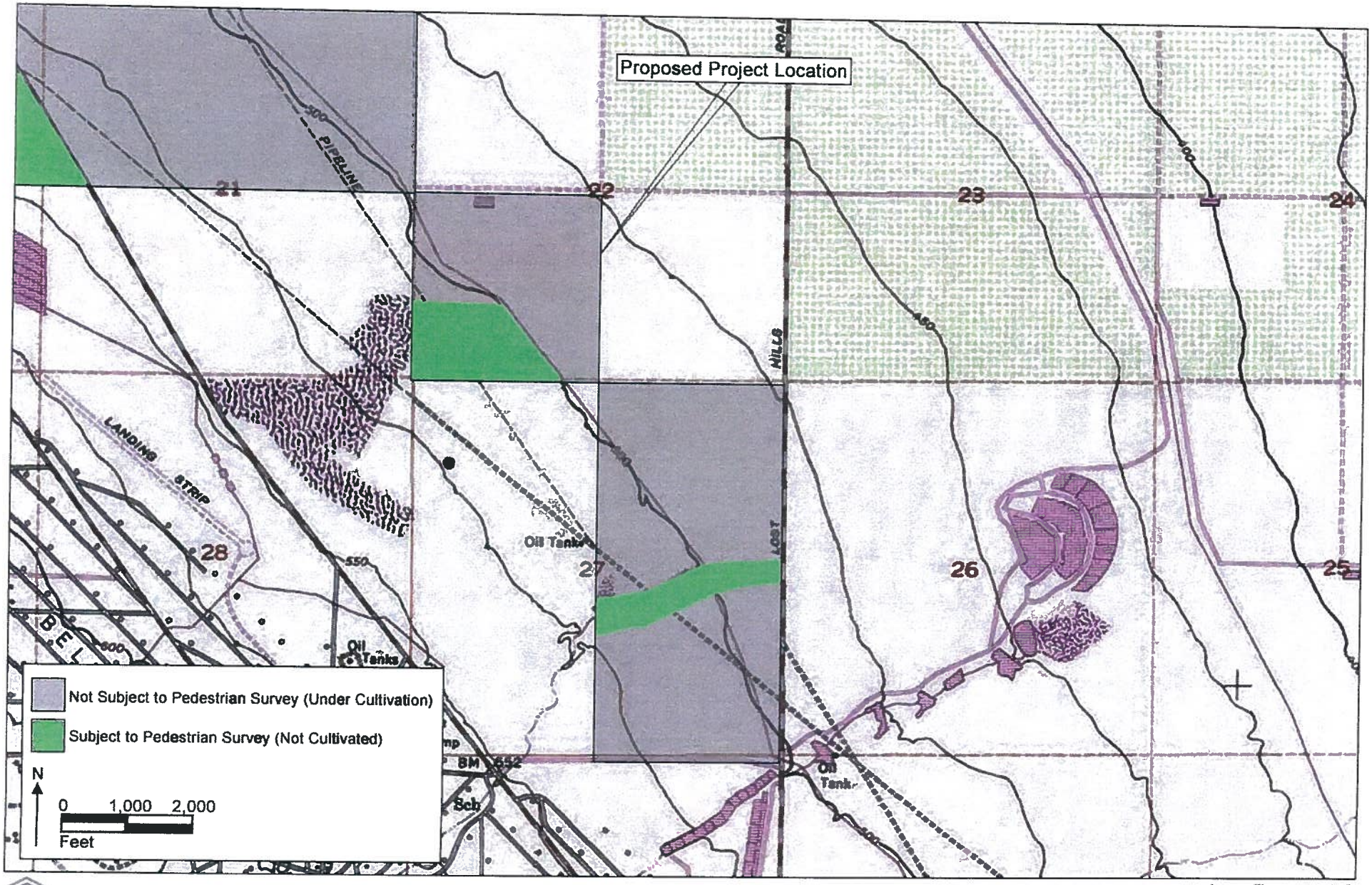
ATTACHMENT A:
REGIONAL AND PROJECT LOCATION MAP



BCRCONSULTING

Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 1 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA



BCRCONSULTING

Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 2 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA

Print - Close Window

Subject: SLF Search/List for Aera Energy LLC Water Injection Wells Project (BCR Project Number SYN1108)
From: David Brunzell (david.brunzell@yahoo.com)
To: ds_nahc@pacbell.net;
Date: Sat, 28 May 2011 22:28:49

Hi Dave,

I'd like to request a Sacred Lands File search and list of potentially interested tribes/individuals for the Aera Energy LLC Water Disposal Project and Aquifer Exemption - South Belridge Field, near McKittrick, Kern County, California. The project is located in Sections 17, 20, 21, 22, and 27 of Township 28 South, Range 21 East (MDBM). It is depicted on the United States Geological Survey (USGS) *Belridge, California* (1973) 7.5 Minute Topographic Quadrangle (see attached maps).

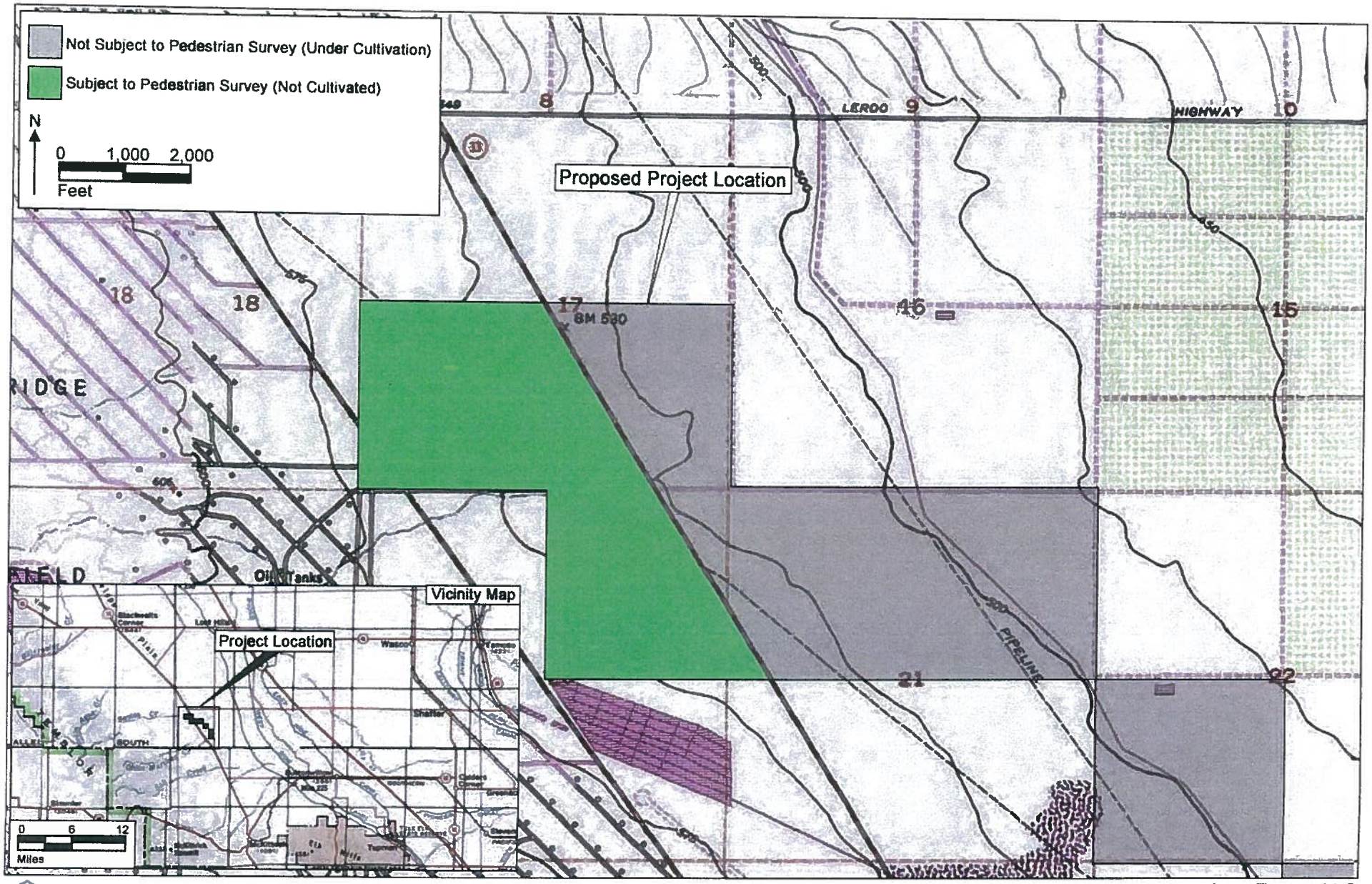
Please send the list to the below fax number and please get in touch with any questions.

Thanks,

David Brunzell
Principal Investigator/Archaeologist

BCR Consulting
Certified Small Business (SB)
440 West 7th Street
Claremont, California 91711
909/525-7078
Fax: 909/621-7678

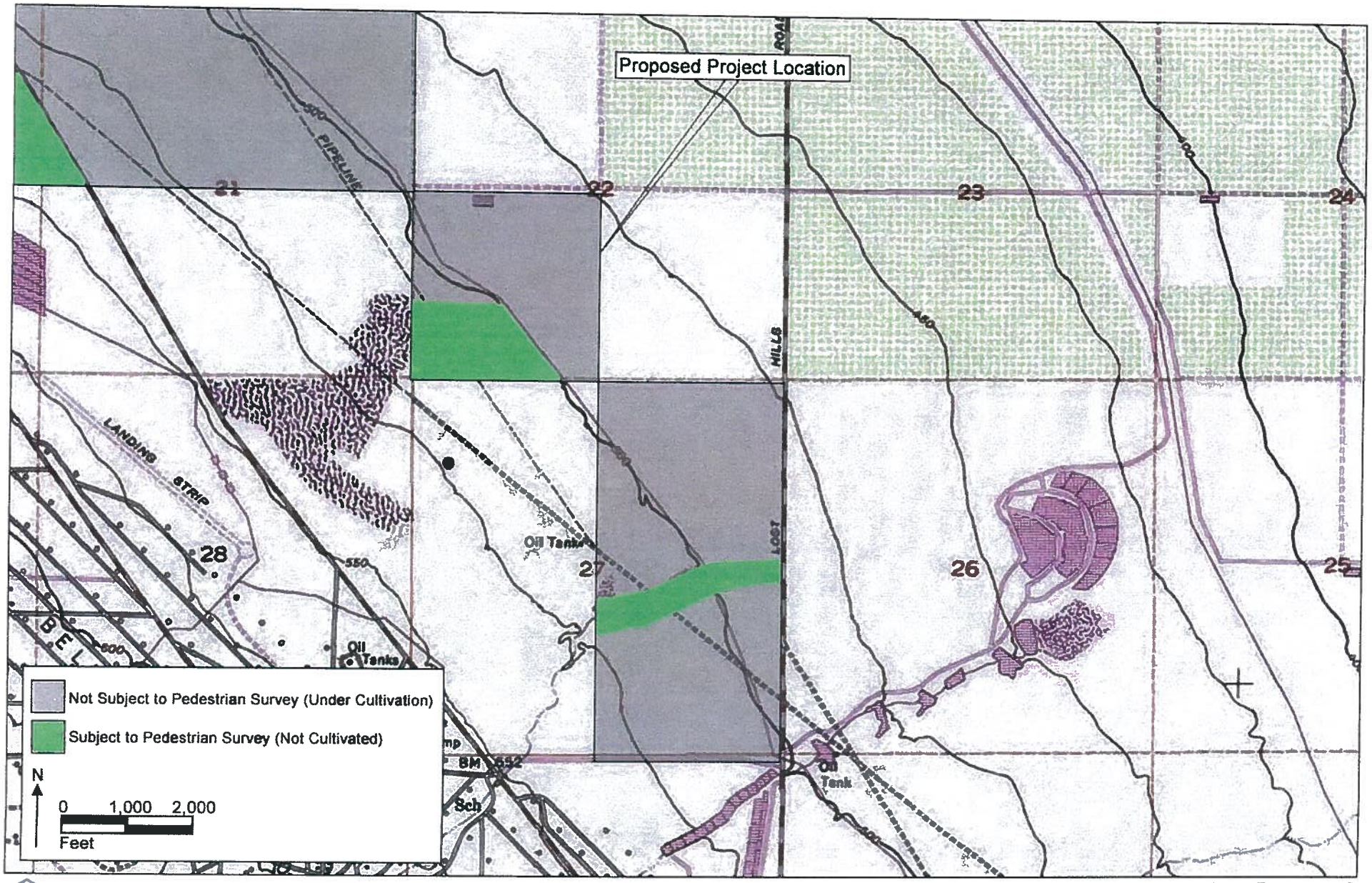
www.bcrconsulting.net



BCRCONSULTING

Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 1 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA



BCRCONSULTING

Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 2 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net

June 1, 2011

Mr. David Brunzell, Archaeologist, Principal
BCR Consulting
440 West 7th Street
Claremont, CA 91711

Sent by FAX to 909-621-7678
No. of Pages: 4

Re: Sacred Lands File Search and Native American Contacts list for the "**AERA Energy LLC Injection Wells Project / Water Disposal Project No. SYN1108 and Aquifer Exemption – South Belridge Field Project;**" located near the Community of McKittrick; Kern County, California.

Dear Mr. Brunzell:

The Native American Heritage Commission (NAHC) conducted a Sacred Lands File search of the 'areas of potential effect,' (APEs) based on the USGS coordinates provided and found **Native American cultural resources** **were not identified** in the USGS coordinates you specified. Also, please note,, the NAHC Sacred Lands Inventory is not exhaustive; Native American cultural resources may be inadvertently discovered during ground-breaking activity.

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, even during Initial Study or First Phase surveys 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 of Native American Contacts we attach to this letter 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.

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 and 4(f) 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.

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) 653-6251.

Sincerely,

Dave Singleton
Program Analyst

Attachment: Native American Contact List

Native American Contact List
Kern County
June 1, 2011

Santa Rosa Rancheria
Rueben Barrios, Chairperson
P.O. Box 8
Lemoore , CA 93245
(559) 924-1278
(559) 924-3583 Fax
Tache
Tachi
Yokut

Tejon Indian Tribe
Katherine Montes- Morgan, Chairperson
2234 4th Street
Wasco , CA 93280
kmorgan@bak.rr.com
661-758-2303
Yowlumne
Kitanemuk
Kawaiisu

Tule River Indian Tribe
Ryan Garfield, Chairperson
P.O. Box 589
Porterville , CA 93258
(559) 781-4271
chairman@tulerivertribe-nsn.gov
(559) 781-4610 FAX
Yokuts

Kawaiisu Tribe of Tejon Reservation
David Laughinghorse Robinson
PO Box 1547
Kernville , CA 93238
(661) 664-3098 - work
(661) 664-7747 - home
horse.robinson@gmail.com
Kawaiisu

Ron Wermuth
P.O. Box 168
Kernville , CA 93238
warmoose@earthlink.net
(760) 376-4240 - Home
(916) 717-1176 - Cell
Tubatulabal
Kawaiisu
Koso
Yokuts

Esohm Valley Band of Indians/Wuksache Tribe
Kenneth Woodrow, Chairperson
1179 Rock Haven Ct.
Salinas , CA 93906
kwood8934@aol.com
831-443-9702
Foothill Yokuts
Mono

Kitanemuk & Yowlumne Tejon Indians
Delia Dominguez, Chairperson
981 N. Virginia
Covina , CA 91722
deedominguez@juno.com
(626) 339-6785
Yowlumne
Kitanemuk

Chumash Council of Bakersfield
Arianne Garcia, Chairperson
P.O. Box 902
Bakersfield , CA 93302
(661) 836-0486
chumashtribe@sbcglobal.net
(661) 836-0487
Chumash

his list is current only as of the date of this document

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

his list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed era Energy LLC Water Injection Wells Project No. SYN1103; located near the Community of McKittrick in western Kern County, California x which a Sacred Lands File search and Native American Contacts list were requested.

Native American Contact List
Kern County
June 1, 2011

Kern Valley Indian Council
Robert Robinson, Co-Chairperson
P.O. Box 401
Weldon , CA 93283
brobinson@iwvisp.com
(760) 378-4575 (Home)
(760) 549-2131 (Work)

Tubatulabai
Kawaiisu
Koso
Yokuts

Tubatulabals of Kern Valley
Donna Begay, Tribal Chairwoman
P.O. Box 226
Lake Isabella, CA 93240
drbegay@aol.com
(760) 379-4590
(760) 379-4592 FAX

Tubatulabal

Santa Rosa Tachi Rancheria
Lalo Franco, Cultural Coordinator
P.O. Box 8
Lemoore , CA 93245
(559) 924-1278 - Ext. 5
(559) 924-3583 - FAX

Tachi
Tache
Yokut

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

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

his list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed era Energy LLC Water Injection Wells Project No. SYN1103; located near the Community of McKittrick in western Kern County, California r which a Sacred Lands File search and Native American Contacts list were requested.

Native American Consultation Summary for the Aera Energy LLC Water Disposal Project and Aquifer Exemption - South Belridge Field, Kern County, California. Native American Heritage Commission replied to BCR Consulting Request on June 1, 2011. Results of Sacred Land File Search did not indicate presence of Native American cultural resources, and recommended that the below groups/individuals be contacted.

Groups Contacted	Date Letter/ Email Sent	Response from Tribes	Date and Results of Phone Calls
Rueben Barrios, Chairperson Santa Rosa Rancheria	Letter: 6/7/11 Email: 6/7/11	None	6/7/11: Left voicemail.
Katherine Montes-Morgan Tejon Indian Tribe	Letter: 6/7/11 Email: 6/7/11	None	6/7/11: Left voicemail.
Ryan Garfield, Chairperson Tule River Indian Tribe	Letter: 6/7/11 Email: 6/7/11	None	6/7/11: Per secretary's recommendation, left voicemail for Brian in the Cultural Resources Department.
David Laughinghorse Robinson Kawaiisu Tribe of Tejon Reservation	Letter: 6/7/11 Email: 6/7/11	None	6/7/11: No answer.
Ron Wermuth	Letter: 6/7/11 Email: 6/7/11	None	6/7/11: Left voicemail.
Kenneth Woodrow, Chairperson Esohm Valley Band of Indians/Wuksache Tribe	Letter: 6/7/11 Email: 6/7/11	None	6/7/11: Left voicemail.
Delia Dominguez Kitanemuk & Yowlumne Tejon Indians	Letter: 6/7/11 Email: 6/7/11	None	6/7/11: Left voicemail.
Arianne Garcia, Chairperson Chumash Council of Bakersfield	Letter: 6/7/11 Email: 6/7/11	None	6/7/11: No answer.
Robert Robinson, Co-Chairperson Kern Valley Indian Council	Letter: 6/7/11 Email: 6/7/11	None	6/7/11: Left voicemail.
Donna Begay, Tribal Chairwoman Tubatulabals of Kern Valley	Letter: 6/7/11 Email: 6/7/11	None	6/7/11: Left voicemail.
Lalo Franco, Cultural Coordinator Santa Rosa Tachi Rancheria	Letter: 6/7/11 Email: 6/7/11	None	6/7/11: Left voicemail.

