

# Responses to CEC Data Requests – Nos. A181 through A217

## Amended Application for Certification for HYDROGEN ENERGY CALIFORNIA (08-AFC-8A) Kern County, California

Prepared for:  
**Hydrogen Energy California LLC**



Submitted to:



**California Energy  
Commission**



**U.S Department  
of Energy**

California Energy Commission

**DOCKETED  
08-AFC-8A**

TN # 68748  
DEC. 03 2012

Prepared by:

**URS**

**December 2012**



**RESPONSES TO DATA REQUESTS A181 THROUGH A217  
FROM CALIFORNIA ENERGY COMMISSION (CEC)**

**TABLE OF CONTENTS**

**CEC DATA REQUESTS  
A181 THROUGH A217**

CULTURAL RESOURCES  
A181 THROUGH A197

NOISE  
A198 AND A199

ALTERNATIVES  
A200 THROUGH A209

LAND USE AND AGRICULTURAL  
A210 THROUGH A212

VISUAL RESOURCES  
A213 AND A214

WASTE MANAGEMENT  
A215 THROUGH A217

**ATTACHMENTS**

Attachment A182-1 Department of Parks and Recreation 523 Form  
Attachment A188-1 Department of Parks and Recreation 523 Forms  
Attachment A188-2 Historic Architectural Survey Report

**LIST OF ACRONYMS AND ABBREVIATIONS USED IN RESPONSES**

Caltrans	California Department of Transportation
CEC	California Energy Commission
DPR	Department of Parks and Recreation
GS	Gasification Solids
HECA	Hydrogen Energy California
SCM	Supplementary Cementitious Materials

**Technical Area:** Cultural Resources

**Authors:** Melissa Mourkas, Elizabeth A. Bagwell, Thomas Gates, Gabriel Roark

All responses to these Data Requests containing references to specific archaeological site locations or information, or resources of concern to Native Americans, must be submitted under a request for confidentiality.

**BACKGROUND**

Historic built environment studies were conducted in 2009 and 2012 to support the AFC and Amended AFC; separate reports were prepared for each inventory (JRP Historical Consulting 2009, 2012). Historic built environment resources were recorded as a result of both studies and were documented in the reports and on Department of Parks and Recreation 523 forms (DPR 523 forms).

Despite changes to the proposed project between 2009 and 2012, historic built environmental resources recorded in 2009 still cross the project area of analysis (PAA).

The Amended AFC (HECA 2012: 08-AFC-8A) proposes a linear corridor for a rail line. The corridor is shown on Map 2, Historic Architectural Resources Study Area with Defined Resources, Sheets 4-6, as submitted in April, 2012. The DPR 523 forms submitted with the revised project, April 2012, are keyed to the Map Reference Numbers on Map 2. Some of the DPR 523 forms contain photographs and/or location references which, due to the revised project footprint, are now outside of the proposed Project Area of Affect (PAA).

Staff has conducted a windshield survey of the PAA and noted that some of the resources have been altered since they were previously recorded. The built environment resources in the PAA are linear resources that go well beyond the PAA, therefore the nature and integrity of the resource within the PAA could be substantially different from that outside of the PAA.

As part of staff's environmental impact analysis, staff is requesting this level of analysis in order to understand what portion(s) of the resource could be affected by the proposed project. Staff requests that the DPR 523 forms for the following resources, identified by their map reference number, be updated to include current photographs of the resource within the current PAA, a current photograph location map, and updated evaluation of the resource based upon the current PAA and changes that have occurred to the resource in the ensuing years since the original application in 2008.

**DATA REQUEST**

**A181. Map Reference Number 2: Southern Pacific Asphalto/McKittrick Branch.**

- a. ***Please provide current photographs of the rail line and spur as they appear within the current PAA and update the evaluation as needed to specifically discuss this portion of the resource. Record where the spur line ends and/or meets the main line within the PAA. Update the sketch map to reflect the current PAA and location of the resource. Update the section views to reflect the existing conditions.***
- b. ***Provide a discussion of how the proposed Rail Laydown Yard (URS 2012: Figure 5.10-2 [1]) would impact either the existing rail line or the historic spur identified on the DPR 523 form for Map Reference Number 2.***

**RESPONSE**

- a. As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.
- b. As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant objects to this Data Request.

## DATA REQUEST

### **A182. Map Reference Number 3: PG&E and SCE Transmission Lines and Towers.**

- a. Label photos on the previously submitted DPR 523 form and indicate on a sketch map where they were taken. Confirm that the photo locations are within the revised PAA. If not, provide updated photographs of the lines and towers within the PAA and clearly marked locations on a map.**

## RESPONSE

The Department of Parks and Recreation (DPR) 523 form for Map Reference 3 has been revised to include a sketch map showing where photos presented in the form were taken. The photos presented in the revised DPR 523 form are within the current Project Area of Affect. The revised DPR 523 form is included as Attachment A182-1.

**ATTACHMENT A182-1**  
**DEPARTMENT OF PARKS AND RECREATION 523 FORM**

State of California – The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION  
**PRIMARY RECORD**

Primary # \_\_\_\_\_  
HRI # \_\_\_\_\_  
Trinomial \_\_\_\_\_  
NRHP Status Code 6Z

Other Listings \_\_\_\_\_  
Review Code \_\_\_\_\_ Reviewer \_\_\_\_\_ Date \_\_\_\_\_

Page 1 of 5

\*Resource Name or # Map Reference No. 3

**P1. Other Identifier:** Pacific Gas & Electric and Southern California Edison Transmission Lines and Towers

**\*P2. Location:** ☐ Not for Publication ☒ Unrestricted  
and (P2b and P2c or P2d. Attach a Location Map as necessary.)

**\*a. County** Kern

**\*b. USGS 7.5' Quad** Tupman, CA **Date** 1954 photorevised, 1968, 1973 **T** \_\_\_\_; **R** \_\_\_\_; \_\_\_\_ **¼ of Sec** \_\_\_\_; \_\_\_\_ **B.M.**

**c. Address** \_\_\_\_\_ **City** Buttonwillow **Zip** \_\_\_\_\_

**d. UTM:** (give more than one for large and/or linear resources) **Zone** \_\_\_\_; \_\_\_\_ **mE/** \_\_\_\_ **mN**

**e. Other Locational Data:** (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

Segments of Lines A and B: Sections 20-21 T29S/R24E; Segments of Lines C and D: Sections 19, 20, 27, 28 T29S/R24E.

**\*P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This form documents segments of two sets of transmission lines and towers southeast of Buttonwillow and west of Interstate 5. Lines A and B (Photograph No. 1) were constructed by Southern California Edison (SCE) and Pacific Gas & Electric (PG&E), respectively, sometime between 1943 and 1956. These lines begin at the Midway Substation, cross Highway 58, and then run east paralleling the highway into the City of Bakersfield. Towers include steel lattice towers, carrying either single or double circuits. Some towers are guyed. Lines C and D (Photograph No. 3) were built by PG&E and SCE, respectively, between 1956 and 1973. These lines begin at the Midway Substation, cross Highway 58, and run southeast for approximately 7 miles. South of Stockdale Highway and just east of Elk Valley Road, Line C begins to travel north and south, and is suspended on three-armed lattice towers with battered four-legged bases. The single-arm towers with masts resembling rabbit ears carry PG&E lines northwest and southeast.

**\*P3b. Resource Attributes:** (List attributes and codes) (HP11) Engineering structure

**\*P4. Resources Present:** ☒ Structure ☐ Building ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photo of Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: Photograph 1:  
Lines A and B (Point 1), facing  
southeast.

**\* P6. Date Constructed/Age and Sources:**  
☒ Historic ☐ Prehistoric ☐ Both  
1940s-1973, Historic maps & aerial  
photographs

**\*P7. Owner and Address:**  
PG&E and Southern California Edison

**\*P8. Recorded by:**  
Greg Rainka & Rand Herbert/ Toni  
Webb & Chandra Miller  
JRP Historical Consulting, LLC  
2850 Spafford St., Davis, CA 95618

**\*P9. Date Recorded:** April 2010 &  
February 2012

**\*P10. Survey Type:** Intensive

**\*P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Architecture  
Technical Report: Inventory and Evaluation Report, Hydrogen Energy California (HECA) Project," 2012.

**\*Attachments:** ☐ None ☐ Location Map ☒ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record  
☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record  
☐ Other (list) \_\_\_\_\_



**BUILDING, STRUCTURE, AND OBJECT RECORD**

Page 2 of 5

\*NRHP Status Code 6Z

\*Resource Name or # Map Reference No. 3

B1. Historic Name: \_\_\_\_\_

B2. Common Name: \_\_\_\_\_

B3. Original Use: Electrical transmission B4. Present Use: Electrical transmission

\*B5. Architectural Style: Utilitarian

\*B6. Construction History: Lines A & B = between 1943 & 1956; Line C = between 1956 & 1968; Lines D= between 1968 & 1973.

\*B7. Moved? ☒ No ☐ Yes ☐ Unknown Date: \_\_\_\_\_ Original Location: \_\_\_\_\_

\*B8. Related Features: \_\_\_\_\_

B9. Architect: PG&E/SCE b. Builder: PG&E/SCE

\*B10. Significance: Theme n/a Area n/a

Period of Significance n/a Property Type n/a Applicable Criteria n/a

None of the transmission lines and towers documented on this form appear to meet the criteria for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) because they lack historical significance. These resources been evaluated in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code, and do not appear to be historical resources for the purposes of CEQA.

The development of long distance transmission lines in California was an evolutionary process that dates to 1879, the year in which California Electric Light Company began operation. This San Francisco-based company generated electricity, and distributed it to local subscribers from a central station. During the 1880s the use of electricity in California became increasingly widespread, and local electric companies began to spring up in cities throughout the state. These early power plants, which used low-voltage direct current (D.C.) dynamos, could only transmit electricity about three miles. Only urban areas with concentrated populations could be economically served with a local electrical generating plant. The first important technological advancement that would allow the transmission of electricity over greater distances was the development of the alternating current (A.C.) system, which could produce higher voltages than the D.C. system. By 1890, this pioneering technology invented by Nikolas Tesla was put to use in a limited capacity in power plants in four California cities: Santa Barbara, Highgrove, Visalia, and Pasadena.

Although the A.C. system was a promising development, it did not catch on immediately, primarily because the D.C. system was already in place in most of the existing power stations. Pioneering developments at the San Antonio Light & Power Company's Pomona Plant, however, greatly helped to advance the electric industry in California. In 1892, this was the first hydroelectric facility in California to use "step-up" A.C. transformers, in which the generator (See Continuation Sheet)

B11. Additional Resource Attributes: \_\_\_\_\_

\*B12. References: William A. Myers, *Iron Men and Copper Wires: A Centennial History of the Southern California Edison Company* (Glendale, California: Trans-Anglo Books, 1983), 11; Tupman Quadrangle, 1933, 1954, 1968 and 1973; Buttonwillow Quadrangle, 1942, 1956, 1973; USDA Aerial Photographs of Kern County, Aerial Photographs of Kern County, 1956 & 1974; also see footnotes.

B13. Remarks:

\*B14. Evaluator: Greg Rainka/Toni Webb

\*Date of Evaluation: April 2010/February 2012

(This space reserved for official comments.)

(Sketch Map with north arrow required.)

See Continuation Sheet

## **B10. Significance (continued):**

potential of 1,000 volts was increased to 10,000 volts for transmission. On November 28, 1892, San Antonio Light & Power began delivery of 10,000 volts of electricity from its plant at San Antonio Canyon to Pomona, a distance of 14 miles. A month later service was extended to San Bernardino, roughly doubling the length of the line. Over the next decade, technological and engineering advancements made it possible for power companies to transport electricity in increasing amounts over ever-longer distances. In 1899, the Edison Electric Company built an 83-mile transmission line between its power plant on the upper Santa Ana River and Los Angeles. By far the longest in the world at the time, this engineering feat was made possible by the development of glazed porcelain insulators capable of handling 40,000 volts.<sup>1</sup> In 1901, Bay Counties Power Company completed a transmission line 142 miles in length that brought hydroelectric power from the Colgate Powerhouse in the Sierra Nevada near Grass Valley to Oakland. The line consisted of two parallel rows of cedar poles carrying copper and aluminum wires. In addition to its length, this line was impressive because of its 4,427-foot crossing of the Carquinez Straits. John Debo Galloway was the construction engineer for the project and is credited with directing the design and construction of the cable span, the longest in the world at that time. The Colgate-Oakland line also marked the first time electrical power produced in the Sierra crossed the rugged mountain terrain and the wide Sacramento Valley to be utilized by residents of the Bay Area.<sup>2</sup>

The first decade of the 20<sup>th</sup> century ushered in a period of marked growth in the hydroelectric industry. Between 1900 and 1910 the population of California increased by 60 percent, and with it came an increased demand for electric power.<sup>3</sup> Dozens of hydroelectric companies formed throughout California, each building networks of long-distance transmission lines to service new and growing markets. By 1902, the Bay Counties Power Company and the Standard Electric Company had a network of transmission lines in place that provided coverage to much of the Bay Area, as well as communities such as Marysville, Stockton, and Amador City. In 1907, California Gas & Electric (CG&E) purchased the lines of these two companies, as well as other smaller Northern California operations, to augment its existing system. The transmission lines of this consolidated system reached from Chico to the north to San Jose to the south, serving dozens of communities in between.<sup>4</sup>

In 1907, Edison Electric completed its Kern River No. 1 hydroelectric plant in Kern Canyon. This 118-mile long transmission line delivered power to Los Angeles, carrying a 75,000-volt line, and was the first line to use entirely steel towers. The Wind Engine Company, a windmill manufacturer, supplied the towers. In 1908, the Great Western Power Company completed its hydroelectric plant at Big Bend on the Feather River, and by January 1909 began sending electrical power to the Bay Area via its 165-mile stretch of transmission lines. By the spring of 1909, the major hydroelectric companies of Northern California, including CG&E, Stanislaus Electric Power Company, Great Western Power Company, and the American River Power Company, had a network of long-distance transmission lines in place that crisscrossed the state.<sup>5</sup> In subsequent decades, power companies throughout California, led by major companies such as PG&E and the Southern California Edison Company, continued to expand and build upon the systems that had been founded in the decades surrounding the turn of the century.

<sup>1</sup> Fredrick Hall Fowler, *Hydroelectric Power Systems of California and Their Extensions into Oregon and Nevada* (Washington DC: Government Printing Office, 1923), 1; Myers, *Iron Men and Copper Wires*, 24-31, 39.

<sup>2</sup> Charles M. Coleman, *PG&E of California: The Centennial Story of Pacific Gas and Electric Company 1852-1952* (New York: McGraw-Hill Book Company Inc., 1953), 146-148.

<sup>3</sup> Coleman, *PG&E of California*, 257.

<sup>4</sup> Galloway and Markwart Consulting Engineers, "Map of Central California Showing Principal Power Plants and Transmission Lines." In: J.D. Galloway, "Report on the Stanislaus Electric Power Company on the Stanislaus River, California," March 1909; Fowler, *Hydroelectric Power Systems of California*, 273-274.

<sup>5</sup> Myers, *Iron Men and Copper Wires*, 44-47; Jackson Research Projects, "Great Western Power Company: Hydroelectric Power Development on the North Fork of the Feather River, 1902-1930," prepared for PG&E, 1986, 96, 102; Fowler, *Hydroelectric Power Systems of California*, 275; Fowler, *Hydroelectric Power Systems of California*, 272-273.

Page 4 of 5

\*Resource Name or # Map Reference No. 3

\*Recorded by Rainka/Herbert/Webb/Miller \*Date April 2010/February 2012

☒ Continuation ☐ Update

### **B10. Significance (continued):**

Under CRHR Criterion 1 or NRHP Criterion A, none of the transmission lines and towers documented on this form appear to be significant for their association with the development of electrical transmission in Kern County. All of these lines and towers were constructed in the 1940s and thereafter, more than forty years after the period of development of power lines and electricity in California. These distribution lines were installed because of a general increase in need for electrical power and do not represent significant engineering achievement, nor are they directly related to a significant precipitating event. Under CRHR Criterion 2 or NRHP Criterion B, these lines and towers do not appear to be significant for their association with the lives of persons important to history. They were built and are used by large electrical companies, and cannot be attributed to a specific individual or group of individuals significant within that context. Under CRHR Criterion 3 or NRHP Criterion C, these lines and towers do not appear to be significant for possessing distinctive characteristics of construction or high artistic value. They each exhibit the typical design of their respective power company, were ordered from their manufacturer and constructed in large quantities. None of these lines were established to solve a particular problem in power distribution, or to surmount a problem in electrical development. Lastly, these lines and towers do not appear to be a source (or likely source) of important information regarding history, and are therefore ineligible under CRHR Criterion 4 or NRHP Criterion D.

### **Photographs (continued):**



**Photograph 2.** Point 2 of PG&E line (Line C, far left) and SCE lines (Lines D, right) facing southeast.

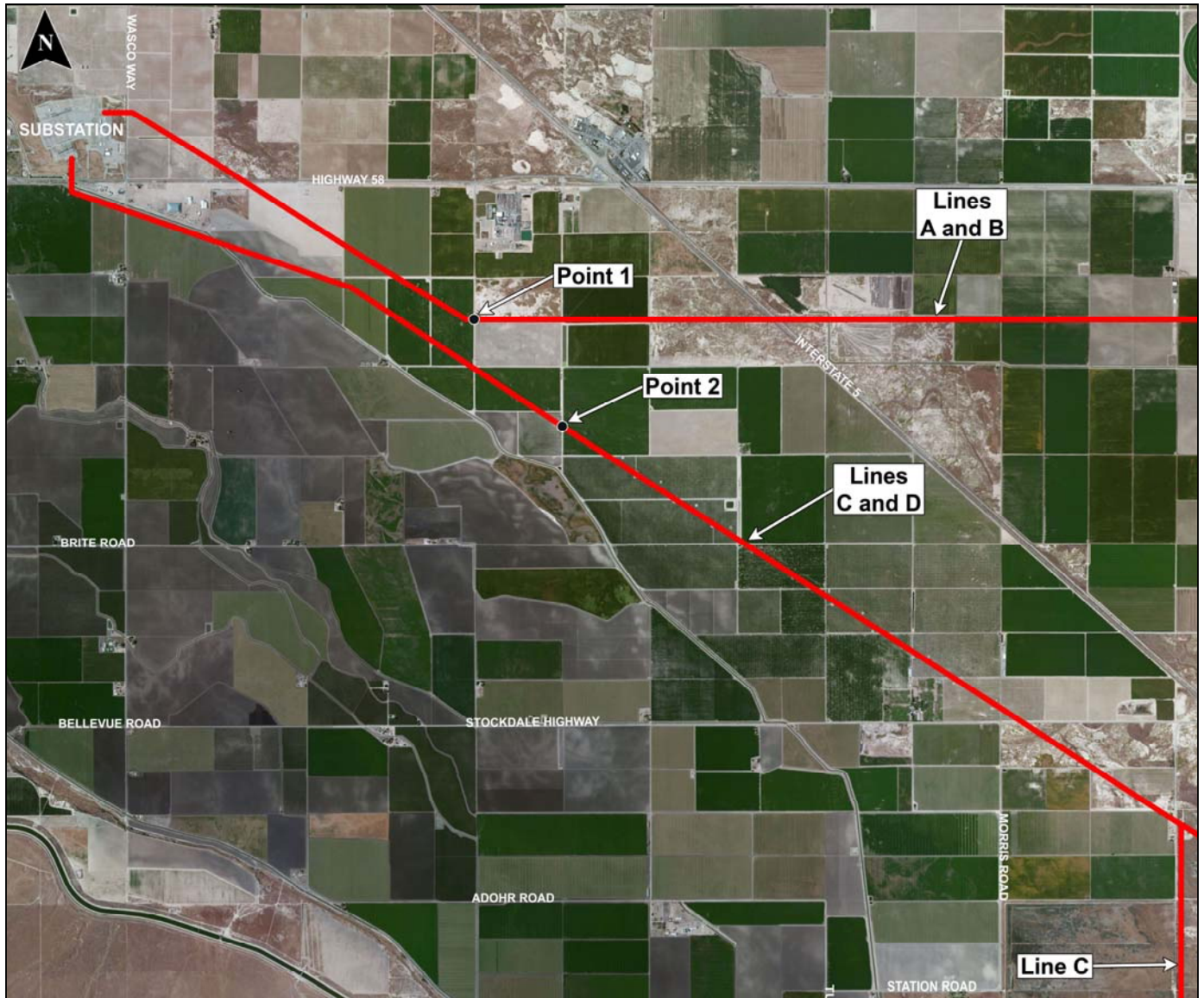
Page 5 of 5

\*Resource Name or # Map Reference No. 3

\*Recorded by Rainka/Herbert/Webb/Miller \*Date April 2010/February 2012

☒ Continuation ☐ Update

**Sketch Map:**



## DATA REQUEST

### **A183. Map Reference Number 10: Old Headquarters Weir.**

***The Old Headquarters Weir appears to have experienced significant changes to the structure since the photographs were taken in 2009 and the resource evaluated on the DPR 523 form submitted with the application. In light of those changes, address the following potential integrity issues:***

- a. Please confirm that the steel walkway shown in photograph 2 on the DPR 523 form is no longer extant.***
- b. Assess the additional layer of concrete visible on the top of the benchwalls where the walkway was located prior to removal and determine its age and whether it was an addition to support the non-original wooden or steel walkways that were added later to the structure.***
- c. Determine whether these changes to the Old Headquarters Weir affect the integrity of the resource and its eligibility for listing on the California Register of Historical Resources (CRHR). Provide current photographs documenting the existing condition of the weir on the DPR 523 form.***

## RESPONSE

As described in Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

## DATA REQUEST

### **A184. Map Reference Number 11: California Aqueduct.**

- a. The location of photograph (dated 7/26/06) provided on the DPR 523 form map on page 2 of 4, appears to be taken in the vicinity of the Delta Mendota Canal in Tracy, CA, nearly 200 miles north of the project. As the photo location is outside the current PAA, provide a current photo of the portion of the aqueduct within the PAA and a map identifying its location. Staff suggests a photo location of the aqueduct near the Old Headquarters Weir.**

## RESPONSE

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

## DATA REQUEST

### **A185. Map Reference Number 14: Buena Vista Water Storage District (BVWSD).**

**The DPR 523 form evaluating six individual BVWSD resources was completed in 2009. One of the resources identified in the DPR 523 form is now outside the PAA. The location photographs for the five BVWSD resources listed below no longer document the portions of these resources within the PAA.**

- a. Provide updated photographs, location map and evaluation of the resources to reflect the revised PAA. The affected BVWSD resources are listed below, from north to south within the PAA:**

- 1 East Side Canal;**
- 2. Unknown drain and well (dating to at least 1954) located between Dunford Road and East Side Canal;**
- 3. Depot Drain;**
- 4. Levee and well at southern property boundary of the Adohr/Palm Farm complex;**
- 5. Outlet Canal.**

## RESPONSE

As described in Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.



## BACKGROUND

Extant on the Adohr Farm property (Map Reference 7) are mature tree plantings, including a perimeter row (north, west, and south of the property) of tall palm trees (likely *Washingtonia robusta*), a driveway allée of palm trees of a different type (possibly *Phoenix dactylifera* or similar) and two trees flanking Dairy Road with full canopies that reach the ground. Both the perimeter palms and the allée of palms are characteristic of many California Central Valley farm landscapes, whereby the farm house and property is often marked with a boundary of planted trees and a driveway allée. Central Valley farmsteads also often feature a dense cluster of trees surrounding the primary buildings, which may include the residence, a water tower, and utility buildings.

These developments and the characteristic tree plantings associated with them are often visible from miles away, as is the case with the Adohr Farm property. The perimeter palms form a pronounced silhouette that is discernible from several miles away in the open agricultural landscape. The other two trees on the property noted above, located adjacent to Dairy Road and in the vicinity of the electric line servicing the property, are spaced in such a way that they may have at one time flanked a path or other entryway. There is another tree on the Adohr Farm property which has been heavily pollarded in the past, now appears to be dead or dying, and may be similar to the two trees with the full canopies.

The DPR 523 form for Adohr Farms, Map Reference 7, does not include a discussion of the landscape features of the property and their contribution to the significance and integrity of the site as potential character-defining features. Staff requires this information in order to understand how the property originally appeared and provide a complete analysis of the farmstead's historical significance, integrity and identification of character-defining features of the property as a whole.

## DATA REQUEST

**A186. Identify and assess the age of the trees and provide an evaluation of their contribution to the Adohr farms property as a whole.**

- a. Provide information from a Certified Arborist as to the genus, species, and age of the trees described above.**
- b. Provide historical photographs or maps which show the trees, farm layout and buildings from the period of significance, roughly ca. 1930 (approximate date of construction) to the present.**
- c. Evaluate the landscape features of the property (i.e., trees and placement) and their contribution to the significance and integrity of the site as potential character-defining features.**

## RESPONSE

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant objects to this Data Request.



## BACKGROUND

The HECA project proposes a new rail line to deliver products to the project site (URS 2012). The Amended AFC and subsequent data responses have not described the method for crossing and/or abutting existing BVWSD resources.

Energy Commission Land Use and Traffic staff made site visits on September 25, 2012. HECA staff described the crossings of the canals, for example, as pre-cast concrete structures that would be installed inside the drainage channel walls, with a flow-through design for the water in the channel. As described, installation of the structures would not impact the sidewalls or levees of the drainage channel.

However, the rail line presumably would cross the top of the sidewalls and levees. In order for Cultural Resources staff to adequately address the potential impacts upon BVWSD resources and related structures and landforms, staff needs a complete description of the method of drainage crossings and a discussion of the impacts to the resources involved.

## DATA REQUEST

**A187. Provide a description of the method of rail line crossing, including design, accompanied by an engineering drawing in plan and section view, structural requirements and a discussion of potential impacts to the three existing structures listed below that appear to require crossings based upon the rail line route provided in the AFC and subsequent documents.**

- a. East Side Canal (Map Reference 14). Provide design of structural crossing in plan and section view, clearly.**
- b. Works Progress Administration-era culverts and headwalls on Dairy Road (Map Reference 5). Provide an analysis of the impact of the rail line on these resources, including placement of the rail line in relation to the headwalls and indicating how the span would be accomplished and what structural elements or features of the water system at this location may be impacted.**
- c. Main Drain (Map Reference 14). Provide design of structural crossing in plan and section view, clearly indicating how the span would be accomplished and what structural elements or features of the canal may be impacted.**

## RESPONSE

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant objects to this Data Request.

## BACKGROUND

In discussing the architectural characteristics of the buildings in the DPR forms for Map References 7 (Adohr Farms) and 9 (Adohr Farms Headquarters) (URS 2012), a reference is made to an "Oilfield" style of architecture. The narrative states that, "While the style of the buildings [Map References 7 and 9] is reminiscent of "Oilfield" architecture, a style used in the remote oilfields of Kern County, the construction date and function preclude it from being of this class of architecture. Rather, it is a modified version of this style" (JRP Historical Consulting 2012: Map Reference 7, p. 4, Map Reference 9, p. 4).

