

1 4.5 CULTURAL RESOURCES

2 This Section presents a summary of the findings of numerous cultural resource
3 studies; a paleontological survey, and a historic architectural survey conducted for
4 the proposed PG&E 406/407 Natural Gas Pipeline Project (Project). Each study
5 analyzes potential impacts to known and undocumented resources from construction
6 and operation of the Project. The four resulting reports are combined in this Section
7 to present a cumulative report that addresses potential impacts from Project
8 development.

9 Cultural Resource Studies

10 Three separate cultural resources studies were conducted for the Project; the first
11 was conducted by Garcia and Associates (see Appendix F-1) and included Line 406
12 from the western edge of the Project to a terminus near County Road (CR) 98 in
13 Yolo County. The second study was conducted by Far Western Anthropological
14 Research Group (see Appendix F-2) and included Line 407 from approximately CR-
15 98 in Yolo County to the eastern terminus near the City of Roseville. In addition, a
16 pedestrian survey was undertaken on March 24, 2009, on a short realignment
17 segment of Line 406 west of the town of Yolo, in Yolo County (see Appendix F-3).
18 The paleontological study included both Line 406 and Line 407 and was conducted
19 by Garcia and Associates and reviewed by Dr. Kenneth L. Finger (See Appendix F-
20 4). The historic architectural survey was conducted for the Project by Galvin
21 Preservation Associates (GPA) (see Appendix F-5). Finally, Far Western
22 Anthropological Research Group, Inc. (Far Western) conducted an additional cultural
23 resources study for the Center Joint Unified School District alternative options along
24 Line 407 (see Appendix F-6).

25 Methodology

26 The methods used for each of the cultural studies consisted of archival record
27 searches, Native American consultations, field inventories, and preparation of
28 technical reports.

29 *Record Searches*

30 Records searches were carried out at the Northwest Information Center (Sonoma
31 State University), the North Central Information Center (California State University,
32 Sacramento), and the Northeast Information Center (California State University,
33 Chico) of the California Historical Resources Information System, an adjunct of the
34 State Office of Historic Preservation. The records search for Line 406 took place in

1 November 2005; those for Line 407 occurred in June and July 2006, in January and
2 April 2007, and in January 2009. It should be noted that the realignment segment
3 that was surveyed in March 2009 was included in the original record search radius
4 and therefore an additional record search was not required for the realignment
5 segment. They included a review of the following documents:

- 6 • Site records and reports of previous studies in or adjacent to the Project
7 corridor;
- 8 • California Inventory of Historical Resources (Department of Parks and
9 Recreation 1976);
- 10 • California Office of Historic Preservation's Five Views: An Ethnic Historic Site
11 Survey for California (Department of Parks and Recreation 1988);
- 12 • California Points of Historical Interest (Department of Parks and Recreation
13 1992);
- 14 • Historic Properties Directory Listing by City (Department of Parks and
15 Recreation 2003);
- 16 • Directory of Properties in the Historical Property Data File, Archaeological
17 Determinations of Eligibility, National Register of Historic Places - Listed
18 Properties and Determined Eligible Properties;
- 19 • California Register of Historical Resources; and
- 20 • Historic-era 7.5- and 15-minute U.S. Geological Survey (USGS) quadrangles
21 and General Land Office (GLO) plat maps.

22 Native American Consultations

23 In July 2006 and January and May 2007 (Line 407), and in March 2007 (Line 406),
24 letters were sent to the Native American Heritage Commission (NAHC) to request a
25 review of their Sacred Lands Inventory and a list of local Native American groups
26 and individuals with particular interest in the Project.

27 The response from the NAHC contained a list of 16 groups/individuals that were
28 interested in the Project. Letters and Project maps were sent to the 16
29 groups/individuals requesting additional information or concerns they may have
30 about the Project. To ensure that all of the 16 groups/individuals concerns were

1 met, follow-up phone calls were made. Four written responses were received and a
2 field review took place with two additional individuals, at their request. None of the
3 respondents had specific knowledge of prehistoric sites within the Project, though all
4 six expressed concerns about protection of any Native American sites that may be
5 present in the vicinity of the Project. All of the Native Americans asked to be
6 informed about any Project modifications or changes and the results of the cultural
7 resource studies. The current project description and map, and a letter eliciting
8 concerns and issues, were mailed to the suggested contacts for Placer County on
9 January 16, 2009. Follow-up phone calls were made on January 23, 2009. No
10 comments were received.