BCRCONSULTING ARCHAEOLOGY HISTORIC PRESERVATION PALEONTOLOGY

www.bcrconsulting.net
909.525.7078
Claremont
Napa
Tehachapi

June 7, 2011

Santa Rosa Rancheria
Rueben Barrios, Chairperson
P.O. Box 8
Lemoore, California 93245

Subject: **Tribal Consultation for the Aera Energy LLC Water Disposal Project and Aquifer Exemption - South Belridge Field, Kern County, California**

Dear Rueben:

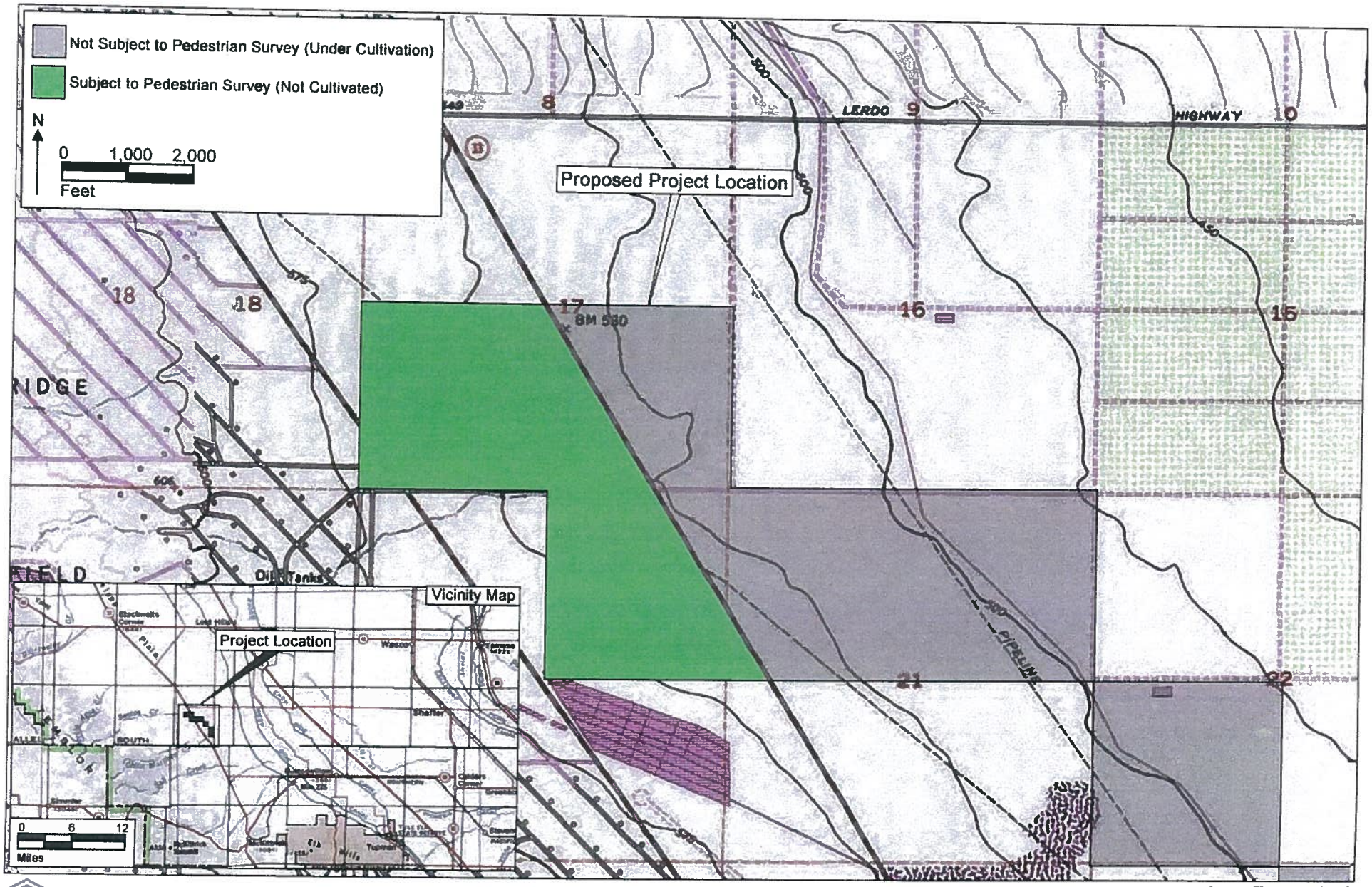
This is an invitation to consult on a proposed development project at locations with which you have tribal cultural affiliation. The purpose of the consultation is to ensure the protection of Native American cultural resources on which the proposed undertaking may have an impact. In the tribal consultation process, early consultation is encouraged in order to provide for full and reasonable public input from Native American Groups and Individuals, as consulting parties, on potential effect of the development project and to avoid costly delays. Further, we understand that much of the content of the consultation will be confidential and will include, but not be limited to, the relationship of proposed project details to Native American Cultural Historic Properties, such as burial sites, known or unknown, architectural features and artifacts, ceremonial sites, sacred shrines, cultural landscapes including traditional beliefs and practices.

The proposed Aera Energy LLC Water Disposal Project and Aquifer Exemption is located within the following sections of Township 28 South, Range 21 East (MDBM), Kern County, California: Sections 17 (S ½), 20 (NE ¼), 21 (N ½), 22 (SW ¼), and 27 (E½). The proposed project is depicted on the U.S. Geological Survey (USGS) *Belridge, California* (1973) 7.5-minute quadrangle (see attached maps). If you know of any cultural resources in the vicinity that may be of religious and/or cultural significance to your community or if you would like more information, please contact me at 909-525-7078 or david.brunzell@yahoo.com. Correspondence can also be sent to BCR Consulting, Attn: David Brunzell, 440 West 7th Street, Claremont, California 91711. I request a response by June 21, 2011. If you require more time, please let me know. I will also contact you by telephone to discuss any comments or concerns you may have. Thank you for your involvement in this process.

Sincerely,

BCR Consulting

David Brunzell, M.A./RPA
Principal Investigator/Archaeologist
Attachment: USGS Map



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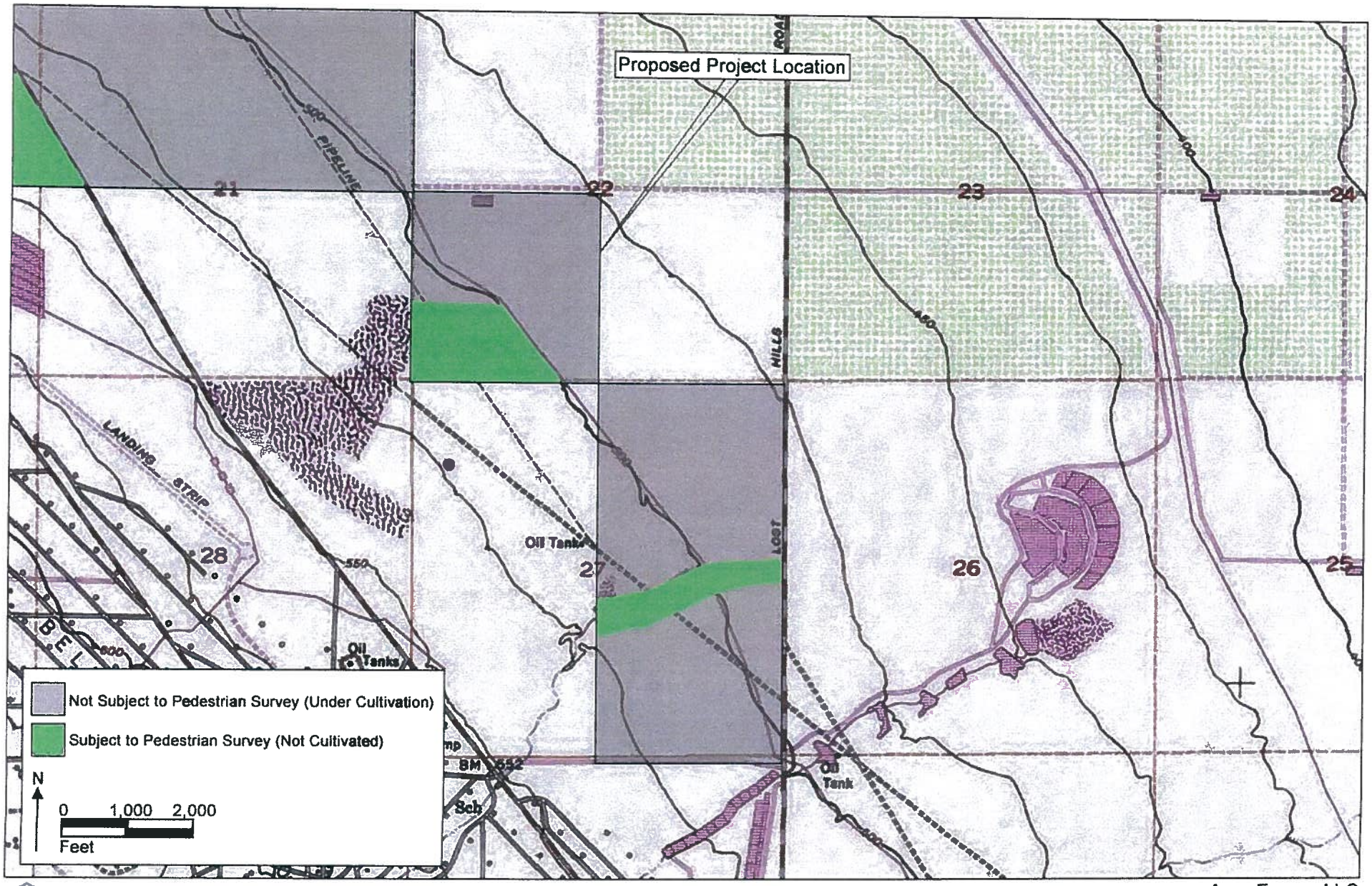
Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 1 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA



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Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 2 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA

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June 7, 2011

Tejon Indian Tribe
Katherine Montes-Morgan, Chairperson
2234 4th Street
Wasco, California 93280

Subject: **Tribal Consultation for the Aera Energy LLC Water Disposal Project and Aquifer Exemption - South Belridge Field, Kern County, California**

Dear Katherine:

This is an invitation to consult on a proposed development project at locations with which you have tribal cultural affiliation. The purpose of the consultation is to ensure the protection of Native American cultural resources on which the proposed undertaking may have an impact. In the tribal consultation process, early consultation is encouraged in order to provide for full and reasonable public input from Native American Groups and Individuals, as consulting parties, on potential effect of the development project and to avoid costly delays. Further, we understand that much of the content of the consultation will be confidential and will include, but not be limited to, the relationship of proposed project details to Native American Cultural Historic Properties, such as burial sites, known or unknown, architectural features and artifacts, ceremonial sites, sacred shrines, cultural landscapes including traditional beliefs and practices.

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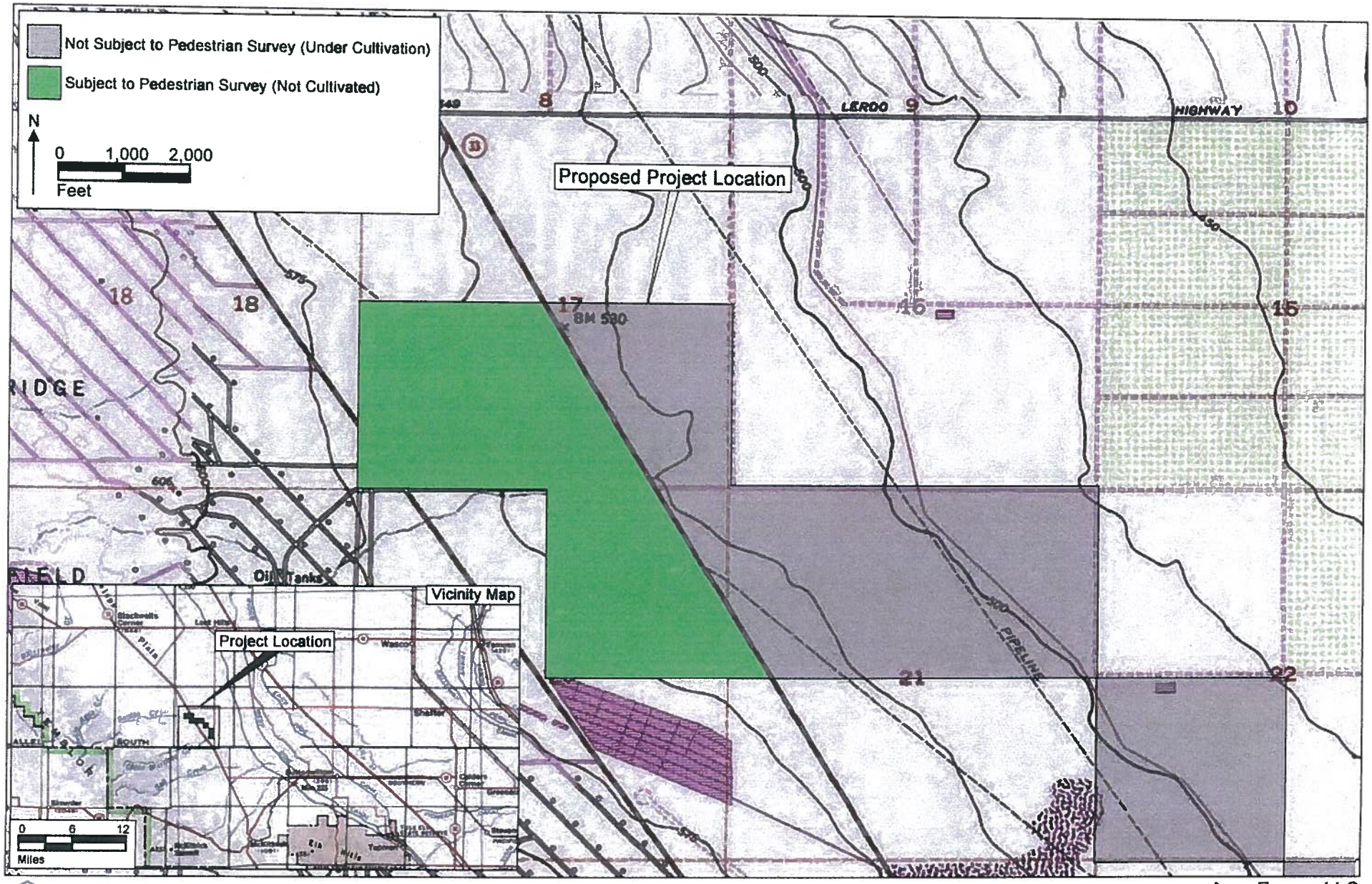
Sincerely,

BCR Consulting

David Brunzell, M.A./RPA
Principal Investigator/Archaeologist
Attachment: USGS Map



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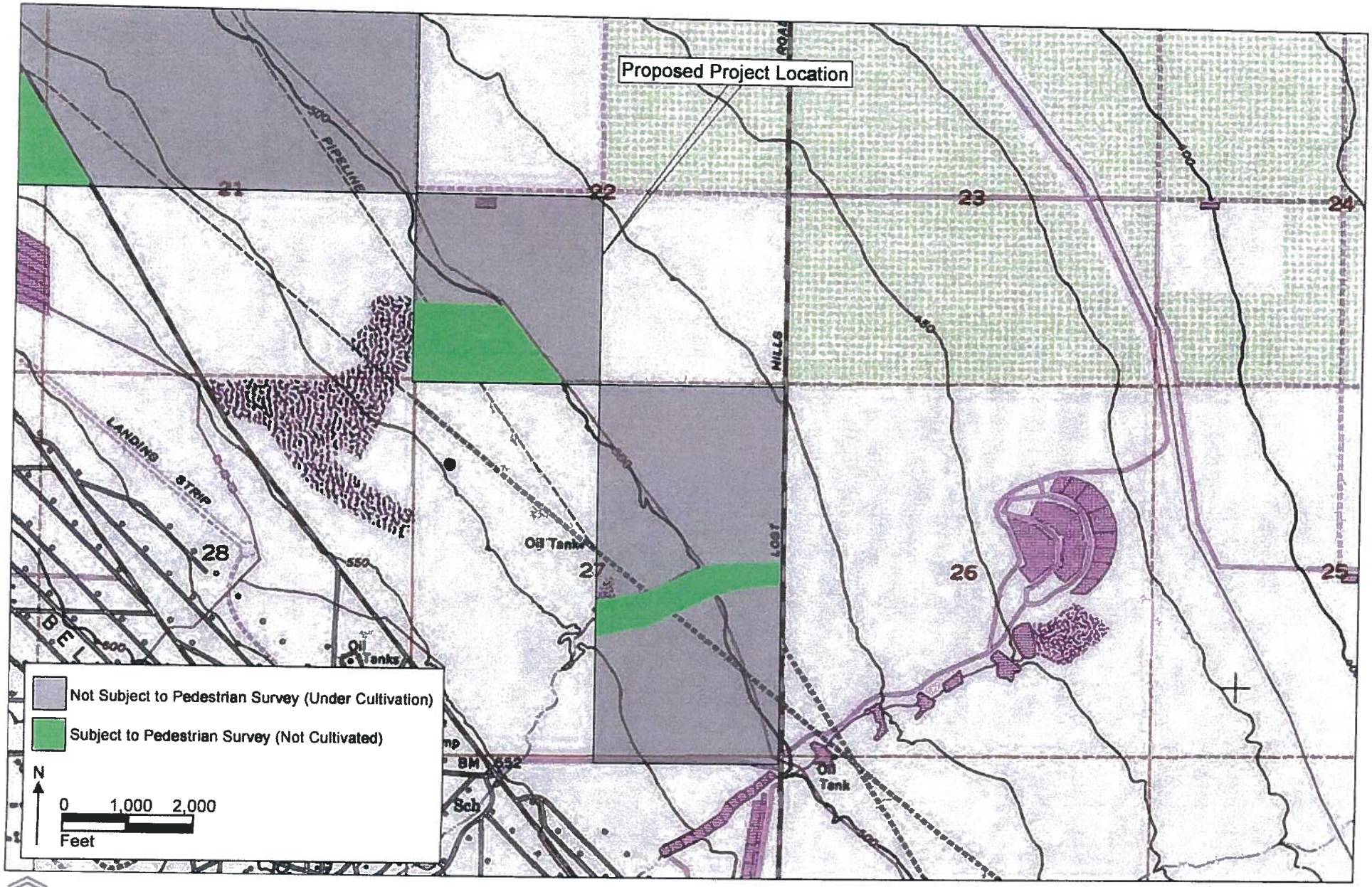
Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 1 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA



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Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 2 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA

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June 7, 2011

Tule River Indian Tribe
Ryan Garfield, Chairperson
P.O. Box 589
Porterville, California 93258

Subject: **Tribal Consultation for the Aera Energy LLC Water Disposal Project and Aquifer Exemption - South Belridge Field, Kern County, California**

Dear Ryan:

This is an invitation to consult on a proposed development project at locations with which you have tribal cultural affiliation. The purpose of the consultation is to ensure the protection of Native American cultural resources on which the proposed undertaking may have an impact. In the tribal consultation process, early consultation is encouraged in order to provide for full and reasonable public input from Native American Groups and Individuals, as consulting parties, on potential effect of the development project and to avoid costly delays. Further, we understand that much of the content of the consultation will be confidential and will include, but not be limited to, the relationship of proposed project details to Native American Cultural Historic Properties, such as burial sites, known or unknown, architectural features and artifacts, ceremonial sites, sacred shrines, cultural landscapes including traditional beliefs and practices.