The applicant has drawn the conclusion that the buildings are not eligible for listing on the CRHR under Criteria 1, 2, 3 or 4. Specifically, the applicant determines that, relative to Criterion 3, these buildings do not possess any distinctive characteristics or high artistic value that would render them eligible under Criterion 3 (JRP Historical Consulting 2009).

In order to develop a complete analysis for the buildings and the farmstead as a whole, staff needs additional information about the architecture style referred to as "Oilfield". In addition, staff needs to understand the context of the style relative to oilfields and agricultural properties in Kern County and why the "Oilfield" style would be in use on an agricultural property.

## DATA REQUEST

**A188. Staff requires additional information about the "Oilfield" architectural style and how the architectural details of the buildings identified as Map References 7 and 9 refer to that style.**

- a. Provide a discussion of the "Oilfield" style of architecture referred to in the DPR 523 forms for Map References 7 and 9. Define the period of significance for the style, and how the construction date and function of the buildings "preclude it from being of this class of architecture".**
- b. Please provide staff a copy of JRP Historical Consulting (1995), cited in JRP Historical Consulting (2012) as a source for defining Oilfield architecture.**
- c. Provide a discussion of the buildings' design, including but not limited to, the gabled monitor with ventilation slats, the decorative notching in the fascia boards, the shed roofs covering the porches and the distinctive cross-X pattern of the porch railings and how these attributes and features fit into the broader pattern of agricultural housing forms from this period in the Central Valley, and Kern County in particular.**

## RESPONSE

The DPR 523 forms for Map References 7 and 9 have been revised to include a discussion of oilfield architecture, a definition of the period of significance for the style, and how the construction date and function of the buildings referred to in the DPR 523 forms preclude them from being of this class of architecture. The DPR 523 forms have also been revised to provide a discussion of the buildings' design, and how these attributes and features fit into the broader pattern of agricultural housing forms from this period in the Central Valley and Kern County. The revised DPR 523 forms are included as Attachment A188-1. A copy of JRP Historical Consulting Services Historic Architectural Survey Report, dated June 9, 1995, is included as Attachment A188-2.

**ATTACHMENT A188-1**  
**DEPARTMENT OF PARKS AND RECREATION 523 FORMS**

State of California – The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION  
**PRIMARY RECORD**

Primary # \_\_\_\_\_  
HRI # \_\_\_\_\_  
Trinomial \_\_\_\_\_  
NRHP Status Code 6Z

Other Listings \_\_\_\_\_  
Review Code \_\_\_\_\_ Reviewer \_\_\_\_\_ Date \_\_\_\_\_

Page 1 of 10

\*Resource Name or # Map Reference No. 7

P1. Other Identifier: 7307 Adohr Road

\*P2. Location: ☐ Not for Publication ☒ Unrestricted  
and (P2b and P2c or P2d. Attach a Location Map as necessary.)

\*a. County Kern

\*b. USGS 7.5' Quad East Elk Hills, CA Date 1954 photorevised 1973 T 30S; R 24E; NW  $\frac{1}{4}$  of Sec 10; MD B.M.

c. Address 7307 Adohr Road City Buttonwillow Zip 93206

d. UTM: (give more than one for large and/or linear resources) Zone \_\_\_\_\_; \_\_\_\_\_ mE/ \_\_\_\_\_ mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

Assessor Parcel Number: 159-040-18-00

\*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

Building A has a generally rectangular but irregular footprint. Vertical wood paneling sheaths the exterior of the structure which sits on piers. Fenestration includes a variety of window styles including fixed pane and one-over-one double hung sashes. The roof is a side gabled monitor rising above a shed roof on two sides. Horizontal slats in the eaves at the gable peaks and beneath the monitor provide for ventilation. Decorative notching adorns the fascia boards in the eaves of the monitor and shed roofs. According to a *Los Angeles Times* article published in 1930 describing the new construction, the remnants of green paint visible on the trim are the original paint (see Photograph 4). The shed roof is supported by beams and forms a partially enclosed porch on the west side and an enclosed porch on the east side. On the east side, a perpendicular wing extends from the southern end of the house (see Photograph 2). The roofline of this wing matches the rest of the house with a monitor rising above a shed roof. Entrance doors are found on the west side, one boarded up on the southern end, two on the east side, and one on the north side. Many of the openings have been covered with corrugated metal. The structure has many composition shingles missing from the roof, broken windows, missing doors, and weather beaten wood paneling. (See Continuation Sheet.)

\*P3b. Resource Attributes: (List attributes and codes) (HP33) Farm

\*P4. Resources Present: ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photo of Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: (View, date, accession #) Photograph 1: Building A, facing northeast, February 2, 2009.

\*P6. Date Constructed/Age and Sources:  
☒ Historic ☐ Prehistoric ☐ Both  
1930, Los Angeles Times, 9 Nov. 1930

\*P7. Owner and Address:  
Jomistro Properties LLC  
1600 Corn Camp Rd.  
Buttonwillow, CA 93206-9729

\*P8. Recorded by:  
Rand Herbert & Heather Norby  
JRP Historical Consulting, LLC  
1490 Drew Ave, Suite 110,  
Davis, CA 95618

\*P9. Date Recorded: February 2, 2009

\*P10. Survey Type: (Describe) Intensive

\*P11. Report Citation: (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Architecture Technical Report: Inventory and Evaluation Report, Hydrogen Energy California (HECA) Project," 2012.

\*Attachments: ☐ None ☒ Location Map ☒ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record  
☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record  
☐ Other (list) \_\_\_\_\_

**BUILDING, STRUCTURE, AND OBJECT RECORD**

Page 2 of 10

\*NRHP Status Code 6Z

\*Resource Name or # Map Reference No. 7

B1. Historic Name: Adohr Farms

B2. Common Name: 7303 Adohr Road

B3. Original Use: Dormitory/Dining Hall B4. Present Use: Abandoned

\*B5. Architectural Style: Vernacular

\*B6. Construction History: 1930, garage built after 1939

\*B7. Moved? ☒ No ☐ Yes ☐ Unknown Date: \_\_\_\_\_ Original Location: \_\_\_\_\_

\*B8. Related Features: \_\_\_\_\_

B9. Architect: Unknown b. Builder: Unknown

\*B10. Significance: Theme n/a Area n/a

Period of Significance n/a Property Type n/a Applicable Criteria n/a

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

This property does not appear to meet the criteria for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) because it does not have historical significance. In addition to lacking historical significance, the buildings lack historic integrity to its estimated original date of construction and possible period of significance. This property has been evaluated in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code, and does not appear to be a historical resource for the purposes of CEQA.

The Adohr Farms buildings are located just north of the former site of Miller & Lux's Morton Place ranch. Large scale land owners and cattle ranchers, Henry Miller and Charles Lux secured their "Southern Division" ranch in the Buena Vista Slough under the Green Act of 1855, an act which subsidized reclamation of swampland. Miller & Lux divided their acquisition into various ranches, the Buttonwillow Ranch being the largest of the southern division and also serving as their headquarters. North of McKittrick (Route 58), they leased land to tenant farmers; south of McKittrick Buttonwillow Ranch was divided into individual ranches made up of one to four sections and staffed by Miller and Lux employees. Each ranch operated independently, having its own set of buildings and a water supply system. Four ranches in addition to the headquarters operated in the study area by 1918: Deep Wells, Poplar Grove, Willow Grove, and Morton Place. These ranches grew almost all of the alfalfa farmed by the company at Buttonwillow.

Adohr Stock Farms, one of the largest and most successful enterprises in the study area after the Miller & Lux period, is an example of the continuing importance of alfalfa during Buttonwillow's cotton boom following Miller & Lux' sale of Buttonwillow Ranch in the late 1920s. Adohr Stock Farms was a southern California dairy (See Continuation Sheet)

B11. Additional Resource Attributes: \_\_\_\_\_

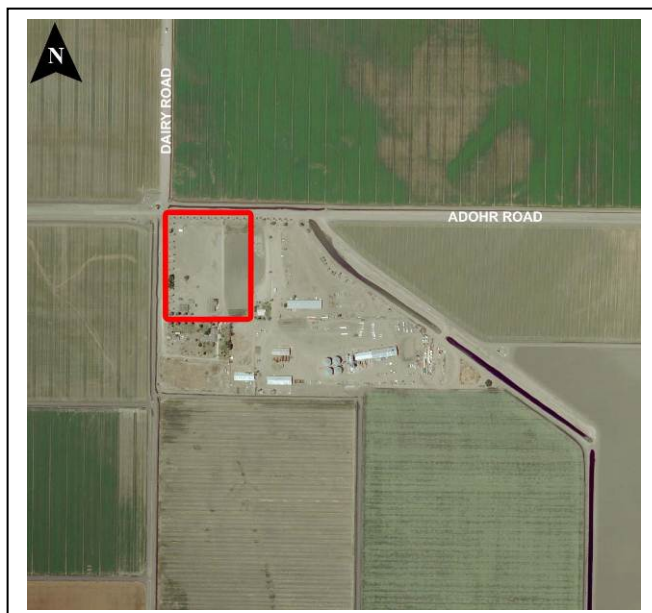
\*B12. References: Charles H. Congdon, *Official Map of Kern County*, 1898; Harry Barnes, *Data on Irrigation of Buttonwillow Ranch and Adjoining Lands*, (unpublished manuscript, Water Resources Center Archives, University of California Berkeley, Berkeley, 1920), 17-18. *Los Angeles Times*; *Happy Days in Southern California* (Los Angeles: Rindge Family), 1972; Thomas H. Means, *Report on Farming Lands Miller and Lux, Inc. Southern Division Kern and Kings Counties California*, October 1919, Manuscript, Water Resources Center Archives, Berkeley, California, n.p. (Also see footnotes.)

B13. Remarks:

\*B14. Evaluator: Heather Norby

\*Date of Evaluation: March 2009

(This space reserved for official comments.)



### **P3a. Description (continued):**

Building B has a hipped monitor roof with boxed eaves raised above a shed roof with exposed eaves extending over three sides of the house (see Photographs 6, 7, 8). Sets of five horizontal slats in the eaves, below the monitor, allow for ventilation. The shed roof, supported by 4x4 beams at the corners and 2x4 beams in between, forms a porch around three sides of the house. Wood beams forming an "X" pattern between the supporting beams partially enclose the porch. Vertical wood paneling sheaths the exterior of the house. Although no longer present, evidence of a brick chimney on the west side of the house remains. Almost all of the windows are covered with corrugated metal panels. A pair of six-over-six double-hung sash windows are visible on the west and south sides. Entrance doors are located on both the south and east sides of the house. The house sits on mudsills with the foundation supported by piers.

Building C, a rectangular garage to the northeast of the house, rests on mudsills. It has front gabled roof with exposed rafters (see Photograph 9). A sliding garage door on the south side is the only opening; there are no windows. The siding is of vertical wood planks. Composition shingles are peeling from the concave roof, and loose boards are hanging from the exterior.

### **B10. Significance (continued):**

Adohr Stock Farms, one of the largest and most successful enterprises in the study area after the Miller & Lux period, is an example of the continuing importance of alfalfa during Buttonwillow's cotton boom following Miller & Lux' sale of Buttonwillow Ranch in the late 1920s. Adohr Stock Farms was a southern California dairy company owned by Rhoda Rindge Adamson and her husband Merritt Adamson. Rhoda Rindge was the daughter of Frederick H. Rindge, a very wealthy, influential East-Coast transplant to California. Rhoda attended one year of college at Wellesley before returning to finish her education in California. After marrying Merritt Adamson, an attorney and sheep rancher's son, she used her family inheritance to start Adohr (her given name spelled backward) Farms with her husband. Mr. Adamson left the law behind to focus on ranching and dairying. Their first farm in the San Fernando Valley opened in 1916 and by the late 1920s they began to vertically integrate their business, seeking to not only maintain a herd of productive dairy cows, but to rear "replacement" calves, and grow alfalfa for their herds.<sup>1</sup>

In 1929, the Adamsons had an area northwest of Tupman, owned by Miller & Lux, analyzed to determine if the soil and conditions would support an alfalfa farm and a herd of cattle. They learned that the land had rich soil, lay on top of an artesian belt, and had already been successfully planted with corn and wheat. Satisfied that it met their requirements, they purchased 1,500 acres from Miller & Lux in July of 1930 for \$250,000, and set aside \$50,000 for immediate improvements. By the fall of the same year, the company had planted a field, sunk ten new wells, and built a headquarters building, dormitory, and dining hall on the southeast corner of what became Adohr Road and Dairy Road. The headquarters building remains on an adjacent parcel today. Buildings A and B are the dining hall and dormitory, although it is not clear which one served which purpose. Between 1937 and 1942, the company constructed three warehouse buildings, still existing, on an adjacent parcel.<sup>2</sup>

By May of 1933, Adohr expanded its Buttonwillow satellite ranch to 2,600 acres. This location was subsidiary to the main San Fernando Valley branch. Adohr ran an advertisement in the *Los Angeles Times* in 1933 with the headings, "Adohr grows its own feed; Adohr raises its own dairy cattle; Adohr operates its own stock farms; and Adohr, of course, has its own far-reaching delivery system." The rich land in Kern County, already within close proximity to numerous irrigation structures, played a pivotal role in allowing this southern California company to vertically integrate their business model and provide an affordable product to a broader clientele. The company operated the ranch until the 1940s.<sup>3</sup>

<sup>1</sup> Frederick H. Rindge, *Happy Days in Southern California* (Los Angeles: Rindge Family), 1972, prologue.; *Los Angeles Times*, 31 Aug. 1930, L14; *Van Nuys News*, 10 Jan. 1949.; *Los Angeles Times*, 1 Mar. 1998; Beatrice Ulery, "A Bovine Nursery," *Los Angeles Times*, Nov. 9, 1930, J7.

<sup>2</sup> *Los Angeles Times*, Sep. 30, 1934, 21; *Los Angeles Times*, Jul. 26, 1930, Nov. 9, 1930; USGS Quadrangle, *Buttonwillow*, 1942 (based on 1937 data); Aerial photographs of Kern County, 1942.

<sup>3</sup> *Los Angeles Times*, Jun. 1, 1933; *Los Angeles Times*, Apr. 7, 1940; Nov. 1, 1951.

Page 4 of 10

\*Resource Name or # Map Reference No. 7

\*Recorded by R. Herbert/H. Norby \*Date February 2, 2009

☒ Continuation ☐ Update

Adohr Farms experienced two distinct phases of decline in which they sold land holdings in order to remain solvent. The first occurred during the Great Depression, and the second following Merritt Adamson's death in 1949, until 1966 when Rhoda Adamson sold the company. The Adamsons sold the Buttonwillow satellite in 1948 to the Banducci and Anton families. By the late 1950s Fred Banducci and his brother Joe were operating Palm Farms at the former site of Adohr Farms. Today it is owned by Jomistro Properties. The only structure on the parcel not associated with Adohr Farms is a small shed in the northwest corner.<sup>4</sup>

To be eligible for listing on the National Register of Historic Places and the California Register of Historical Resources, a property must not only be shown to be significant under at least one of the NRHP and CRHR criteria, but it must also retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. Buildings A and B have been altered since their original construction, likely after the property was purchased by Banducci and Anton families in 1948. Alterations to both buildings include the enclosure of the original open verandas, replacement, infilling or missing original wood windows, and missing original wood doors. Additionally, aerial photographs from 1942 and 1939 show that Building A was originally a large L-shaped building; however sometime after 1942, the northern ell was removed.<sup>5</sup> As a result, this building is approximately half its original size. These alterations have substantially compromised these building's integrity of design, materials, workmanship and feeling and association.

Under Criterion A/Criterion 1, the buildings documented on this form are not significant for their association with agricultural development or settlement of the Buttonwillow area. Built in 1930 and later, the buildings post-date any association with Miller & Lux's ranches. While Adohr Farms is associated with the historical themes of agricultural development in the region, it alone did not make a significant contribution. Rather, it is one of numerous farming operations in the post-Miller & Lux period. Under Criterion B/Criterion 2, the buildings do not appear to be significant for their associations with any historically significant people. Although Rhoda Adamson and Merritt Adamson gained recognition within the dairying industry due to the success of Adohr Farms, the Buttonwillow satellite was peripheral to their main operation in the San Fernando Valley. These buildings do not convey the significance of their commercial success.

Under Criterion C/Criterion 3, these buildings do not possess any distinctive characteristics or high artistic value, nor do they appear to be the work of a master. The garage is of common utilitarian style and material and while the design of the Buildings A and B are reminiscent of oilfield houses, a building type used in the remote oilfields of Kern County (and other oil regions in California), their documented construction by Adohr Farms and their construction date preclude them from being of this building class. Oilfield houses were commonly constructed by corporate oil companies for workers and their families in the region's remote oilfields during the late 1910s and 1920s. This building type generally took two forms: either a narrow one-room-wide (rooms connected from front to rear) rectangular building that are sometimes referred to as a shotgun house, and those rectangular buildings with gable-on-hip roofs (and sometimes pyramidal) with wide open verandas that wrap to multiple sides of the building. Other oilfield buildings, such as bunkhouses, mess halls and cook houses, were also generally rectangular in shape with hip or (less-used) gable roofs and wide open verandas that wrapped the building's sides. These types of buildings were built to be temporary and survived within the oilfields or their associated company camps until the 1930s, and depending on the oilfield, even into the 1950s. When the oilfield camps were dismantled, a large proportion of these buildings were moved to private lots throughout Kern County and used for residences.<sup>6</sup> Building B is

<sup>4</sup> Kern County Recorder, records accessed online, April 3, 2009; *Los Angeles Times*, 1 Mar. 1998; *Van Nuys News*, 10 Jan. 1949; Earl M. Price & Co., *Map Book Showing Ownership of Farm Lands in Kern County, California*, April 1954; Hoven & Co. Inc., *Land Ownership of Kern County*, edition of 1972-73; Kern County Assessor Records.

<sup>5</sup> "Dairy Maintains Model Farm at Buttonwillow," *Bakersfield Californian*, September 23, 1939 p6; United States. Agricultural Adjustment Administration. *Aerial Photographs of Kern County, California*. Salt Lake City, UT: The Administration, 1942, ABL-2B-161.

<sup>6</sup> JRP, *Historic Architecture Survey Report, Tier 1, For Route Adoption on Route 58 Between I-5 and State Route 99 in Kern County*, June 9, 1995, pp 27-28; Grace Dobler, "Oil Field Camp Wives and Mothers," *Kansas History*, Spring 1987., p29; John Hustead, "How My Family Came West," [www.static.kern.org/gems/bmoa/Zander.pdf](http://www.static.kern.org/gems/bmoa/Zander.pdf), accessed online November 26, 2012; "Dairy Maintains Model Farm at Buttonwillow," *Bakersfield Californian*, September 23, 1939 p6; La Belle New Cook House, *Oil Industry in California*, BANC PIC 19xx.129:315--ALB, The Bancroft Library, University of California, Berkeley; La Belle Property Mess House, April 6, 1912, *Oil Industry in California*, BANC PIC 19xx.129:267--ALB, The Bancroft Library, University of California, Berkeley; Medallion Camp, Section 20, Kettelamn [sic, Kettleman] Hills. September 1, 191, *Oil Industry in California*, BANC PIC 19xx.129:60--ALB, The Bancroft Library, University of California, Berkeley; California Counties Oil Company Office building  
DPR 523L (1/95)



Page 5 of 10

\*Resource Name or # Map Reference No. 7

\*Recorded by R. Herbert/H. Norby \*Date February 2, 2009

☒ Continuation ☐ Update

similar to oilfield buildings only in that it was constructed with open verandas and a gable-on-hip roof, while the only similarity of Building B is its remaining open verandas. The use of monitor's with ventilation slats does is not associated with oilfield buildings. Instead, this feature, along with the use of verandas, was utilized to cool the interior of the buildings.<sup>7</sup> Veranda's and high ceilings, like those found in Buildings A and B, have been used since the 18<sup>th</sup> century to cool buildings in areas of extreme climates like that found near Buttonwillow. As technology advanced during the 19<sup>th</sup> century, architectural features such as roof monitors not only provided good ventilation but also dissipated a building's interior heat.<sup>8</sup> Typical for working stock farm in rural Kern County, as this complex was originally constructed, these buildings exhibit little ornamentation other than decorative fascia boards found on Building A and a "X" pattern porch balustrade on Building B.

Finally, in rare instances, buildings themselves can serve as sources of important information about historic construction materials or technologies (Criterion D/Criterion 4); however, these buildings do not appear to be a principal source of important information in this regard.

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completed. Unfurnished. End view. April 25, 1911, *Oil Industry in California*, BANC PIC 19xx.129:23--ALB, The Bancroft Library, University of California, Berkeley; Shell Oil Company bunk house #4 and office, 1918, R.C. Baker Memorial Museum, Inc., San Joaquin Valley & Sierra Foothills Photo Heritage, image # cob00189; Shell Camp, ca. 1913, Baker Memorial Museum, Inc., San Joaquin Valley & Sierra Foothills Photo Heritage, image # cob00205; Associated Oil Company Office, ca. 1920, Baker Memorial Museum, Inc., San Joaquin Valley & Sierra Foothills Photo Heritage, image # cob0024.

<sup>7</sup> Beatrice Ulery, "A Bovine Nursery," *Los Angeles Times*, Nov. 9, 1930, J7.

<sup>8</sup> Sharon C. Park, Preservation Brief No. 24: Heating, Ventilating, and Cooling Historic Buildings, accessed online November 26, 2012 at [www.nps.gov/history/hps/tps/briefs/brief24.htm](http://www.nps.gov/history/hps/tps/briefs/brief24.htm).



Page 6 of 10

\*Recorded by R. Herbert/H. Norby \*Date February 2, 2009

\*Resource Name or # Map Reference No. 7

☒ Continuation ☐ Update

## Photographs (cont):



**Photograph 2:** Building A, facing northwest, February 2, 2009.



**Photograph 3:** Building A, facing southwest, February 2, 2009.

Page 7 of 10

\*Recorded by R. Herbert/H. Norby \*Date February 2, 2009

\*Resource Name or # Map Reference No. 7

☒ Continuation ☐ Update

**Photographs (cont):**



**Photograph 4:** Building A, facing northwest, February 2, 2009.



**Photograph 5:** Building A, facing southeast, February 2, 2009.

Page 8 of 10

\*Recorded by R. Herbert/H. Norby \*Date February 2, 2009

\*Resource Name or # Map Reference No. 7

☒ Continuation ☐ Update

**Photographs (cont):**



**Photograph 6:** Building B, facing northeast, February 2, 2009.



**Photograph 7:** Building B, facing northeast, February 2, 2009.



Page 9 of 10

\*Recorded by R. Herbert/H. Norby \*Date February 2, 2009

\*Resource Name or # Map Reference No. 7

☒ Continuation ☐ Update

**Photographs (cont):**



**Photograph 8:** Building B, facing southwest, February 2, 2009.



**Photograph 9:** Building C, garage, facing northwest, February 2, 2009.

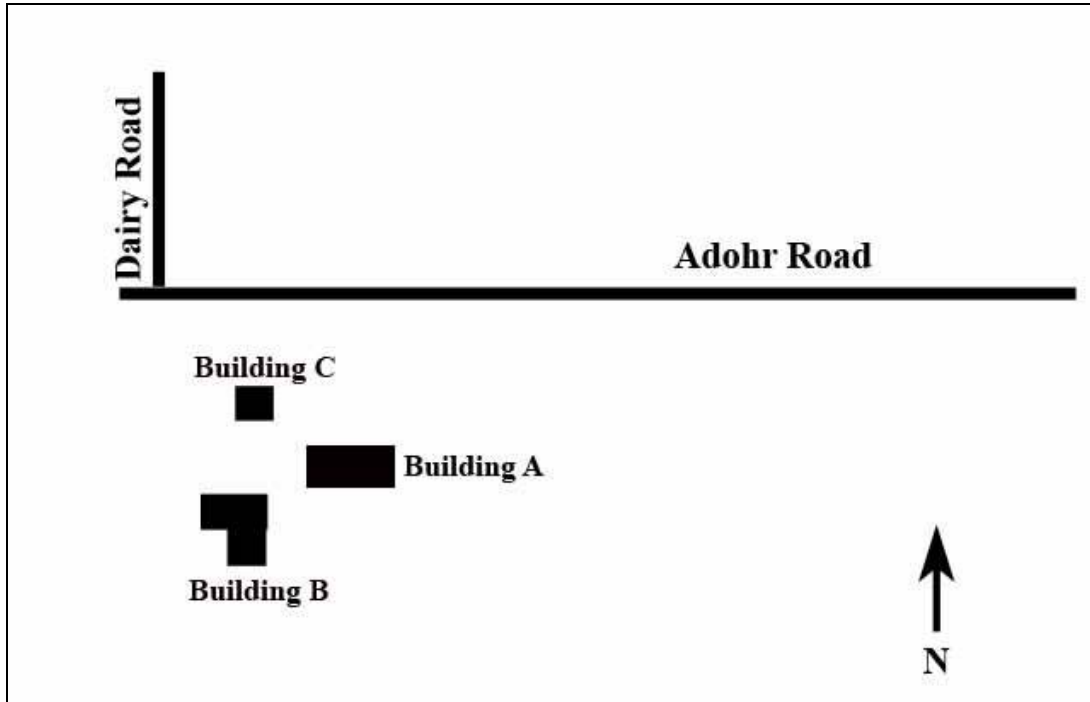
Page 10 of 10

\*Recorded by R. Herbert/H. Norby \*Date February 2, 2009

\*Resource Name or # Map Reference No. 7

☒ Continuation ☐ Update

**Sketch Map:**



State of California – The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION  
**PRIMARY RECORD**

Primary # \_\_\_\_\_  
HRI # \_\_\_\_\_  
Trinomial \_\_\_\_\_  
NRHP Status Code 6Z

Other Listings \_\_\_\_\_  
Review Code \_\_\_\_\_ Reviewer \_\_\_\_\_ Date \_\_\_\_\_

Page 1 of 6

\*Resource Name or # Map Reference No. 9

P1. Other Identifier: 7345 Adohr Rd.

\*P2. Location: ☐ Not for Publication ☒ Unrestricted

\*a. County Kern

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

\*b. USGS 7.5' Quad East Elk Hills, CA Date 1954 photorevised 1973 T 30S; R 24E; NW  $\frac{1}{4}$  of Sec 10; MD B.M.

c. Address 7345 Adohr Rd. City Buttonwillow Zip 93206

d. UTM: (give more than one for large and/or linear resources) Zone \_\_\_\_\_; \_\_\_\_\_ mE/ \_\_\_\_\_ mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

Assessor Parcel Number: 159-040-17-00

\*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The house at 7345 Adohr Rd. is a heavily modified version of the headquarters building constructed in the 1930s for Adohr Farms. Two perpendicular sections of the house form an L-shaped footprint. The stucco walls enclose what was originally an open-air porch. Fenestration consists primarily of aluminum replacement windows. The roof is side gabled on each perpendicular section with a side gabled monitor roof above. Narrow, horizontal rectangular windows are placed between the two rooflines. Each end of the house has a wide brick chimney built in almost flush with the exterior wall. Decorative tile work ornaments the top of each chimney. Entrance doors are located on the east side and the north side of the east-west portion of the home. The east side of the house includes a medium pitched gabled roof porte cochere. A curved concrete driveway extends from the porte cochere, north to the fence line. The house is very modern in appearance. A small modern rectangular shed with a front gabled, composition shingle roof is on the property, west of the home.