11 Field Surveys

12 Fieldwork for the cultural resources study took place in separate phases, as follows:
13 Garcia and Associates conducted a survey for the Line 406 Project in December
14 2006 and February 2007; Far Western surveyed Line 407 East in July and
15 September 2006 and in June 2007, Line 407 West in May 2007, and Line 407
16 alternative options in January 2009; and the historic architectural survey was
17 conducted by GPA for the Project in June and August 2008. Additionally, a
18 pedestrian survey was undertaken by Far Western on a short realignment segment
19 of Line 406 west of the town of Yolo in Yolo County. The short realignment section
20 (approximately 675 meters) was surveyed on March 24th, 2009 in two transects
21 spaced 10 meters apart for a total areal coverage of approximately five acres. All of
22 the field surveys were conducted by qualified archaeologists meeting the Secretary
23 of the Interior's Standards. Any previously documented cultural resources within or
24 immediately adjacent to the Area of Potential Effects (APE) were revisited during the
25 surveys to confirm their locations and assess their present status. In some cases,
26 the sites had been destroyed by modern development; in other instances, they were
27 found not to extend into the Project area. Existing site records were updated, as
28 necessary. Ten new site records were created for ten buildings recorded during the
29 architectural survey.

30 **4.5.1 Environmental Setting**

31 **Cultural Setting**

32 *Regional Setting*

33 The following discussion includes a brief summary of the prehistory of the region;
34 brief overviews of the ethnography and ethnohistory of Native Americans who lived

1 in the general vicinity of Line 406 and Line 407 before the arrival of non-native
2 explorers, settlers, and miners; and overviews of local history. This brief background
3 summary is provided as a context within which to consider the potential significance
4 of cultural resources in the Project area. While some of the archaeological and
5 historical resources described in this Section are not in the Project APE, they are
6 included here to help develop this context.

7 Native American History

8 **Early Period**

9 The archaeological sequence of the lower Sacramento Valley begins approximately
10 5,000 years ago with the Early Period (circa [ca.] 5000 to 2500 years Before Present
11 [BP]). Although it is possible that people lived in the region at an earlier time, there
12 is scant evidence pointing to an earlier occupation. It is believed that the
13 archaeological record of their settlements is buried under recent Holocene alluvium.
14 The Early Period is represented in the Sacramento Valley by the Windmiller Pattern,
15 which has been identified but scantily documented in the immediate Project vicinity.
16 Six miles south of the Project corridor, Early Period artifacts consisting of
17 charmstones were found with possible human remains at archaeological site SAC-
18 422. Windmiller Pattern burials and artifacts are also reported from SAC-164
19 located a short distance north of Sacramento. Early Period site COL-247 north of
20 Colusa contained artifacts very similar to Windmiller sites in the lower Mokelumne
21 and Cosumnes River drainages, such as Olivella thick rectangle beads and
22 stemmed dart points, but it is most notable for a well-developed baked clay industry
23 that included small vessels and impressions of acorns and human fingerprints. Site
24 COL-247 included a wide range of faunal remains, including a variety of fish, as well
25 as a robust assemblage of charred plant remains with abundant acorn and other
26 nutshell, many small seeds, and a relatively high frequency of root crops.

27 **Middle Period**

28 Archaeological remains dating to the Middle Period (ca. 2500 to 1000 BP), or the
29 Berkeley Pattern, are much more common and thus this period is better understood
30 than the previous one. Middle Period populations were apparently large, judging by
31 large settlements along the river in Sacramento, exemplified by the 1994 analysis of
32 materials from site SAC-43. This study was the first ever done on a lower-
33 Sacramento Valley mound site using modern analytical techniques (radiocarbon
34 dating, obsidian-hydration dating, stable-isotope analysis, faunal analysis, and
35 examination of plant macrofossils). The researchers determined that SAC-43 had
36 been a year-round, residential base occupied from about 2400 to 600 BP, with an

1 artifact assemblage that included many projectile points, modified-bone and antler
2 tools, as well as shell beads and ornaments. They also concluded that the data from
3 SAC-43 called into question the extant cultural-historical system, as well as
4 essentially all chronological data associated with the central California record.

5 ***Middle/Late Transition Period***

6 The Middle/Late Transition Period (1000 to 800 BP) is known from an important but
7 undocumented excavation just north of the Project area, near the confluence of the
8 Sacramento and Feather rivers at site YOL-13, the Mustang Site. Many human
9 burials and grave offerings have been found at this location; however, little could be
10 determined about subsistence data or residues of everyday life, as a midden deposit
11 (refuse deposit resulting from human activities) was not associated with the human
12 remains. The study findings have never been published, and very little is known
13 about this transitional period in local prehistory.