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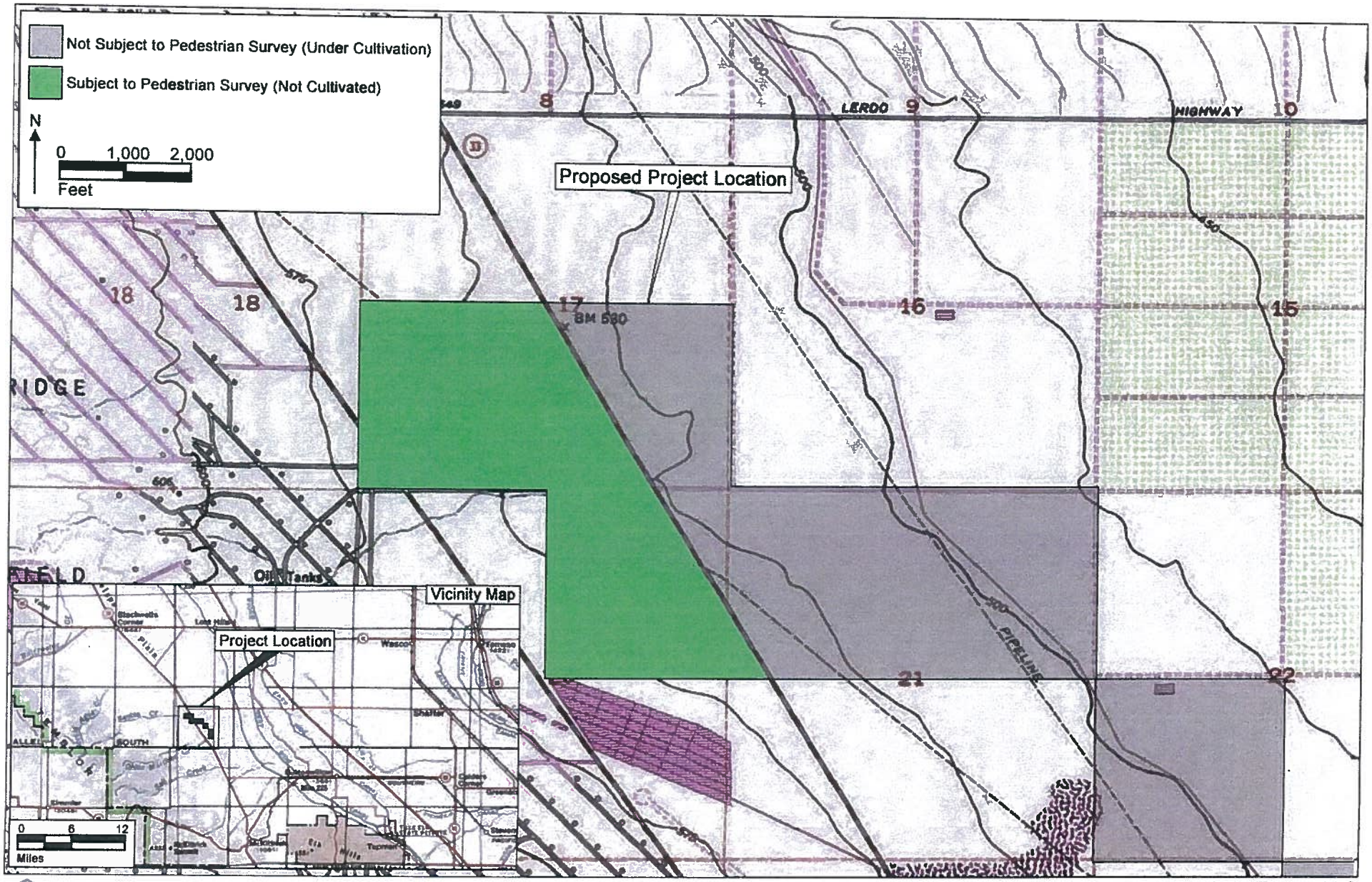
Sincerely,

BCR Consulting

David Brunzell, M.A./RPA
Principal Investigator/Archaeologist
Attachment: USGS Map



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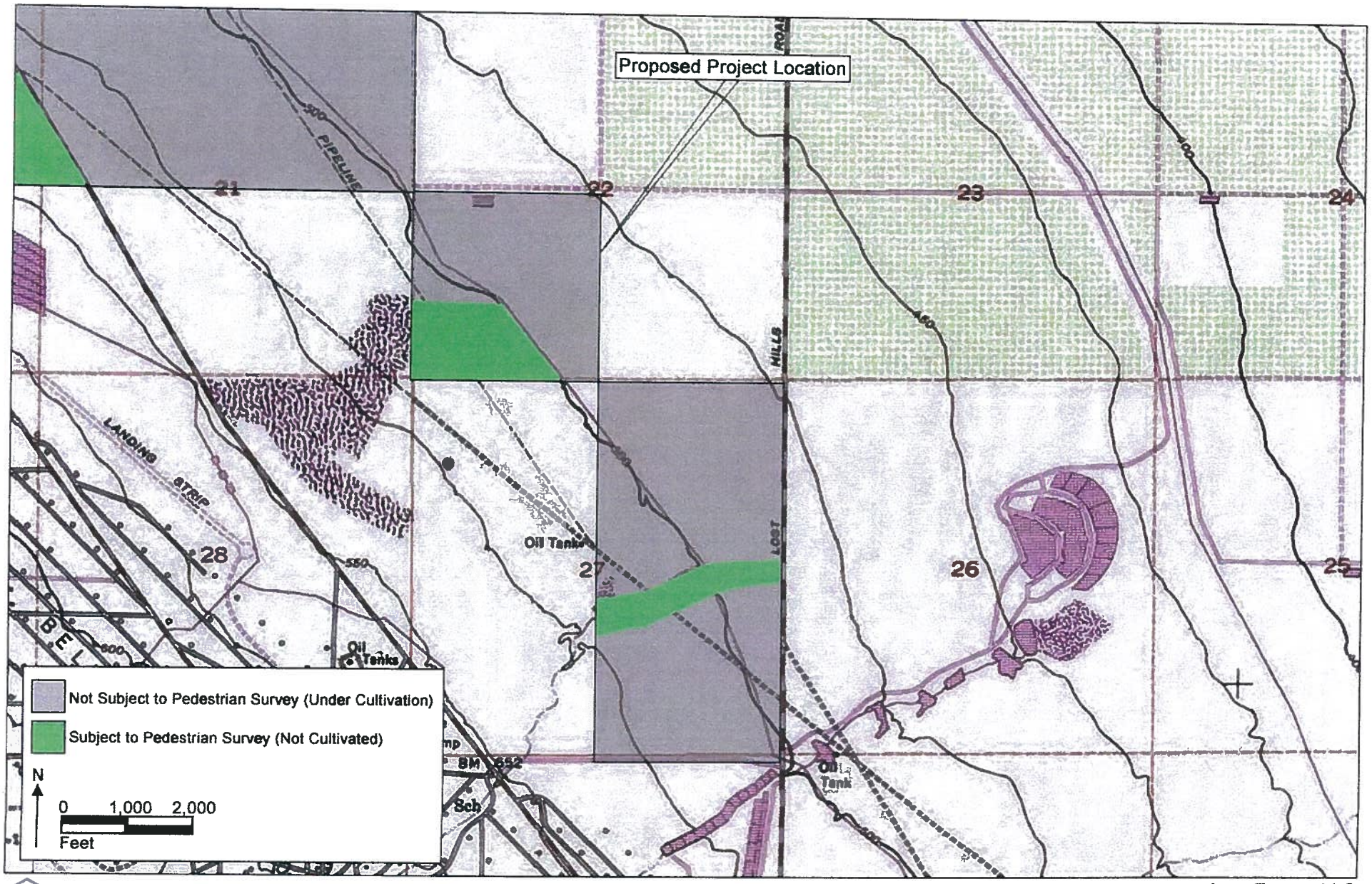
Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 1 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA



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Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 2 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA

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June 7, 2011

Kawaiisu Tribe of Tejon Reservation
David Laughinghorse Robinson
P.O. Box 1547
Kernville, California 93238

Subject: **Tribal Consultation for the Aera Energy LLC Water Disposal Project and Aquifer Exemption - South Belridge Field, Kern County, California**

Dear David:

This is an invitation to consult on a proposed development project at locations with which you have tribal cultural affiliation. The purpose of the consultation is to ensure the protection of Native American cultural resources on which the proposed undertaking may have an impact. In the tribal consultation process, early consultation is encouraged in order to provide for full and reasonable public input from Native American Groups and Individuals, as consulting parties, on potential effect of the development project and to avoid costly delays. Further, we understand that much of the content of the consultation will be confidential and will include, but not be limited to, the relationship of proposed project details to Native American Cultural Historic Properties, such as burial sites, known or unknown, architectural features and artifacts, ceremonial sites, sacred shrines, cultural landscapes including traditional beliefs and practices.

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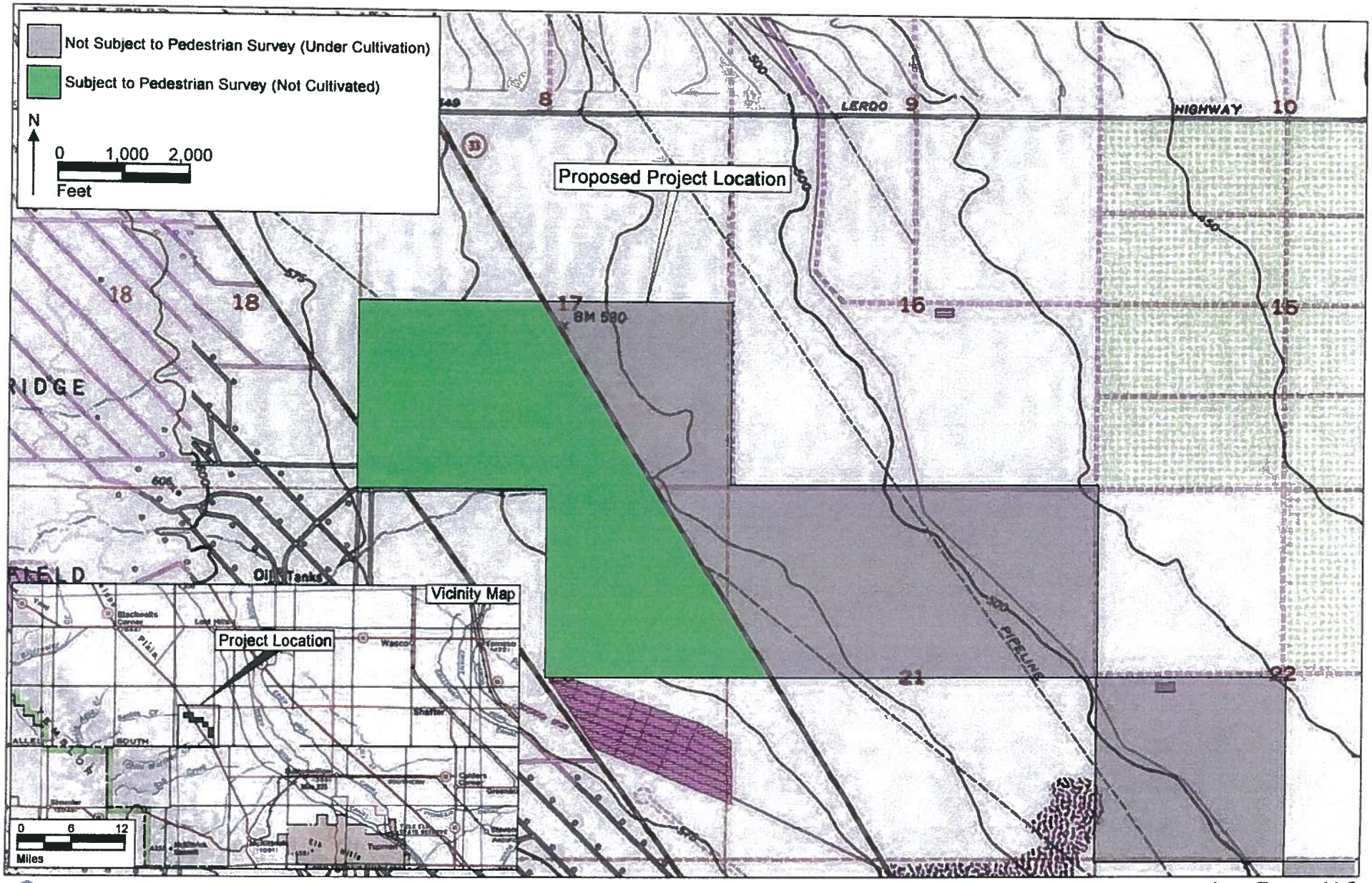
Sincerely,

BCR Consulting

David Brunzell, M.A./RPA
Principal Investigator/Archaeologist
Attachment: USGS Map



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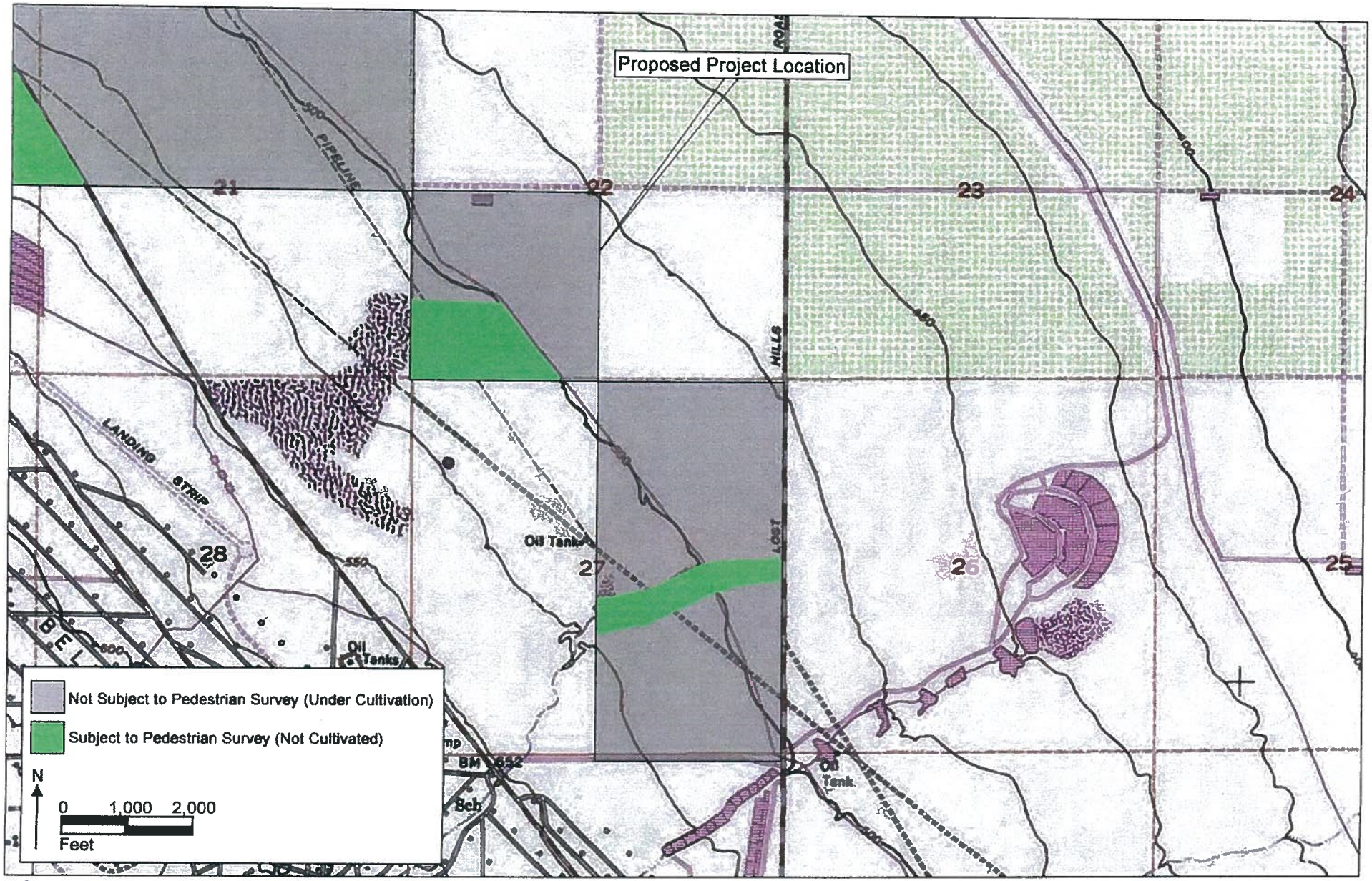
Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 1 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA



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Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 2 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA

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June 7, 2011

Ron Wermuth
P.O. Box 168
Kernville, California 93238

Subject: **Tribal Consultation for the Aera Energy LLC Water Disposal Project and Aquifer Exemption - South Belridge Field, Kern County, California**

Dear Ron:

This is an invitation to consult on a proposed development project at locations with which you have tribal cultural affiliation. The purpose of the consultation is to ensure the protection of Native American cultural resources on which the proposed undertaking may have an impact. In the tribal consultation process, early consultation is encouraged in order to provide for full and reasonable public input from Native American Groups and Individuals, as consulting parties, on potential effect of the development project and to avoid costly delays. Further, we understand that much of the content of the consultation will be confidential and will include, but not be limited to, the relationship of proposed project details to Native American Cultural Historic Properties, such as burial sites, known or unknown, architectural features and artifacts, ceremonial sites, sacred shrines, cultural landscapes including traditional beliefs and practices.