\*P3b. Resource Attributes: (List attributes and codes) (HP2) Single family property

\*P4. Resources Present: ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photo of Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: (View, date, accession #) Photograph 1: Residence, facing southwest, February 2, 2009.

\*P6. Date Constructed/Age and Sources:

☒ Historic ☐ Prehistoric ☐ Both

1930, Los Angeles Times, November 9, 1930.

\*P7. Owner and Address:

Claire Marie Ackerman  
7345 Adohr Rd.  
Buttonwillow, CA 93206-9795

\*P8. Recorded by: (Name, affiliation, address)

Rand Herbert & Heather Norby  
JRP Historical Consulting, LLC  
1490 Drew Ave, Suite 110,  
Davis, CA 95618

\*P9. Date Recorded: February 2, 2009

\*P10. Survey Type: Intensive

\*P11. Report Citation: (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Architecture Technical Report: Inventory and Evaluation Report, Hydrogen Energy California (HECA) Project," 2012.

\*Attachments: ☐ None ☒ Location Map ☒ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record

☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record

☐ Other (list) \_\_\_\_\_

DPR 523A (1/95)

\*Required Information



**BUILDING, STRUCTURE, AND OBJECT RECORD**

Primary # \_\_\_\_\_  
HRI # \_\_\_\_\_

Page 2 of 6

\*NRHP Status Code 6Z

\*Resource Name or # Map Reference No. 9

B1. Historic Name: Adohr Farms Buttonwillow Headquarters

B2. Common Name: 7345 Adohr Rd.

B3. Original Use: Residence B4. Present Use: Residence

\*B5. Architectural Style: Vernacular

\*B6. Construction History: (Construction date, alteration, and date of alterations) 1930

\*B7. Moved? ☒ No ☐ Yes ☐ Unknown Date: \_\_\_\_\_ Original Location: \_\_\_\_\_

\*B8. Related Features: \_\_\_\_\_

B9. Architect: Unknown b. Builder: Unknown

\*B10. Significance: Theme n/a Area n/a

Period of Significance n/a Property Type n/a Applicable Criteria n/a

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

This property does not appear to meet the criteria for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) because it does not have historical significance and it lacks historic integrity to its estimated original date of construction and possible period of significance. This property has been evaluated in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code, and does not appear to be a historical resource for the purposes of CEQA.

The Adohr Farms buildings are located just north of the former site of Miller & Lux's Morton Place ranch. Large scale land owners and cattle ranchers, Henry Miller and Charles Lux secured their "Southern Division" ranch in the Buena Vista Slough under the Green Act of 1855, an act which subsidized reclamation of swampland. Miller & Lux divided their acquisition into various ranches, the Buttonwillow Ranch being the largest of the southern division and also serving as their headquarters. North of McKittrick (Route 58), they leased land to tenant farmers; south of McKittrick Buttonwillow Ranch was divided into individual ranches made up of one to four sections and staffed by Miller and Lux employees. Each ranch operated independently, having its own set of buildings and a water supply system. Four ranches in addition to the headquarters operated in the study area by 1918: Deep Wells, Poplar Grove, Willow Grove, and Morton Place. These ranches grew almost all of the alfalfa farmed by the company at Buttonwillow. Alfalfa and other feed grains remains a major crop south of Buttonwillow. Adohr Stock Farms, one of the largest and most successful enterprises in the study area following Miller and Lux's ranches, is an example of the continuing important role of alfalfa during Buttonwillow's cotton era, which began after Miller & Lux Inc. sold off Buttonwillow Ranch in the 1920s. (See Continuation Sheet)

B11. Additional Resource Attributes: \_\_\_\_\_

\*B12. References: Barnes, 17-18; Means, 10-11; A. E. Stegeman, Map of 1918, Kern County, California. *Los Angeles Times*; *Van Nuys News*; Earl M. Price & Co., *Map Book Showing Ownership of Farm Lands in Kern County, California*, April 1954; Hoven & Co. Inc., *Land Ownership of Kern County*, edition of 1972-73; Kern County Assessor Records. Frederick H. Rindge, *Happy Days in Southern California* (Los Angeles: Rindge Family), 1972. (Also see footnotes.)

B13. Remarks:

\*B14. Evaluator: Heather Norby

\*Date of Evaluation: March 2009

(This space reserved for official comments.)



## **B10. Significance (continued):**

Adohr Stock Farms was a southern California dairy company owned by Rhoda Rindge Adamson and her husband Merritt Adamson. Rhoda Rindge was the daughter of Frederick H. Rindge, a very wealthy, influential East-Coast transplant to California.<sup>1</sup> Rhoda attended one year of college at Wellesley before returning to finish her education in California. After marrying Merritt Adamson, an attorney and sheep rancher's son, she used her family inheritance to start Adohr (her given name spelled backward) Farms with her husband.<sup>2</sup> Mr. Adamson left the law behind to focus on ranching and dairying. Their first farm in the San Fernando Valley opened in 1916 and by the late 1920s they began to vertically integrate their business, seeking to not only maintain a herd of productive dairy cows, but to rear "replacement" calves, and grow alfalfa for their herds.<sup>3</sup>

In 1929, the Adamsons had an area northwest of Tupman, owned by Miller & Lux, analyzed to determine if the soil and conditions would support an alfalfa farm and a herd of cattle.<sup>4</sup> They learned that the land had rich soil, lay on top of an artesian belt, and had already been successfully planted with corn and wheat. Satisfied that it met their requirements, they purchased 1,500 acres from Miller & Lux in July of 1930 for \$250,000, and set aside \$50,000 for immediate improvements. By the fall of the same year, the company had planted a field, sunk ten new wells, and built a headquarters building, dormitory, and dining hall on the southeast corner of what became Adohr Road and Dairy Road.<sup>5</sup> The main residence at 7345 Adohr Road is the former headquarters building. The dining hall and dormitory remain today on an adjacent parcel.

By May of 1933, Adohr expanded its Buttonwillow satellite ranch to 2,600 acres. This location was subsidiary to the main San Fernando Valley branch. Adohr ran an advertisement in the *Los Angeles Times* in 1933 with the headings, "Adohr grows its own feed; Adohr raises its own dairy cattle; Adohr operates its own stock farms; and Adohr, of course, has its own far-reaching delivery system."<sup>6</sup> The rich land in Kern County, already within close proximity to numerous irrigation structures, played a pivotal role in allowing this southern California company to vertically integrate their business model and provide an affordable product to a broader clientele. The company used the ranch until the 1940s.<sup>7</sup>

Adohr Farms experienced two separate phases of decline in which they sold land holdings in order to remain solvent. The first occurred during the Great Depression, and the second following Merritt Adamson's death in 1949, until 1966 when Rhoda Adamson sold the company. Available records indicate that the Buttonwillow satellite was sold sometime between 1941 and 1953. By the late 1950s Fred Banducci and his brother Joe were operating Palm Farms at the former site of Adohr Farms. Today it is owned and resided in by Claire Marie Ackerman.<sup>8</sup>

To be eligible for listing on the National Register of Historic Places and the California Register of Historical Resources, a property must not only be shown to be significant under at least one of the NRHP and CRHR criteria, but it must also retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. This residence has been heavily modified since its construction. As originally constructed, this building was L-shaped with open verandas on the interior and exterior sides of both ends, clad in wood siding, and had a monitor with ventilation slats. The verandas have been enclosed; the entire building has been resided with modern stucco; a modern porte cochere was constructed on the building's east side; modern anodized aluminum windows have replaced original wood sashes; all original doors and roofing has been replaced with modern materials; and the monitor with ventilation slats has been infilled with stucco and anodized

<sup>1</sup> Frederick H. Rindge, *Happy Days in Southern California* (Los Angeles: Rindge Family), 1972, prologue.

<sup>2</sup> *Los Angeles Times*, 31 Aug. 1930, L14; *Van Nuys News*, 10 Jan. 1949.

<sup>3</sup> *Los Angeles Times*, 1 Mar. 1998; Beatrice Ulery, "A Bovine Nursery," *Los Angeles Times*, Nov. 9, 1930, J7.

<sup>4</sup> *Los Angeles Times*, Sep. 30, 1934, 21.

<sup>5</sup> *Los Angeles Times*, Jul. 26, 1930, Nov. 9, 1930.

<sup>6</sup> *Los Angeles Times*, Jun. 1, 1933.

<sup>7</sup> *Los Angeles Times*, Apr. 7, 1940; Nov. 1, 1951.

<sup>8</sup> *Los Angeles Times*, 1 Mar. 1998; *Van Nuys News*, 10 Jan. 1949; Earl M. Price & Co., *Map Book Showing Ownership of Farm Lands in Kern County, California*, April 1954; Hoven & Co. Inc., *Land Ownership of Kern County*, edition of 1972-73; Kern County Assessor Records.



Page 4 of 6

\*Resource Name or # Map Reference No. 9

\*Recorded by R. Herbert & H. Norby \*Date February 2, 2009

☒ Continuation ☐ Update

windows. These alterations were likely completed after 1970 and have substantially altered the appearance of this early 20<sup>th</sup> century building. As a result the residence lacks integrity of design, materials, workmanship, feeling and association.

Under Criterion A/Criterion 1, neither the residence nor garage are significant for their association with agricultural development or settlement of the Buttonwillow area. Constructed in 1930, the buildings post-date any association with Miller & Lux's ranches. While Adohr Farms is associated with the historical themes of agricultural development in the region, it alone did not make a significant contribution. Rather, it is one of numerous farming operations in the post-Miller & Lux period. Under Criterion B/Criterion 2, the buildings do not appear to be significant for their associations with any historically significant people. Although Rhoda Rindge Adamson and Merritt Adamson gained recognition within the dairying industry due to the success of Adohr Farms, the Buttonwillow satellite was subsidiary to their main operation in the San Fernando Valley. These buildings do not convey the significance of their commercial success.

Under Criterion C/Criterion 3, these buildings do not possess any distinctive characteristics or high artistic value, nor do they appear to be the work of a master. The outbuilding is of common utilitarian style and material. As originally constructed, the residence was reminiscent of oilfield houses, a building type used in the remote oilfields of Kern County (and other oil regions in California); however its documented construction by Adohr Farms and its construction date preclude it from being of this building class. Oilfield houses were commonly constructed by corporate oil companies for workers and their families in the region's remote oilfields during the late 1910s and 1920s. This building type generally took two forms: either a narrow one-room-wide (rooms connected from front to rear) rectangular building that are sometimes referred to as a shotgun house, and those rectangular buildings with gable-on-hip roofs (and sometimes pyramidal) with wide open verandas that wrap to multiple sides of the building. Other oilfield buildings, such as bunkhouses, mess halls and cook houses, were also generally rectangular in shape with hip or (less-used) gable roofs and wide open verandas that wrapped the building's sides. These types of buildings were built to be temporary and survived within the oilfields or their associated company camps until the 1930s, and depending on the oilfield, even into the 1950s. When the oilfield camps were dismantled, a large proportion of these buildings were moved to private lots throughout Kern County and used for residences.<sup>9</sup> The residence is similar to oilfield buildings only in that it originally had open verandas on more than one of its sides but the verandas have since been enclosed.

Finally, in rare instances, buildings themselves can serve as sources of important information about historic construction materials or technologies (Criterion D/Criterion 4); however, these buildings do not appear to be a principal source of important information in this regard.

<sup>9</sup> JRP, *Historic Architecture Survey Report, Tier 1, For Route Adoption on Route 58 Between I-5 and State Route 99 in Kern County*, June 9, 1995, pp 27-28; Grace Dobler, "Oil Field Camp Wives and Mothers," *Kansas History*, Spring 1987., p29; John Hustead, "How My Family Came West," [wwwstatic.kern.org/gems/bmoa/Zander.pdf](http://wwwstatic.kern.org/gems/bmoa/Zander.pdf), accessed online November 26, 2012; "Dairy Maintains Model Farm at Buttonwillow," *Bakersfield Californian*, September 23, 1939 p6; La Belle New Cook House, *Oil Industry in California*, BANC PIC 19xx.129:315--ALB, The Bancroft Library, University of California, Berkeley; La Belle Property Mess House, April 6, 1912, *Oil Industry in California*, BANC PIC 19xx.129:267--ALB, The Bancroft Library, University of California, Berkeley; Medallion Camp, Section 20, Kettelamn [sic, Kettleman] Hills. September 1, 191, *Oil Industry in California*, BANC PIC 19xx.129:60--ALB, The Bancroft Library, University of California, Berkeley; California Counties Oil Company Office building completed. Unfurnished. End view. April 25, 1911, *Oil Industry in California*, BANC PIC 19xx.129:23--ALB, The Bancroft Library, University of California, Berkeley; Shell Oil Company bunk house #4 and office, 1918, R.C. Baker Memorial Museum, Inc., San Joaquin Valley & Sierra Foothills Photo Heritage, image # cob00189; Shell Camp, ca. 1913, Baker Memorial Museum, Inc., San Joaquin Valley & Sierra Foothills Photo Heritage, image # cob00205; Associated Oil Company Office, ca. 1920, Baker Memorial Museum, Inc., San Joaquin Valley & Sierra Foothills Photo Heritage, image # cob0024.

Page 5 of 6

\*Recorded by R. Herbert & H. Norby \*Date February 2, 2009

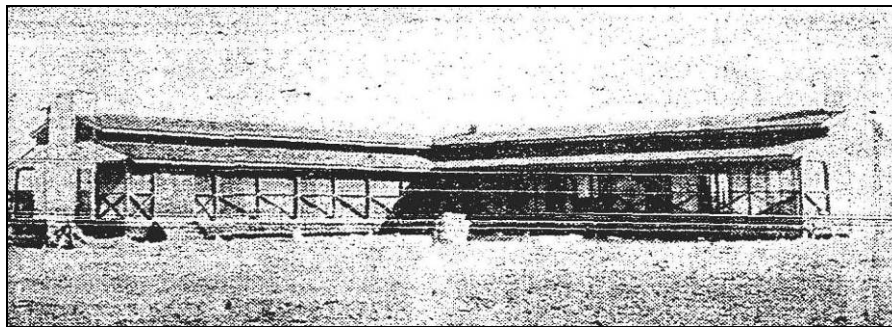
\*Resource Name or # Map Reference No. 9

☒ Continuation ☐ Update

**Photographs (cont):**



**Photograph 2:** facing southeast, February 2, 2009.



**Photograph 3:** 7345 Adohr Rd, facing southeast; from *Los Angeles Times*, November 9, 1930.



**Photograph 4:** Facing southwest, February 2, 2009.

Page 6 of 6

\*Recorded by R. Herbert & H. Norby \*Date February 2, 2009

\*Resource Name or # Map Reference No. 9

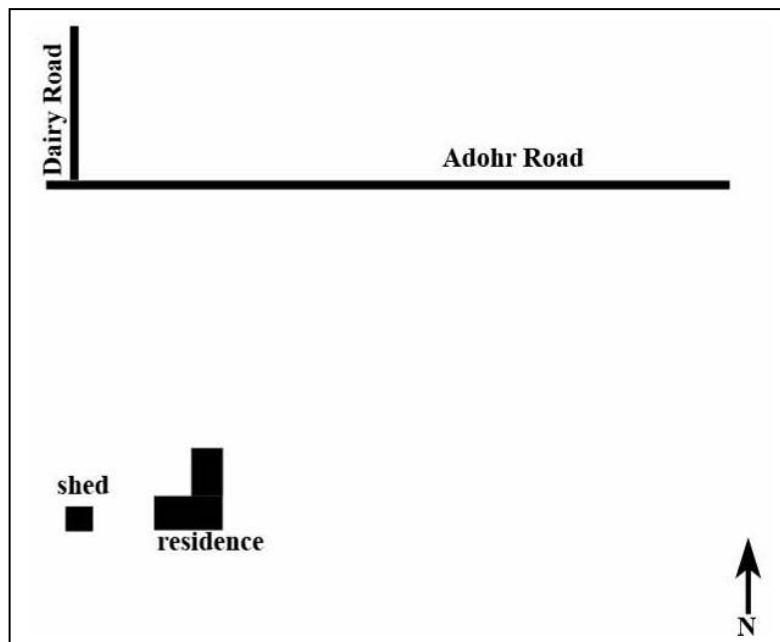
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**Photographs (cont):**



**Photograph 5:** Outbuilding, facing northwest, February 2, 2009.

**Sketch Map:**



**ATTACHMENT A188-2**  
**HISTORIC ARCHITECTURAL SURVEY REPORT**

**HISTORIC ARCHITECTURAL SURVEY REPORT**  
**TIER 1, FOR ROUTE ADOPTION ON ROUTE 58,**  
**BETWEEN I-5 AND STATE ROUTE 99**  
**IN KERN COUNTY**

**EA: 06-315400**  
**Postmile: 06-Ker-58-R35.4/R52.3**  
**Contract 06G171**

**Prepared for:**

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**June 9, 1995**

## INTRODUCTION, SUMMARY OF FINDINGS

This Historic Architectural Survey Report (HASR) was prepared by JRP Historical Consulting Services under sub-contract to Parsons De Leuw, which in turn is under contract with the California Department of Transportation (Caltrans) to provide environmental services for the Highway 58 Route Adoption Studies. Caltrans and the Federal Highway Administration (FHWA) propose to improve State Highway 58 in Kern County west of Bakersfield, between postmiles R35.4 and R52.3, connecting Interstate 5 near Buttonwillow with U.S. 99 at Bakersfield. The project is a Tier 1 Route Adoption Study, designed to explore various alignments from technical, economic, and environmental considerations. Five alternatives are under consideration, all of which are treated in this HASR. The five alignments are, from south to north: Kern River; Brimhall; Rosedale Highway; Hageman; and Seventh Standard. The Project Vicinity is shown in Figure 1, the Project Location in Figure 2, and the Area of Potential Effects (APE) in Figure 3. The APE maps in Figure 3 show the alignments in three groups: South, which includes the Kern River and Brimhall alignments; Central, which includes Rosedale Highway and Hageman alignments, along with portions of the Brimhall alignment; and North, which includes only the Seventh Standard alignment. These maps are contained in a separate plan set accompanying this volume. It will be observed that the alignments in the South and Central groupings are occasionally coterminous.

This HASR seeks to fulfill responsibilities of the FHWA and Caltrans under Section 106 of the National Historic Preservation Act and implementing regulations of the Advisory Council on Historic Preservation (36 CFR 800) with respect to this project. Specifically, it inventories and evaluates historic buildings and structures located within the APE for this project, to determine whether any meet the eligibility criteria for listing in the National Register of Historic Places.

The APE includes 1939 buildings or groups of buildings, all of which were inspected on-site by JRP Historical Consulting Services. Of these, 1821 were either constructed after 1945 or constructed before 1946 but modified heavily. These 1821 recent or modified were inspected in the field by JRP and their locations recorded. The list of post-1945 buildings appears as Attachment 1. These buildings meet the applicable criteria in the 1989 "Memorandum of Understanding Regarding Evaluation of Post-1945 Buildings, Moved Pre-1945 Buildings, and Altered Pre-1945 Buildings." (MOU) signed by Caltrans, FHWA and the California State Historic Preservation Officer (SHPO). The total list of MOU buildings has been submitted to Caltrans for their certification as meeting the criteria contained within the aforementioned MOU. A "MOU Short Form," signed by Caltrans personnel will be included as available in the Final HASR for this project.<sup>1</sup>

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<sup>1</sup> It will be observed that the total number of buildings far exceeds 1939. Wherever possible, buildings were recorded in logical groupings. Within the Survey Population, several buildings on the same parcel were evaluated as a single unit. The method for grouping Survey Population buildings is apparent in the attached Architectural Inventory/Evaluation forms. Modern subdivisions that are currently under construction, of which there are many in this APE, were recorded as units. The method for recording post-1945 buildings is explained at the introduction to Attachment 1.

Field and archival work revealed that 118 buildings or groups of related buildings within the APE were built before 1946 and retained some measure of historical integrity. The 118 buildings or groups of buildings were inventoried through completion of the attached Architectural Inventory/Evaluation (AI/E) forms. The 118 buildings, hereafter called the "Survey Population," are listed in Attachment 3; the AI/E forms are included as Attachment 4. These Survey Population buildings are identified by "Map Reference No.," keyed to the APE maps, shown as Figure 3. Map Reference Nos. correspond to numbers on the APE Maps. Numbers were assigned consecutively from north to south and west to east, i.e., the first number is at the western end of the northern map and the final number is at the eastern end of the southern map.

In addition to the 118 buildings, 10 irrigation canals exist within the APE. These -- the James, Gates (Carrier), Pioneer, Beardsley, Stine, Calloway, Emery, Goose Lake/Rio Bravo, Friant-Kern, and Cross Valley canals -- are inventoried and evaluated in a Historic Resource Evaluation Report, attached as Attachment 5. The canals are shown on the APE map, identified by abbreviations (e.g. FK, for Friant Kern Canal) to distinguish them from building numbers.

The APE also includes four railroad lines or spurs, which are inventoried and evaluated in Attachment 6. The railroads are also shown on the APE map, again identified by abbreviation.

In addition, the APE includes 18 resources, chiefly wells and storage tanks, associated with the petroleum industry. Petroleum industry-related properties are inventoried and evaluated in Attachment 7. Attachment 7 was prepared by Laurence H. Shoup and Jess Gutierrez of Archaeological/Historical Consultants, under a sub-contract to JRP Historical Consulting Services. Petroleum-related features are shown on the APE map, preceded by the letter "O."

The APE also encompasses 53 bridges, including 18 local agency bridges and 35 state bridges. These are listed in Attachment 8. The 53 bridges were previously evaluated by Caltrans as part of the California Historic Bridge Inventory and were found to be "Category 5," i.e., not eligible for National Register listing.

As a result of this investigation, three properties within the APE appear to meet the eligibility criteria for listing in the National Register of Historic Places. Of these three properties, two are buildings or sites, and one is a canal. All remaining properties within the APE -- the other 116 buildings or groups of buildings inventoried with AI/E forms, the 1821 buildings in Attachment 1, nine of the 10 canals, the four railroads, the 18 petroleum-related properties, and the 53 bridges -- do not appear to meet National Register eligibility criteria. The eligible properties are listed below:

**Properties within the APE which appear to be eligible for listing in the National Register of Historic Places:**

<u>Address</u>	<u>Map No.</u>	<u>Name</u>
Rudd Road	15	Cross of Palms
3301 Fruitvale Avenue	69	Scott Residence
See APE Map	FK-1 through FK-4	Friant-Kern Canal



## TABLE OF CONTENTS

INTRODUCTION, SUMMARY OF FINDINGS .....	i
Properties within the APE which appear to be eligible for listing in the National Register of Historic Places .....	iii
1. PROJECT DESCRIPTION .....	1
Alternatives .....	1
2. RESEARCH METHODS .....	3
3. HISTORICAL OVERVIEW .....	9
Introduction .....	9
Exploration During the Spanish and Mexican Period .....	9
Early Settlement .....	10
The Role of Large Land Companies in Settlement and Colonization .....	11
Kern County Land Company Agricultural Colonies .....	13
Development of Irrigated Agriculture .....	16
Transportation .....	20
Oil Production .....	23
Major State and Federal Water Management Projects and Related Facilities .....	24
Architecture .....	26
4. FIELD METHODS .....	31
Buildings Originally in Survey Population but Moved to MOU List .....	32
5. FINDINGS AND CONCLUSIONS .....	33
Properties within the APE which are listed in the National Register of Historic Places .....	34
Properties within the APE which have been previously determined eligible for listing in the National Register of Historic Places .....	34
Historic buildings and structures within the APE which appear to be eligible for listing in the National Register of Historic Places .....	34
Pre-1946 properties which do not appear to be eligible for listing in the National Register of Historic Places .....	34
Post-1945 or modified pre-1946 (MOU) properties which do not appear to be eligible for listing in the National Register of Historic Places .....	38
Properties previously determined ineligible for listing in the National Register of Historic Places .....	38

6.	REFERENCES .....	41
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## FIGURES

1. Project Vicinity
2. Project Location -
3. Area of Potential Effects

## ATTACHMENTS

- |               |  |
|---------------|--|
| Attachment 1. | "Memorandum of Understanding: List of Buildings Constructed After 1945 or Modified Pre-1946 Buildings."                              |
| Attachment 2. | Communication with Public and Interested Parties.  |
| Attachment 3. | List of Survey Population Buildings Within the APE.  |
| Attachment 4. | Architectural Inventory/Evaluation Forms.  |
| Attachment 5. | "Historic Resource Evaluation Report, Kern River Irrigation Canals Crossed by Highway 58 Alternative Alignments."                    |
| Attachment 6. | "Historic Resource Evaluation Report, Railroads Crossed by Highway 58 Alternative Alignments."                                       |
| Attachment 7. | "Historic Resources Evaluation Report, Historic Oil Fields." [prepared by Laurence H. Shoup, Archaeological/Historical Consultants.] |
| Attachment 8. | "Highway Bridges."   |

## **1. PROJECT DESCRIPTION**

This report is prepared in support of the Tier 1 EIS for Route Adoption on Route 58, between I-5 and SR 99 in Kern County and the City of Bakersfield (06-Ker-58-R35.4/R52.3). This project will identify and analyze transportation corridors and provide for route adoption and right-of-way acquisition for the relocation of Route 58 between I-5 and State Route 99 (see Figure 1). The ultimate project is envisioned as a freeway or expressway facility. A corridor band of sufficient width to accommodate this ultimate facility is being cleared.

The purpose of and need for the project is:

To identify, adopt and preserve a transportation corridor for Route 58

The improved transportation corridor is necessary to:

- Reduce congestion
- Improve interregional goods movement
- Improve State Highway System continuity
- Reduce mobile sourced emissions
- Support economic development
- Improve east-west traffic movement

The project will attempt to:

- Improve traveler safety
- Support multi-modal travel
- Address social, economic and environmental concerns

### **Alternatives**

Five alternative alignments for Route 58 Route Adoption are currently being evaluated in the environmental technical studies: Seventh Standard, Hageman, Rosedale Highway, Brimhall, and Kern River. Three other alternatives are also being considered including the "No Project" Alternative which would effect no transportation facility improvements; the Transportation Systems Management (TSM) Alternative which would make incremental, low cost improvements to the existing transportation network in the project area; and the Mass Transit Alternative which consists of improved commuter/light rail transit and/or bus systems either within or separate from the Route 58 highway alignments. Multi-Modal Transit Options are also being studied to determine the effect a future transit facility might have on the Route 58 alternative alignments.

The five alternative alignments are described below and shown in Figure 2.

### Seventh Standard Alternative

This alternative connects with I-5 approximately three miles south of the existing I-5/Seventh Standard Road Interchange, near the existing Buttonwillow Rest Area on I-5. The alignment extends directly eastward approximately three miles before turning northeastward, avoiding the proposed Buttonwillow Habitat Area then offsets to the north and parallels existing Seventh Standard Road at approximately one-fourth mile to the south until it interchanges with State Route 99. Interchanges are proposed at I-5, Enos Lane, Nord Road, Allen Road, Calloway Drive and SR 99. The Seventh Standard alignment is approximately 20 miles long.