14 ***Late Period***

15 The Late Period (800 to 150 BP), also referred to as the Augustine Pattern, is well
16 documented along the Sacramento River and lower Cache and Putah creeks. Late
17 components have been described from SAC-29 and SAC-164 in Sacramento, and
18 abundant human remains, artifacts, and ecofacts reflect large human populations.
19 Sites from this period contain abundant clamshell (*Saxidomus*) disk beads, Olivella
20 shell beads, and small arrow points; and some of the latest sites have contained
21 glass trade beads as well. Fish, artiodactyl bone, charred acorn nutshells, and small
22 seeds from Late Period middens provide information on dietary patterns and the
23 natural environment at the end of the prehistoric period in the lower Sacramento
24 Valley.

25 The Historic-contact Period, after 150 BP (earlier in some areas), marked the end of
26 traditional Native California, as non-native missionaries, trappers, explorers, miners,
27 and settlers occupied their lands and disrupted their ways of life. The following
28 ethnographic overview describes the lives of local Native Americans as observed by
29 these newcomers.

30 Ethnography

31 Ethnographic Period Native Californians were complex hunter-gatherers whose
32 primary sources of food were fish, game (deer, elk, etc.), and wild plants (particularly
33 acorns). The Project area east of the Sacramento River was in the traditional
34 territory of the Nisenan, which extended from the South Fork of the Feather River
35 south to the Middle Fork of the Cosumnes River, and from the Sacramento River

1 east to the Sierran crest. The corridor west of the Sacramento River runs through
2 the former range of the Patwin, who controlled the lowland valleys from Colusa
3 south and west to Vacaville and Napa.

4 In the rich environment of the Sacramento Valley, both the Nisenan and Patwin lived
5 in more or less permanent villages concentrated along the major rivers and larger
6 creeks. Villages consisted of a cluster of semi-subterranean houses occupied by
7 one or more families, and ranged in size from small hamlets of 25 to 30 residents to
8 large towns up to 500 or 1,000 people. Nisenan villages known to be within the
9 Project vicinity include the communities of Leuchi and Wishuna east of the
10 Sacramento River, and Nawe west of the Sacramento River south of Verona.
11 Nearby Patwin villages include Yo'doi at Knights Landing, and Churup at the City of
12 Yolo. Available information suggests that although the population density of this
13 area was high, people were not concentrated in a single large community but were
14 dispersed in several smaller, probably kin-based villages along the Sacramento
15 River and its major tributaries.

16 The indigenous lifeways of Nisenan and Patwin society were irrevocably changed
17 with the arrival of Euro-Americans in California. Spanish expeditions in 1808 and
18 1821 were the first incursions into the Sacramento Valley, and each briefly passed
19 through the Project area. Patwin people from the Winters area were first baptized at
20 Franciscan missions in the Bay Area between 1825 and 1829, and again between
21 1830 and 1832. The first Patwin from lower Cache Creek were baptized at Mission
22 Sonoma in 1834. As early as the late 1820s, and in numbers by the 1830s, Euro-
23 American trappers operated throughout the Central Valley. The trappers brought
24 numerous diseases, and in 1833 the Native American population was decimated by
25 a pandemic thought to have been malaria. Additionally, at about this time, Mexico
26 had won its independence from Spain and was instituting new administrative policies
27 in Alta California. Many new land grants were given to private citizens for enormous
28 ranchos and, like the missionaries, the ranchers sought their labor supply in the
29 Native American villages. Most of the native people who survived this onslaught did
30 so by adapting to the new economy and working for the ranchos. Today their
31 descendants live in small communities throughout the lower Sacramento Valley and
32 the Sierra Nevada foothills.

33 Euro-American History

34 Historic-era land use and development in the Project area have been characterized
35 primarily by agriculture, reclamation Projects, and transportation. The earliest

1 sustained Euro-American use of the general Project vicinity was in the late 1840s,
2 when individuals like Johann Sutter established ranches and farms, using local
3 Native Americans as a labor force. By 1851, the region was sparsely settled and
4 mining was in full swing along many streams crossing the lower Sierra Nevada
5 foothills to the east. Miners traveling through the area between Marysville and
6 Sacramento developed a trail that crossed the Project area, although no signs of it
7 remain today. By 1854, much of the Project corridor contained small-scale ranches
8 and homesteads.