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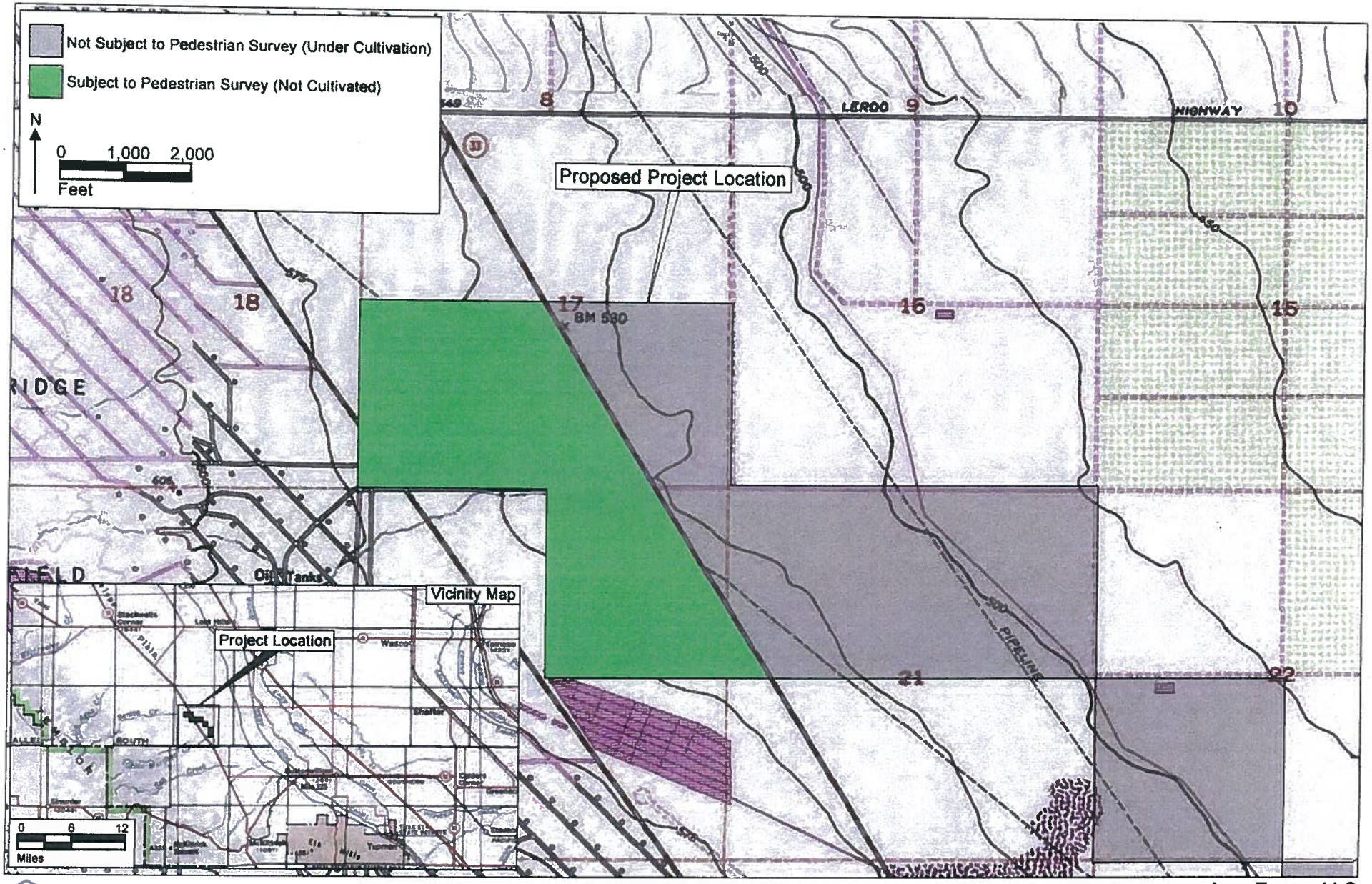
Sincerely,

BCR Consulting

David Brunzell, M.A./RPA
Principal Investigator/Archaeologist
Attachment: USGS Map



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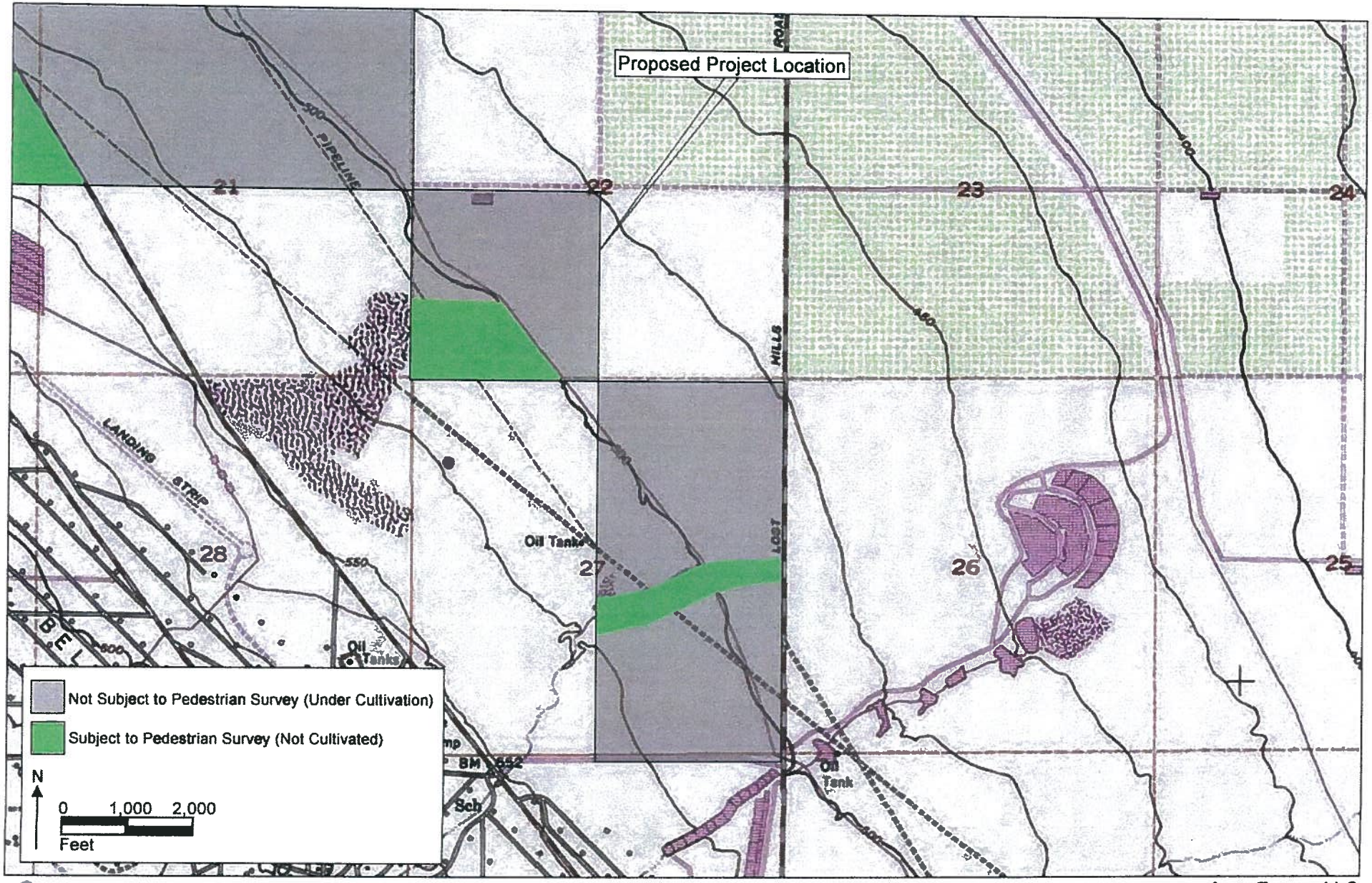
Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 1 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA



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Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 2 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA

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June 7, 2011

Esohm Valley Band of Indians/Wuksache Tribe
Kenneth Woodrow, Chairperson
1179 Rock Haven Court
Salinas, California 93906

Subject: **Tribal Consultation for the Aera Energy LLC Water Disposal Project and Aquifer Exemption - South Belridge Field, Kern County, California**

Dear Kenneth:

This is an invitation to consult on a proposed development project at locations with which you have tribal cultural affiliation. The purpose of the consultation is to ensure the protection of Native American cultural resources on which the proposed undertaking may have an impact. In the tribal consultation process, early consultation is encouraged in order to provide for full and reasonable public input from Native American Groups and Individuals, as consulting parties, on potential effect of the development project and to avoid costly delays. Further, we understand that much of the content of the consultation will be confidential and will include, but not be limited to, the relationship of proposed project details to Native American Cultural Historic Properties, such as burial sites, known or unknown, architectural features and artifacts, ceremonial sites, sacred shrines, cultural landscapes including traditional beliefs and practices.

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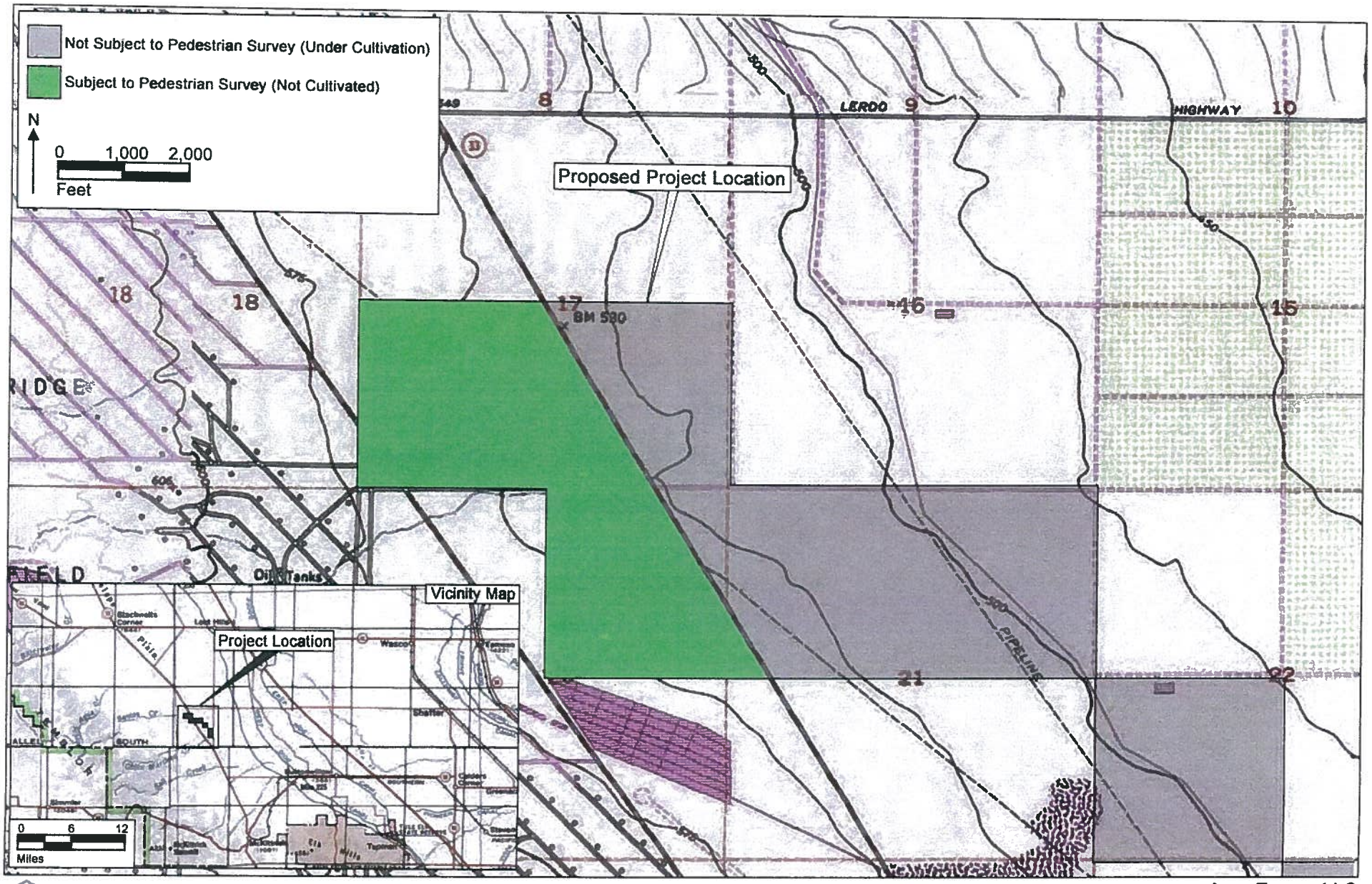
Sincerely,

BCR Consulting

David Brunzell, M.A./RPA
Principal Investigator/Archaeologist
Attachment: USGS Map



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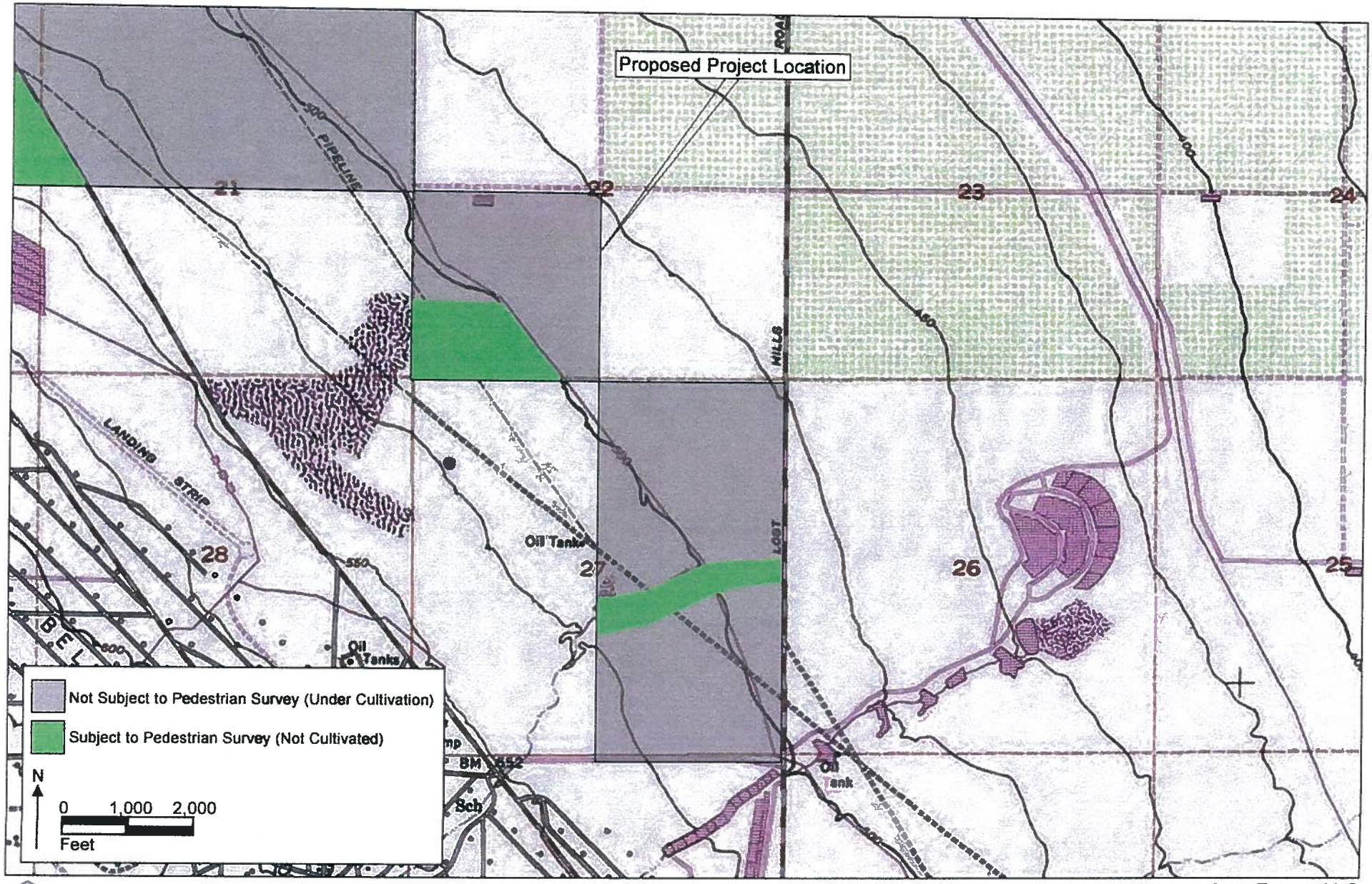
Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 1 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA



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Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 2 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA

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June 7, 2011

Kitanemuk & Yowlumne Tejon Indians
Delia Dominguez, Chairperson
981 N. Virginia
Covina, California 91722

Subject: **Tribal Consultation for the Aera Energy LLC Water Disposal Project and Aquifer Exemption - South Belridge Field, Kern County, California**

Dear Delia:

This is an invitation to consult on a proposed development project at locations with which you have tribal cultural affiliation. The purpose of the consultation is to ensure the protection of Native American cultural resources on which the proposed undertaking may have an impact. In the tribal consultation process, early consultation is encouraged in order to provide for full and reasonable public input from Native American Groups and Individuals, as consulting parties, on potential effect of the development project and to avoid costly delays. Further, we understand that much of the content of the consultation will be confidential and will include, but not be limited to, the relationship of proposed project details to Native American Cultural Historic Properties, such as burial sites, known or unknown, architectural features and artifacts, ceremonial sites, sacred shrines, cultural landscapes including traditional beliefs and practices.