### Hageman Alternative

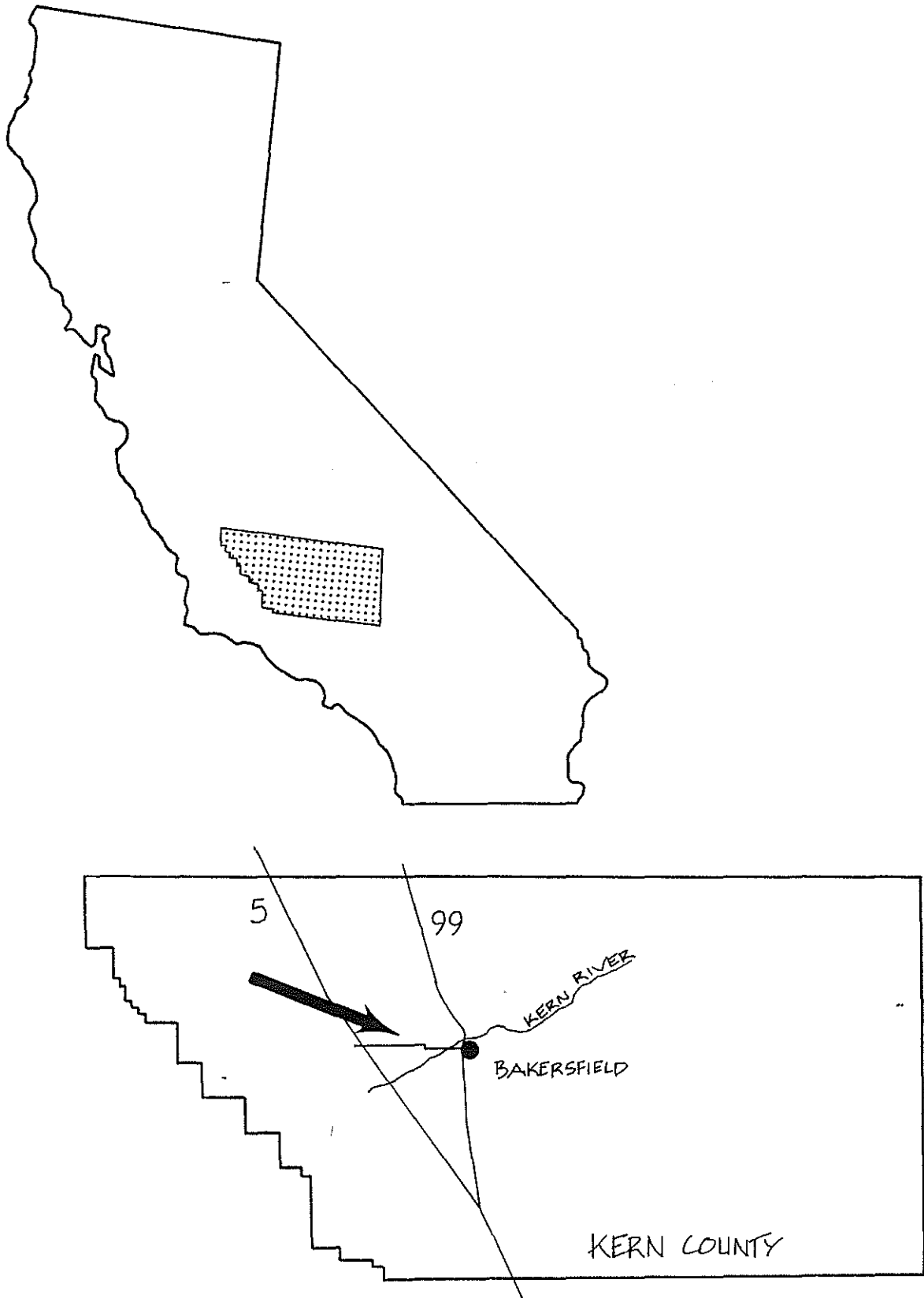
This alternative begins at I-5 about one and one-half miles south of the existing I-5/State Route 58 Interchange and continues eastwardly for about four miles, turning northeastward just before crossing Martin Road. The alignment follows Meacham Road between Rosedale and Hageman Roads, turning northeastward again just before crossing Renfro Road, then follows about 500 feet to the north of Hageman Road to Calloway Drive. After crossing Calloway, the Hageman alignment turns southeastward following the Friant Kern Canal for about one-half mile, crossing the canal and extending about one mile, before turning northeastward again after crossing Fruitvale Avenue to its interchange with State Route 99 at the existing State Routes 99/204 Interchange. Interchanges are proposed at I-5, Enos Lane, Nord Road, Allen Road, Calloway Drive, Coffee Road, future Mohawk Avenue and State routes 99/204. The Hageman alignment is approximately 19 miles in length.

### Rosedale Highway Alternative

The Rosedale Highway Alternative shares the Hageman alternative alignment from I-5 to approximately one mile east of Enos Lane where the Rosedale Highway alignment offsets to the south and parallels approximately one-fourth mile to the north of the existing Route 58 (Rosedale Highway) alignment. West of Jewetta Avenue the alignment offsets south along the north right-of-way line of Dee Dee Street and continues eastward crossing extended Mohawk Avenue. An alignment option in this area shifts northward at about Calloway Drive, returning to the baseline alignment at Coffee Road. This alignment then turns southeastward to the existing Rosedale Highway/State Route 99 Interchange. Interchanges are proposed at I-5, Enos Lane, Nord Road, Allen Road, Calloway Drive, Coffee Road, extended Mohawk Avenue and State Route 99. The Rosedale Highway alignment is approximately 18 miles in length.

### Brimhall Alternative

This alternative is sited one-half mile north of existing and extended Brimhall Road from I-5 eastward to Heath Road where the alignment turns southeastward and continues due east from Renfro Road to Allen Road. Continuing in this alignment, the Brimhall Alternative shifts slightly to the south until just west of Coffee Road where it follows along the north of the Kern River Parkway to a future extension of Mohawk Avenue. The alignment then turns southeastward, crossing the Kern River, and runs southeastward to connect with State Route 58 East at the existing State Routes 58/99 Interchange. Two alignment options are under consideration in this



**Figure 1: Project Vicinity**

area. The first continues the Brimhall alignment eastward from an interchange with Mohawk Avenue, crossing the Kern River to interchange with State Route 99 at Truxtun Avenue. The second option places the Kern River crossing just west of Mohawk Avenue then turns southeastward to connect to the State Routes 58/99 Interchange. Under this alignment option, an interchange is located at California Avenue. These three alignments east of Coffee Road are currently being considered for both the Brimhall and Kern River Alternatives. Interchanges on the mainline alignment are proposed at I-5, Enos Lane, Nord Road, Allen Road, Calloway Avenue, Coffee Road, Mohawk Avenue and at the existing State Routes 58/99 Interchange. The Brimhall alignment is approximately 19 miles long.

### Kern River Alternative

The Kern River alignment interchanges with I-5 approximately one-fourth mile north of existing Stockdale Highway and continues eastward on this alignment for approximately three miles before turning southeastward to run adjacent to the Cross Valley Canal. It then turns northeastward to Renfro Road and continues eastward parallel with and approximately one-half mile north of Stockdale Highway. East of Calloway Drive, the alignment follows along the north side of the Kern River Parkway. The alignment crosses the Kern River east of extended Mohawk Avenue to interchange with State Route 99 at Truxtun Avenue. Two alignment options are under consideration for the Kern River Alternative in the area along the Kern River Parkway. The first option turns southeastward after an interchange with Mohawk Avenue, crosses the Kern River, and runs southeastward to connect with State Route 58 East at the existing State Routes 58/99 Interchange. The second option places the Kern River crossing just west of Mohawk Avenue then turns southeastward to connect to the State Routes 58/99 Interchange. Under this alignment option, an interchange is located at California Avenue. These three alignments east of Coffee Road are currently being considered for both the Brimhall and Kern River Alternatives. Interchanges on the Kern River mainline alignment are at I-5, Enos Lane, Nord Avenue, Allen Road, Calloway Drive, Coffee Road and Mohawk Avenue. Interchanges with State Route 99 would be located at Truxtun Avenue or the existing State Routes 58/99 Interchange, depending on the alignment option.

## **2. RESEARCH METHODS**

This HASR was prepared following established Caltrans procedures, as specified in Caltrans manuals and guidelines, particularly "Guidance for Consultants: Procedures for the Protection of Historic Properties: The Section 106 Process."<sup>2</sup> JRP followed a four-step process to prepare this HASR: Establishment of an APE; background research, including a record search to identify previously-recorded properties; in-depth research on specific properties; and on-site field work to record potential historic properties within the APE, including matters pertaining to integrity.

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<sup>2</sup> Caltrans. "Guidance for Consultants: Procedures for the Protection of Historic Properties: The 106 Process." (Sacramento: Caltrans. 1991).

JRP Historical Consulting Services personnel involved with this project include:

**Rand F. Herbert.** Historian/Project Manager. With a B. A. in history from the University of California, Berkeley and an M. A. in history from the University of California, Davis, Mr. Herbert has been an active public historian since 1977. A partner at JRP, he has served as historian and project manager in projects for a variety of federal, state, and local agencies, including Caltrans, the Forest Service, Corps of Engineers, as well as many private firms.

**Stephen D. Mikesell.** Architectural Historian. A JRP partner for two years, Mikesell came to the firm with more than 11 years of experience as an architectural historian with the California Office of Historic Preservation and Caltrans. He holds a B. A. in history from Harvard University and an M. A. in history from the University of California, Davis.

**Stephen R. Wee.** Historian. With a B. A. in history from the University of Washington and an M. A. in history from the University of California, Davis, Mr. Wee has been a practicing public historian since 1976. A partner with JRP, Mr. Wee has served as consulting historian on dozens of projects for federal, state, and local governments, including numerous projects for Caltrans.

**Rebecca Bunse.** Research Assistant. Ms. Bunse has served as research assistant for JRP since 1990. With a B. A. from the University of California, Davis, Ms. Bunse is currently enrolled in the Public History Program (an M. A. program) at California State University, Sacramento.

**David Riggs.** Research Assistant. Mr. Riggs holds a B. A. in history from Monmouth College in Illinois and has worked with JRP since February, 1989.

**Michael L. Mikesell.** Research Assistant. Mr. Mikesell holds a B. A. in history from Boise State University, Boise, Idaho, and is currently enrolled in the Public History M. A. program at Boise State.

**Margaret Watson.** Research Assistant. Ms. Watson holds a B. A. in history from Sonoma State University, Rohnert Park, California and an M. A. from the Winterthur Program at the University of Delaware, Newark, Delaware.

The APE for this project was developed by JRP in cooperation with Parsons De Leuw and Caltrans and generally includes the proposed right of way for each alternative as well as any adjacent parcels which include buildings. The west side of the project area near Interstate 5 is predominantly farm land and open space and includes few buildings of any sort. In this area, the APE was defined as the right of way and 100' to either side of it. The APE is depicted in Figure 3, the Area of Potential Effects.

JRP conducted background research to identify previously-designated properties within this APE. This research was conducted using computerized files maintained by the California Office of



Historic Preservation (OHP), accessed through modem connection with the North Central Information Center at California State University, Sacramento. The OHP historic file includes a variety of listings, including: properties listed in the National Register, properties determined to be eligible (or determined not to be eligible) for listing in the National Register through Section 106 review processes; properties listed in local agency historic inventories; California Historical Landmarks; and Points of Historic Interest.

This review revealed that a number of properties within or near the APE have been previously designated or evaluated, chiefly by Caltrans in relation to previous highway work along the U.S. 99 corridor in Bakersfield. Among the properties with prior listing which are in or near the APE are the following:

**California Historic Landmarks:**

Garces Circle (Landmark No. 277). This California Historic Landmark is located at Chester Avenue and State Route 204, several miles east of the APE for this project.

**Points of Historic Interest:**

None.

**Properties within the APE which are listed in the National Register of Historic Places:**

None.

**Properties within the APE which have been previously determined eligible for listing in the National Register of Historic Places:**

None.

**Properties previously determined ineligible for listing in the National Register of Historic Places:<sup>3</sup>**

Buildings

3227 Belle Terrace	Map Reference No. 102
3508 Brian Way	Map Reference No. 90
3510 Brian Way	Map Reference No. 89
3515 Brian Way	Map Reference No. 88
3212-28 Chester Lane	Map Reference No. 110
3279 Chester Lane	MOU List
3820 Ethyl Street	Map Reference No. 87
3431 Ethyl Street	MOU list
3831 Pierce Road	Map Reference No. 95
3214 State Street	Map Reference No. 93
3321 State Road	Map Reference No. 92
812 Wible Road	Map Reference No. 103

Bridges

LOCAL BRIDGES WITHIN APE

<u>Bridge Number</u>	<u>Feature(s) Intersected</u>	<u>Facility Carried</u>	<u>NRHP Status</u>
50C-13	State Street UP	SPTCO	Not Eligible
50C-42	Calloway Canal	Standard St	Not Eligible
50C-65	Oak St OH (AT&SF RR)	Oak St	Not Eligible
50C-66	Stine Canal	Oak St	Not Eligible
50C-67	Calloway Canal	Pierce Rd	Not Eligible
50C-176	Truxtun Ave UP	Truxtun Ave	Not Eligible
50C-177	Kern River Canal	Truxtun Ave	Not Eligible
50C-178	Arvin-Edison Canal	Truxtun Ave	Not Eligible
50C-255	Calloway Canal	Calloway Dr	Not Eligible
50C-259	Friant-Kern Canal	Calloway Rd	Not Eligible
50C-262	Beardsley Canal	Coffee Rd	Not Eligible
50C-294	Pioneer Canal	Stockdale Hwy	Not Eligible

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<sup>3</sup> Derived from SHPO printout "Historic Properties Directory for Bakersfield and Other Kern County Cities," dated May 18, 1993. The bulk of these determinations were made by Caltrans or by the City of Bakersfield in Section 106 compliance documents for a Housing and Urban Development project. One additional property, 3321 State Road, did not appear on the SHPO database but did appear in Caltrans' file of previous Section 106 documents. The determination for the 53 bridges was derived from a Caltrans database, reproduced in Attachment 8.

<u>Bridge Number</u>	<u>Feature(s) Intersected</u>	<u>Facility Carried</u>	<u>NRHP Status</u>
50C-302	Kern River	Coffee Rd	Not Eligible
50C-303	Cross Valley Canal	Coffee Rd	Not Eligible
50C-307	Stine Canal	Truxtun Ave	Not Eligible
50C-308	Carrier Canal	Mohawk St	Not Eligible
50C-309	Carrier Canal	Truxtun Ave	Not Eligible
50C-310	Carrier Canal	Corporation Yard	Not Eligible

#### STATE BRIDGES WITHIN APE

<u>Bridge Number</u>	<u>Location CO-RTE-PM</u>	<u>Structure Name</u>	<u>NRHP Status</u>
50-49	Ker-099-02732	Minkler UP	Not Eligible
50-50L	Ker-099-R02839	Beardsley Canal	Not Eligible
50-50R	Ker-099-R02839	Beardsley Canal	Not Eligible
50-64L	Ker-178-00016	Kern River	Not Eligible
50-64R	Ker-178-00016	Kern River	Not Eligible
50-65	Ker-178-00047	Carrier Canal	Not Eligible
50-73	Ker-223-02384	Arvin Edison Canal	Not Eligible
50-202	Ker-204-00646	Pierce Rd UC	Not Eligible
50-203	Ker-204-00651	Pierce Rd UC	Not Eligible
50-208	Ker-204-00549	Stine Canal	Not Eligible
50-209	Ker-204-00590	Calloway Canal	Not Eligible
50-236L	Ker-099-02535	Kern River	Not Eligible
50-236R	Ker-099-02535	Kern River	Not Eligible
50-239L	Ker-099-02478	Bakrsfld Yd OH	Not Eligible
50-239R	Ker-099-02478	Bakrsfld Yd OH	Not Eligible
50-26OL	Ker-099-02460	Calif Ave UC	Not Eligible
50-26OR	Ker-099-02460	Calif Ave UC	Not Eligible
50-262L	Ker-099-02608	Gilmore Ave UC	Not Eligible
50-262R	Ker-099-02608	Gilmore Ave UC	Not Eligible
50-263	Ker-099-02310	Belle Terrace O	Not Eligible
50-263W	- -	Belle Terrace OC P	Not Eligible
50-264	Ker-099-02362	Brundage L OC	Not Eligible
50-265L	Ker-099-02670	Calloway Canal	Not Eligible
50-265R	Ker-099-02670	Calloway Canal	Not Eligible
50-265S	Ker-099-02670	Calloway Canal	Not Eligible
50-266	Ker-099-02678	Airport Dr OC	Not Eligible
50-267L	Ker-099-02563	Rosedale Hwy SE	Not Eligible
50-267R	Ker-099-02653	Rosedale Hwy SE	Not Eligible
50-268L	Ker-099-02499	Truxtun Ave UC	Not Eligible
50-268R	Ker-099-02499	Truxtun Ave UC	Not Eligible

<u>Bridge Number</u>	<u>Location CO-RTE-PM</u>	<u>Structure Name</u>	<u>NRHP Status</u>
50-277	Ker-099-RO3053	7th Std Rd OC	Not Eligible
50-305	Ker-005-04755	Stockdale R OC	Not Eligible
50-403	Ker-058-RO5289	Hughes Ln OC	Not Eligible
50-426F	Ker-058-RO5233	Rte 58/99 SEP	Not Eligible
50-426S	Ker-058-RO5233	Rte 58/99 SEP	Not Eligible
50-427G	Ker-099-02337	Wible Road UC	Not Eligible

Following this record search, JRP conducted basic research on the history of the area to identify those historical themes and contexts which might define potential significance for buildings and structures within the area. The results of this historical overview research are reported in Section 4 below, the "Historical Overview." Research was conducted in a variety of archival repositories in the Sacramento, Fresno, and Bakersfield areas.

The principal repository for historical data pertaining to the Bakersfield area is the Beale Memorial Library in Bakersfield, which includes an excellent local history collection as well as perhaps the finest petroleum-related special collection in California. Other Bakersfield archives include the holdings of the Kern County Historical Museum and the library of California State University, Bakersfield. Research was also conducted in the archives of the Petroleum Production Pioneers, an oil industry historical group. JRP also conducted exhaustive research at the office of the Kern County Assessor. Extensive research was conducted in the Special Collections at California State University, Fresno, which maintains an excellent collection on the history of the San Joaquin Valley. In the Sacramento area, JRP researched at the California State Library, California State Archives, and California State Railroad Museum Library, Sacramento, and the Physical Sciences Library and Main Library of the University of California, Davis. In the Bay Area, JRP conducted research at various libraries on the University of California, Berkeley, campus, including the Water Resources Center Archives, Bancroft Library, and Doe Library Map Room.

In addition to archival research, JRP conducted an extensive program of oral history, interviewing dozens of knowledgeable individuals regarding the construction and social history of the surveyed buildings. This oral historical program proved to be the most useful research tool in documenting the history of these buildings, which are outside the range of most urban-based archives (Sanborn Fire Insurance Maps, city directories, and so forth) and which were occupied by people rarely mentioned in newspapers, county histories, and other standard documentary sources.

Under sub-contract to JRP, Laurence H. Shoup of Archaeological/Historical Consultants conducted research for petroleum-related resources.

JRP also consulted with Carola Rupert-Enriquez, director of the Kern County Museum, to develop a list of interested parties from which to request information and seek guidance. Letters were sent to:

Kern County Historical Society  
Petroleum Production Pioneers  
Historic Preservation Commission. City of Bakersfield  
Kern County Resources Management Agency  
Kern County Historic Records Commission  
Kern County Historical Organizations and Museums  
Kern County Museum  
Shafter Historical Society

Copies of JRP's letter and resulting responses are contained in Attachment 2.

### **3. HISTORICAL OVERVIEW**

#### **Introduction**

This historical overview outlines the general historic themes applicable to the study area. Its primary purpose is to establish historic contexts for the evaluation of properties within the general study area (and more specifically, within the APE).

Seven major historical themes apply to the study area: exploration during the Spanish and Mexican period; early settlement; the role and importance of large land companies in settlement and "colonization"; development of irrigated agriculture; transportation; discovery and development of oil; and construction of large scale state and federal water projects. Properties related to the last five themes are represented in the survey population. There are no known historic properties in the APEs dating to the Spanish, Mexican, or pioneer period of American settlement. We have also included a brief discussion of the architectural styles and building types that exist in the study area. No buildings within the APEs are older than ca. 1890.

#### **Exploration During the Spanish and Mexican Period**

Spanish-led explorations penetrated the great Central Valley of California as early as 1772, but these expeditions did not result in any permanent settlements in the area. Instead the Spanish established missions and presidios along California's coast, because they were more accessible and easier to supply and defend. Before 1800 Spanish travellers developed El Camino Viejo, a road extending from Los Angeles to the San Francisco Bay area, running along the western margin of the San Joaquin Valley. Mexico gained control of the region in 1822-23 upon its independence from Spain. Like the Spanish the Mexicans did not establish any permanent settlements in the study area, conducting only brief and limited excursions into the valley. While between 1842 and 1846 Mexican governors granted land for five ranchos in the region south of the study area, the rancheros met with little success and no settlements grew around them.<sup>4</sup>

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<sup>4</sup> William Wilcox Robinson, *The Story of Kern County* (Bakersfield, California: Title Insurance and Trust Company, 1961), 1-12; Warren A. Beck and Ynez D. Haase, *Historical Atlas of California* (Norman: University of Oklahoma Press, 1974).

American and British-Canadian trapping in the San Joaquin Valley began in 1827 when Jedediah Smith led a band of men into the region via the Tehachapi Pass, followed soon thereafter by Hudsons Bay Company trappers and other parties. In 1834 Joseph Walker entered the valley through the pass to the east that received his name. Later, in early 1844 and again in late 1845, John C. Frémont led explorations through the south end of the valley, documenting its geology, botany, and fauna. Exploration and study continued into the period of American conquest and statehood (1846-1850). In 1850 Lt. George Derby made a reconnaissance near the study area that noted the valley's vast lakes and tule swamps.<sup>5</sup> Nevertheless, well into the 1850s the study area remained a remote and little known portion of California.

## Early Settlement

Early Euro-American settlement in the vicinity of the study area was the product of development in the adjacent mountains, as gold miners entered the region and as the federal government established Indian reservations to the south to contain and protect the Yokuts and other southern San Joaquin tribes.

Settlers had not located in nor developed the study area and its environs at the time the United States assumed control of California in 1846-1848. News of the discovery of gold in 1848, however, drew many Argonauts to California. Among the areas settled by these and succeeding waves of immigrants included the San Joaquin Valley, then still largely inhabited by aboriginal groups. California gained admission into the Union in September 1850. Importantly for its future development, all of the land within the study area was in the public domain, land grants being located to the south but not within the study area. The land was thus available for acquisition under federal land laws.<sup>6</sup>

In 1853 prospectors discovered gold in the upper Kern River region, and many mining communities sprang into being. Trading, supply, and freighting centers also grew and prospered within the mining region, as well as in the valley; roads and stage lines helped supply the mining camps. Unsuccessful and discouraged miners, along with those seeking different opportunities to advance, also began to filter out of the mountains, down to the valley, to become farmers and stock raisers.

In 1854 the United States Army established Fort Tejon in Grapevine Canyon to protect natives of the San Joaquin Valley and to quell stock rustling in the area. Beginning in 1855 wagon trains

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<sup>5</sup> Robinson, 1961, 7-12.

<sup>6</sup> The Native Americans in the area sought protection and relief from the increasing encroachment of American gold-seekers and settlers into California. The federal government appointed Edward F. Beale in 1852 as the Superintendent of Indian Affairs for California and Nevada. In 1853 Beale established Tejon Indian Reservation (later named Sebastian Indian Reservation) in the southern San Joaquin Valley. This was the first reservation in the state, and soon thereafter had 2500 inhabitants raising crops. The government vacated the reservation in 1862 to save money, and relocated the inhabitants to the Tule River reservation east of Porterville. Robinson, 1961, 14-15, 17.

brought supplies from Los Angeles to the garrison, opening a freighting route into the valley. The army abandoned the fort in 1864, and Edward Beale eventually incorporated the land into his Tejon Ranch holdings. The first settlement near Bakersfield had been around Gordon's Ferry, established in 1853 near the foot of China Grade east of present-day Oildale, on the military supply road leading down the valley to Fort Tejon.<sup>7</sup>

Christian Bohna was one of the first to settle on 160 acres of swamp and overflowed lands in the area extending along the eastern border of the study area, in what is now the city of Bakersfield. By 1862 Bohna had sold his rights to Colonel Thomas Baker, who, with his family settled on the swampy land -- known as Kern Island for its location between the channels that divided the Kern River -- in September of 1863. The area became known as Baker's Field.<sup>8</sup> His efforts at reclaiming the swamp lands encouraged others to settle in the area; and Baker soon had ten acres planted to a variety of crops. By the 1870s a number of settlers had migrated to the area to farm and raise stock. Settlers acquired land directly from Baker and other land owners, from the railroad, and through homestead, reclamation, and pre-emption laws. The area grew slowly, but by 1870 the town of Bakersfield had a population of 600, and in 1874 replaced Havilah, a mining town in the Kern River Canyon, as county seat.<sup>9</sup>

### **The Role of Large Land Companies in Settlement and Colonization**

Small land holders like Bohna were soon joined by those who amassed blocks of land baronial in extent. These large land holdings have had an important and lasting impact on farming and settlement patterns in the study area. Relatively early on -- in the 1860s and especially in the 1870s -- vast tracts of land in western Kern County (and particularly in the San Joaquin Valley) went into the hands of large land owners. These included: Henry Miller and Charles Lux, cattle ranchers; James B. Haggin, Lloyd Tevis and Billy Carr, land speculators; the Jewett family, livestock ranchers; Clarke and Cox, livestock ranchers; and the Central Pacific Railroad.

In the 1860s and early 1870s Kern County was one of the great open range sheep ranching sections of the state. Bakersfield was the focal point of the annual sheep drives from the valley to the highlands via Walker Pass and Mojave. Among the factors that at first retarded agricultural settlement of the area was the damage caused by livestock in farmers' fields. The small farmer was potentially at the mercy of the shepherd's flocks and later the cattleman's herds. This was mitigated by introduction of "no fence" laws in the county in 1874. The law passed over the opposition of major stockmen such as Miller & Lux, Haggin, Tevis, Carr, and the Jewett

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<sup>7</sup> Robinson, 1961, 17-18, 21.

<sup>8</sup> Thomas A. Baker, "Early Bakersfield." *Kern County Historical Society*, Third Annual Publication, 1937, 17-19; Mildred Hoover, and Ethel and Hero Rensch, *Historic Spots in California* (Stanford, California: Stanford University Press, 1966), 121, 132-133.