9 ***Agriculture and Reclamation***

10 A large portion of the Project area was formerly swampy overflow land and remained
11 undeveloped until the large land reclamation projects of the early 20th century. In
12 1855, the Reclamation District Act allowed an individual to buy up to 320 acres of
13 swamp and overflow lands at \$1 per acre with payments over five years, effectively
14 transferring control of reclaimed lands from the State of California and the counties
15 to the landowners. By 1891, swamp and overflow land reclamation was thriving and
16 led to the establishment of farms and orchards, especially around the population
17 centers of Woodland, Knights Landing, Winters, and Capay Valley.

18 After a destructive flood in 1907, the California legislature established flood control
19 for the area by raising the natural levees along the Sacramento River; they created
20 Reclamation District (RD) 1000 in 1911. Reclamation District 1000 was the first and
21 largest of the reclamation districts and the most visible, given its proximity to the
22 State capitol. The RD 1000 was determined eligible for listing on the National
23 Register because of the vital role it played in the 20th-century development of lower
24 Sacramento Valley agriculture and the expansion of towns like Sacramento and
25 Woodland. The current Project corridor crosses through the northern end of RD
26 1000 and could impact some of its National Register contributing features.

27 An 1857 GLO Plat map of eastern Yolo County shows very little development other
28 than two residences, the “St. Louis House” and “Greenwoods.” Although there is no
29 historical record for these houses, they were probably small refreshment stations for
30 travelers on the road from Woodland. The location of Greenwoods may coincide
31 with one of the historic-era structures recorded for the current study (Site 4). The St.
32 Louis House appears to have been related to Charles and Frederick St. Louis, two
33 brothers from Canada who immigrated to California and settled in Yolo County in the
34 early 1850s. The St. Louis family owned land in the Project area as late as 1926.

1 Owing to the frequent flooding of Cache Creek and the Sacramento River, most
2 historic-period communities in Yolo County were located on high ground. For
3 instance, the original county seat in Washington (now West Sacramento) was
4 moved to the fledgling community of Woodland in 1862 after a major flood. The
5 small town of Yolo started as a way stop known as Cochran's Crossing built in 1849
6 by Thomas Cochran. James Hutton built another hotel at the same location a few
7 years later, and the site became known as Hutton's Ranch or Travelers' Home, and
8 later Cacheville. An 1891 history of Yolo County states, "The County seat was
9 removed to Cacheville [in 1857], which had formerly been called Hutton's Ranch, the
10 post-office being called Yolo" (Gudde 1969; Lewis Publication Company 1891; Yolo
11 County 2007). In 1862, Yolo City became Woodland and was established as the
12 county seat. Historic maps from the 1879 DePue history of Yolo County (Gilbert
13 1879) clearly indicate that Cacheville is the present-day town of Yolo, and was
14 probably the early county seat and post office before flooding and the railroad led to
15 Woodland becoming the prominent center. Many of the buildings still standing along
16 the small commercial area in present-day Yolo clearly date to the 19th century.

17 Ranches began to appear around Yolo during the 1850s, largely devoted to wheat
18 farming. The area looked much as it does today, mainly agricultural fields with
19 isolated farmhouses. Two homes in the Project vicinity date to this period: the Lewis
20 Cramer house (within the Project APE) and the John Laugenour house (outside the
21 Project APE). James Eustis built a house just east of the Cramer residence during
22 the late 1880s or early 1890s. The Cramer House has been recommended as
23 eligible for listing on the National Register of Historic Places (NRHP).

24 Historically, throughout the Project area, property owners drilled private wells for
25 their water needs and built private canals as necessary to bring purchased water
26 from the main canals to their farms. Many of these water-supply features exist today
27 within the Project vicinity.

28 The eastern third of the Yolo County portion of the Project area lies within private
29 reclamation districts, the largest of which is the RD 1600. Established in 1913 by
30 local farmers who pooled their tax assessments to create their own drainage system,
31 RD 1600 is bounded by the Sacramento River on the north and east, the Tule Canal
32 on the west, and another private reclamation district on the south. Other local
33 districts include the Sacramento San Joaquin Drainage District, with RD 819
34 adjacent to the west and RD 820 on the south.

1 Knights Landing Ridge Cut was added to the reclamation efforts in 1915 as part of
2 the Yolo Bypass flood control project. The cut takes drainage water from the Colusa
3 Basin to the west through Knights Landing Ridge to the Yolo Bypass, one of two
4 main bypass systems in the Sacramento Valley that carries excess floodwaters from
5 the Sacramento River to relieve strain on its levees (Les 1986). Today, the western
6 Project area remains largely rural and less affected by the population growth
7 following World War II than most towns and small cities. Growth in the Project area
8 was limited to single-family homes located in clusters along major roads.