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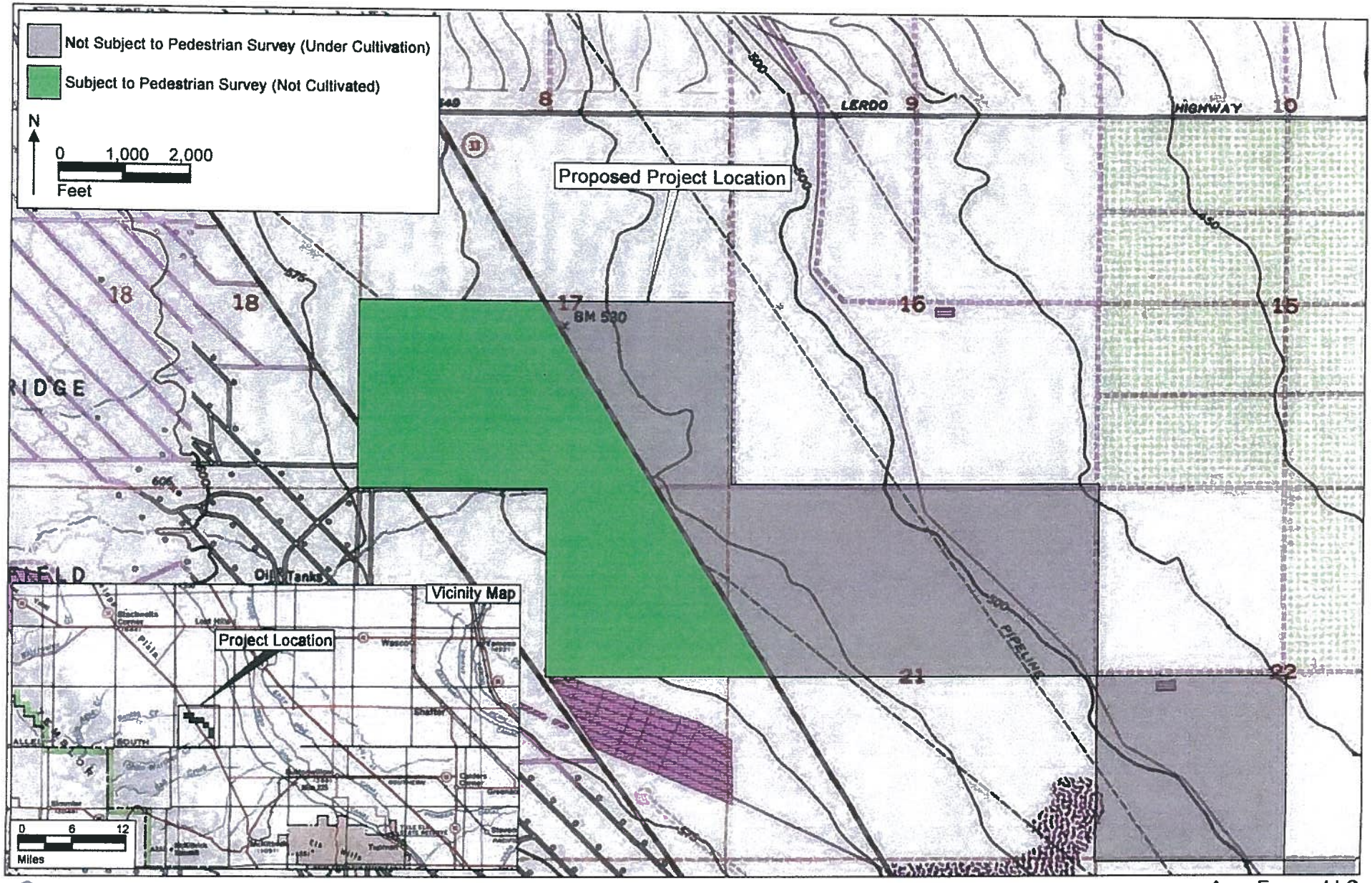
Sincerely,

BCR Consulting

David Brunzell, M.A./RPA
Principal Investigator/Archaeologist
Attachment: USGS Map



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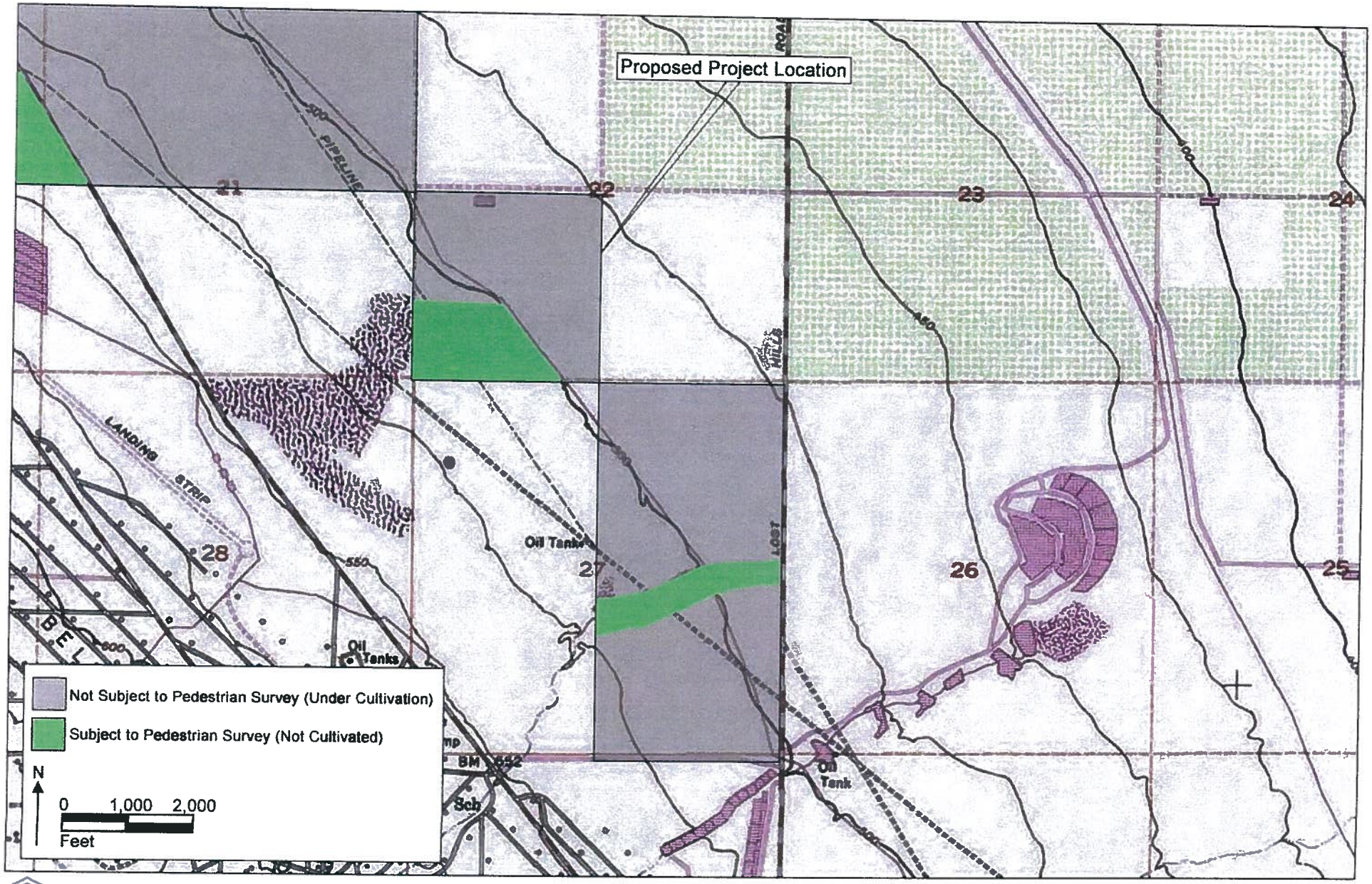
Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 1 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA



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Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 2 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA

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June 7, 2011

Chumash Council of Bakersfield
Arianne Garcia, Chairperson
P.O. Box 902
Bakersfield, California 93302

Subject: **Tribal Consultation for the Aera Energy LLC Water Disposal Project and Aquifer Exemption - South Belridge Field, Kern County, California**

Dear Arianne:

This is an invitation to consult on a proposed development project at locations with which you have tribal cultural affiliation. The purpose of the consultation is to ensure the protection of Native American cultural resources on which the proposed undertaking may have an impact. In the tribal consultation process, early consultation is encouraged in order to provide for full and reasonable public input from Native American Groups and Individuals, as consulting parties, on potential effect of the development project and to avoid costly delays. Further, we understand that much of the content of the consultation will be confidential and will include, but not be limited to, the relationship of proposed project details to Native American Cultural Historic Properties, such as burial sites, known or unknown, architectural features and artifacts, ceremonial sites, sacred shrines, cultural landscapes including traditional beliefs and practices.

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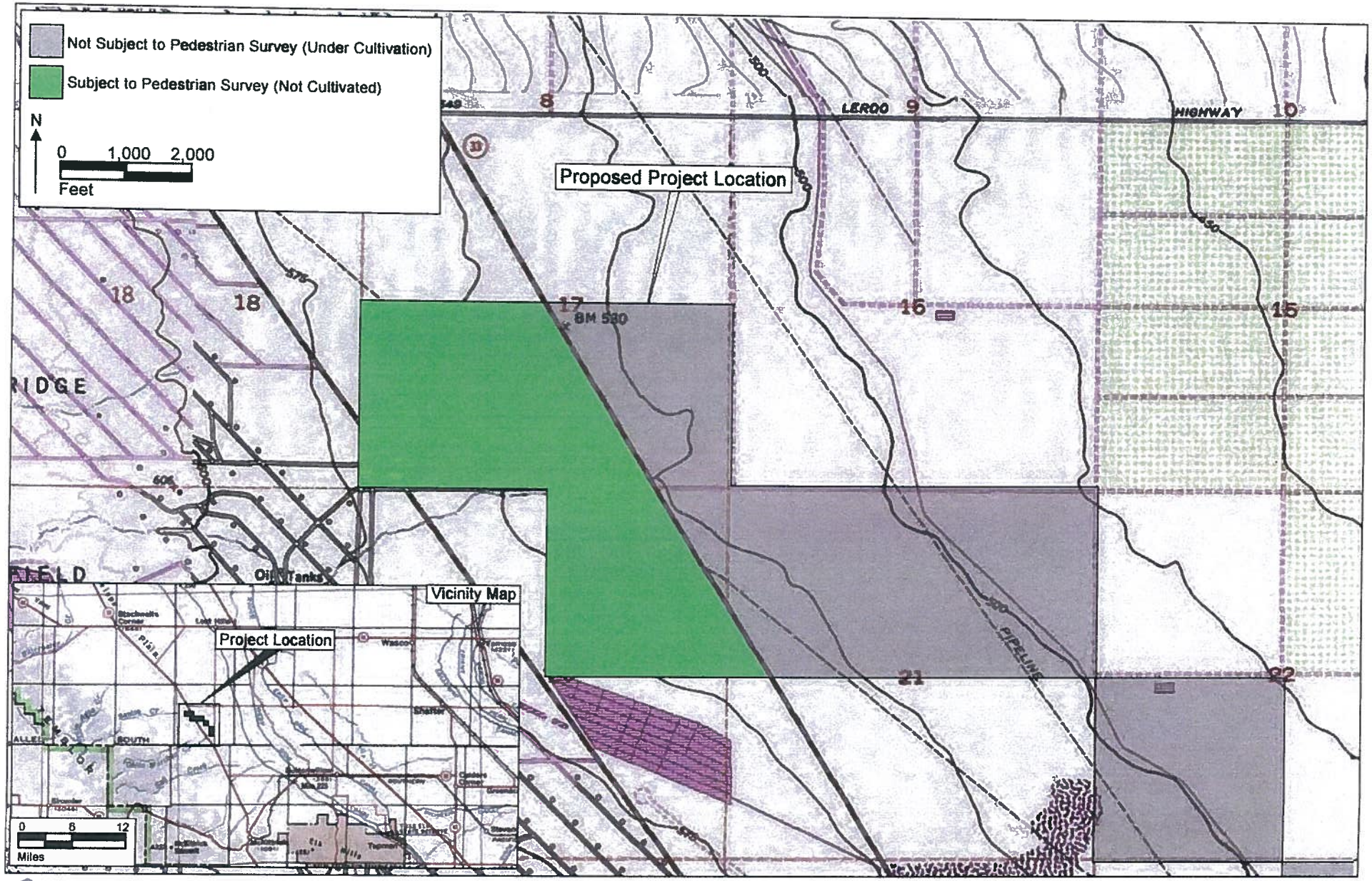
Sincerely,

BCR Consulting

David Brunzell, M.A./RPA
Principal Investigator/Archaeologist
Attachment: USGS Map



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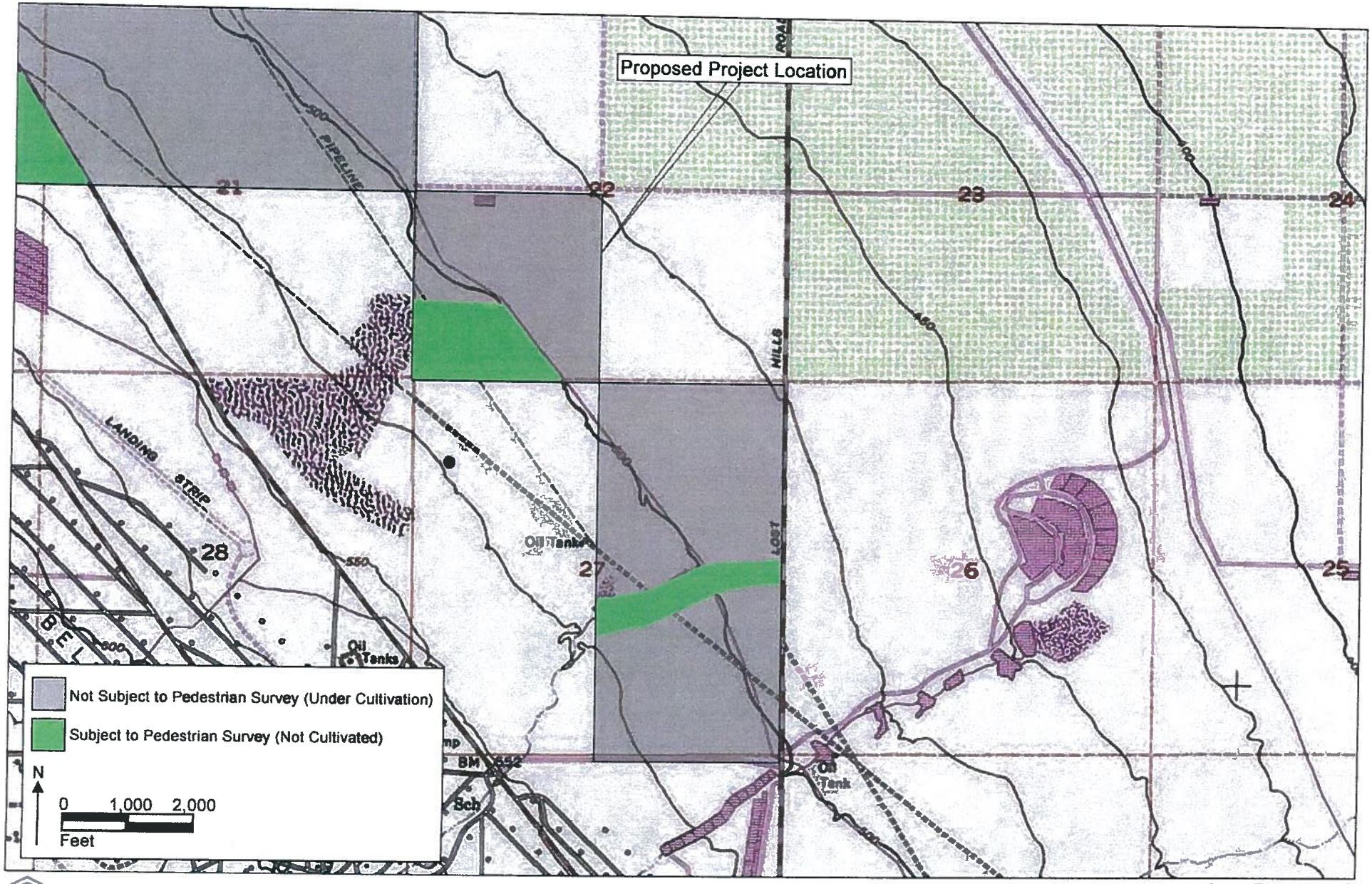
Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 1 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA



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Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 2 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA

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June 7, 2011

Kern Valley Indian Council
Robert Robinson, Co-Chairperson
P.O. Box 401
Weldon, California 93283

Subject: **Tribal Consultation for the Aera Energy LLC Water Disposal Project and Aquifer Exemption - South Belridge Field, Kern County, California**

Dear Robert:

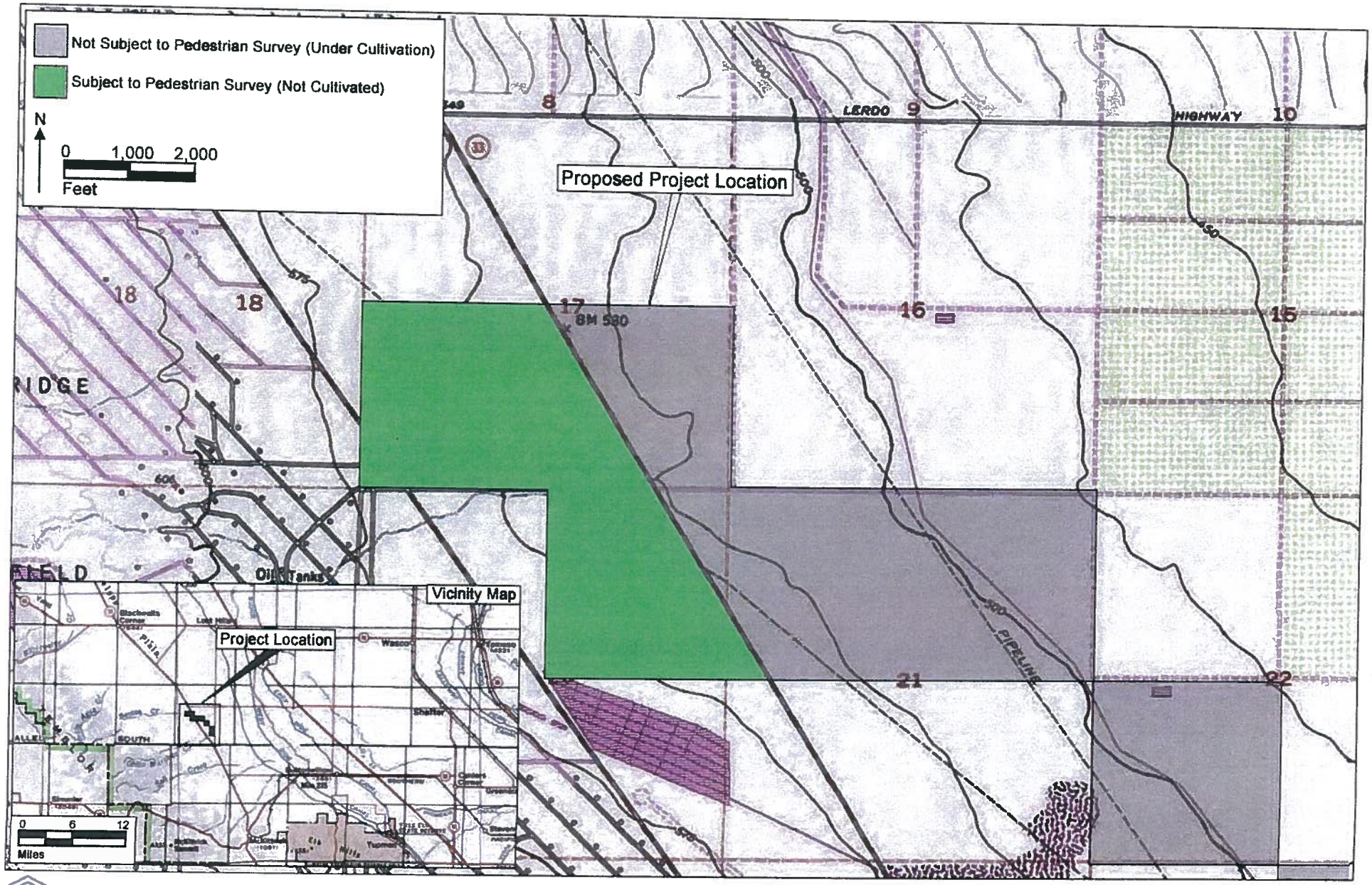
This is an invitation to consult on a proposed development project at locations with which you have tribal cultural affiliation. The purpose of the consultation is to ensure the protection of Native American cultural resources on which the proposed undertaking may have an impact. In the tribal consultation process, early consultation is encouraged in order to provide for full and reasonable public input from Native American Groups and Individuals, as consulting parties, on potential effect of the development project and to avoid costly delays. Further, we understand that much of the content of the consultation will be confidential and will include, but not be limited to, the relationship of proposed project details to Native American Cultural Historic Properties, such as burial sites, known or unknown, architectural features and artifacts, ceremonial sites, sacred shrines, cultural landscapes including traditional beliefs and practices.

The proposed Aera Energy LLC Water Disposal Project and Aquifer Exemption is located within the following sections of Township 28 South, Range 21 East (MDBM), Kern County, California: Sections 17 (S ½), 20 (NE ¼), 21 (N ½), 22 (SW ¼), and 27 (E½). The proposed project is depicted on the U.S. Geological Survey (USGS) *Belridge, California* (1973) 7.5-minute quadrangle (see attached maps). If you know of any cultural resources in the vicinity that may be of religious and/or cultural significance to your community or if you would like more information, please contact me at 909-525-7078 or david.brunzell@yahoo.com. Correspondence can also be sent to BCR Consulting, Attn: David Brunzell, 440 West 7th Street, Claremont, California 91711. I request a response by June 21, 2011. If you require more time, please let me know. I will also contact you by telephone to discuss any comments or concerns you may have. Thank you for your involvement in this process.

Sincerely,

BCR Consulting

David Brunzell, M.A./RPA
Principal Investigator/Archaeologist
Attachment: USGS Map



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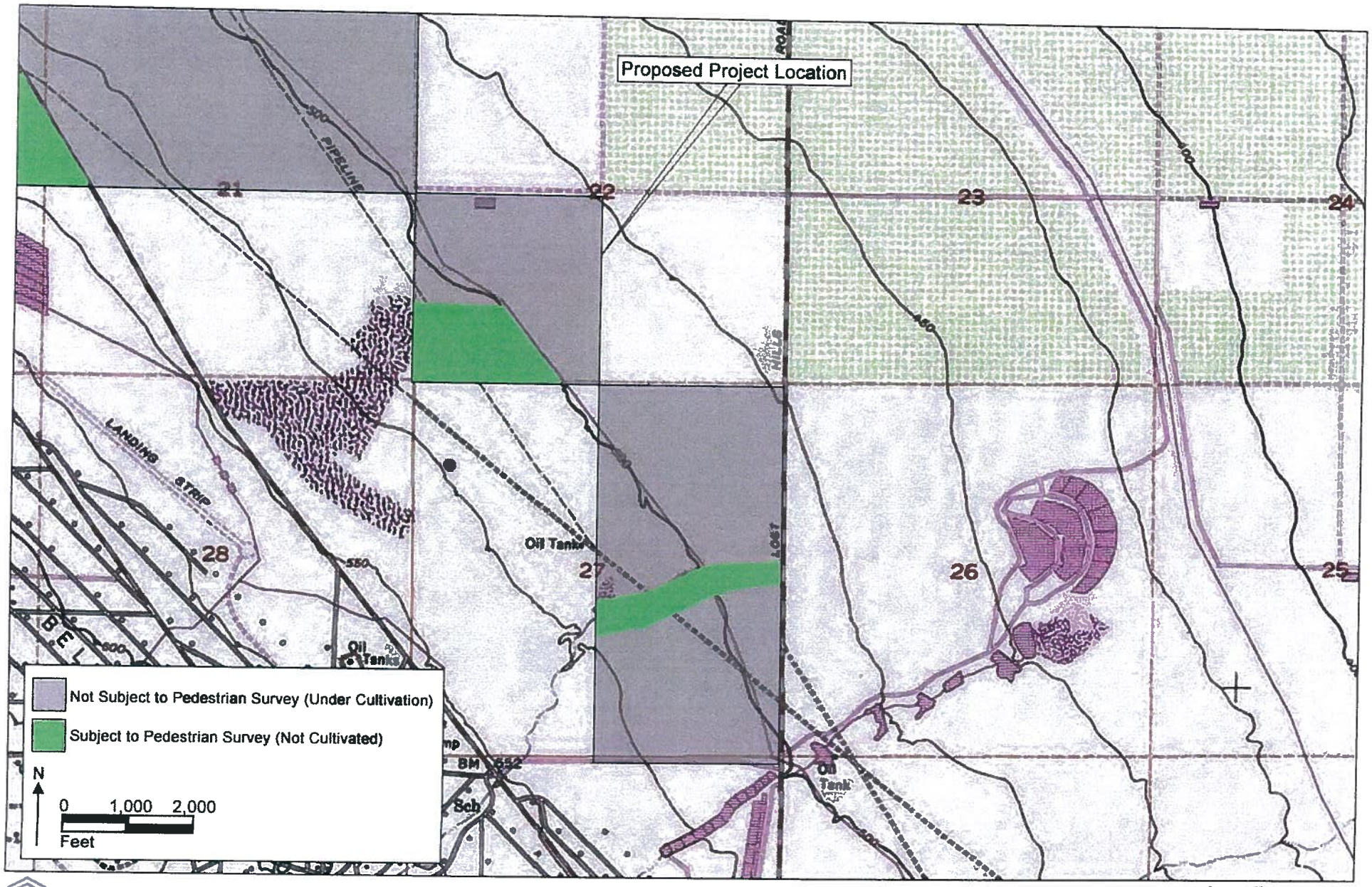
Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 1 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA



BCRCONSULTING

Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 2 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA

BCRCONSULTING ARCHAEOLOGY HISTORIC PRESERVATION PALEONTOLOGY

www.bcrconsulting.net
909.525.7078
Claremont
Napa
Tehachapi

June 7, 2011

Tubatulabals of Kern Valley
Donna Begay, Tribal Chairwoman
P.O. Box 226
Lake Isabella, California 93240

Subject: **Tribal Consultation for the Aera Energy LLC Water Disposal Project and Aquifer Exemption - South Belridge Field, Kern County, California**

Dear Donna:

This is an invitation to consult on a proposed development project at locations with which you have tribal cultural affiliation. The purpose of the consultation is to ensure the protection of Native American cultural resources on which the proposed undertaking may have an impact. In the tribal consultation process, early consultation is encouraged in order to provide for full and reasonable public input from Native American Groups and Individuals, as consulting parties, on potential effect of the development project and to avoid costly delays. Further, we understand that much of the content of the consultation will be confidential and will include, but not be limited to, the relationship of proposed project details to Native American Cultural Historic Properties, such as burial sites, known or unknown, architectural features and artifacts, ceremonial sites, sacred shrines, cultural landscapes including traditional beliefs and practices.

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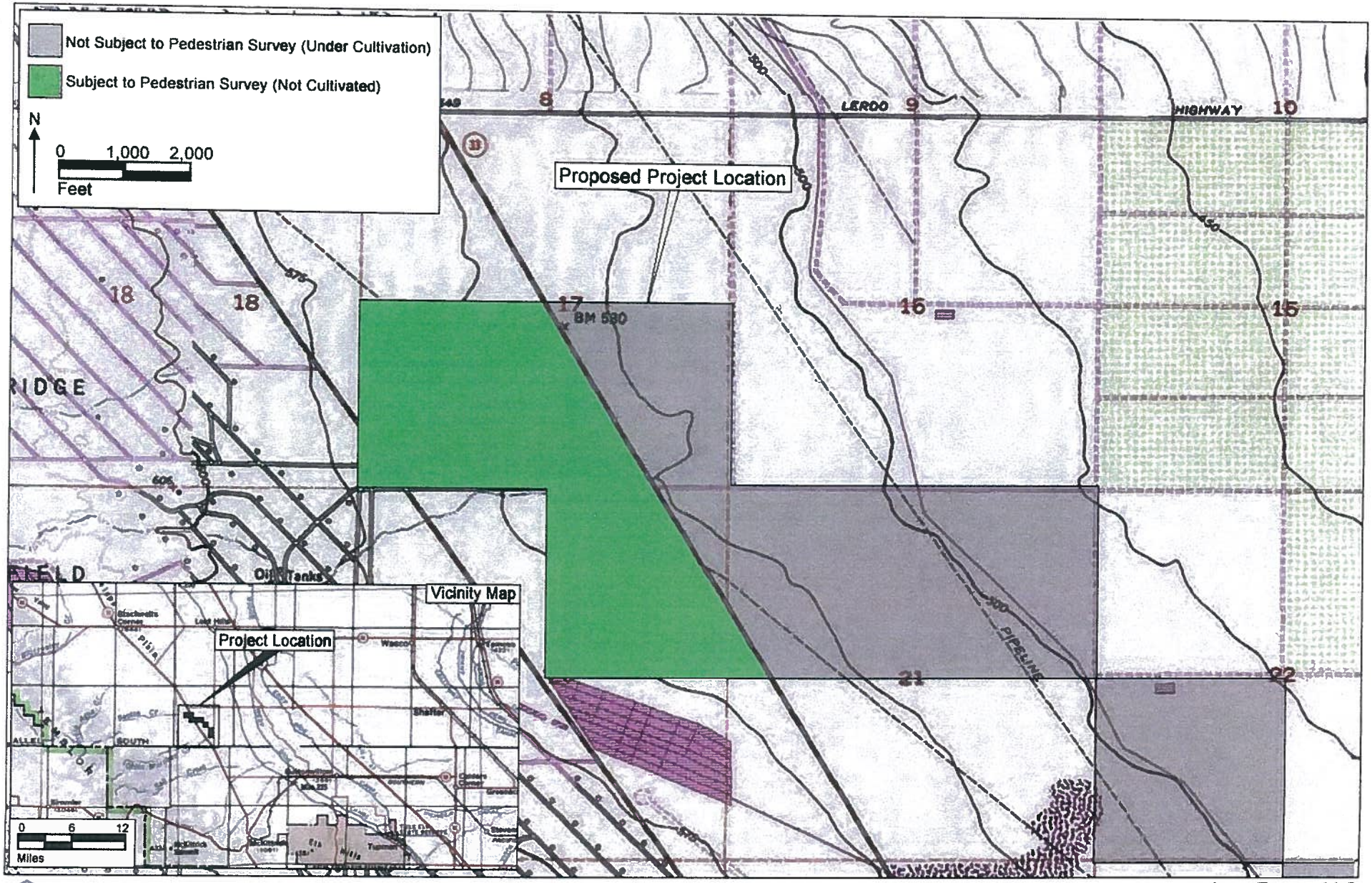
Sincerely,

BCR Consulting

David Brunzell, M.A./RPA
Principal Investigator/Archaeologist
Attachment: USGS Map



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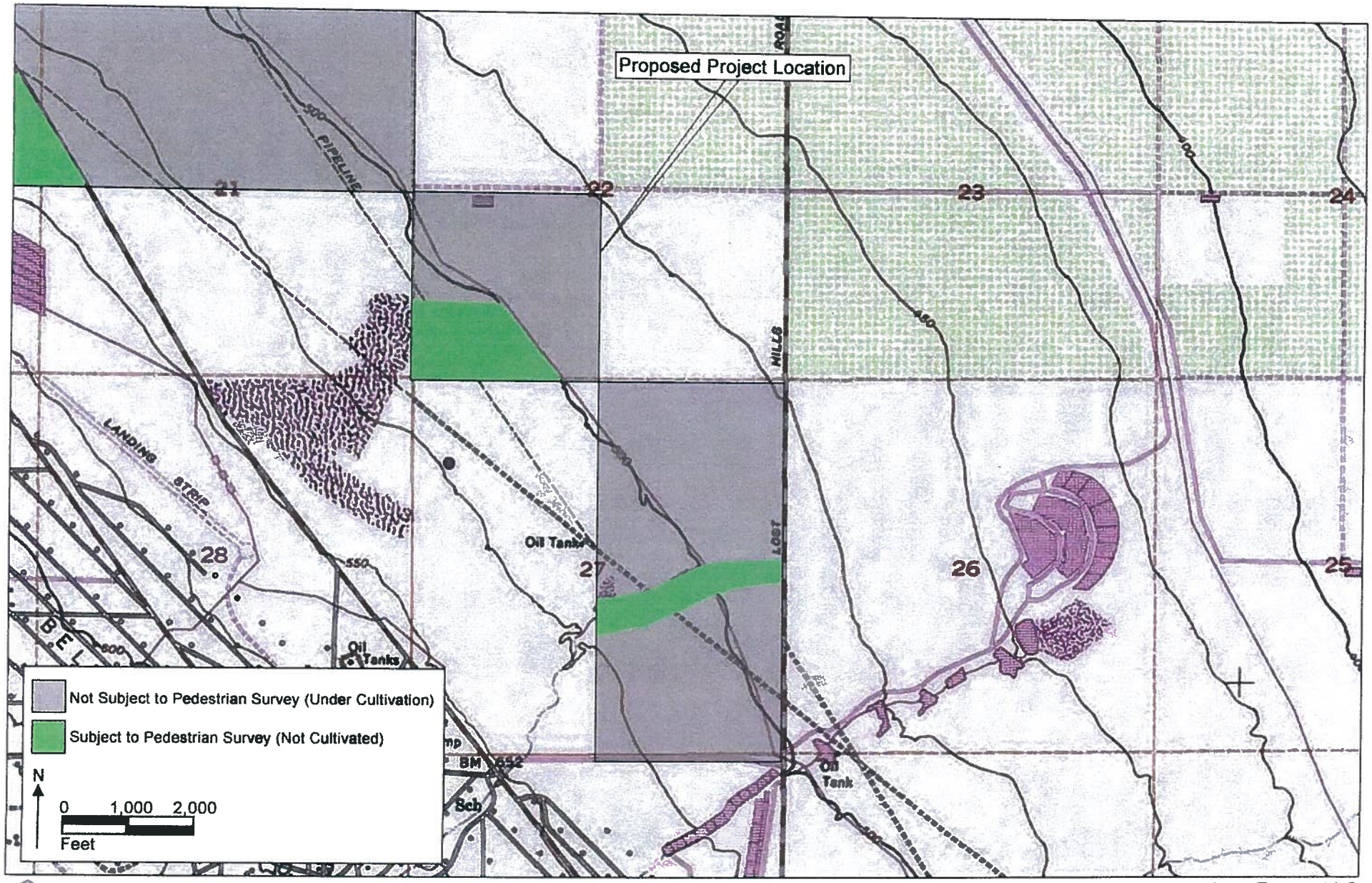
Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 1 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA



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Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 2 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA

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www.bcrconsulting.net
909.525.7078
Claremont
Napa
Tehachapi

June 7, 2011

Santa Rosa Tachi Rancheria
Lalo Franco, Cultural Coordinator
P.O. Box 8
Lemoore, California 93245

Subject: **Tribal Consultation for the Aera Energy LLC Water Disposal Project and Aquifer Exemption - South Belridge Field, Kern County, California**

Dear Lalo:

This is an invitation to consult on a proposed development project at locations with which you have tribal cultural affiliation. The purpose of the consultation is to ensure the protection of Native American cultural resources on which the proposed undertaking may have an impact. In the tribal consultation process, early consultation is encouraged in order to provide for full and reasonable public input from Native American Groups and Individuals, as consulting parties, on potential effect of the development project and to avoid costly delays. Further, we understand that much of the content of the consultation will be confidential and will include, but not be limited to, the relationship of proposed project details to Native American Cultural Historic Properties, such as burial sites, known or unknown, architectural features and artifacts, ceremonial sites, sacred shrines, cultural landscapes including traditional beliefs and practices.