<sup>9</sup> Kern County was formed in 1866 out of portions of Tulare and Los Angeles counties. Baker, "Early Bakersfield," 1937, 17-19; Hoover et al., 1966, 121, 132-133; Robinson, 1961, 24-28, 34.



family.<sup>10</sup> With the responsibility for controlling livestock placed on the rancher rather than the farmer, the onerous cost of fencing could be avoided and farms spread farther into the valley. Some cattlemen, such as Haggin and Tevis, looked to the sale of land to farmers -- with irrigation water supplied -- to replace the income from their previously free ranging herds.

The pattern of large land holdings was well established by 1874. Lands in the Kern River delta were marshy, fertile, and subject to annual -- or at least regular -- overflow. Public lands in this condition were available through the 1850 Arkansas Act<sup>11</sup> under liberal terms from the state. Distance from Sacramento and disagreement over what constituted swamp land allowed land speculators to make large claims of state-owned land that may not have been swamp in the strictest sense of the law. In her book on Kern County land and settlement, Margaret Zonlight noted that "the manner in which Kern Swamp lands were disposed of to private persons served not to establish a traditional system of small farms but to give the original impetus to large-scale land ownership in the Kern River Delta." The land came into a few large land holdings by 1867, before general population growth began.<sup>12</sup>

Under these laws in the late 1860s and early 1870s, the Jewett family, Horatio Livermore and Julius Chester, Henry Miller and Charles Lux, for the most part cattlemen or livestock ranchers, obtained large tracts of valley land riparian to sloughs and streams. In the years that followed others like Haggin, Tevis and Carr manipulated the Desert Land Act to gain control of vast tracts of more arid land in Kern County. Haggin obtained 33,000 acres in 1874 that "started the great empire." After 1875 Haggin and his allies gained control of tracts through purchase, pre-emption, and other means. They also moved to buy up controlling interest in the majority of the county's farmer-initiated irrigation canals. Among the lands and water rights they purchased were O. P. Calloway's, which Calloway had obtained in anticipation of the construction and completion of his canal. In April 1877 alone, Haggin's allies submitted applications for 100,000 acres at the Visalia Land Office. Many of these were the alternating sections between railroad grant lands that Haggin had previously purchased.<sup>13</sup>

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<sup>10</sup> Margaret Aseman [Cooper] Zonlight, *Land, Water and Settlement in Kern County, California, 1850-1890* (New York: Arno Press, 1979), 6-9.

<sup>11</sup> Also known as the Swamp and Overflowed Act.

<sup>12</sup> Zonlight, 1979, 10-12.

<sup>13</sup> *Bakersfield Californian*, October 15, 1968, "Gold-Rich Kentucky Lawyers, SP Agent Mold KCL.": Zonlight, 1979, 10-12, 138, 143-145; see also Chapters III and IV. Haggin and Tevis were both from Kentucky, and came to California during the Gold Rush. Both invested their riches in mines and land. They made sure that Calloway's scrip for the lands -- which may have been of dubious value -- was not cancelled before they had a chance to file on the same lands; on September 28, 1877, the *San Francisco Chronicle* reported that clerks at the land office were up late into the evening on Saturday and Sunday recording applications made after the Desert Land Act was signed but before that office had received official notification.

It was two great landholding entities -- Haggin and Tevis, and Miller and Lux -- that were pitted against one another in the seminal water rights battle centered around diversion of the Kern River at the Calloway Weir. This suit, known as Lux v. Haggin, tested the primacy of riparian water rights over water claimed under the appropriative doctrine.

As noted above, by 1880 Henry Miller and Charles Lux had acquired large tracts of land in the San Joaquin Valley for ranching, particularly lands riparian to the sloughs on the trough of the valley between Tulare and Kern lakes. Likewise, Haggin and Tevis had accumulated vast land holdings, mostly on the eastern plain of the San Joaquin Valley in Kern County. All relied on Kern River water for their farming, ranching, and land sales efforts. Haggin and Tevis appropriated water from the Kern River and diverted it for use on non-riparian lands through their canal system; Miller and Lux used Kern River flood flows to irrigate their riparian pastures downstream of the Haggin-Tevis holdings. Miller and Lux sued Haggin and Tevis, contending that diversions at the Calloway Weir so reduced flows as to make worthless their riparian lands. In a landmark case tried between 1880 and 1888 (known as Lux v. Haggin) the doctrines of riparian and appropriative water rights came under scrutiny. In May of 1888 the California Supreme Court upheld the right of riparian owners to use a reasonable amount of water for irrigation purposes. Prompted by this decision, the adversaries agreed to a compromise dividing the use of Kern River water. Signed in July of the same year, the "Miller-Haggin Agreement" provided Miller et al. with one-third of the waters from March through August of each year; Haggin and his allies received the remainder.<sup>14</sup>

The agreement assured Haggin and Tevis and their allied large land owners sufficient water to irrigate their holdings. Haggin and Tevis -- unlike Miller and Lux -- aimed to subdivide their holdings and sell tracts to small farmers as well as farm and ranch as a company. Haggin and Tevis, with William "Billy" Carr, organized the Kern County Land Company [KCL] for this purpose in 1890. Family tragedy and other interests stimulated Haggin to sell most of his land to the KCL, of which he was a major stock holder, and moved east in 1891. Tevis' family remained the driving force in the company for the remainder of the century.<sup>15</sup>

#### Kern County Land Company Agricultural Colonies

The KCL used the colony concept to market their lands in Kern County. These "colonies" should not be confused with other efforts at land settlement where like-minded people or co-religionists banded together and established small enclaves. KCL's colonies were strictly used as a means to sell its land. If its agents could attract groups -- say, Mennonites from Kansas, or land hungry British -- so much the better; nevertheless, the motive was sales, not salvation.

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<sup>14</sup> Robinson, 1961, 36; Mary Katherine Miller, "Law and Entrepreneurship in California: Miller and Lux and California Water Law, 1879-1928." Ph.D. Dissertation, University of California, San Diego, 1982, 34-70. The presiding county judge in the first phase of the case was Benjamin Brundage.

<sup>15</sup> Frank J. Taylor, "World's Most Fabulous Farm." *The Nation's Business*, February 1954, 42:2, 42-45; *Bakersfield Californian*, 10-15-1968, "Gold-Rich Kentucky Lawyers, SP Agent Mold KCL."

It was these plans that led to Haggin and Tevis' creation of the KCL in September of 1890. This new enterprise sold lots for ranching, farming, and later, leased land for oil production. KCL also sold water through its canal and water companies, and operated an extensive cattle ranch. KCL's farming operations conform to three categories: leasing; orchards and vineyards; and row crops. KCL colony lots averaged twenty acres, selling for \$60-\$100 an acre. Of the four colonies initially established by KCL in 1890, much of the 12,000 acre Rosedale Colony lies within the APE.<sup>16</sup>

KCL conceived Rosedale Colony in 1890 as part of its attempt at subdividing and selling land in the area, and painted a rosy picture of settlers raising grain and fruit crops.<sup>17</sup> In the early years of colonization the KCL promoted the Rosedale Colony in England, attracting hundreds of buyers from that country to Bakersfield. Local historian Eugene Burmeister noted that "the land was divided into several large ranches, each with its own large house for the superintendent, numerous smaller buildings for the servants and governesses, a huge bunkhouse for the men, a cook house for the ranch hands, and large barns and corrals." Each ranch was fenced, and bordered by large lanes. The English settlers were mostly poor farmers who faced numerous difficulties, including drainage, irrigation, dealing with alkaline soils and other problems relatively unique to the southern San Joaquin Valley. Some were also known for lavish living and maintaining British customs; but after several dry years, a depression, and other problems, many returned to England or went to South America. Those remaining got 20 acres clear title from the land company. "Other settlers came to the area, also, from Michigan, Indiana, and the Midwest, and agriculture remained the main livelihood."<sup>18</sup>

One problem faced by the inexperienced farmers was properly managing irrigation water from the company's canals, principally the Calloway; they had to quickly learn how to apply water to the land efficiently. Louis Renfro, a long time Rosedale resident and descendant of one of the colonists (and for whose family Renfro Road is named) noted in 1959 that the Rosedale of his day was completely different than the original colony, and that "the houses are gone, irrigation ditches filled in."<sup>19</sup>

Little remains today to mark the colony period in Rosedale. Only two houses in the study -- the Scott Residence, at 3301 Fruitvale Avenue (Map Reference No. 69), and the Heimforth House at 3409 Calloway Drive (Map Reference No. 44) -- date to the colony period (ca. 1892). Perhaps the most well known and obvious resources left from the colony is the great cross of palm trees

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<sup>16</sup> Robinson, 1961, 36-37; Norman Berg, *A History of Kern County Land Company* (Bakersfield, California: The Kern County Historical Society, 1971), 19-20, 34, 42. Soon thereafter Haggin sold out and moved back to Kentucky, where he raised race horses.

<sup>17</sup> Berg, 1971, 20.

<sup>18</sup> Eugene Burmeister, "Rosedale Colony: Garden of Eden," *Bakersfield News Bulletin*, May 13, 1964; "English Pioneers Recruited as Rosedale Residents," *Rosedale Road Runner*, History Section, October 9, 1974.

<sup>19</sup> Louis A. Renfro, "As I Recall," *Historic Kern*, Vol. 10, No. 2, December 1959, 1.

(Map Reference No. 15) located just south of Seventh Standard Road and east of the Santa Fe railroad. Virtually all the original colony homes -- described as "mostly of a light character" -- have been razed or moved. Some were replaced with modern houses, and other colony house sites have become agricultural lands. With the failure of the Rosedale Colony, the KCL turned its principal efforts to managing its land rather than selling it as a means of generating income.<sup>20</sup>

For the next fifty years the KCL primarily operated its company farms. After Tevis gradually withdrew from the management of the company, control shifted to Frank C. Drum (who served as the company's vice-president in San Francisco) and Henry A. Jastro (the company's local manager). Drum developed the company's oil lease policy (essentially, "drill or get out": that is, lessees had to make progress on their work or the lease would be revoked) that made the company wealthy as oil was discovered and developed on KCL property. "Until 1936 the company was willing to sell land, notably in the productive Wasco and Shafter areas, where a colony of hardworking Mennonites settled and prospered. But after 1936, K.L.C. reversed its program. The company now parts with lands only for school sites or other public uses."<sup>21</sup>

By the 1950s the company employed cowboys, ranch hands, and a variety of industrial workers to manage its enterprises. It also developed some distinctive industrial structures. "Take, for example, all the metal housing for the company's 250 pumps," observed business writer Frank Taylor. "Most San Joaquin Valley farmers leave their pumps out in the sun and rain. K.C.L. covers each pump with a metal roof that rests on a heavy metal screen encircling the installation. A K.C.L. farm can be identified by these pump houses." He also reported that KCL relied on "farmer-partners" who farm land and shared proceeds with the company. The company began this policy in the 1920s in the Kern Delta area. By 1954 most KCL farmer-partners were prosperous, lived in towns, and farmed about 60,000 acres in this fashion.<sup>22</sup>

In recent years the area between Seventh Standard Road on the north and Kern River on the south has undergone great change, particularly on its eastern side. What had been blocks of farmsteads surrounded by large tracts of KCL farm land has gradually been more densely and heavily developed. The colony parcels sold by the KCL in the late years of the 19th century and early in the 20th century have been subdivided over the years to produce a development pattern

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<sup>20</sup> Charlotte L. Merrill, "Where Is Our House Now?" *Historic Kern*, Vol. 13, No. 3, March 1963, 1-2; Wallace M. Morgan, *History of Kern County, California* (Los Angeles: Historic Record Company, 1914), 175-176.

<sup>21</sup> *Bakersfield Californian*, 10-17-1968. "KCL Reins Change Hands"; *Bakersfield Californian*, 10-15-1968. "Gold-Rich Kentucky Lawyers, SP Agent Mold KCL." Carr was also allied with the Southern Pacific Railroad. The Martensdale Colony, established in the early years of the twentieth century near Lerdo, was promoted among Mennonites in Kansas. When the colony failed many of the settlers moved -- with their houses -- down to the vicinity of Rosedale. Regina Becker, *A Bundle of Living* (Shafter Historical Society, 1986), quoted in Vernon H. Neufield, "The Martensdale Colony, 1909-1910," March 15, 1989, California State University, Beale Memorial Library, VF - Colonies.

<sup>22</sup> Taylor, "World's Most Fabulous Farm," 42-45. These pump housings are common throughout the study area.

typified by scattered blocks of residences amid large farm tracts. Because the company sold land closer in to Bakersfield first, the lands on the western edge of the study area have remained in large blocks with long distances between farmsteads.

In the area east of Allen Road numerous modern subdivisions have been constructed, turning agricultural fields and producing orchards into residential tracts. The pattern of these developments is in part dictated by the former land ownership pattern of the KCL. Typically the new subdivisions sit upon large (usually one-half mile square) blocks of what had been KCL farm land. The developments now being built west along Hageman Road illustrate this pattern. At present these tracts are generally spreading west and south, although in the area beyond Allen Road residential densities decline. The area west of Nord Avenue is primarily agricultural, with more widely scattered residences. Beyond Highway 43 (Enos Lane) the area is typified by vast agricultural tracts with few residences or farm complexes. Since the 1930s, and particularly after the 1950s, the principal crop in all of this region has been cotton.<sup>23</sup>

### **Development of Irrigated Agriculture**

The San Joaquin Valley in western Kern County was among the first areas of California to come under large scale irrigation projects. The settlers' first, halting efforts, primarily on grain fields, began in 1858-1860; by 1867 only 650 to 700 acres were under irrigation. This changed in the 1870s. While elsewhere in the Central Valley land cultivated in large wheat farms or in orchards and vineyards were capable of surviving without irrigation, Kern County landowners faced arid conditions that required construction of large canal systems.<sup>24</sup>

This area of the San Joaquin Valley -- west of Bakersfield, north of Buena Vista Lake, and east of the Coast Range -- receives scant precipitation during the rainy season, usually less than 10 inches a year, more often between 5 and 10 inches, most of which falls in the winter. Temperatures can climb above 100 degrees for extended periods during the summer, while winter temperatures are relatively mild.<sup>25</sup> Farmers recognized early that the combination of a long growing season and mild winter temperatures gave the region great potential for agricultural production, should a reliable water supply be developed.

Canal construction in the years before 1868 was also impacted by the shifting, sudden changes in the course of the lower Kern River. In 1862 and in 1868, flood flows and torrents caused the

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<sup>23</sup> Berg, 1971, 43.

<sup>24</sup> California State Engineer, *Report of the State Engineer to the Legislature of California, Session of 1880*, part IV (Sacramento: SPO, 1880), 34-35; George H. Baldwin, "Water Rights on Kern River," January 26, 1916. Water Resources Center Archives, MS G4562/D1, 31; USGS, *Irrigation Near Bakersfield, California*, WSP 17 by C. E. Grunsky, Washington DC: GPO, 1898. Grunsky's study is the most detailed available examination of canals in Kern County at the turn of the century, and provides a "snap shot" of the canals and their condition at that time.

<sup>25</sup> Robert W. Durrenberger with Robert B. Johnson, *California: Patterns on the Land* (Palo Alto, California: Mayfield Publishing Company, 1976), 30-33, 37.

Kern to shift its main channel. In 1862 a flood redirected the river from its generally north-south orientation through what is now the City of Bakersfield to a more northeast-southwest direction. The great flood of 1868 caused the river channel to fill with sand and debris; the course of the river below Bakersfield shifted to its present bed and slough system. It was after this flood that the major irrigation canals were dug. Over the next half century the river tried to return to equilibrium by scouring out its bed. The shifting, cutting channel caused endless problems for irrigators who periodically had to relocate their headgates farther upstream.<sup>26</sup>

Agriculture in the area encompassed by the alternative alignments increased with the arrival of the Southern Pacific Railroad in 1873. The railroad provided a ready outlet for livestock and allowed access to outside markets for produce from small farms. While ownership patterns in Kern County were dominated by several large holdings -- particularly those of the railroad, Miller and Lux, and Haggin, Tevis and Carr (later the KCL), small holdings before the 1870s laid the foundation for some of the canals within the study areas.<sup>27</sup>

At almost the same time that the railroad arrived, farmers had a number of canals either being planned or under construction to water their lands in western Kern County. These included the James, Gates, Stine, Pioneer, Beardsley, Calloway, and Emery Ditch, built between 1871 and 1877.<sup>28</sup> The canals fed distribution systems that supplied individual farms. Kern Island Canal was the "first of any consequence to be excavated," and served both as an irrigation supply and drainage for marshy areas along its banks.<sup>29</sup>

By 1880 William Hammond Hall, state engineer, reported:

there is no other stream in the State from which so many canals and ditches have been made to divert water as Kern River. The low banks of the river, and the rapid slope of the land away from it, rendering this a simple and inexpensive

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<sup>26</sup> Grunsky, 1898, 37-46.

<sup>27</sup> Hoover, et. al., 1966, 133; Baldwin, 1916, 1-15.

<sup>28</sup> Grunsky, 1898, 48-58. Sites related to the Gates Canal are located at Map Reference Numbers C/GC-1 through 3, Stine Canal sites are SC-1 through 3, Pioneer Canal sites are PC-1 through 4, Beardsley Canal sites are BC-1 through 3, Calloway Canal sites are CC-1 through 5, and the Emery Ditch is site ED-1.

<sup>29</sup> William James was a local engineer and water/irrigation expert, and one of the main expert witnesses in the famous Lux v. Haggin lawsuit that led to a division of the waters of the Kern. Farmers located away from the canals began attempts at pump irrigation, but these were failures until cheap fuel in the form of oil became available to drive them. By 1905, pumps were beginning to be powered by electrical power provided by hydro plants nearby. "A Business Men's Country Excursion," by J. M. Hunter, describes land around Rosedale. Hunter noted many pumping plants around Rosedale providing water to progressive and successful farmers. *Kern County California, in the Delta of the Kern River, the Crown of the San Joaquin Valley* (1905) (Promotional pamphlet) not paginated, see: "The Empire of Kern," by Charles P. Fox.



matter, are the causes which have multiplied the number of canals to such an unnecessary and extravagant extent.<sup>30</sup>

The system of canals allowed irrigators to take virtually every available drop of water from the Kern and send it to their farms. They also employed an innovative design for a wooden weir to divert water where the sandy river bed provided no footing for concrete diversion structures. The canals were dug with horse-drawn equipment. For example "The Calloway [canal], one of the largest irrigating canals in the world, was built entirely with [buck scrapers]," basically a horse-drawn tool similar to a Fresno scraper. Use of these implements allowed for construction of "three hundred miles of canals and the thousand and one miles of laterals to be made in less than a generation." The first canals were the products of local cooperatives, but friction and division among members led to trouble, and most of these sold their holdings "to corporations of large capital, and these have since made just division of the waters, selling the commodity at rates fixed by the people through the county board of supervisors."<sup>31</sup>

The Bakersfield Californian later described Haggin and Tevis's efforts in glowing terms:

The Calloway canal project was taken up and pushed to completion, not through community money, but by money furnished by Messrs Haggin and Tevis and the diversion of the waters of Kern River by the Calloway and other canals dried up the swamps and lakes and made the desert to bloom . . .<sup>32</sup>

Haggin stated in 1877 that he had "proceeded with the work on the 'Calloway Canal' and extended the 'Pioneer Canal,' for the purpose of irrigating the lands I had before purchased, and for the purpose of diverting this water."<sup>33</sup>

By 1888 all 15 of the major canals had been built.<sup>34</sup> In 1890 the Kern County Land Company formed a subsidiary to control its canal systems. Known as the Kern County Canal and Water Company, it consolidated the Buena Vista, Stine, Farmers, East Side, Kern River, Kern Island, Central, Anderson, James, Joyce, James & Dixon, Pioneer, Plunkett, Johnson, and Lerdo canal companies into a single unit. Of these, "the Calloway was and is the largest of the canals but did

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<sup>30</sup> California State Engineer, 1880, 35.

<sup>31</sup> Fox, "The Empire of Kern," in *Kern County California, in the Delta of the Kern River*, 1905.

<sup>32</sup> *Bakersfield Californian*, October 15, 1908. "Kern County Land Company." The paper sneered at O. P. Calloway's original plans for an irrigator owned and operated system as a "socialistic scheme."

<sup>33</sup> Zonlight, 1979, 145-145. Zonlight cited US v. James B. Haggin, "Testimony taken before the Register and Receiver of the United States Land Office, at Visalia, California [SF: C.H. Street, 1878], pp. 26-27.

<sup>34</sup> *Bakersfield Californian*, November 1, 1968. "Ditch Rider Once Key to KCL Irrigation Water Amount."

not receive first priority . . . " The Beardsley Canal weir was higher and had first call on diversions. The Calloway weir, which extended clear across the river channel, also served to divert water into the Stine, Farmers, Buena Vista, James, Anderson and Plunkett canals. The Lerdo Canal received its water from the Beardsley, which had more capacity than required for the 9,000 acres it served. Lerdo Canal's headgate is near Seventh Standard Road. The Pioneer Canal, running along the north side of the river and south of Rosedale and the Stockdale Highway, served 12,190 acres.<sup>35</sup> By around 1916 the Kern County Canal and Water Company owned or controlled more than seventeen canals or canal companies, "mostly incorporated, which, under one management, deliver water to the various lands possessing rights thereto."<sup>36</sup> The company operated the canals well into the 20th century.

In the 19th and early 20th centuries the principal crop produced in Kern County irrigated fields was alfalfa. Orchard crops accounted for a relatively small proportion of the irrigated fields. "At one time this was much larger," noted one study, but the combination of a shortage of water and a poor market for fruit, coupled with the need for expensive pump irrigation, caused the failure of most of the orchards and vineyards.<sup>37</sup>

In the latter decades of the 19th century, farmers located away from the canals began to develop ground water for irrigation, but pump irrigation failed until cheap fuel in the form of oil became available. By 1905, power for pumps began to come from electricity provided by hydroelectric plants in the nearby Kern River canyon. At this time lands in the area around Rosedale were equipped with electric pumping plants providing water to farmers.<sup>38</sup>

Two water storage districts are located within the APEs for this project: the North Kern Water Storage District (NKWSD) and the Rosedale-Rio Bravo Water Storage District (RRBWSD). Water storage districts provided an alternative to irrigation districts as a way to organize and raise money to finance water development projects. Large landowners and corporations tended to dominate storage districts because voting was proportional to the amount of land owned and because landowners within storage districts did not have to live within the district to vote in district elections. Several water storage districts were organized in Kern County in the 1920s, one of the earliest was established by the KCL in 1922.<sup>39</sup>

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<sup>35</sup> *Bakersfield Californian*, November 5, 1968, "15 Original KCL Canals Still in Use."

<sup>36</sup> Baldwin, 1916, 41.

<sup>37</sup> R. C. Benson, "Irrigation in Kern County, California," page 15, report filed in the records of the Office of Irrigation Investigations at Berkeley, California, n.d., in Baldwin, 1916, 88-90.

<sup>38</sup> Fox, "The Empire of Kern," and J. M. Hunter, "A Business Men's Country Excursion," in *Kern County California, in the Delta of the Kern River*, 1905.

<sup>39</sup> Donald Pisani, *From the Family Farm to Agribusiness* (Berkeley: University of California Press, 1984), 390-392.

In the 1930s, many local irrigators, with Kern County water companies, established water storage districts, but they often did little except to acquire and then contract operation of the district's canals back to the canal companies. For example, the NKWSD was established in 1935, but did nothing until it adopted a plan by election in 1950; since that time it has actively operated the Beardsley and Calloway canals.<sup>40</sup> The RRBWSD was formed later. Landowners in western Kern County, north of the river and west of Rosedale formed the RRBWSD in 1959 to build and operate a groundwater recharge project. They took an existing canal -- the Rio Bravo -- and connected it to percolation basins within its service area (see Map Reference Numbers RBC-1 through 3).<sup>41</sup>

The irrigation canals themselves, along with ancillary control structures, outlet gates, pipelines, and percolation basins, are the remaining historic resources representing the historical theme of irrigated agriculture in the San Joaquin Valley. A more detailed history of individual canals within the alternative alignment APEs can be found in the HRER on canals, Attachment 5.

## **Transportation**

As noted above, the Spanish and Mexicans had traversed the valley to the west of the study area on the El Camino Viejo, which ran up the valley and crossed into the Hollister area. Soon after statehood, the US Army established a road down the east side of the valley to connect its interior forts. On this road, which ran south from Fort Miller through Visalia to Fort Tejon, Gordon's Ferry was founded on the Kern River in 1853. Five years later, John Butterfield sent the first westbound overland passenger/mail stage from St. Louis through the San Joaquin Valley, en route from Los Angeles to San Francisco. The stage line continued travelling through the San Joaquin Valley until 1861, opening the valley to postal service, and creating more widespread public knowledge of the valley.<sup>42</sup>

The area covered by the alternative alignments proposed for Highway 58 between Highway 99 on the east and Interstate 5 on the west is crossed by both the Santa Fe and Southern Pacific Railroads. Both operate main lines and spur lines through the area. The Southern Pacific mainline runs roughly northwest-southeast and parallels Highway 99 through the San Joaquin Valley. The Southern Pacific's Asphalto branch line from Bakersfield to McKittrick runs out of central Bakersfield to the south and southwest before swinging to the northwest and then west through the study area. The Santa Fe main line runs roughly parallel to the Southern Pacific main line about six miles to the west before crossing the Kern River into central Bakersfield. The Santa Fe operates the Minkler spur line connecting its main line to the Southern Pacific main line at Oildale from a junction just west of the river crossing.

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<sup>40</sup> Telephone interview, Charles Williams, North Kern Water Storage District, August 13, 1993.

<sup>41</sup> Boyle Engineering Corporation, "Report on Groundwater Recharge Project" for Rosedale-Rio Bravo Water Storage District, June 1988, 7-12.

<sup>42</sup> Robinson, 1961, 23-24.

The Central Pacific Railroad Company (later the Southern Pacific Railroad) began construction of its San Joaquin Valley Branch (eventually known as the Sunset Route) on the last day of 1869. Extending south from its existing transcontinental line at Lathrop, construction crews entered Kern County late in 1873. The flat terrain of the San Joaquin Valley made construction easy and relatively rapid.<sup>43</sup> The railroad construction crews built bridges across rivers and creeks ahead of the track laying brigades, which worked in teams each with a specific task -- one preparing the roadbed, the next trenching for ties, a third placing ties, a fourth installing ties, and two crews installing and spiking the rails. The Southern Pacific Mainline is recorded at Map Reference Number SP-1.<sup>44</sup>

The Southern Pacific's constructing engineer believed the area near Bakersfield to be flood prone, and thus directed the route to the east on uplands along the valley's edge. The result was that the railroad directed its tracks into the area east of Bakersfield. By 1874 the railroad reached its station. In addition, little Bakersfield, like several other important towns of the lower valley, had not given the railroad land or subsidies, which also may have influenced the railroad to bypass the town.<sup>45</sup> The Southern Pacific continued building south through the Tehachapis in 1874-76. The railroad provided an outlet for the San Joaquin Valley's agricultural produce, which became increasingly important with the decline of mining in the mountains to the east after the 1860s.<sup>46</sup>

In 1893 the Southern Pacific constructed a spur line to Asphalto (now McKittrick). Standard Asphalt, organized by the railroad with local residents Solomon Jewett and Hugh Blodget, built an asphalt refinery near the head of the line, and produced and shipped refined asphalt for paving streets (see Map Reference Numbers SP-2 through 4).<sup>47</sup>

In February 1895 "merchants and capitalists" of the San Francisco Traffic Association formed the San Francisco & San Joaquin Railway Company to build a line to break the monopoly of the Southern Pacific, particularly in the San Joaquin Valley. Negotiations for sale to the Atchison, Topeka, and Santa Fe Railway Company began in 1899, before the line had been completed. The

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<sup>43</sup> Alice L. Crothers, "The History of the Southern Pacific Railroad in the San Joaquin Valley," MA thesis, University of Southern California, June 1934, 41-42.