9 Farming continues to be the major growth factor with a slow but steady increase in
10 residential structures largely associated with agricultural production. These consist
11 primarily of additional home sites for growing families and ranch employees, as well
12 as some parcel subdivisions for houses independent of actual farming operations.
13 Historic-period maps indicate these homes were constructed throughout the 19th
14 and 20th centuries. The Project area has escaped the post-World War II subdivision
15 development phase that occurred elsewhere throughout California, remaining largely
16 in rural agricultural use (GLO 1857b; USGS maps 1915 and 1941).

17 ***Transportation***

18 Transportation developments, primarily the railroads, contributed much to the
19 established settlements in the Project vicinity. In 1869, the California Central
20 Railroad Company constructed railroads from Davisville (now Davis) to Woodland
21 and from there to Marysville (Marysville Branch Line) via Knights Landing. Portions
22 of this line were reconstructed after flooding in 1871 and in 1890. The line was later
23 subsumed by the Southern Pacific Railroad and Union Pacific Railroad companies.

24 Several historic-era roads also cross the Project area, but their character has been
25 greatly altered by continued maintenance, reconstruction, and use. Riego Road, for
26 example, was constructed as part of the Natomas Company's original network of
27 roads for the RD 1000 area, along with numerous subdivisions of land that were sold
28 to potential farmers. The Sacramento Northern, an inter-urban electric railroad, also
29 took advantage of the newly protected area and constructed an important
30 transportation link between Sacramento and towns to the north, including Marysville
31 and Woodland. This alignment was constructed ca. 1913 and actually became the
32 eastern boundary of RD 1000. The Sacramento Northern railroad carried both
33 passengers and freight until it was replaced by cars and trucks after World War II.
34 The various railroads also played a role in increasing the population centers along
35 their route; those closest to the Project area included Rio Linda and Elverta. These

1 small communities were able to grow as the railroads connected them to larger
2 urban areas such as Sacramento.

3 Nonetheless, the Project area has remained primarily rural. Today the segment of
4 the railroad within the Project area is abandoned. During the 1980s, road widening
5 on State Route (SR) 99 resulted in substantial changes to the East Drainage Canal
6 and Riego Road (both features of RD 1000). The Canal was reconstructed with
7 concrete water diversion structures and a 300-foot-long culvert box under SR-99,
8 and Riego Road was widened at its intersection with SR-99.

9 **Known or Potential Cultural Resources within the Project Corridor**

10 *Line 406 Study Area Record Search and Field Survey Results*

11 Record Search Results

12 Of the 54 known or possible cultural resources identified by the record searches
13 conducted for the Line 406 study corridor, only two were determined to be within the
14 survey area: the John Ritchie house and outbuildings (YOL-HRI-4/106), and the
15 Herman Richter house and outbuildings (YOL-HRI-4/114). The 54 resources
16 included 25 historic-era resources listed on the California State Historic Resources
17 Inventory; 20 archaeological sites of historic and prehistoric age; and nine other
18 historic-era resources, which only had primary site numbers. Other resources
19 included “Demerleys Field” and eight short, unrecorded road segments noted on
20 GLO plat maps.

21 An investigation of ten GLO maps dated from 1851 to 1869 did not indicate any
22 potential historic buildings or structures within the survey area, except for eight short,
23 unrecorded road segments crossing present-day CR-17 from USGS map Sections 1
24 to 3 in Township 10 North, Range 1 East. It is clear, however, that as early as 1858
25 the general area was occupied and used for agricultural purposes. Demerleys Field,
26 identified in an 1864 GLO map (NW quarter of Section 3, Township 10 North, Range
27 1 East) is within the Line 406 pipeline alignment. Canals emanating from Cache
28 Creek were not present, but several fields were adjacent to Cache Creek.

29 The survey area for this study passes through two land grants: Cañada de Capay
30 and Rio Jesus Maria. The 40,079-acre land grant Cañada de Capay was confirmed
31 to Jasper O'Farrell et al. on February 16, 1865, and the Rio Jesus Maria land grant
32 (26,637 acres) to J. M. Harbin et al. on July 3, 1858.

1 In addition to the records search for the previously-identified resources, Garcia and
 2 Associates and Far Western conducted general and building specific contextual
 3 research in both 2006 and 2007 for the Project area in order to identify significant
 4 local historic events and personages, development patterns and unique
 5 interpretations of architectural styles. GPA expanded on this research in September
 6 2008. GPA gathered historic information from the following locations:

- 7 • California History Room, California State Library (900 N Street, Room 200;
 8 Sacramento, CA 95814);
- 9 • Yolo County Archives (226 Buckeye Street; Woodland, CA 95695);
- 10 • Yolo County Assessor's Office (625 Court Street, Room 104; Woodland, CA
 11 95695);
- 12 • Yolo County Historical Museum (512 Gibson Road; Woodland, CA 95695);
- 13 • Yolo County Historical Society (P.O. Box 1447; Woodland, CA 95776); and
- 14 • Yolo County Planning & Public Works (292 W. Beamer Street; Woodland, CA
 15 95695).