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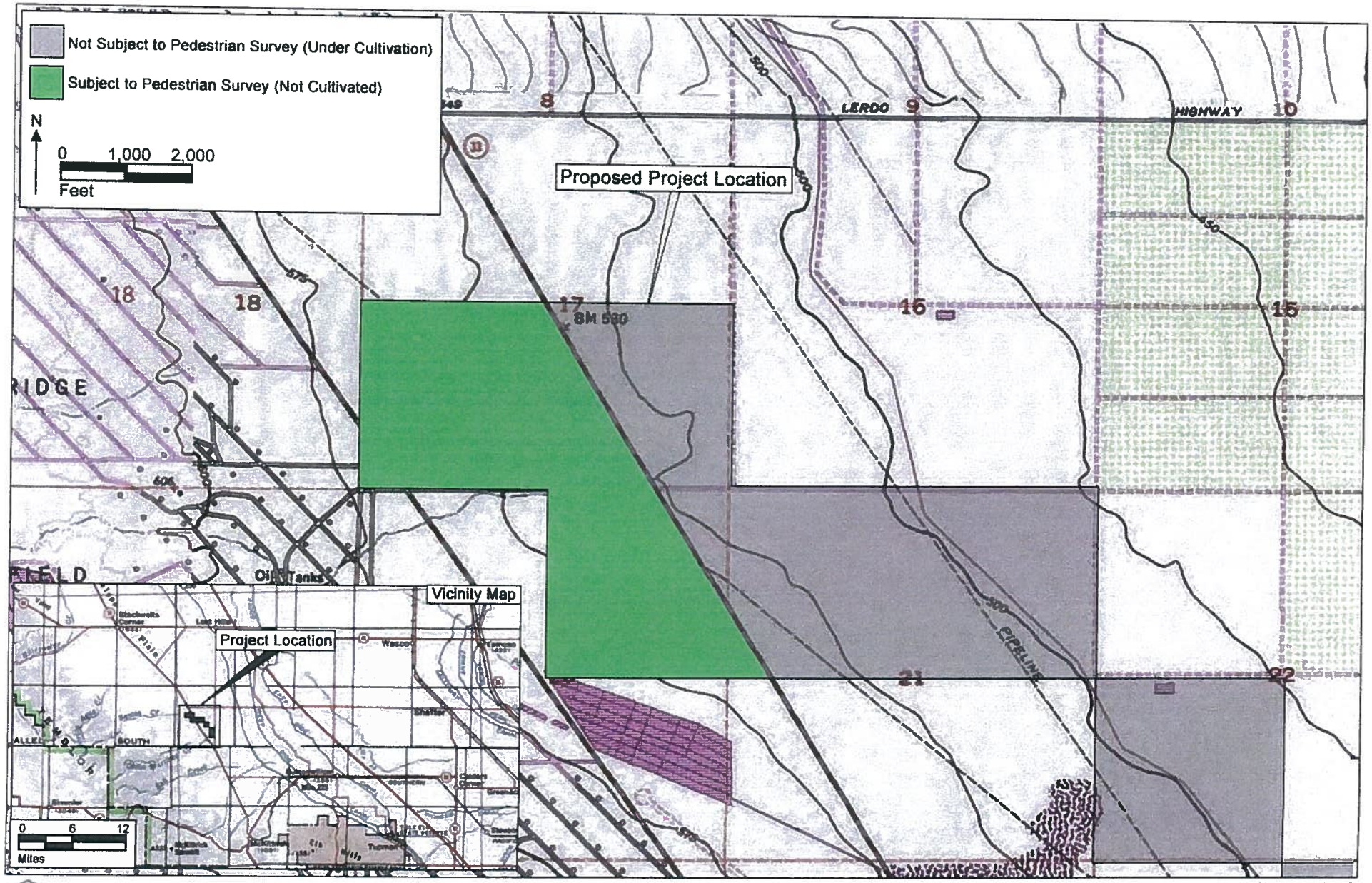
Sincerely,

BCR Consulting

David Brunzell, M.A./RPA
Principal Investigator/Archaeologist
Attachment: USGS Map



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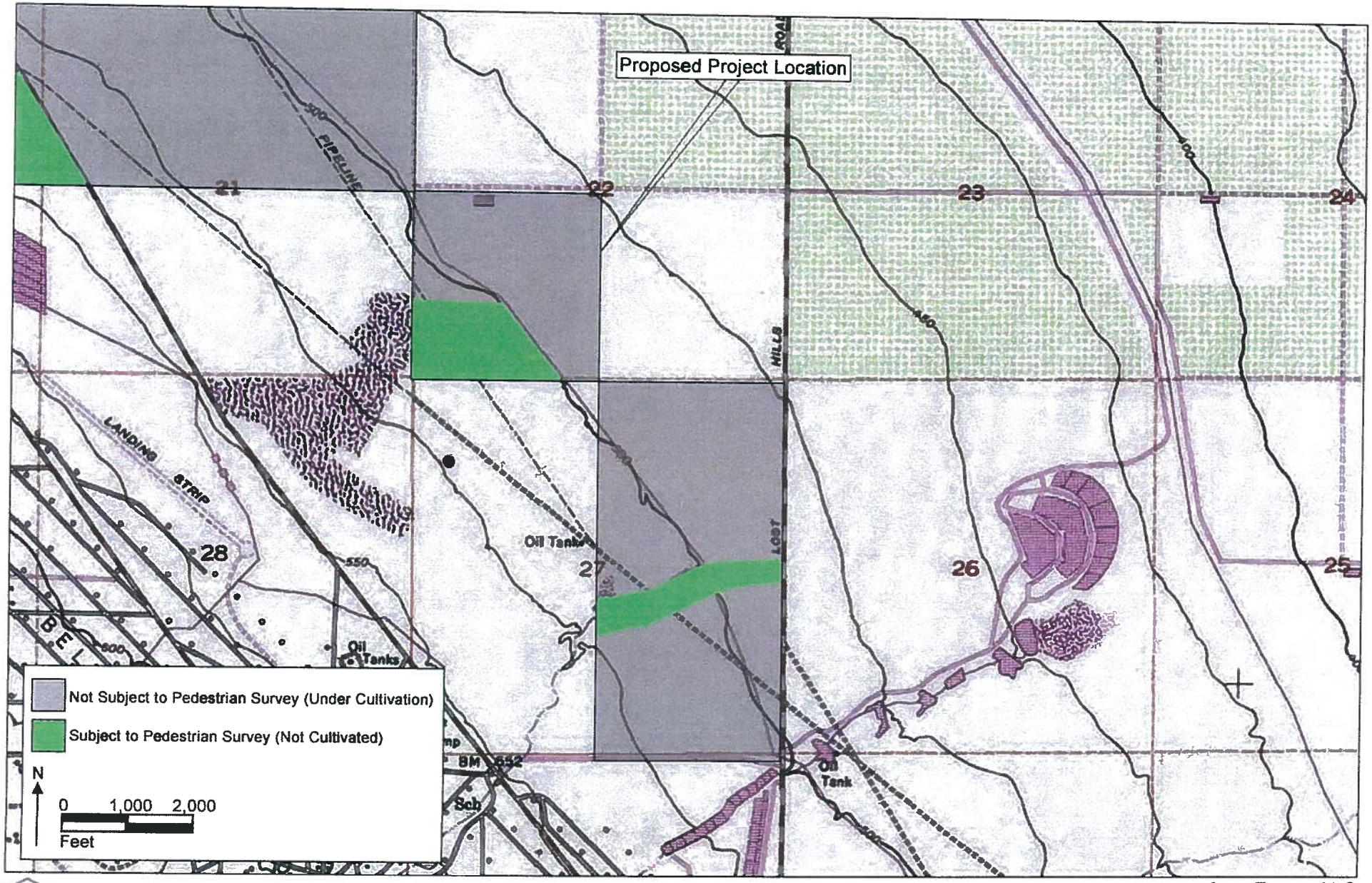
Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 1 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA



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Aera Energy LLC
Water Disposal Project and Aquifer Exemption – South Belridge Field
Project and Vicinity Location (Map 2 of 2)

SOURCE: Topo! 2010 National Geographic; USGS Quad: Belridge (1973), CA

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City, State, ZIP+4: Covina, CA 91722

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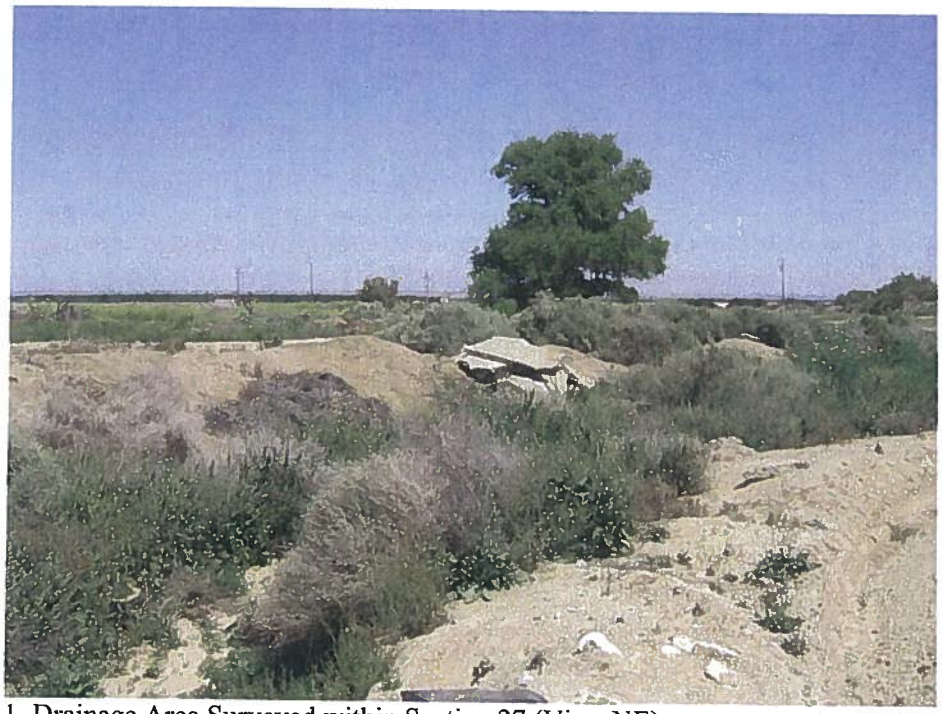
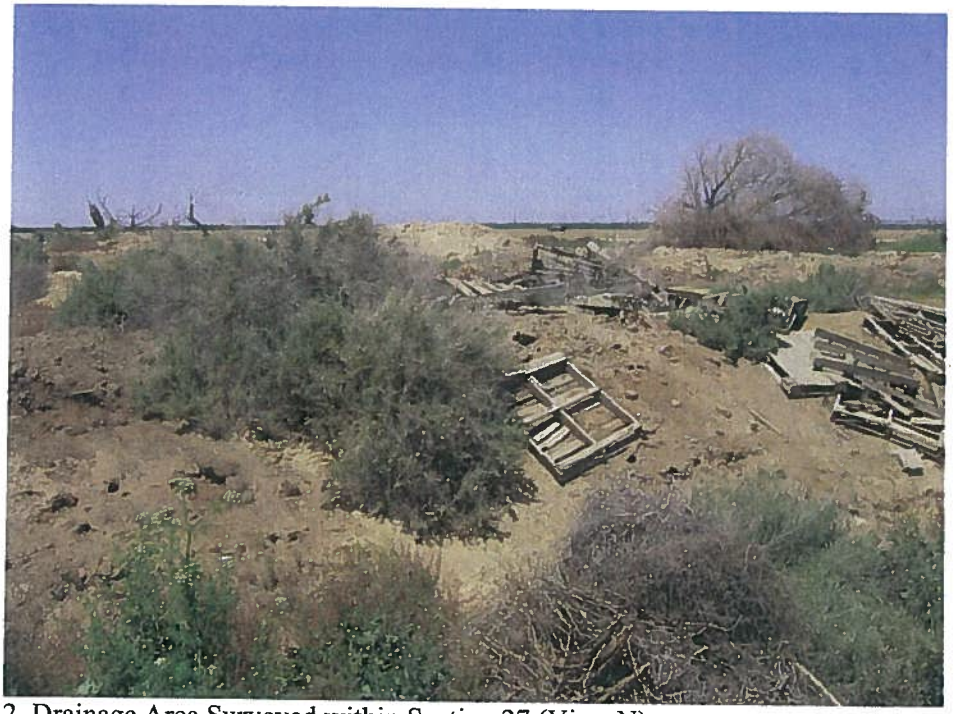
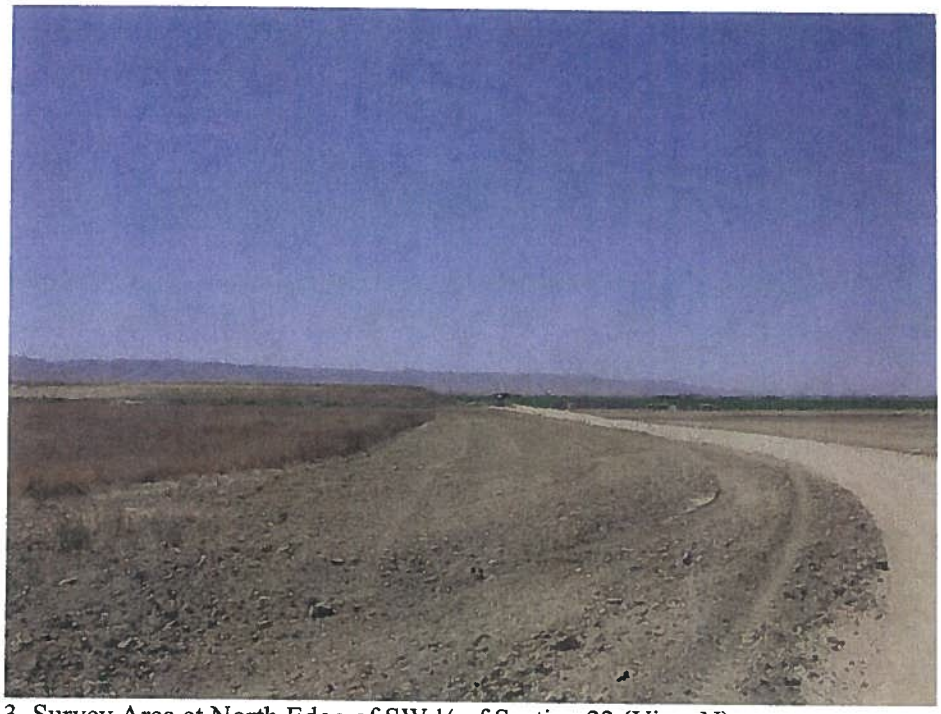
ATTACHMENT C:
PHOTOGRAPHIC DOCUMENTATION



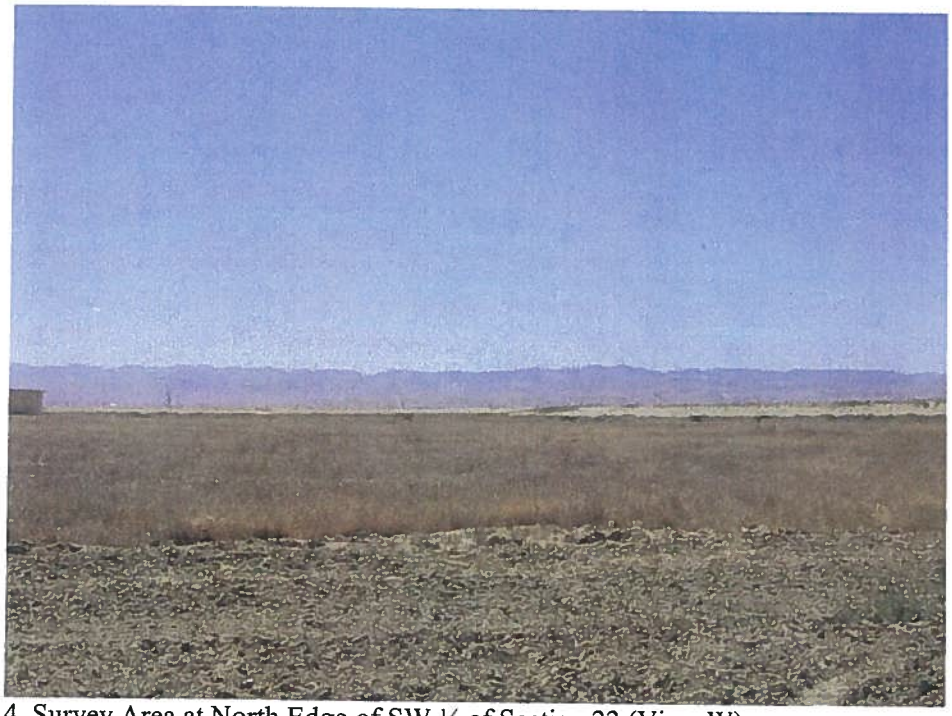
1. Drainage Area Surveyed within Section 27 (View NE)