<sup>44</sup> Clarence M. Wooster, "Building Down the San Joaquin in 1871," *California Historical Society Quarterly*, 1939, 23-24.

<sup>45</sup> Crothers, June 1934, 41-42; William L. Preston, *Vanishing Landscapes: Land and Life in the Tulare Lake Basin* (Berkeley: University of California Press, 1981), 122-123. Sumner later became called Kern, and in 1909 was incorporated into Bakersfield.

<sup>46</sup> Robinson, 1961, pp. 30-31; Erle Heath, *Seventy-Five Years of Progress: Historical Sketch of the Southern Pacific* (San Francisco: The Southern Pacific Bureau of News, December 1945), 11-12, 28-29; Preston, 1981, 122-123.

<sup>47</sup> William Rintoul, *Spudding In: Recollections of Pioneer Days in the California Oil Fields* (San Francisco: California Historical Society, 1976), 7.

Santa Fe assumed control of the line in 1900.<sup>48</sup> The Santa Fe built a bridge over the Kern River west of Bakersfield as a part of its original construction. The original bridge, built in 1898, was comprised of four central wooden Howe truss spans supported by pilings, with pile-supported timber stringer approaches on either side of the central spans.<sup>49</sup> The line, which in Kern County ran to the west of and parallel to the Southern Pacific, reached Bakersfield in May of 1898 and provided competitive freighting for farmers and ranchers in Kern County (see, for example, Map Reference Numbers SF-1 and 2). The construction of both railroads sparked the growth of many communities along the largely previously uninhabited route. Construction camps and station sites became freighting and supply centers, and eventually grew into towns. Once the companies completed construction, some of the railroad laborers remained, adding to the development of the area; and the day-to-day operations of the lines required a small army of workers.<sup>50</sup>

The two railroads, still intensely competitive, nevertheless agreed in 1899 to jointly use the main line running east from Bakersfield over the Tehachapis, and share a spur line running southwest from Bakersfield to Lamont and Arvin; this ended the Santa Fe's bottleneck at the southern end of the San Joaquin Valley.<sup>51</sup>

The Minkler Spur, running from Oil Junction on the north to Landco on the south, was built by the Minkler Southern Railroad in 1920, and it began operation on July 15, 1920. It was leased by the Santa Fe and used as a short (2.82 miles) spur to more conveniently connect the Southern Pacific and Santa Fe main lines (see Map Reference Numbers SF-3, SF-4, and SF-6).<sup>52</sup>

A more detailed description of the railroads and related features within the proposed alternative alignments can be found in the HRER regarding railroad resources, Attachment 6.

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<sup>48</sup> G. Holterhoff, Jr., compiler, *Historical review of the Atchison, Topeka and Santa Fe Railway Company (with particular reference to California lines) as furnished to the Railroad Commission of the State of California in compliance with its General Order No. 38*, Los Angeles, June 1914, 10; Keith L. Bryant, *History of the Atchison, Topeka and Santa Fe Railway* (New York: Macmillan, 1974), 173-176.

<sup>49</sup> Atchison, Topeka and Santa Fe Railway Company, Coast Lines, Valley Division, *Profile, Kern Jct. to Shafter*, M.P. 885 to M.P. 910, June 30, 1912, California State Archives Railroad Profiles. The modern bridge is recorded at Map Reference Number SF-9.

<sup>50</sup> Crothers, June 1934, 1; Bryant, 1974, 175-178.

<sup>51</sup> Donald Duke and Stan Kistler, *Santa Fe ... Steel Rails Through California* (San Marino: Golden West Books, 1963).

<sup>52</sup> Holterhoff, *Historical Review of the Atchison, Topeka and Santa Fe Railway Company*, June 1914, 9, 12; James Marshall, *Santa Fe: the Railroad that Built an Empire* (New York: Random House, 1945), 436-437; USGS, "Central Valley, California, South Area," compiled in 1957, edition of 1958; USGS, "Oildale Quadrangle," 1954.

## Oil Production

Although mining and agriculture had attracted many settlers to Kern County in the period between 1848 and the late 1800s, few industries have influenced the growth of Bakersfield and western Kern County more than the discovery and practical exploitation of oil. Many remnants of the early oil production days, as well as current operations, lie within the study area.

Early settlers of the south San Joaquin Valley region knew of the oil oozing out of the ground. They often collected oil from these natural seepage sites to lubricate their farm equipment and used the thicker asphalt as a bonding agent. Still seeking quick riches, and a recess from the hard life of gold mining, prospectors began in the 1860s to mine the natural oil deposits in the valley and foothills employing the crude mining techniques of the day.

In 1866 Buena Vista Petroleum erected a primitive oil refinery northwest of McKittrick, but the excessive cost of transporting the finished product to market caused the venture to fail. Miners improved techniques for extracting the crude oil from the earth, progressing from hand-dug pits, to portable tripods supporting hand-augers, to cable drills supported by large derricks and powered by steam. Scattered efforts in the region continued throughout the years, however, the process for refining and transporting the heavy crude remained a risky and expensive undertaking.

The Southern Pacific solved one transportation problem in 1893 when it constructed a spur line to Asphalto to ship refined asphalt from a refinery near the head of the rail line. At the same time, horse-drawn wagons continued to provide another means to haul asphalt to the railhead at Bakersfield and bring supplies to the camps on their return. In 1899, with the observation of surface oil seepage on Thomas Means' land seven miles northeast of Bakersfield, wildcatters struck oil by drilling with a hand auger. After initial success at depths up to seventy-five feet, they hired a steam driller to work the area. The "discovery well" of the Kern River Field at first produced three barrels a day, but this was soon increased to fifteen. Less than three weeks later, Horace McWhorter drilled to a depth of 265 feet and struck oil, his well becoming the first commercial well of the Kern River Field.

Word of the new field drew thousand of prospectors to the area, and soon miners shipped fuel oil from this new source by rail to San Francisco. The discovery prompted the first big oil boom in the area. Bakersfield grew with it, and changed from a small farming town to a dynamic oil center. Oil men continued their production efforts throughout the southern San Joaquin Valley, and production sites with supporting communities soon sprang up. In 1909 western Kern County experienced a boom with the opening of a well field in the Midway Valley. Union Oil Company enhanced this boom with the Lakeview Gusher in 1910. Over the years oil production sites and towns sprang into existence with the strike of each successive field and well, adding to the development of the region.<sup>53</sup> The Fruitvale (1927), Greeley and Rio Bravo (1930s), and

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<sup>53</sup> Robinson, 1961, 40-43; Berg, 1971, 36; Rintoul, 1976, 1-15.



Bellevue (1940s) oil fields were examples of post-World War I oil strikes that led to the development of the area west of Bakersfield.<sup>54</sup>

The oil production boom in Kern County created a need for an economically efficient means of refining the crude oil and transporting it to market centers, beyond wagons and train cars. With the increased productivity of the region, oil companies built pipelines to move their crude, some as long as 300 miles. In 1902 Standard Oil built a pipeline along the relatively new Santa Fe Railroad right-of-way, supplying its newly constructed refinery at Point Richmond with crude from the Kern County fields. Likewise, in 1908, Associated Oil and Southern Pacific built a pipeline from Bakersfield to the end of the rail line at the Carquinez Straits. Other pipelines connect the Kern County fields to the coast. In 1909 Union Oil helped construct the Producers Transportation Company pipeline system for delivering crude from Mendota to Port Harford (now Avila) on Morro Bay. This line passed through the study area, with pumping stations located at Rio Bravo, Buttonwillow, and Rosedale.<sup>55</sup> None of these pipelines have left aboveground resources within the APE; one can only assume that, if the pipelines exist, they are in their original configuration.

Among the resources left by the oil industry in the study area -- besides the obvious wells and pumps -- are surplus oilfield houses or service buildings. In virtually all instances these have been moved to their present sites after the oilfield camps in which they were originally constructed were closed.<sup>56</sup>

A detailed description of the oil industry-related features within the proposed alternative alignments can be found in "Technical Study: Historic Resources Evaluation Report for Historic Oil Fields, Route 58 Between I-5 and SR 99, Kern County, California." Attachment 7, prepared by Laurence H. Shoup of Archaeological/Historical Consultants under sub-contract to JRP.

### **Major State and Federal Water Management Projects and Related Facilities**

Following a prolonged drought in the 1920s, and after several suggested means to bring water from water surplus areas of northern California to water deficient areas of the southern San Joaquin Valley, in the 1930s the state planned a "California Central Valley Project" to move water from the north to the south. Lack of funds during the Depression of the 1930s caused the failure of the state's efforts. The state then convinced the federal government to adopt the project as one of the major relief employment and national development projects undertaken during the New Deal. It was out of this federal Central Valley Project [CVP] that the Friant-Kern Canal was developed under federal reclamation laws.

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<sup>54</sup> See Attachment 7.

<sup>55</sup> Rintoul, 1976, 93-102.

<sup>56</sup> The resources are discussed below under "Architecture." Six surplus oilfield houses exist within the APE.

After World War II the state tried to regain control over the CVP; when this failed, and with the increasing need for water in the southern San Joaquin and in Southern California, the state designed its own project, the State Water Plan, to provide both agricultural and municipal/industrial water to thirsty farms and cities, unfettered by federal restrictions. It was out of this movement that the State Water Plan, with the California Aqueduct as one of its major features, was born.

The Central Valley Project feature within the APEs is the Friant-Kern Canal; the State Water Project feature is the Cross Valley Canal. Both of these projects have had a profound affect on Kern County, providing water to allow economic expansion.

The federal Friant-Kern Canal, built by the U.S. Bureau of Reclamation as part of the CVP, was authorized for construction by Congress in the Central Valley Project Act of 1937. The object of the overall project was to transfer water from the Sacramento Valley, where there was a "surplus," and shift it to the water-deficient San Joaquin Valley. Water stored at Millerton Reservoir would be sent south as far as Bakersfield; these flows were to be replaced by water supplied through the CVP's Delta-Mendota Canal. The USBR surveyed the route for the Friant-Kern Canal in the late 1930s, but when the project took shape in the 1940s, the bureau planned for a larger capacity. Because some right of way had been acquired in the 1930s for a smaller canal, the path adopted was therefore somewhat more sinuous. USBR contractors built the 152 mile long Friant-Kern Canal between 1945 and 1951, virtually all of which was lined with concrete.<sup>57</sup> The section of the Friant-Kern that is intersected by Highway 58 alignment alternatives (see Map Reference Numbers FK-1 through 4) was built during 1950 and 1951, using advanced combination excavation and concrete lining equipment referred to as "jumbos."<sup>58</sup>

The USBR considered the canal one of its major achievements in California:

The Friant-Kern Canal is an important feature of the Central Valley project in California. The structural features of this project as operated at this time, 1958, make up one of the most extensive artificial water transport systems in the history of the world.<sup>59</sup>

The last 30 miles of the canal upstream of Bakersfield are concrete lined. As the canal moved south it grew smaller as flows declined. The construction contract for Friant-Kern Canal in the vicinity of Bakersfield went to Peter Kiewit Sons Co., of Omaha, Nebraska, for "earthwork,

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<sup>57</sup> US Department of the Interior, Bureau of Reclamation, Central Valley Project, Friant Division, California. *Friant-Kern Canal: Technical Record of Design and Construction*. Denver, Colorado, May 1958, 1.

<sup>58</sup> Kern County Museum Photo Collection, Box 25, Canals. Friant-Kern: US Bureau of Reclamation. *Friant-Kern Canal*, May 1958, 1, 2, 6-7, 61-62, 82-85.

<sup>59</sup> US Bureau of Reclamation, *Friant-Kern Canal*, May 1958, 1.

concrete lining, and structures." The company completed their work on June 29, 1951.<sup>60</sup>

The Cross Valley Canal [CVC] was built between 1973 and January 1976, when it began full operation, running the 22 miles between Tupman and western Bakersfield. "Construction of the canal," noted the Kern County Water Agency [KCWA], "enabled federal east side contractors who were unable to bring Central Valley Project water to their lands in eastern Fresno, Tulare, and Kern counties to exchange their water from the Delta through the California Aqueduct and the CVC by contracting with the Arvin-Edison Water Storage District."<sup>61</sup> The CVC connects the State Water Project's California Aqueduct with Bakersfield and western Kern County. The canal runs primarily west to east, turning north along the Kern River on the left bank, crossing Highway 99 and present Highway 58 just south of the junction of Highway 99 and 58 (Map Reference Numbers CVC-1 through 5). The CVC takes water from the California Aqueduct at Tupman and moves it uphill through seven pump houses to Bakersfield. The Kern County Water Agency is the controlling entity for the CVC, and manages the water transfers made possible by its construction.<sup>62</sup>

A more detailed description of these projects within the proposed alternative alignments can be found in the HRER regarding irrigation canals. Attachment 5.

## Architecture

The buildings within the APE exhibit a surprisingly narrow range of types and styles, given the broad geographic diversity of the area. Three facts stand out in attempting to summarize the architecture of this area. First, there is an extraordinarily high percentage of homes that were moved into this area. Second, a very high percentage of the homes are small, with square footage of much less than 1000 sq. ft. Finally, the vast majority of the homes are of a vernacular style that defies categorization according to accepted practices. This vernacular building type, constructed from the 1930s through the 1950s, is a minimal box, generally very small, usually with a small porch centered on the facade with symmetrical windows to either side.<sup>63</sup> Generally owner-built and owner-designed, at least in those cases in which documentation exists, this vernacular form dominates the total survey population, with examples from the 1930s and 1940s (in the survey population) being largely indistinguishable from examples from the 1950s (not part of the survey population).

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<sup>60</sup> US Bureau of Reclamation, *Friant-Kern Canal*, May 1958, 2, 6-7, 61-62, 82-85.

<sup>61</sup> Kern County Water Agency, *1990-1991 Biennial Report*, 1991, 16-17.

<sup>62</sup> Interview with Steven Lafond, August 17, 1993; Boyle Engineering Corporation, "Report on Groundwater Recharge," 1988, Plate 1.

<sup>63</sup> In their *A Field Guide to American Houses*, Virginia and Lee McAlester refer to these as "folk" houses, differentiated according to plan and roof form, e.g. massed pyramidal, massed side gable, and so forth.

With respect to moved buildings, it appears that roughly one-third of all pre-1946 buildings found within the APE were moved to the APE from elsewhere. These can be broken into two classes: those known through solid documentation to have been moved, either through county records or oral information from the person who did the moving; and those which appear to have been moved but which lack documentation to prove the point. Of the 118 buildings or groups of buildings in the survey population, 28 have solid documentation of having been moved to the area. Another 11 almost certainly were moved to the area. The indicators of having been moved are quite obvious, having to do with the building type, its orientation in its parcel, and the presence of a very new concrete slab under an old building. For example, the APE includes six oilfield houses. As discussed below, the oilfield house is an unusual type built only in remote oilfields. It is known that these buildings were moved to various places in Kern County when the oilfield housing was closed. The existence of such a building within the APE is almost *prima facie* evidence that it was moved. Similarly, World War II military type buildings within the APE are almost certainly relocated buildings. Military and oilfield buildings were counted as known moved buildings, however, only when hard evidence existed. It is quite likely that all 39 known or probable moved buildings are, in fact, moved. The actual number of relocated buildings is greater than 39 because these moved buildings often appear in clusters. For example, Map Reference No. 64 includes eight buildings on a single parcel, all of which appear to have been moved; these eight are counted as a single Map Reference Number. The same is true of Map Reference No. 20 with four moved buildings, Map Reference No. 4, with two moved buildings, and Map Reference No. 26, with two World War II buildings on it. If the buildings were counted separately, the proportion of moved buildings to total buildings would be even higher.

Moved buildings are not restricted to residential properties. Map Reference No. 37, for example, was built as a store front but was later adapted for use as a Grange Hall. It was later moved to a vacant parcel on Allen Road to serve as a church. Map Reference No. 79, a residence at 3505 Gulf Street, was built during the 1930s as a service station and moved to this site in the 1950s, probably because it was displaced by the Highway 99 freeway.

The presence of very small buildings within the survey population probably reflects, more than any other fact, the socioeconomic conditions of their builders. Until recently the area west of Bakersfield was a relatively poor part of the county, with small farmers and commuters residing on 10-20 acre parcels that were laid out during the early colonization period of the county's history. Very few of these, however, are colony houses; JRP found only two houses within the APE which dated to the 19th and early 20th century colonization efforts. Rather, the vast majority of these were second- or third-generation houses, often built by the owners, to replace the older colony houses, which were themselves quite small. The presence of moved buildings reflects the same condition as it was commonly less expensive to move than to build a home, especially in this largely rural area, where buildings could be moved easily without encountering power lines and other impediments. The third common characteristic -- the plain vernacular form found there -- reflects the same conditions.

The APE does include several unusual building types that deserve notice. The oilfield house is a building type built by corporate oil drillers for family housing in remote locations.<sup>64</sup> The bulk of these were constructed in the late 1910s and 1920s and survived on-site until the 1930s or 1950s, depending upon the field. In this report, the term, "oilfield house," refers to a particular building form not generally found outside the oilfields. It does not imply that this was the only form built in the oilfields. Indeed, it is known that the oilfield companies built a variety of buildings for their employees.

As used here, the term describes a rectangular building with a four-sided veranda. Historic photographs indicate that it typically included a pyramidal hipped roof with two slopes, a steep slope for the roof and a shallower slope at the veranda. Buildings of this character were built in at least two Kern County fields, the Kern River fields near Oildale and the big Camp 11-C near Taft<sup>65</sup>. Buildings of this sort were also built at the Lost Hills field, northwest of Bakersfield. When the oilfield housing camps were dismantled, a large proportion of these buildings were moved to private parcels as homes. Six such buildings exist within the APE: Map Reference Nos. 16, 39, 41, 68, 78, and 98. Of these, all but Map Reference Nos. 39 and 98 have been substantially modified, always through infilling of the veranda.

To establish a context for this building type, JRP made a reconnaissance of areas to which similar buildings are known to have been moved, specifically Taft and Oildale. On the basis of this field work, it can be concluded that examples of relocated oilfield houses still exist in large numbers, there being more than a dozen easily identified in Taft, several dozen in Oildale, as well as scattered examples in smaller communities such as Valley Acres and Dustin Acres. In situ examples may be found in the community of Fellows, still a company town with at least eight such buildings on their original sites.

Another unusual building found within the APE -- the shotgun house -- is probably an oilfield building as well. The shotgun house is a well-known vernacular form, being one-room wide with passages from room to room, front to rear. Common in the American South, the building is unusual in the West. A good example, Map Reference No. 45, exists within the APE. Another building, one of several moved to Map Reference No. 4, also appears to be a shotgun house similar to those found in oil company towns. The company town of Fellows includes several shotgun houses in situ. South Taft, a known recipient of dozens of surplus oilfield houses, includes several dozen shotgun houses, intermixed with the four-sided veranda oilfield building. Thus, it is surmised that the small shotgun houses within the APE may have been imported from an oilfield.

Another uncommon building type within the APE is the World War II barrack or family housing unit. Several small military installations were built in Kern County during World War II but dismantled shortly after the war, including Minter Field at Shafter and Gardner Field near Taft.

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<sup>64</sup> Dean Van Zant, Petroleum Production Pioneers, by telephone, August 4, 1993; Rintoul, *Spudding In*, 1976; William Rintoul, *Oildorado: Boom Times on the West Side* (Fresno: Valley Publishers, 1978).

<sup>65</sup> Interview with Dean Van Zant; Rintoul, *Oildorado*, 1978; Rintoul, *Spudding In*, 1976.

Surplus buildings were auctioned off and at least seven made their way into the APE. These buildings are commonly called barracks by the owners and the county assessor, although it is more likely that these small buildings were either family housing or administrative buildings. The seven buildings are included within Map Reference Nos. 21, 22, 26, 27, and 65. The Fleishauer family, Mennonites that settled along Nord Avenue, were responsible for importing more than half of this group. Most buildings came from either the Minter or Gardner installations.<sup>66</sup>

Another building type of note, found within the APE for this project, is an adobe residence, built during the 1930s or 1940s. Adobe construction realized a brief resurgence in Kern County and other areas of California during the late 1930s and 1940s. This phenomenon, which has not been studied in detail in architectural history, appears to stem from two unrelated trends: the use of adobe as the ultimate expression of the Mission Revival/Spanish Colonial Revival trend of California architecture; and the use of adobe as an inexpensive and thermally efficient building material for low-cost homes in the hot climate areas of the state. The fine arts architectural use of adobe may be seen in large and expensive buildings built during this period. The La Quinta resort in Riverside County, for example, represents the use of this material in a very expensive and architecturally sophisticated building. In Kern County, the "Fort" in Taft is a National Register-listed county administrative center from the late 1930s, built as a scaled-down replica of Sacramento's Sutter's Fort, a playful and ingenious use of this material. In Bakersfield itself, it is likely that dozens of adobe residences still stand that were built during the 1930s and early 1940s, some of them ranking among the most beautiful homes in the city. In his survey of homes in the old West End neighborhoods, John Edward Powell documented a number of important adobe homes from the 1930s, designed by prominent local architects such as Clarence Cullimore.<sup>67</sup> Aside from its obvious adaptability to Mission Revival styling, adobe was (and is) an excellent building material for the hot southern San Joaquin Valley, just as it was for the Coachella Valley of Riverside County, where dozens of adobe homes were built during the 1930s and 1940s.<sup>68</sup>

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<sup>66</sup> Steve Fleishauer, interviewed at his home, June 24, 1993. County records confirm that these buildings were moved. The principal sources for moved World War II-era military buildings were dismantled bases in Shafter and Taft.

<sup>67</sup> There are no general historical architectural studies of the phenomenon of adobe construction in the San Joaquin Valley during the 1930s and 1940s. The most detailed inventory of such buildings is provided in John Edward Powell, "Preliminary Historic Architectural Survey Report, Northern Division West End District Profile, Kern 178 Architectural History Survey, Bakersfield, California," California Department of Transportation, April 26, 1993.

<sup>68</sup> While little secondary literature addresses this architectural fashion, primary literature from the period makes clear that adobe construction was favored principally for its thermal qualities and its adaptability to the Mission or Spanish Colonial styles. An instructive example, focusing on the work of Clarence Cullimore is found in a ca. 1947 issue of *California Homes*; this remnant issue may be found at the University of California, Davis, Main Library but is missing its title page and date. Other perceived advantages were resistance to termites, sound-proofing, and the fact that unskilled labor could complete the masonry.

The second trend toward use of adobe in small, inexpensive homes is not totally unrelated to the first in that the simultaneous construction of so many adobe buildings likely helped develop a work force and body of knowledge needed for construction of smaller buildings as well. Whatever their motivation may have been, dozens of people in Bakersfield elected to build small homes and commercial buildings of adobe during this period. The use of adobe in these buildings during the 1930s and 1940s can be attributed in part to the fact that adobe masonry units could be built cheaply and, during the war years, did not involve building materials that were in short supply. While no dependable count has been made, it is likely that dozens of small adobe buildings may still be found in and around Bakersfield.

Six adobe buildings are located within the APE for this project, including five residences and a commercial building, all of which were built in the late 1930s and early 1940s and all of which have been modified extensively. All fall into the latter category of small, relatively inexpensive buildings, most of which were likely built in part by the original owner of the house. The adobe buildings are Map Reference Nos. 93, 96, 101, 106, 106, and 109, all in urbanized Bakersfield, all but one in the south part of town near the juncture of freeways 99 and 58. These adobe buildings are modest in scale and design, and most are heavily modified. None appear to be significant within the context of adobe homes and commercial buildings in Bakersfield from the 1930s and 1940s, of which dozens of very distinguished examples may be found outside the APE.

Building styles and types commonly found elsewhere in California exist in small numbers within the APE. The Spanish Colonial or Mission Revival building, for example, is quite common in most communities but is scarcely represented within this APE. Only a few Spanish Colonial or Mission Revival buildings exist within the APE. All of the adobe buildings are in the Mission Revival style. Other than the adobes, only four buildings were designed in the Spanish Colonial or Mission Revival style, including a motel (Map Reference No. 92) and an apartment building (Map Reference No. 110). The Craftsman bungalow, a building type found in great profusion in most California cities and in other parts of Bakersfield<sup>69</sup>, is represented within the APE by only seven examples, nearly all of which were moved into the APE from elsewhere. Craftsman homes within the APE include: Map Reference No. 1, a heavily modified building; Map Reference No. 11, moved to the APE from the Shafter area; Map Reference No. 23, moved to Nord Avenue from downtown Bakersfield; Map Reference No. 31, moved to Wegis Avenue from East Bakersfield; Map Reference No. 33, a Heath Avenue house which appears to have been built on site; Map Reference No. 36, a Rosedale Highway farm house; and Map Reference Nos. 75 and 80, both of which appear to have been moved into the industrial area in the vicinity of the Fruitvale refineries.

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<sup>69</sup> Historic inventories in Bakersfield and other Central Valley towns identified hundreds of Craftsman bungalows. These buildings are especially prevalent in previous Caltrans surveys, including two historical architectural survey reports for Highway 178 in Bakersfield, conducted by Chris Brewer and John Edward Powell. See: Chris Brewer, "Historical Architectural Evaluation Report for State Route 178 Study, 6-Ker-178," January 15, 1989 and Powell, 1993. Similar patterns were observed in many recent historic architectural surveys conducted for Caltrans in rural and urban Fresno County.



The two National Register-eligible buildings or structures are among the most unusual properties identified within the APE. Both are related to the Rosedale Colony subdivision which was the pioneering settlement in this part of Kern County. The Scott property, Map Reference No. 69, is an early 1890s farmstead -- house and associated agricultural outbuildings -- that almost certainly was built as part of the Rosedale Colony. The building itself is a simple vernacular form. It is significant, not for its fine arts architectural values, but as a handsome and unmodified example of the sturdier homes built in the Rosedale area during its pioneering period. The second property is not a building but a landscape feature, the aforementioned "Cross of Palms" on Rudd Road near the Seventh Standard Road. This landscape architectural feature also dates to the Rosedale Colony period of settlement. In its formality and grand scale, it illustrates the great expectations for Rosedale that prevailed during the early 1890s, before the colony failed and the settlement dispersed.

#### **4. FIELD METHODS**

JRP inventoried and evaluated buildings and structures within a defined APE for five alternatives for this Route Adoption Study. The APE for this project was defined in cooperation with Parsons De Leuw and Caltrans and generally includes the proposed right of way for each alternative as well as any adjacent parcels which include buildings. The west side of the project area near Interstate 5 includes very few buildings of any sort. In this area, the APE was the right of way and 100' to either side of it. The APE is depicted in Figure 3, the Area of Potential Effects.