16 Public Consulting

17 Public consulting letters and maps were sent by GPA to the following historical
 18 organizations and agencies on September 11, 2008:

19 **Table 4.5-1: Public Consultation Mailing List**

Placer County	
Placer County Genealogical Society Attn: Director P.O. Box 7385 Auburn, CA 95604	Placer County Historical Society Attn: Director P.O. Box 5643 Auburn, CA 95604
Placer County Planning Department Attn: Michael Johnson, Planning Director 3091 County Center Drive Auburn, CA 95603	Rocklin Historical Society Attn: Director P.O. Box 752 Rocklin, CA 95677

Sacramento County	
The California Museum for History, Women and the Arts Attn: Claudia French, Executive Director 1020 O Street Sacramento, CA 95814	Planning & Community Development Dept. County of Sacramento 827 7 th Street, Room 230 Sacramento, CA 95814
Sacramento Historical Society Attn: Director P.O. Box 160065 Sacramento, CA 95816-0065	West Sacramento Historical Society Attn: Director 324 Third Street West Sacramento, CA 95691
Sutter County	
Community Memorial Museum of Sutter County Attn: Julie Stark 1333 Butte House Road Yuba City, CA 95993	Sutter County Historical Society Attn: Phyllis Smith P.O. Box 1004 Yuba City, CA 95993
Sutter County Planning Department Attn: Danielle Stylos, Division Chief 1130 Civic Center Blvd. Yuba City, CA 95993	
Yolo County	
Yolo County Historical Museum Gibson House Attn: Barbara Shreve, Director 512 Gibson Road Woodland, CA 95695	Yolo County Archives 226 Buckeye Street Woodland, CA 95695
Yolo County Historical Society Attn: B.J. Ford, Director P.O. Box 1447 Woodland, CA 95776	Yolo County Planning & Public Works Attn: John Bencomo, Director 292 West Beamer Street Woodland, CA 95695
Heidrick Ag History Center Attn: Colleen Thompson 1962 Hays Lane Woodland, CA 95776	
Source: Galvin Preservation Associates 2008.	

1

2 As of the date of this report, no responses have been received regarding this Project
3 or any historic resources associated with it.

1 Field Survey Results

2 The field survey conducted for the Line 406 study corridor identified two previously
3 recorded historic-period resources, six newly recorded historic-period resources, and
4 an isolated prehistoric chert tool (Garcia and Associates 2006).

5 The **John Ritchie House (YOL-HRI-4/106)** is a two-story vernacular house of no
6 particular style estimated to have been built in 1860. Several small outbuildings are
7 also on the property, and include a barn, a smokehouse, and small bunkhouses.

8 The **Herman Richter House (YOL-HRI-4/114)**, built in 1929, is a large two-story
9 Mediterranean Revival style house constructed of brick. Several redwood buildings
10 e.g., a smokehouse, granary, barn, and several sheds are located within the study
11 area. A single-story house (13460 CR-97F), built in the 1860s, is part of the same
12 property.

13 The proposed Line 406 alignment also crosses two linear irrigation conveyances, the
14 Goodnow Slough and the Hungry Hollow Canal.

15 The **Goodnow Slough (Y-3)** is an extensive earthen-walled irrigation canal that
16 passes through the survey area at two locations on the eastern side of Interstate (I)
17 505 and crosses the path of the proposed pipeline. Several smaller irrigation ditches
18 feed in and out of the slough. The construction date for the slough is not clearly
19 established, but the slough is depicted on a map in a 1967 report titled “A
20 Reconnaissance Study to Investigate the Feasibility of the Hungry Hollow
21 Watershed Project” by the State of California Division of Soil Conservation.

22 The **Hungry Hollow Canal (Y-9)** is a long, wide, earthen-walled canal that enters
23 the southeast portion of the survey area. The water in this canal originates from
24 Cache Creek and passes through Capay Dam and West Adams Canal before
25 entering into Hungry Hollow Canal. It is assumed that the Canal was built before ca.
26 1914, which is the construction date of Hungry Hollow Bridge that crosses a branch
27 of Hungry Hollow Creek.