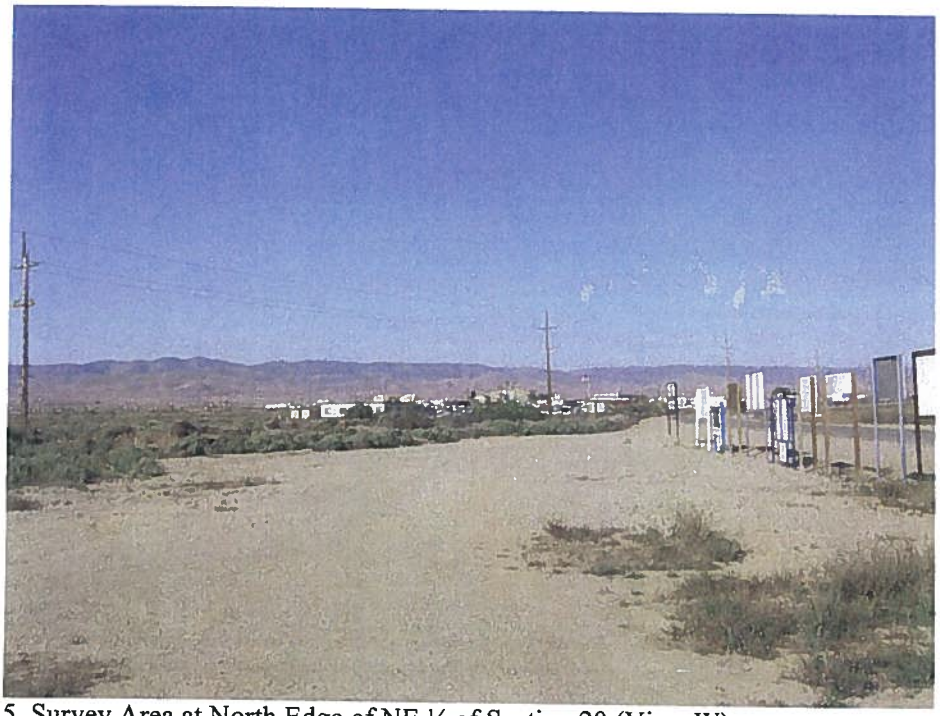
2. Drainage Area Surveyed within Section 27 (View N)



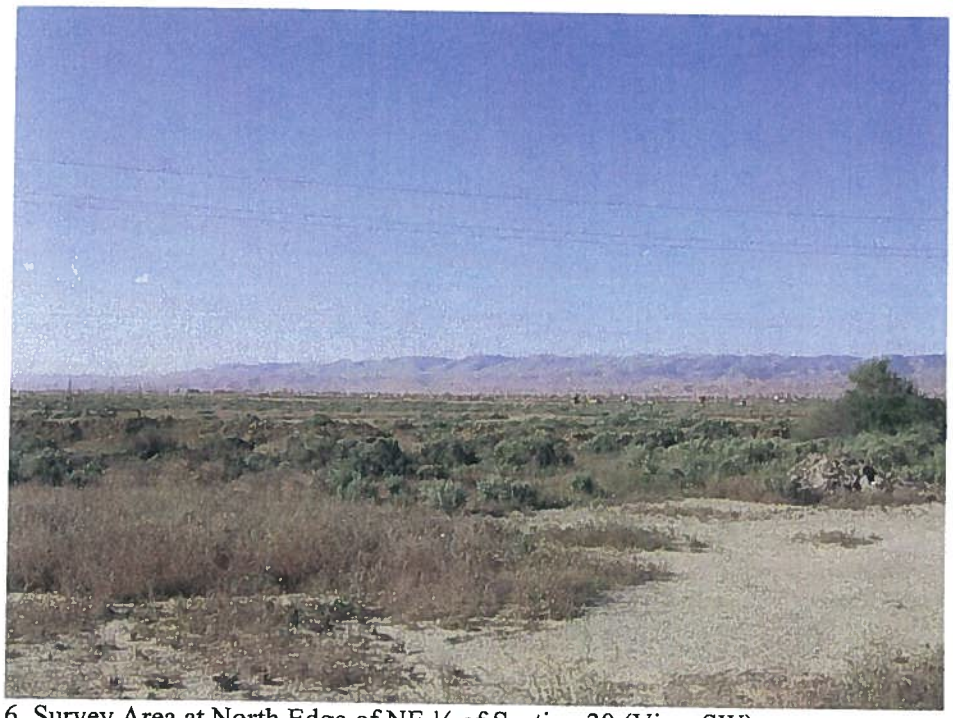
3. Survey Area at North Edge of SW ¼ of Section 22 (View N)



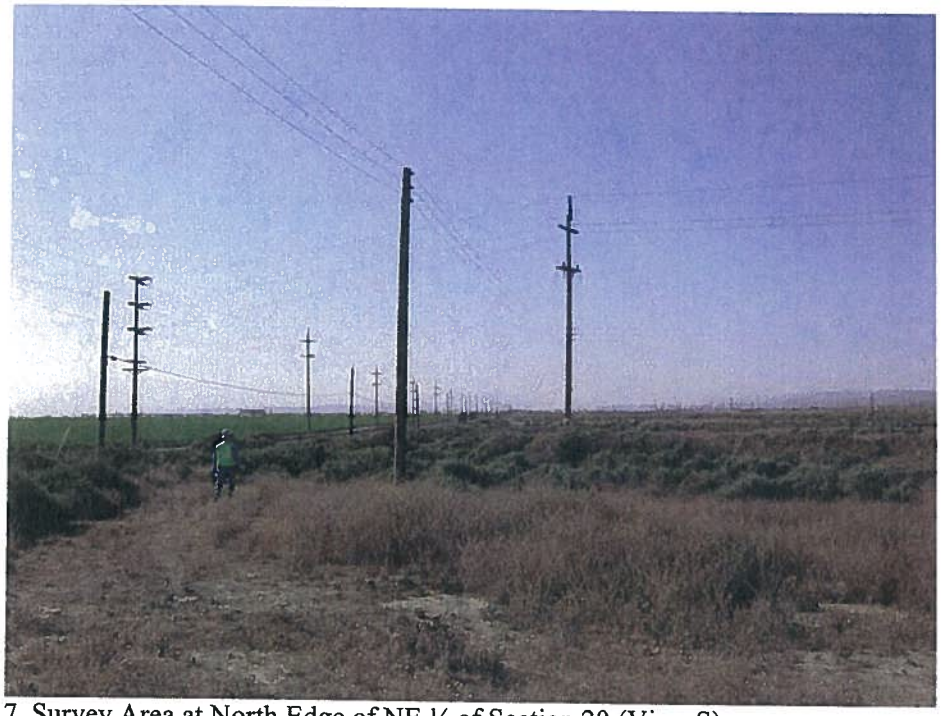
4. Survey Area at North Edge of SW ¼ of Section 22 (View W)



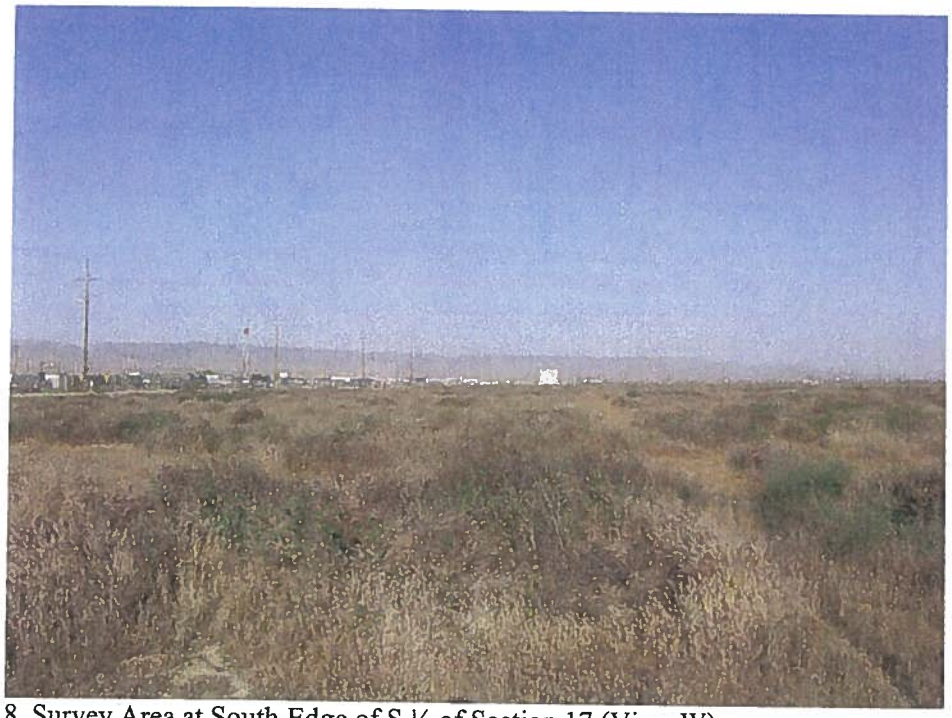
5. Survey Area at North Edge of NE ¼ of Section 20 (View W)



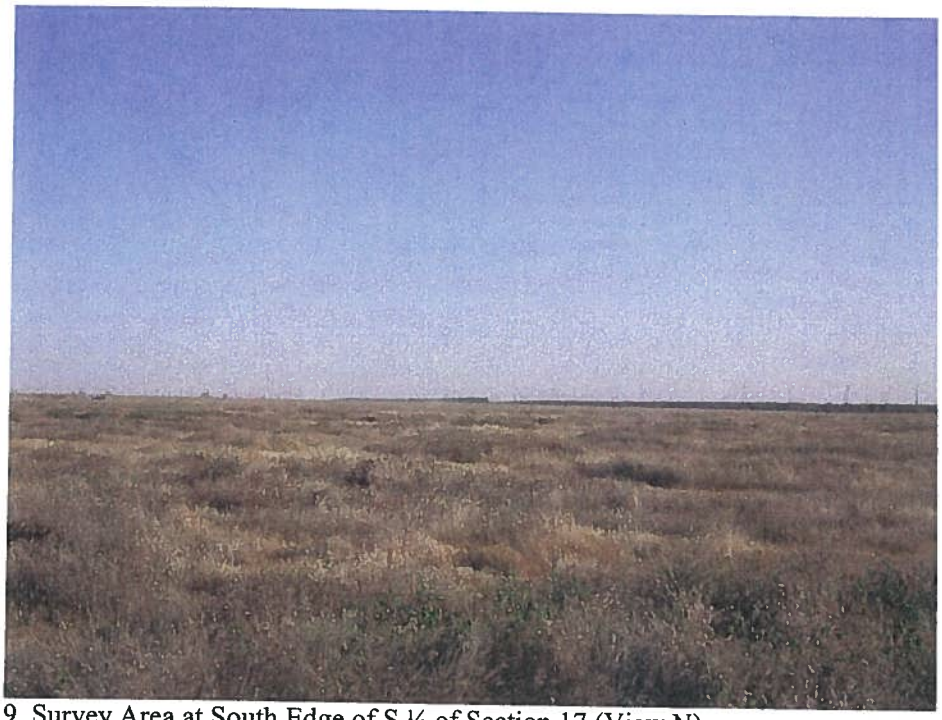
6. Survey Area at North Edge of NE ¼ of Section 20 (View SW)



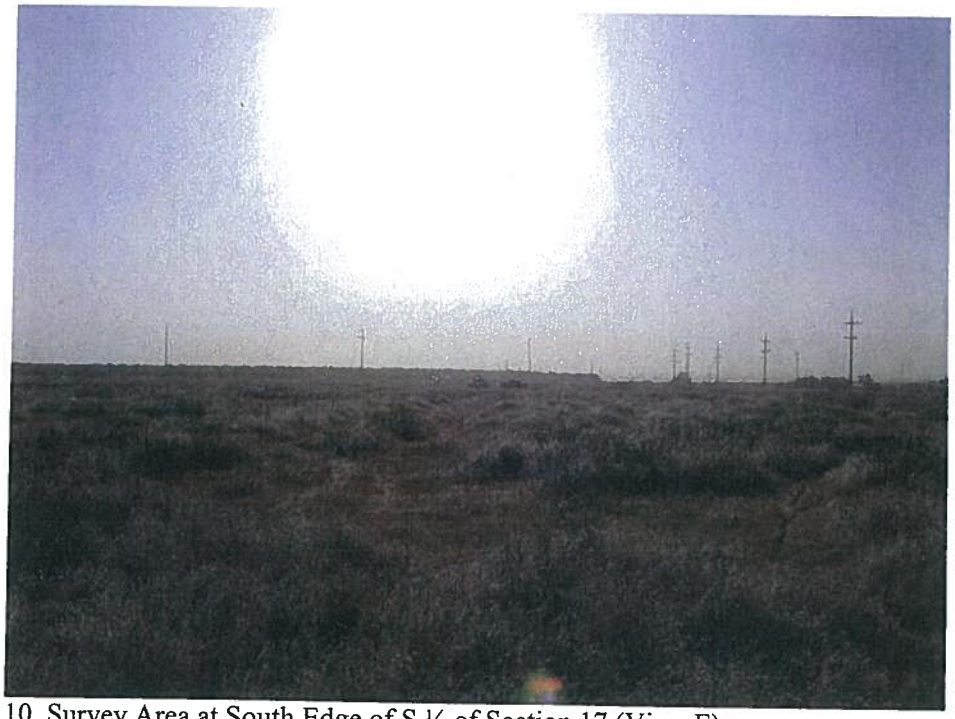
7. Survey Area at North Edge of NE ¼ of Section 20 (View S)



8. Survey Area at South Edge of S ½ of Section 17 (View W)



9. Survey Area at South Edge of S ½ of Section 17 (View N)



10. Survey Area at South Edge of S ½ of Section 17 (View E)

Aera Survey

Aera Energy

Program

This program sets forth procedures and practices as required by laws, regulation or company policy. Compliance with this program is mandatory.

Topic: Endangered Species

Issue Date 8/2003

Last Revision Date: 8/2009
Planned Review Date: 8/2014

References Migratory Bird Treaty Act; Bald Eagle Protection Act of 1940; Marine Mammal Protection Act of 1972; Endangered Species Act of 1973.

Authors R. L. Chambers

Purpose This program has been developed to avoid take of endangered species on Aera[1] properties or due to Aera activities. Take is the 'harassing, harming, pursuing, hunting, wounding, killing, trapping, capturing, or collecting or attempting to engage in such conduct' of an endangered species.

Applies to This program applies to all Aera employees or contractors involved in activities where they may have contact with an endangered species or their habitat.

[1] All references in this program to "Aera" and "Aera Energy" pertain to Aera Energy LLC and Aera Energy Services Company.

Table of Contents

This document covers the following topics:

Section	Topic	Page
1.0	Responsibilities	2
2.0	General Requirements	3
3.0	Instruction and Training	4
4.0	Evaluation	4

1.0 Responsibilities

Responsibilities

The individuals and their responsibilities are listed below.

These Individuals…	Are Responsible for…
Vice Presidents	• Assuring that all elements of this program are implemented.
Managers of Operations, Drilling Manager and Process Supervisors	• Verifying that project activities which may affect an endangered species are evaluated and potential take is avoided. • Assuring the annual training and document evaluations are conducted and any inadequacies are identified and corrected. • Assuring that contact with individual endangered animals is avoided. • Assuring that endangered plants are protected on Federal Leases and where specifically covered in a conditional use permit or lease agreement.
EH&S Advisors	• Providing technical assistance and instruction to units on endangered species avoidance. • Coordinating the training with the Training Department that will assure the employees have the knowledge to avoid take, and provide site specific training where required. • Informing unit employees and contractors of the possibility of sensitive biological areas and avoidance techniques. • Coordinating survey activities prior to construction.
Employees and contractors	• Following the provisions in this program. • Informing the Manager of Operations, Process Supervisor or EHS Field Advisor if a 'take' has occurred.

2.0 General Requirements

General Operations

- Avoid excessive speed, especially at night when some endangered species are most active and difficult to see.
- Use existing roads, avoid off-road driving through previously undisturbed habitat.
- No pets are permitted outside the main office compound or designated living areas.
- Food and related trash items are to be disposed of in closed containers or dumpsters. Personnel shall not feed or otherwise attract wildlife.
- Power lines should be designed and constructed to prevent the accidental electrocution of raptors and other birds.

Pest and Weed Control

- Use of pesticides and herbicides should be limited to ones which are low risk to local endangered species. Neither pesticides nor herbicides shall be used on Federal Leases without consent from the BLM.
- Brush clearance (fuel modification) near facilities is required when there is a potential safety hazard. A certified weed control service or licensed applicator shall be used for commercial herbicide application.
- Before large trees and shrubs are removed from a project site, pruning or avoidance should be considered. Large trees and shrubs provide valuable cover, act as sources of food and provide nesting habitat for many wildlife species.
- Although endangered plants are not protected on private property unless specifically covered in a conditional use permit or lease agreement, Aera should develop specific project procedures to avoid unnecessary loss of endangered plants.

Avoid Entrapment

- Avoid entrapment of endangered species:
  - Sumps or trenches, greater than two feet deep, should be constructed with an escape ramp, or covered if left open overnight.
  - Fluids shall be removed from drilling sumps, as soon as practical, following the departure of the rig.
  - Any sump, which contains oil most of the time, shall be netted and fenced (typically process sumps).
  - Emergency sumps do not need to be netted if the fluids are removed immediately after use.
- Pipe with a diameter of four inches or greater shall be capped or inspected for endangered species prior to moving. If an animal is found inside, do not move the pipe until the animal leaves.

Continued on next page

General Requirements, Continued

Pre-construction activities

Our responsibility is to avoid contact with individual animals.

- Selected contractors and Aera employees will be trained to determine the presence or absence of endangered species to advise the units on appropriate avoidance measures during construction projects. If active dens or burrows are suspected, the EHS field advisor will be contacted. The field advisor shall investigate activity, or call a professional biologist.
- Where appropriate, mitigation acreage for habitat disturbance should be acquired from Aera's Coles Levee Ecological Preserve.

Exceptions

Section 7 and PSD permits exist at the USL Lease in the Lost Hills field, and at the Alberta/Finley Shale and MOCO properties in MWSS field. These permits may contain additional requirements which shall be followed.

3.0 Instruction and Training

Employee Training

Periodic training shall be provided to assure that the purpose and function of this program is understood by employees and contractors. Initial and site specific training should be done by the EHS Field Advisor. MEST should provide an annual overview of the Aera Endangered Species Handbook.

- A handbook will be kept at each unit detailing the endangered animals and plants which occur on Aera property. The handbook shall be updated as necessary.
- Endangered Species information is in the Emergency Action Plan (EAP).
- Training shall include:
  - types of plants and animals and preferred habitats,
  - procedures to avoid 'take', and
  - procedures for reporting 'take'.

4.0 Evaluation

General

This program shall be evaluated and updated on an as needed basis. An evaluation is scheduled for five years following initial approval.