The APE for this project includes a vast area, more than 100 miles of western Kern County. Because the APE is so large, JRP adopted a careful field methodology to ensure that the historic building inventory could proceed in an efficient and timely manner. The inventory/evaluation effort followed a three-phase approach. In the first phase, the entire APE was surveyed to identify all buildings and structures and to separate these into "MOU Properties" (those meeting the criteria for the aforementioned Memorandum of Understanding among Caltrans, the SHPO and the FHWA) and the remaining properties, hereinafter called the Survey Population. In the second phase, Survey Population properties were inventoried and recorded in detail. In the third phase, Survey Population properties were evaluated against the eligibility criteria for the National Register of Historic Places.

In identifying the Survey Population, JRP adopted a conservative approach, tagging for future research any parcel which appeared to include at least one pre-1945 building. Archival research -- Assessor files, City Directories, phone books, and so forth -- as well as oral historical research revealed that many buildings originally included within the Survey Population were actually built after 1945. These buildings were subsequently removed from the Survey Population and included within the MOU list.

Nearly all buildings that were moved from the Survey Population to the MOU list are less than, but nearly 50 years old. A separate list was maintained of those buildings that were transferred from one list to the other for the convenience of project planners at Caltrans and in Kern County. These buildings are either too young or too heavily modified to warrant evaluation under the

terms of the Caltrans MOU but may become eligible for evaluation in future years. The list below identifies those properties with a notation as to why they were moved from one list to the other. It will be observed that there are 37 buildings on this list. Of these, 27 were removed because factual evidence indicated they were built after 1945. Another seven were removed because they have been very heavily modified, an observation made during the more intensive field phase. Another three were removed because the buildings had been demolished between the first and second phases of field work. Of these three types of buildings, only the first 27 should be of interest to planners. The three demolished buildings, obviously, will never be National Register eligible and the seven heavily modified buildings are unlikely to be any less modified in the future. The 27 buildings that are nearly 50 years old, however, will become eligible for evaluation in the near future.

**Buildings Originally in Survey Population but Moved to MOU List:**

<u>Address</u>	<u>Date</u>	<u>Reason for Removal</u>
21018 Greeley Road	1948	Post-1945
[No address] Wegis Avenue	1945	Loss of integrity
2800 Renfro Road	1948	Post-1945
4253 Renfro Road	1953	Post-1945
4143 Renfro Road	1957	Post-1945
533A Meacham Avenue	1945	Loss of integrity
33524 Allen Lane	1934	Loss of integrity
12850 Allen Lane	1951	Post-1945
3013 Calloway Drive	1934	Loss of integrity [cont.]
2907 Calloway Drive	1945	Loss of integrity
9420 Rosedale Highway	1950	Post-1945
9500 Rosedale Highway	1946	Post-1945
2904 Patton Way	1947	Post-1945
2631 Henry Lane	1948	Post-1945
Henry Lane (APN 452-060-16)	1948	Post-1945
2901 Wear Street	----	Demolished during survey
6721 Claude Avenue	1950	Post-1945
2730 Fairhaven Drive	1947	Post-1945
2740 Gibson Street	1950	Post-1945
3120 Standard Road	1942	Loss of integrity
4300 State Road	1970	Post-1945
3411 State Road	----	Demolished during survey
3312 State Road	1947	Post-1945
3329 Pierce Road	1952	Post-1945
3315 Pierce Road	1953	Post-1945
6830 Downing Road	1919	Loss of integrity
30399 7th Standard Road	1950	Post-1945
APN 643-010-15 (7th Standard Road)	1950	Post-1945
Route 11, Box 566, Calloway	1953	Post-1945

### **Buildings Originally in Survey Population but Moved to MOU List: [cont.]**

8700 Golden State	1952	Post-1945
8616 Golden State	1955	Post-1945
115 South Myrtle	1949	Post-1945
117 South Myrtle	1946	Post-1945
119 South Myrtle	1949	Post-1945
2728 Terry Street	1952	Post-1945
2704 Terry Street	1951	Post-1945
2700 Terry Street	1953	Post-1945
2019 Brundage Lane	1936	Demolished during survey

Field recordation was conducted by Stephen Mikesell and the research assistants. Each Survey Population building was inspected on-site, photographed, and a Caltrans "Historic Structures Field Notes" form completed for each. Wherever possible, property owners were interviewed regarding the history of the building, including information about any modifications to it. These interviews comprise a major component of the background research, in addition to forming a part of the field recordation.

Following field recordation and archival research, buildings were recorded in standard Caltrans Architectural Inventory/Evaluation forms. At this time, buildings were grouped according to those which did or did not have some potential for meeting the eligibility criteria for listing in the National Register of Historic Places. Additional research was conducted for properties which have some potential for National Register listing. Following this second research effort, the AI/E forms were completed for all Survey Population buildings.

The field and archival methods were necessarily quite different in recording historic canals, railroads, and petroleum-related resources. These methods are discussed in the separate HRERs, included as Attachments 5, 6, and 7. Laurence H. Shoup of Archaeological/Historical Consultants conducted field and archival work for petroleum-related resources.

## **5. FINDINGS AND CONCLUSIONS**

JRP Historical Consulting Services conducted a thorough field inventory of all buildings and structures within the APE for the Highway 58 Route Adoption Study. This field work identified: 1938 buildings or groups of buildings; 10 irrigation canals; four railroad lines; 18 petroleum industry-related properties; and 53 bridges. In applying the National Register criteria to these properties, it is concluded that three properties appear to meet the National Register eligibility criteria and the others do not. The 2023 inventoried properties (1938 buildings or groups of buildings, 10 canals, four railroads, 18 oil industry properties, and 53 bridges) may be categorized as follows, according to National Register status:

**Properties within the APE which are listed in the National Register of Historic Places:**

None.

**Properties within the APE which have been previously determined eligible for listing in the National Register of Historic Places:**

None.

**Historic buildings and structures within the APE which appear to be eligible for listing in the National Register of Historic Places:**

<u>Address</u>	<u>Map No.</u>	<u>Name</u>
Rudd Road	15	Cross of Palms
3301 Fruitvale Avenue	69	Scott Residence
See APE Map	FK-1 through FK-4	Friant-Kern Canal

**Pre-1946 properties which do not appear to be eligible for listing in the National Register of Historic Places:**

<u>Address</u>	<u>Map Reference No.</u>	<u>Date of Construction</u>	<u>Eligibility</u>
8751 Bussell Road	1	1926	Not Eligible
8231 Bussell Road	2	1940	Not Eligible
30375 7th Standard Road	3	1911	Not Eligible
8205 Koch Road	4	1930-1950	Not Eligible
22809 Baker Road	5	1930	Not Eligible
22759 Baker Road	6	1939	Not Eligible
22747 Baker Road	7	1925	Not Eligible
22741 Baker Road	8	1925	Not Eligible
22717 Baker Road	9	1933	Not Eligible
30378 Baker Road	10	1935	Not Eligible
22601 Baker Road	11	1918	Not Eligible
19698 Enos Lane	12	1941	Not Eligible
31379 7th Standard Road	13	1920	Not Eligible
7th Standard Road	14	1940	Not Eligible
3418 Enos Lane	16	1925	Not Eligible
1297 Enos Lane	17	1929	Not Eligible
2862 Greeley Road	18	1930	Not Eligible
1734 Greeley Road	19	1940	Not Eligible
20759 Palm Avenue	20	1920-1950s	Not Eligible
3119 Nord Avenue	21	1942	Not Eligible
3139 Nord Avenue	22	1942	Not Eligible

<u>Address</u>	<u>Map Reference No.</u>	<u>Date of Construction</u>	<u>Eligibility</u>
3155 Nord Avenue	23	1912	Not Eligible
3351 Nord Avenue	24	1910	Not Eligible
2654 Nord Avenue	25	1937	Not Eligible
1701 & 1707 Nord Avenue	26	1942	Not Eligible
1650 Nord Avenue	27	1942	Not Eligible
2213 Nord Avenue	28	1936	Not Eligible
17324 Rosedale Highway	29	1930	Not Eligible
1708 Wegis Avenue	30	1920	Not Eligible
3637 Wegis Avenue	31	1920	Not Eligible
2623 Heath Avenue	32	1936	Not Eligible
3433 Heath Avenue	33	1925	Not Eligible
3143 Heath Avenue	34	1940	Not Eligible
2912 Renfro Road	35	1935	Not Eligible
13554 Rosedale Highway	36	1916	Not Eligible
3130 Allen Road	37	1930	Not Eligible
4642 Allen Road	38	1930	Not Eligible
12725 Allen Lane	39	1921	Not Eligible
12653 Allen Lane	40	1922	Not Eligible
12728 Allen Lane	41	1921	Not Eligible
13149 Hageman Road	42	1922	Not Eligible
13758 Hageman Road	43	1935	Not Eligible
3409 Calloway Drive	44	1890	Not Eligible
3017 Calloway Drive	45	1920	Not Eligible
2913 Calloway Drive	46	1940	Not Eligible
2700 Calloway Drive	47	1920	Not Eligible
2824 Calloway Drive	48	1947	Not Eligible
10217 Meacham Road	49	1937	Not Eligible
2828 Calloway Drive	50	1930	Not Eligible
7900 Downing Avenue	51	1920	Not Eligible
7630 Downing Avenue	52	1915	Not Eligible
6621 Downing Avenue	53	1942	Not Eligible
6710 Downing Avenue	54	1942	Not Eligible
6608 Downing Avenue	55	1945	Not Eligible
6600 Downing Avenue	56	1936	Not Eligible
2601 Henry Lane	57	1920	Not Eligible
2733 Henry Lane	58	1915	Not Eligible
2930 Patton Way	59	1937	Not Eligible
2910 Patton Way	60	1920	Not Eligible
3501 Patton Way	61	1920	Not Eligible
3240 Patton Way	62	1915	Not Eligible
3101 Wear Street	63	1920	Not Eligible
6720-6800 Claude Avenue & 6801-6809 Fishback Avenue	64	1930s-1940s	Not Eligible

<u>Address</u>	<u>Map Reference No.</u>	<u>Date of Construction</u>	<u>Eligibility</u>
2811 Fruitvale Avenue	65	1942	Not Eligible
2818 Fruitvale Avenue	66	1937	Not Eligible
3520 Fruitvale Avenue	67	1935	Not Eligible
3600 Fruitvale Avenue	68	1910	Not Eligible
2901 Fruitvale Avenue	70	1920	Not Eligible
3900 Fruitvale Avenue	71	1935	Not Eligible
5400 Rosedale Highway	72	1936	Not Eligible
2700 Fairhaven Drive	73	1935	Not Eligible
2720 Fairhaven Drive	74	1938	Not Eligible
2800 Fairhaven Drive	75	1921	Not Eligible
2877 Fairhaven Drive	76	1935	Not Eligible
2801 Gibson Street	77	1920	Not Eligible
3429 Shell Street	78	1920	Not Eligible
3505 Gulf Street	79	1924	Not Eligible
3431 Gulf Street	80	1915	Not Eligible
3506 Getty Street	81	1941	Not Eligible
3510 Getty Street	82	1936	Not Eligible
3512 Getty Street	83	1930	Not Eligible
3501 Getty Street	84	1939	Not Eligible
3509 Getty Street	85	1935-1940	Not Eligible
3729 Ethyl Street	86	1945	Not Eligible
3820 Ethyl Street	87	1935	Not Eligible
3515 Brian Way	88	1945	Not Eligible
3510 Brian Way	89	1940	Not Eligible
3508 Brian Way	90	1946	Not Eligible
4001 State Road	91	1936-1980	Not Eligible
3321 State Road	92	1930	Not Eligible
3214 State Road	93	1935	Not Eligible
3216 State Road	94	1930	Not Eligible
3831 Pierce Road	95	1935	Not Eligible
3809 Stockdale Highway	96	1937	Not Eligible
96 Williamson Way	97	1915	Not Eligible
218 Williamson Way	98	1918	Not Eligible
3624 Elicia Drive	99	1924	Not Eligible
30 North Garnsey Avenue	100	1945	Not Eligible
200 South Real Road	101	1934	Not Eligible
3227 Belle Terrace	102	1918	Not Eligible
812 Wible Road	103	1935	Not Eligible
1120 Wible Road	104	1940	Not Eligible
2905 Brundage Lane	105	1930	Not Eligible
2821 Brundage Lane	106	1924	Not Eligible
28 Stephens Drive	107	1945	Not Eligible
321 Stephens Drive	108	1930	Not Eligible

<u>Address</u>	<u>Map Reference No.</u>	<u>Date of Construction</u>	<u>Eligibility</u>
314 Stephens Drive	109	1941	Not Eligible
3212-3230 Chester Lane	110	1936-1949	Not Eligible
116 Dixon Avenue	111	1941	Not Eligible
118 Dixon Avenue	112	1941	Not Eligible
120 Dixon Avenue	113	1941	Not Eligible
221 Hughes Lane	114	1912	Not Eligible
223 Hughes Lane	115	1926	Not Eligible
304 Dixon Avenue	116	1941	Not Eligible
311 Dixon Avenue	117	1945	Not Eligible
300 Dixon Avenue	118	1940	Not Eligible
Carrier / Gates Canal	C/GC-1		
	through C/GC-3	1872-73	Not Eligible
Pioneer Canal	PC-1 through PC-4	1873	Not Eligible
Beardsley Canal	BC-1 through BC-3	1873	Not Eligible
Stine Canal	SC-1 through SC-3	1873	Not Eligible
Calloway Canal	CC-1 through CC-5	1875	Not Eligible
Emery Ditch	ED-1	1877	Not Eligible
Goose Lake Slough/ Rio Bravo Canal	RBC-1 through RBC-3	1870s	Not Eligible
Cross Valley Canal	CVC-1 through CVC-5	1974-75	Not Eligible
Arvin-Edison Canal	AE-1	1960s	Not Eligible
Atchison Topeka/Santa Fe RR	SF-1 through SF-9	1898	Not Eligible
Southern Pacific Railroad	SP-1 through SP-4	1873	Not Eligible
KCL-B #35	O-1	1938	Not Eligible
Krebs #1	O-2	1937	Not Eligible
Lane #1	O-3	1933	Not Eligible
Farrell #1	O-4	1929	Not Eligible
Red Ribbon Ranch #23	O-5	1944	Not Eligible
Van Ness #2	O-6	1939	Not Eligible
Van Ness #3	O-7	1939	Not Eligible
Van Ness #4	O-8	1938	Not Eligible
Lahore #1	O-9	1928	Not Eligible
Miami #1	O-10	1936	Not Eligible
Henry #1	O-11	1936	Not Eligible
Anderson #3	O-12	1936	Not Eligible
Anderson #4	O-13	1937	Not Eligible
Greeley Lease #2	O-14	1937	Not Eligible
Fee Lease #4	O-15	1938	Not Eligible
KCL-B #37	O-16	1938	Not Eligible
Houghton #36	O-17	1944	Not Eligible
San Joaquin Refinery	O-18	1937	Not Eligible

**Post-1945 or modified pre-1946 (MOU) properties which do not appear to be eligible for listing in the National Register of Historic Places:**

The APE for this project includes 1821 buildings or groups of buildings which were built after 1945 or, in rare instances, which were built before 1945 but modified heavily. The properties are identified by street address in Attachment I of this Historic Architectural Survey Report. That list is 34 pages long and is not reproduced here. The reader is referred to the attachment for a complete list of these properties.

**Properties previously determined ineligible for listing in the National Register of Historic Places:**

Buildings

3227 Belle Terrace	Map Reference No. 102
3508 Brian Way	Map Reference No. 90
3510 Brian Way	Map Reference No. 89
3515 Brian Way	Map Reference No. 88
3212-28 Chester Lane	Map Reference No. 110
3279 Chester Lane	MOU List
3820 Ethyl Street	Map Reference No. 87
3431 Ethyl Street	MOU list
3831 Pierce Road	Map Reference No. 95
3214 State Street	Map Reference No. 93
3321 State Road	Map Reference No. 92
812 Wible Road	Map Reference No. 103

Bridges

LOCAL BRIDGES WITHIN APE

<u>Bridge Number</u>	<u>Feature(s) Intersected</u>	<u>Facility Carried</u>	<u>NRHP Status</u>
50C-13	State Street UP	SPTCO	Not Eligible
50C-42	Calloway Canal	Standard St	Not Eligible
50C-65	Oak St OH (AT&SF RR)	Oak St	Not Eligible
50C-66	Stine Canal	Oak St	Not Eligible
50C-67	Calloway Canal	Pierce Rd	Not Eligible
50C-176	Truxtun Ave UP	Truxtun Ave	Not Eligible
50C-177	Kern River Canal	Truxtun Ave	Not Eligible
50C-178	Arvin-Edison Canal	Truxtun Ave	Not Eligible
50C-255	Calloway Canal	Calloway Dr	Not Eligible
50C-259	Friant-Kern Canal	Calloway Rd	Not Eligible



<u>Bridge Number</u>	<u>Feature(s) Intersected</u>	<u>Facility Carried</u>	<u>NRHP Status</u>
50C-262	Beardsley Canal	Coffee Rd	Not Eligible
50C-294	Pioneer Canal	Stockdale Hwy	Not Eligible
50C-302	Kern River	Coffee Rd	Not Eligible
50C-303	Cross Valley Canal	Coffee Rd	Not Eligible
50C-307	Stine Canal	Truxtun Ave	Not Eligible
50C-308	Carrier Canal	Mohawk St	Not Eligible
50C-309	Carrier Canal	Truxtun Ave	Not Eligible
50C-310	Carrier Canal	Corporation Yard	Not Eligible

#### STATE BRIDGES WITHIN APE

<u>Bridge Number</u>	<u>Location CO-RTE-PM</u>	<u>Structure Name</u>	<u>NRHP Status</u>
50-49	Ker-099-02732	Minkler UP	Not Eligible
50-50L	Ker-099-R02839	Beardsley Canal	Not Eligible
50-50R	Ker-099-R02839	Beardsley Canal	Not Eligible
50-64L	Ker-178-00016	Kern River	Not Eligible
50-64R	Ker-178-00016	Kern River	Not Eligible
50-65	Ker-178-00047	Carrier Canal	Not Eligible
50-73	Ker-223-02384	Arvin Edison Canal	Not Eligible
50-202	Ker-204-00646	Pierce Rd UC	Not Eligible
50-203	Ker-204-00651	Pierce Rd UC	Not Eligible
50-208	Ker-204-00549	Stine Canal	Not Eligible
50-209	Ker-204-00590	Calloway Canal	Not Eligible
50-236L	Ker-099-02535	Kern River	Not Eligible
50-236R	Ker-099-02535	Kern River	Not Eligible
50-239L	Ker-099-02478	Bakrsfld Yd OH	Not Eligible
50-239R	Ker-099-02478	Bakrsfld Yd OH	Not Eligible
50-260L	Ker-099-02460	Calif Ave UC	Not Eligible
50-260R	Ker-099-02460	Calif Ave UC	Not Eligible
50-262L	Ker-099-02608	Gilmore Ave UC	Not Eligible
50-262R	Ker-099-02608	Gilmore Ave UC	Not Eligible
50-263	Ker-099-02310	Belle Terrace O	Not Eligible
50-263W	- -	Belle Terrace OC P	Not Eligible
50-264	Ker-099-02362	Brundage L OC	Not Eligible
50-265L	Ker-099-02670	Calloway Canal	Not Eligible
50-265R	Ker-099-02670	Calloway Canal	Not Eligible
50-265S	Ker-099-02670	Calloway Canal	Not Eligible
50-266	Ker-099-02678	Airport Dr OC	Not Eligible
50-267L	Ker-099-02563	Rosedale Hwy SE	Not Eligible
50-267R	Ker-099-02653	Rosedale Hwy SE	Not Eligible

<u>Bridge Number</u>	<u>Location CO-RTE-PM</u>	<u>Structure Name</u>	<u>NRHP Status</u>
50-268L	Ker-099-02499	Truxtun Ave UC	Not Eligible
50-268R	Ker-099-02499	Truxtun Ave UC	Not Eligible
50-277	Ker-099-RO3053	7th Std Rd OC	Not Eligible
50-305	Ker-005-04755	Stockdale R OC	Not Eligible
50-403	Ker-058-RO5289	Hughes Ln OC	Not Eligible
50-426F	Ker-058-RO5233	Rte 58/99 SEP	Not Eligible
50-426S	Ker-058-RO5233	Rte 58/99 SEP	Not Eligible
50-427G	Ker-099-02337	Wible Road UC	Not Eligible

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## BACKGROUND

This background and associated data request is intended to clarify information needs connected with Data Request A85. The Western Naval Oil Preserve No. 1, Elk Hills (NPR-1), now Occidental Elk Hills, Incorporated (OEHI), is the location for an Enhanced Oil Recovery (EOR) project. This project, pursuant to CEQA, is part of the proposed project under review.

NPR-1 was the subject of a historical resources evaluation and assessment report (Hamusek-McGann et al., 1997) at the time of the transfer of the property from the Department of Energy to Occidental Petroleum, parent company of OEHI. The report assessed both historic archeological resources and built environment resources. Several periods of significance were found in the report, including Early Exploration (1910-1918), Initial Development Rush (1918-1930), Depression Years (1930-1941) and the War Years (1941-1946). The report authors identified the Elk Hills Rural Historic Industrial Landscape as a historic property eligible for the National Register of Historic Places (NRHP) under Criterion A.

The State Historic Preservation Officer (SHPO) took issue with this conclusion, calling into question the landscape's integrity. The SHPO wrote: "For no period of significance does the property today exhibit enough integrity in all applicable categories to readily convey its historic appearance..." (Widell 1997:1). Apparently, the report lacked identification of the landscape's character-defining features, which would have bolstered the authors' contention that it is NRHP-eligible.

### Military Sites:

Staff visited the NPR-1/EOR site on September 19, 2012. Many of the early period (1910 to 1941) built environment features appear to be missing, damaged or altered.

However, there are two areas that appear to have integrity and warrant survey and evaluation. Hamusek-McGann et al. (1997) provides some documentation of Navy activity during the War Years and the activities of the Sea Bees (Construction Battalions or CBs) in particular.

According to Hamusek-McGann et al. (1997), the Sea Bees constructed roads, drill pads, wells and military trenches, bunkers and other defensive earthworks on the north and west flanks of the landscape. Of these activities, the trenches, bunkers and other earthworks appear to be intact.

These earthworks seem to be located primarily in the low oil-production areas of Elk Hills and this may contribute to their high degree of integrity. Hamusek-McGann et al. (1997) found that the relationship of the trenches to the topography offers an insight into the military's approach to defensive positions on the ground during this period.

The report states that physical evidence of defensive infrastructure during WWII are rapidly disappearing, increasing the value of NPR-1 military sites and may be eligible as historic properties under Criterion A (NRHP).

### Check Dams:

During staff's site visit, OEHI staff pointed out a series of check dams constructed on the property meant to control the flow of water off the site to the valley. These check dams appear to have a design that incorporates a metal pipe that siphons the water through an earthen dam, at a point below the water level of the dam, allowing water to pass through the pipe and leaving any oily residue to collect at the bottom of the basin.



This in effect reduces the potential for oil to flow beyond the property boundary during a rain event or a spill. These check dams are prevalent throughout the site and it is not known when these dams were constructed or by whom. Hamusek-McGann et al. (1997) report that WPA crews were on site during the Depression years constructing culverts, laying pipeline, repairing equipment and constructing roads.

The check dams are not discussed in the report and their origin is not known by staff. They are a landscape element specifically relating to this site's topography and function and require evaluation to determine their contribution to the overall landscape, their association with one of the historic periods noted above and if they qualify as historic resources under CEQA or the NRHP.

### **Data Requests**

Supplemental information for NPR-1 is required to complete the evaluation of the resources discussed above. This may be submitted as part of the data response to Data Request Number A85.

### **DATA REQUEST**

***A189. Provide documentation of the existing military sites (trenches, bunkers and defensive earthworks) found on the north and west flanks of the NPR-1 site. Documentation shall include survey and inventory, evaluation of significance and integrity for both the CRHR and NRHP. Prepare a context statement and record the findings on the appropriate DPR 523 forms.***

### **RESPONSE**

The Applicant is requesting additional time to address this Data Request.

## DATA REQUEST

**A190. Provide documentation of the existing check dams found throughout the drainage draws, gullies and washes on the NPR-1 site. Documentation shall include survey and inventory, evaluation of significance and integrity for both the CRHR and NRHP. Prepare a context statement and record the findings on the appropriate DPR 523 forms.**

## RESPONSE

The Applicant is requesting additional time to address this Data Request.

## BACKGROUND

The PAA as defined in the AFC (URS 2012: Map 2, Sheet 4), includes 0.5 mile on either side of the linear corridor north of Station Road and east of the project site. Several resources have been identified and evaluated within that portion of the PAA (Map Reference Numbers 12, 13 and 15).

On Station Road there is another resource, the Mesquite Hunting Club, which has not been addressed in the AFC and falls within the PAA.

Staff has identified the resource as historic in age. The Mesquite Hunting Club is clearly shown and labeled on a 1933 edition of the U.S. Geological Survey map, surveyed in 1927 and 1929 (U.S. Geological Survey 1933). This resource must be inventoried and evaluated as a potential historical resource in order to assess the proposed project's potential impacts.

## DATA REQUEST

***A191. Provide documentation of the Mesquite Hunting Club. Documentation shall include survey and inventory, evaluation of significance and integrity for both the CRHR and NRHP. Prepare a context statement and record the findings on the appropriate DPR 523 form(s). Note that the boundary of the Mesquite Hunting Club changed over time and include analysis of those changes in the evaluation.***

## RESPONSE

JRP staff conducted a field survey of the former hunting club site in 2009, and determined that no built environment features associated with the club are extant. All of the land once associated with the hunting club is currently plowed and leveled agricultural fields. JRP inventoried and evaluated the Tupman Water Plant (Map Reference No. 13), which is adjacent to the site of the former hunting club; however, the extant resources on this property are associated with the oil industry, and not that of the hunting club. Therefore, providing additional information and/or documentation of the Mesquite Hunting Club is not warranted.

## BACKGROUND

The proposed process water pipeline would extend through or adjacent to the following archaeological resources and therefore would potentially damage the archaeological resources listed below. The applicant is currently addressing a related data request (A147), which asks the applicant to determine the depth of fill material in which the proposed process water line would be installed (California Energy Commission 2012:13-14).

Staff has requested that the applicant focus on those portions of the proposed process water line that would intersect the archaeological resources listed below and to provide substantiation for its estimate of the depth of fill.

- KRM-IF-006 and P-15-89 (CA-KER-89/H)
- P-15-171 (CA-KER-171)
- P-15-7176 and P-15-6725 (CA-KER-5356/H)
- HECA-2008-1 (JM-BVWD-1)
- HECA-2009-9
- HECA-2009-10
- BS-BVWD-1
- P-15-2485 (CA-KER-2485) and BS-IF-003
- P-15-179 (CA-KER-179), KRM-IF-003, and KRM-IF-004

Similarly, the proposed natural gas pipeline is situated adjacent to archaeological site P-15-3108 (CA-KER-3108) and HECA-2009-2 is located in the Controlled Area and near the proposed CO<sub>2</sub> pipeline. HECA-2009-2 would be subject to ground disturbance associated with agricultural activities in the Controlled Area.