28 **Site Y-6** is an historic-era dumpsite located in a dry, shallow gulch. A windmill-
29 powered water pump, trough, and four trees are about 300 feet to the west, and may
30 at one time have been associated with the dumpsite. Artifacts were found eroding
31 out of the sidewalls of the gulch. The majority of the artifacts appear to be
32 household and agricultural items, such as fragments of plates, concrete chunks, iron
33 sheet metal, and window and bottle glass.

1 **Site Y-7** contains a historic era residence and three farm buildings. According to the
2 current owner, the farm buildings consist of a granary built in 1881 and two barns
3 built in the 1940s. It was later discovered that the residence, which appeared
4 relatively new because of extensive renovations conducted the previous year, was
5 actually constructed in 1927.

6 **Site Y-17** is an isolated prehistoric tool, either a uniface or a retouched flake, made
7 of Franciscan chert. It was found in the middle of a plowed field, not far from two
8 farm complexes. It is predominantly brown in color with white lines and green
9 portions. The artifact was flagged but not collected.

10 **Site Y-20** is an historic-era residence and associated barn which are over 50 years
11 old. The current property owner did not know the exact dates of construction for the
12 buildings. There is a long prickly pear cactus hedge adjacent to a wooden fence in
13 front of the residence; this hedge is part of the residential landscape and appears to
14 be more than 50 years old.

15 **Site Y-21** is a segment of the historic alignment of the former Northern Railway
16 Company; it is now part of the Southern Pacific Railroad and is actively in use.
17 Railroad construction was started in 1875 and was completed sometime before
18 1879, as depicted in the Yolo County atlas (Yolo County 1879).

19 No prehistoric resources were discovered during the March 24, 2009, Line 406
20 pedestrian survey. A working irrigation ditch was recorded, but it is unclear whether
21 this ditch is historic or modern in age. The ditch was noted on an aerial and if
22 historical research (which is planned as part of upcoming survey of the Line 406
23 alternative routes) determines that the irrigation ditch is historic, then a Department
24 of Parks and Recreation (DPR) Primary Record form will be completed and
25 submitted to the Northwest Information Center at Sonoma State University.

26 *Line 407 Study Area Record Search and Field Survey Results*

27 Record Search Results

28 The record searches for the Line 407 study area and a 0.25-mile-wide buffer on
29 each side of the proposed centerline identified 122 documented or potential cultural
30 resources, of which 103 appeared to be within or immediately adjacent to the survey
31 corridor. Many of these were known only from review of old GLO plat maps or
32 topographic maps, and had never been confirmed on the ground.

1 During the course of the field survey for the Line 407 corridor, 73 cultural resources
2 were found within the study area. Forty-nine resources that were plotted on
3 historical maps were not relocated during the field survey. It is likely that many of
4 the resources either were outside the survey corridor or have been destroyed by
5 subsequent land use and development.

6 Field Survey Results

7 The 73 resources confirmed within the Line 407 study corridor include 24 features of
8 the RD 1000 Rural Historic Landscape, 47 other historic-era structures or features,
9 one prehistoric occupation site, and an isolated prehistoric biface (Far Western
10 2008). Each is briefly described below, from west to east. Certain types of features
11 are described as single categories; for example, water wells.

12 **Site EW-1/H** is an extensive prehistoric archaeological site with a small historic-
13 period component within the Line 407 study area. As currently recorded, the site
14 extends approximately 0.75-mile east-west, and an unknown distance north and
15 south of the surveyed 600-foot-wide survey corridor. The prehistoric site component
16 is a dispersed scatter of fire-altered rock, flaked stone debris, and flaked and ground
17 stone artifacts, scattered across roughly 42 acres on several adjacent fields. It is
18 assumed that much of the deposit may be subsurface. It is possible that this site is
19 YOL-35, which was recorded by D. Gallup in the 1930s or 1940s. The historic-
20 period component is an old agricultural well and two concrete drains.

21 **Site 33** includes two houses, two garages, a carport, a privy, seven sheds, two
22 corrals, a windmill, three wells, a greenhouse, and a chicken coop on a 10-acre
23 parcel. The main house appears to have been built ca. 1900, probably for James
24 Scarlett, a local farmer. The other house was constructed ca. 1930.

25 **Site 32** is a single-story residence with a ranch-style appearance, but it may reflect
26 an adaptation of an earlier house. A structure is depicted at this location on a 1941
27 USGS map, and the core of the house (a simple, rectangular gable-roof structure)
28 may date to this early period. The house was extensively modified after 1960 and
29 expanded to its current ranch-style appearance.