Unless the applicant demonstrates that the proposed project would not affect the aforementioned archaeological resources, such resources must be evaluated for significance under CEQA's criteria as well as those of the NRHP.

The applicant can demonstrate that one or more of the aforementioned archaeological resources would not be affected by the proposed project by showing that, for instance, a given archaeological resource is situated outside the PAA and that its surface and subsurface extent are firmly established or that ground disturbance would only take place within fill sediments overlying a given archaeological resource.

Staff is requesting the applicant conduct a significance evaluation of affected archaeological resources so that staff has the ability to assess impacts on resources considered significant under CEQA and eligible for the NRHP.

## DATA REQUEST

**A192. Please submit, for staff review and approval, a subsurface testing plan for any of the aforementioned archaeological resources that the proposed project would not avoid. The subsurface testing plan should be prepared by an archaeologist who meets the U.S. Secretary of the Interior's Professional Qualifications Standards, as published in 36 Code of Federal Regulations 61. Please provide a resume demonstrating the archaeologist's qualifications. Testing methods should be scaled to the size and quality of evidence for the resources' presence in the PAA. For archaeological resources with scant archaeological materials in**

***the PAA, methods consistent with determining presence/absence would be appropriate.***

**RESPONSE**

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

## DATA REQUEST

**A193. After staff approves the subsurface testing plan, please initiate the test excavations, as specified in the approved plan. A qualified archaeologist, as identified in Data Request A192 above, shall carry out the test excavations. (Note: Please ensure that a biological monitor is present during the test excavations). If deposits are found, please recover a sample of materials sufficient to support recommendations of significance for these sites. Evaluate the recovered data for its potential to address the research questions posed in the testing plan.**

## RESPONSE

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

## DATA REQUEST

**A194. Please provide a report, written by the qualified archaeologist conducting the excavations, on the testing and findings at these resources. The report should present an analysis of the recovered data, recommendations regarding the significance of the sites, and justifications for the recommendations, based on the recovered data. Please complete or update and file DPR 523 "Archaeological Site" detail forms for these sites, including dating and significance recommendations, and submit copies to staff.**

## RESPONSE

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

## BACKGROUND

Energy Commission staff has reviewed the applicant's October 2012, response to Data Requests (DR) A151 and A152 for the Hydrogen Energy California application for certification (AFC). DRs A151 and A152 asked that the applicant prepare and implement a primary geoarchaeological field study research plan for the project plant site and linear facility corridors.

While evaluating the previous HECA AFC (08-AFC-8), a request for a primary geoarchaeological field study was the subject of six data requests: DR 78 and 79 (October 12, 2009), DR 143 (January 13, 2010), Workshop DR 23 (April 12, 2010), and DR 172 and 173 (October 26, 2010). In the April 2010 workshop, the applicant agreed to the following:

- For the Project Site: "Once a development plan has been finalized for the Project Site, an exploration plan for the combined geotechnical/geoarchaeological investigations will be developed, focusing on those areas with the deepest project impacts."
- For Project linears: "Once engineering and design (including the proposed depths of the linear components under consideration) have been finalized, an exploration plan for the geoarchaeological investigation will be developed..."

Staff believes that the current project description and data responses provide an adequate amount of project definition to conduct a geoarchaeological study, though the proposed project has not reached final design. Staff believes that the applicant and staff would be able to devise reasonable means to obtain the data needed for staff's impact analysis by holding a meeting among staff, the applicant, and the applicant's archaeological consultants.

## DATA REQUEST

***A195. Staff requests that the applicant and its archaeological consultant, including the project geoarchaeologist, meet with staff to discuss the data needed to complete the staff impact analysis with respect to buried archaeological resources.***

## RESPONSE

The Applicant will work with California Energy Commission (CEC) staff to schedule a meeting to discuss information needs to complete CEC staff analysis related to buried archaeological resources.



## BACKGROUND

The Amended AFC indicates that the proposed 230-kilovolt (kV) electrical transmission line would connect to existing Pacific Gas and Electric Company (PG&E) transmission lines via a new (not yet built) electrical switching station. Staff understands that PG&E would build and operate the switching station. The Energy Commission considers the electrical switching station to be a related facility, as defined at Title 20, California Code of Regulations, Section 1702(n), to the proposed HECA project. The proposed electrical switching station must, therefore, be included in the HECA project area of analysis. The site of the proposed electrical switching station is included in the applicant's records search area, but has not been surveyed for the presence of cultural resources (Farmer 2008; Hale and Laurie 2009, 2010; Hale et al., 2012; JRP Historical Consulting 2009, 2012).

## DATA REQUEST

**A196. Conduct a pedestrian survey of the proposed electrical switching station, plus a 200-foot buffer surrounding the proposed facility's location (20 Cal. Code Regs., §§ 2001-2012, Appendix B[g][2][C]).**

## RESPONSE

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

## DATA REQUEST

**A197. Prepare and submit an addendum to Appendix G-3 (Hale et al., 2012) that describes:**

- a. The methods used to identify cultural resources in the proposed switching station site.**
- b. The results of the pedestrian survey.**
- c. Descriptions of newly recorded cultural resources in the proposed switching station location.**
- d. An assessment of impacts to cultural resources in the proposed switching station.**
- e. Proposed mitigation measures for identified impacts.**

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## **RESPONSE**

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

**Technical Area:** Noise

**Authors:** Edward Brady, Shahab Khoshmashrab

## **BACKGROUND**

Amended AFC Tables 5.10-4 and 5.10-5 provide the number of delivery trips to the project site for feedstock, operations and maintenance, and process materials and byproducts. In order for staff to adequately evaluate the noise impacts of the deliveries utilizing truck and/or railway, additional information and analysis need to be provided on the impacts of increased traffic along existing surface routes and the preferred routing of the railroad track serving the HECA project.

## **DATA REQUEST**

**A198. Please identify the proposed routing for the truck delivery. Identify the noise-sensitive receptors along the path of travel. Analyze the noise impact of the truck traffic at these receptors during both, day and night. In this analysis, please include a comparison of the existing ambient noise levels to the noise levels resulting from the deliveries, at representative locations. Please provide the resultant noise levels in terms of  $L_{eq}$ ,  $L_{10}$ ,  $L_{50}$ ,  $L_{min}$ ,  $L_{max}$ , and  $L_{90}$ .**

## **RESPONSE**

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

## DATA REQUEST

**A199. Please identify the proposed routing for the rail delivery. Identify the noise-sensitive receptors along the path of travel. Analyze the noise impact of the rail traffic at these receptors during both day and night. In this analysis, please include a comparison of the existing ambient noise levels to the noise levels resulting from the deliveries, at representative locations. Please provide the resultant noise levels in terms of  $L_{eq}$ ,  $L_{10}$ ,  $L_{50}$ ,  $L_{min}$ ,  $L_{max}$ , and  $L_{90}$ .**

## RESPONSE

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

**Technical Area:** Alternatives

**Authors:** Negar Vahidi, Scott Debauche

**BACKGROUND**

Subsection 6.3 of the Amended Application for Certification (AFC) discusses alternative site and linear facilities locations that were part of the screening analysis for the proposed project. The four Alternative sites considered within the Amended AFC include the following (as shown in AFC Figure 6-1):

- Alternative Site 1 - located approximately 1-mile west of the proposed site;
- Alternative Site 2 - located approximately 0.4-mile west of the proposed site;
- Alternative Site 3 - located approximately 4-miles north/northwest of the proposed site; and
- Alternative Site 4 - located approximately 13-miles southeast of the proposed site.

The evaluation screening criteria utilized within the Amended AFC for evaluating each site included:

- Environmental impacts;
- Safety (proximity to residents, schools, day-care centers, etc.);
- Proximity to sensitive receptors (population and sensitive species);
- Environmental justice considerations;
- Economic feasibility;
- Site acreage (300+ acres), topography, lowest elevation (to maximize power generation);
- Proximity to the CO<sub>2</sub> customer for CO<sub>2</sub> enhanced oil recovery (EOR) and sequestration;
- Minimization of impacts on transportation corridors;
- Feasibility of land acquisition;
- Proximity to infrastructure to minimize impacts from site access and linear facilities; and
- Proximity to raw water supply.

Within the Amended AFC, the elimination of Alternative Sites 1 through 4 is limited to the following reasoning and analysis: "(1) topography, (2) distance from the proposed CO<sub>2</sub> custody transfer point, (3) lengths of linear facilities, (4) sensitive environmental receptors, and/or (5) land availability."

Additional information is needed for Energy Commission staff to adequately consider and analyze these four alternative sites. The purpose of staff's alternatives analysis is to evaluate a reasonable range of feasible alternatives that could substantially reduce or avoid any potentially significant adverse impacts of the proposed project while obtaining basic project objectives, yet to be defined by the Energy Commission, pursuant to the California Environmental Quality Act (CEQA) (Cal. Code Regs., tit. 14, §15126.6; Cal. Code Regs., tit. 20, §1765).

When determining feasible alternatives, staff includes alternative locations or sites, to determine whether such alternatives would avoid project impacts identified as significantly adverse. Given the complex nature of the siting constraints associated with this project, staff

believes that further detailed evaluation of sites already reviewed by the applicant as potentially feasible is warranted.

## **DATA REQUEST**

**A200. For Alternative Sites 1 through 4, please provide the following:**

- 1. Topography**
  - a. Information on slope and potential available acreage for each site. Include a map showing the project footprint. Describe the topography and elevations within each site and the required linears. Compare these features to those of the proposed project site, explaining the differences.**
  - b. Details explaining how topography influenced the site selection criteria. Provide feasibility and benefit analysis of how the topography of these alternative sites differed from that of the proposed project site.**
- 2. Distance from the proposed CO<sub>2</sub> custody transfer point.**
  - a. Details and a map explaining where the CO<sub>2</sub> custody transfer point is located.**
  - b. Details and a map displaying the CO<sub>2</sub> pipeline routes evaluated for each site alternative. Provide a matrix displaying the lengths of each pipeline in comparison to the length of the proposed project CO<sub>2</sub> pipeline.**
  - c. Provide a matrix on the number and type of landowners traversed by the CO<sub>2</sub> pipeline for each site alternative in comparison to those of the proposed project CO<sub>2</sub> pipeline.**
  - d. Information on any engineering infeasibility of the CO<sub>2</sub> pipeline route for each site alternative.**
- 3. Lengths of linear facilities**
  - a. Details and a map displaying all proposed alternative linear infrastructure routes (including, but not limited to: water, wastewater, natural gas, rail spur(s) and electrical gen-tie) evaluated for each site alternative. Provide a matrix displaying the lengths of each site alternative infrastructure linears in comparison to those of the proposed project.**
  - b. Provide a matrix on the number and type of infrastructure linears that traverse across property owners land for each site alternative in comparison to those of the proposed project.**
- 4. Sensitive environmental receptors**
  - a. Details and a map displaying the geographic extent utilized to define sensitive environmental receptors (including, but not limited to:**



**residences, schools, hospitals, recreational areas, sensitive species) for each site alternative.**

- b. Provide a matrix on the number and type of sensitive receptors considered for each site alternative in comparison to those of the proposed project.**

**5. Land availability**

- a. Discuss land ownership for each site alternative and linear right-of-ways and identify the acreage by owner type. Provide information on public versus private lands controlling each site and linear ROWs. Describe all federal, State, and local applicable land use plans for these lands**
- b. Description of existing land uses of each site and in the surrounding area. Include acreage figures for areas in agricultural use.**
- c. Description of how the economic viability of acquiring each site alternative compares to that of the proposed project site.**

**RESPONSE**

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

## BACKGROUND

On July 26, 2012, the United States Environmental Protection Agency (EPA) provided seeping comments on the amended Notice of Intent (NOI) modifying the scope of the Environmental Impact Statement (EIS) for the proposed project. EPA has regulatory authority regarding the CO<sub>2</sub> sequestration component, as well as any other fluid injection activities, of the proposed project. Within the EPA seeping comments, alternatives issues were identified requiring analysis in the EIS.

As noted in the EPA seeping comment letter, the Department of Energy (DOE) utilizes a financing selection process separate from NEPA that includes an "environmental critique" for the proposals deemed suitable for selection of funding. DOE selected the proposed project for a funding award, and only considers alternatives considered within the Amended AFC.

Based on EPA seeping comments, additional information is needed to evaluate the following alternatives within the Amended AFC. The alternatives mentioned by EPA seek to evaluate a reduction in project size and/or different technologies for particular component processes of the project. Consistent with CEQA Section 15126.6, the Preliminary Staff Assessment will evaluate a range of potential alternatives to the proposed project. Energy Commission staff is requesting the information below to determine alternatives that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. These types of alternatives potentially could result in an incremental reduction in emissions vehicle trips, site footprint, and water consumption. Therefore, Energy Commission staff is requesting the information below to ensure that EPA comments are addressed and these alternatives adequately analyzed per CEQA in the Staff Assessment.

## DATA REQUEST

***A201. Provide a description of what proposed project activities would occur should DOE funding not be obtained. Describe the differences between the proposed project as funded by DOE and that without receiving funding. Discuss any activities that would occur, and the feasibility of those actions, should DOE funding not be obtained.***

## RESPONSE

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

## DATA REQUEST

**A202. Provide a project description, feasibility analysis, and environmental analysis discussing a reduced size project alternative (minimum of 25 percent reduction in project footprint). Provide figures and a matrix showing the configuration of this reduced project alternative and any change in megawatt (MW) output, CO<sub>2</sub> sequestration, fertilizer production and vehicle trips, coal and petcoke usage, and all other considerations when compared to the proposed project.**

## RESPONSE

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

## DATA REQUEST

**A203. Provide a project description, feasibility analysis, and environmental analysis discussing a dry cooling or wet-dry hybrid cooling alternative. As noted within the EPA seeping letter, these technologies would reduce water use and be more sustainable in the long-term. Please provide a focused analysis of water use/reduction in comparison to that of the proposed project.**

## RESPONSE

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

## DATA REQUEST

**A204. Provide a project description, feasibility analysis, and environmental analysis discussing a dry scrubbing alternative. As noted within the EPA seeping comment letter, this technology would reduce water use and be more sustainable in the long-term. Please provide a focused analysis of water use/reduction in comparison to that of the proposed project.**

## RESPONSE

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

## BACKGROUND

Section 6.0 of the Amended AFC discusses alternatives evaluated as part of the screening analysis for the proposed project. Additional information is needed documenting the applicant's reasoning for not evaluating additional alternatives beyond those presented within Section 6.0 of the Amended AFC.

Consistent with CEQA Section 15126.6, the Preliminary Staff Assessment will evaluate a range of potential alternatives to the proposed project. Energy Commission staff is requesting the information below to determine alternatives that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The alternatives potentially would reduce the project size or the size of project-related components, which may lead to reduced project air emissions, vehicle trips, rail traffic, water use, traffic hazards, public health and safety concerns, and avoidance of carbon sequestration.

The following information is necessary for Energy Commission staff to adequately consider a broad range of site and technology alternatives for the Preliminary Staff Assessment or adequately determine the factors that may be used to eliminate alternatives from detailed consideration in the Preliminary Staff Assessment, per CEQA requirements.

## DATA REQUEST

**A205. Provide a project description, feasibility analysis, and environmental analysis discussing locating the proposed project on a site within the Elk Hills Oil Field. This analysis should adequately identify all linear facilities and compare this alternative site against the site evaluation criteria identified within Amended AFC Subsection 6.3. For an Elk Hills Oil Field Site Alternative, the feasibility analysis should consider, but not be limited to, the following:**

- a. Topography. Discuss topography issues against the necessary acreage of land required. Include a map showing a possible project site and footprint. Describe the topography and elevations within the site and the required linear facilities. Compare these features against those of the proposed project site, explaining the differences or any engineering infeasibility.**
- b. Linear facilities. Details and a map displaying all linear infrastructure routes (including the CO<sub>2</sub> pipeline route to custody transfer point). Provide a matrix displaying the lengths of each linear in comparison to those of the proposed project. Compare estimated linear cost to those of the proposed project.**
- c. Land Availability. Discuss land ownership issues against the necessary acreage of land required. Describe any land use siting conflicts and the economic viability of siting the proposed project within the oil field in comparison to the proposed project.**

## RESPONSE

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

## DATA REQUEST

**A206. Provide a project description, feasibility analysis, and environmental analysis discussing a Coal Provider and Storage Alternative. Information provided should include, but not be limited to:**

- a. Available alternative coal supply and storage options,**
- b. Available alternative coal supply and storage location(s),**
- c. What means of transport would be available to supply the proposed project with an alternative coal source(s); and**
- d. How the economic viability of purchasing coal from an alternative source compares to that of the proposed project.**

## RESPONSE

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

## DATA REQUEST

**A207. Provide a project description, feasibility analysis, and environmental analysis discussing a No Fertilizer Manufacturing Complex Alternative. Provide information on what activities would occur without the fertilizer manufacturing complex, and the ways in which the economic viability of this alternative compares to that of the proposed project.**

## RESPONSE

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.



## DATA REQUEST

**A208. Provide a project description, feasibility analysis, and environmental analysis discussing a Coal/Petcoke Mix Alternative with an increased Petcoke percentage. Provide information on what activities would occur by altering the proposed fuel mixture, and of the ways in which the economic viability of this alternative compares to that of the proposed project.**

## RESPONSE

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

## DATA REQUEST

**A209. Provide a project description, feasibility analysis, and environmental analysis discussing a Natural Gas Combined Cycle Alternative. Provide information on what activities would occur by altering the proposed technology, and the ways in which the economic viability of this alternative compares to that of the proposed project.**

## RESPONSE

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

**Technical Area:** Land Use and Agricultural  
**Author:** Jonathan Fong

## **BACKGROUND**

### **Land Use and Agriculture Tables:**

All page numbers, figures, and tables cited in this document refer to the 2012 HECA Amended Application for Certification (08-AFC-SA) (AFC), unless otherwise stated.

Section 4, "Electrical Transmission," Subsection 4.1 "Project Description" states "[t]he project intends to connect to the Pacific Gas and Electric Company (PG&E) Midway Substation via 230- kilovolt (kV) Midway-Wheeler Ridge transmission line and a new PG&E switching station." Figure 2-12 "Overall Single-Line Diagram" in the Amended AFC references the proposed 230 kV Switching Station (at Olean Avenue and Elk Valley Road) but provides no map or other description of the location. Staff verified that the new PG&E switching station would be the first point of interconnect to the electrical grid, which would make it part of the HECA project and subject to Energy Commission staff review for CEQA and laws, ordinances, regulations and standards (LORS) compliance.

## **DATA REQUEST**

***A210. Please provide a map to scale and written description of the location of the proposed PG&E switching station and also provide the Assessor's Parcel Number.***

## **RESPONSE**

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

## **DATA REQUEST**

**A211. Please amend Table 2-1 "Disturbed Acreage" to include the PG&E switching station as a project component and include the size, temporary disturbance and permanent disturbance figures.**

## **RESPONSE**

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

## **DATA REQUEST**

**A212. Provide the following information of the switching station and within a 1/4-mile vicinity of the station:**

- ***Existing General Plan Land Use Designation and Zone District.***
- ***Indicate whether the proposed switching station is a permitted or conditional use.***
- ***Identify Farmland Areas on-site and within 1/4 mile of the site as designated on the Department of Conservation Important Farmland Mapping and Monitoring Program Maps and lands under Williamson Act Contract.***
- ***Identify the crop types in production.***

## **RESPONSE**

As described in *Applicant's Objections and Requests for Additional Time to Respond to California Energy Commission Staff Data Requests Set 3*, docketed on November 20, 2012, the Applicant is requesting additional time to address this Data Request.

**Technical Area:** Visual Resources

**Author:** Elliott Lum

## **BACKGROUND**

According to the Amended Application for Certification (AFC) for the HECA project, the descriptions for Key Observation Points (KOPs) 1 and 2 (Visual Resources 5.11-10 to -11), mentions that the former Port Organics fertilizer production plant (Plant) would be visible from the KOPs 1 and 2.

Furthermore, the Simulated Conditions photographs for KOPs 2, 3, 4 and 6 (Visual Resources Figures 5.11-18, -20, -22 and -26, respectively) show that the fertilizer production plant would co-exist with the proposed HECA project after its completion.

However, on a recent site visit (September 25, 2012), Energy Commission staff was informed by Ed Western (the Kern County HECA representative) that the Plant would be removed at some point during the HECA project.

## **DATA REQUEST**

***A213. Please confirm whether the Plant (and all related structures, palm trees surrounding the Plant, etc.) would be removed.***

## **RESPONSE**

As indicated in the response to CEC Workshop Request A19, the former Port Organics fertilizer manufacturing plant and all related structures will not be demolished. The surrounding palm trees will not be removed.

## DATA REQUEST

**A214. If the Plant has been confirmed for removal, please provide the following information:**

- *The time period over which its removal would take place (i.e., prior to/during construction or during the lifespan of the completed HECA project).*
- *Electronic and paper copies of 11-inch by 17-inch color photographic simulations at KOPs 1, 2, 3, 4, and 6 that do not include the Plant as part of the Simulated Condition pictures.*

## RESPONSE

See response to CEC Data Request A213.

**Technical Area:** Waste Management  
**Author:** Ellen Townsend-Hough, REA

## BACKGROUND

As a follow-up to Data Request A122 staff has contacted the California Department of Transportation (Caltrans) to look at potential mitigation for the 246,016 cubic yards of gasifier solids. Staff has contacted the Cement Sub-Group of the California Climate Action Team (CAT) regarding Supplementary Cementitious Materials (SCMs). The SCMs can reduce greenhouse gas (GHG) emissions. Common SCMs in use include slag, fly ash, silica fume, and calcined clay. Using two or more SCMs together with Portland cement is referred to as a ternary cement mix. Proper use of ternary mixes comprised of fly ash and slag can produce better quality concrete. Many of these mixes are being used for construction of the Bay Bridge project, but the fly ash and slag are being imported because of lack of domestic sources.

Caltrans encourages the use of SCMs in Portland Cement Concrete (PCC). The Caltrans Standard Specification is crafted to require the use of SCMs such as Fly Ash, Ground Granulated Blast Furnace Slag (GGBFS), Silica Fume, and Rice Hull Ash in most concrete used by Caltrans. Through appropriate use of these industrial by-products, Caltrans is realizing enhanced concrete performance while also reducing the carbon footprint of the PCC used in the improvement of California's transportation systems. Working with Caltrans may consequently reduce the amount of waste generated from the HECA project, by turning the waste into a viable product for future use.

Suppliers of SCMs are encouraged to submit their products for pre-qualification by Caltrans. Prequalification Program Requirements for SCMs can found at: [http://www.dot.ca.gov/hq/esc/approved\\_products\\_list/](http://www.dot.ca.gov/hq/esc/approved_products_list/)

Technical requirements for SCMs in the Standard Specification can be found at: <http://www.dot.ca.gov/hq/esc/oe/standards.php>

## DATA REQUEST

**A215. *Considering that there are specific technical requirements for SCMs, is there flexibility in the gasifier technology that can be made to insure the SCMs meet Caltrans specifications?***

## RESPONSE

The California Department of Transportation (Caltrans) allows the following Supplementary Cementitious Materials (SCMs) in performance-based concrete: Ground Granulated Blast Furnace Slag, Class F Fly Ash, Ultra-Fine Fly Ash, Silica Fume, Metakaolin and Raw or Calcined Natural Pozzolan. In addition to these, Rice Hull Ash is allowed in minor concrete. As stated in Caltrans specifications, these materials must be on the Pre-Qualified Products List prior to use. The Gasification Solids (GS) materials, as produced, have a physical particle size range that prevents them from being used as an SCM directly in concrete without further physical processing. The GS materials, as produced, will have a particle-size range similar to sand size, and will be much larger than the blain fineness (or particle size) for the allowed SCMs. The gasifier technology cannot be altered to ensure that the GS materials are appropriate, as produced, for use as an SCM without further physical processing. See response to Data Request A217.



## DATA REQUEST

**A216. *Considering that there are specific technical requirements for SCMs, is there flexibility in the fuel supplies and feed ratios that insure the SCMs can be made to meet Caltrans specifications?***

## RESPONSE

The primary focus of the GS material beneficial use evaluation includes high-volume uses that can use the GS material as it is produced without substantial alteration. Additionally, Hydrogen Energy California (HECA) is evaluating the potential for use of GS materials as SCMs under Caltrans specifications. As produced, the GS materials do not have a physical character that allows direct use as SCMs. In general, the GS materials derived primarily from coal will have a chemical character similar to coal fly ash; therefore, the GS material may qualify as a SCM if it is processed to meet the character of the SCM specifications. See response to Data Request A217.

## DATA REQUEST

***A217. How would the project owner pursue ash and waste steam marketing opportunities, like Caltrans SCMs, to reduce disposal to local landfills?***

## RESPONSE

HECA's primary focus for beneficial use of GS material is based on the potential uses with the as-produced GS material. The primary uses of GS material would be in the following industries: roofing; sandblasting; and cement manufacturing. HECA will also evaluate the quality of the GS materials as an SCM for use in both cement and concrete. Although the physical character of the as-produced GS materials is not conducive to use as a SCM due to particle size, HECA will evaluate the potential for processing GS materials to meet the specifications for an SCM under the Caltrans SCM Performance Standards.



**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT  
COMMISSION OF THE STATE OF CALIFORNIA  
1516 NINTH STREET, SACRAMENTO, CA 95814  
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***AMENDED APPLICATION FOR CERTIFICATION FOR THE  
HYDROGEN ENERGY CALIFORNIA PROJECT***

**Docket No. 08-AFC-08A  
(Revised 11/20/12)**

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### DECLARATION OF SERVICE

I, Dale Shileikis, declare that on December 3, 2012, I served and filed a copy of the attached Responses to CEC Data Requests – Nos. A181 through A217, dated December, 2012. This document is accompanied by the most recent Proof of Service list, located on the web page for this project at:

[http://www.energy.ca.gov/sitingcases/hydrogen\\_energy/index.html](http://www.energy.ca.gov/sitingcases/hydrogen_energy/index.html)

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

*(Check all that Apply)*

For service to all other parties:

- ☒ Served electronically to all e-mail addresses on the Proof of Service list;
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Attn: Docket No. 08-AFC-08A  
1516 Ninth Street, MS-4  
Sacramento, CA 95814-5512  
[docket@energy.ca.gov](mailto:docket@energy.ca.gov)

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

- ☐ Served by delivering on this date one electronic copy by e-mail, and an original paper copy to the Chief Counsel<sup>1</sup> at the following address, either personally, or for mailing with the U.S. Postal Service with first class postage thereon fully prepaid:

California Energy Commission  
Michael J. Levy, Chief Counsel  
1516 Ninth Street MS-14  
Sacramento, CA 95814  
[michael.levy@energy.ca.gov](mailto:michael.levy@energy.ca.gov)

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



<sup>1</sup> This Proof of Service form is not appropriate for the use when filing a document with the Chief Counsel under Title 20, sections 1231 (Complaint and Request for Investigation) or 2506 (Petition for Inspection or Copying of Confidential Records). The Public Advisor can answer any questions related to filing under these sections.