30 **Site 31** is a single-family residence, a barn, and various sheds built ca. 1910. The
31 original appearance of the house has been altered by additions, window
32 replacements, and exterior fabric modifications.

1 **Site P-57-000405 (Cramer House)** is a two-story Victorian Italianate house built ca.
2 1870 by Lewis Cramer. Three associated outbuildings also appear to be from the
3 same historic period and are contemporary to the house.

4 **Site P-57-000406** is a substantial two-story house dating to the early 1900s. The
5 house sits on a stone foundation, and is rectangular in plan with symmetrical
6 massing. There are two historic-period additions, one each on the east and west
7 sides of the house. Several modern barns and a garage have been built east of the
8 house.

9 **Site P-57-000407** is a one-story cottage with a modern detached garage and barn.
10 The house sits on a brick foundation with an irregular plan. Windows are historic-
11 period one-over-one double-hung wood sash, in pairs and singles. There is an
12 exterior brick chimney. On the south side is a modern one-story detached garage.
13 The house reportedly was built in the 1910s, but it retains little in appearance from
14 this early construction date.

15 **Site P-57-000408** consists of a single-family Craftsman residence and shed. It is
16 assumed that the house was built between 1915 and 1926.

17 **Site 26** includes a Folk Victorian house, built before 1905, and two barns. The
18 house is depicted on a 1905 map and was probably built by the late 1880s. The
19 original house was rectangular, two-stories, with a gable roof and side entry. Since
20 the time of the original construction, it has had two single-story additions and some
21 of the original window openings have been boarded over. The outbuildings, which
22 are contemporary with the house, have also had alterations, changes in exterior
23 fabric, removal of windows, and other relatively major modifications.

24 **Site P-57-000412** was recorded in 2002 by JRP Historical Consulting. It includes a
25 one-story, single-family Minimal Tradition-style house, a hipped-roof garage, and a
26 shed. This house is depicted on a 1953 USGS quadrangle map and, based on
27 architectural style, may have been built as early as the 1930s. A one-room addition
28 is present on the north façade.

29 **Site P-57-000413** consists of a square, gable-roofed barn. Originally covered with
30 board siding, it is now clad with metal sheets. Two trailers are also present on the
31 property. The barn is first depicted on a 1953 USGS map but it does not appear on
32 the 1941 USGS map, suggesting that it was constructed some time between 1941
33 and 1953.

1 **Site 14** (43580 CR-17, Yolo County) contains a primary residence, a bunkhouse,
2 trailers, sheds, and a shower house, and appears to serve as an agricultural labor
3 camp. There are two historic-period structures, the bunkhouse and the shower
4 house, which are first depicted on a 1953 USGS map; but they do not appear on the
5 1941 USGS map. Based on the use of concrete blocks and the construction style,
6 the bunkhouse and shower house were probably built after World War II but before
7 1953.

8 **Site 4** consists of two single-family residences, a garage, a pole barn, a hay barn, a
9 well, and landscaping elements. The first residence was built in 1939-1940 by the
10 Langs; a second, modern residence was built in 2001. Two barns are located west
11 of the residences, one is a pre-1938 large wood-frame, gable-roof barn now clad
12 with vertical sheets of corrugated metal, and the second is a gable-roof, open-sided
13 structure that is less than 50 years old. A concrete, board-form well is located south
14 of the brick house. The 1857 GLO plat map for this area depicts a house at this
15 location labeled "Greenwoods." The older residence and garage have not been
16 altered and are good examples of late 1930s Minimal Tradition farmhouse
17 architecture.

18 Twenty-four features of the RD 1000 (Historic American Engineering Record CA-
19 187) are within the study corridor. The RD 1000 is a Rural Historic Landscape
20 District that has been determined eligible for the NRHP, with State Historic
21 Preservation Officer (SHPO) concurrence, for its major role in early 20th-century
22 reclamation and flood control in the Sacramento Valley (Criterion A). As a National
23 Register-eligible property, it automatically qualifies for the California Register of
24 Historical Resources (CRHR) and therefore is a significant resource under CEQA.
25 Although the evaluation report (Bradley and Corbett 1995) identifies certain
26 contributing and non-contributing elements of the National Register District, the
27 report is vague about the extensive networks of smaller levees, farm roads, canals,
28 wells, residences, and other structures, and agricultural fields within the District's
29 boundaries. Thus, it is unclear whether they are considered contributing elements;
30 in this study, they are considered to be potentially contributing elements.

31 The elements of the National Register District that were specifically called out by
32 Bradley and Corbett as contributing elements include the Sacramento River levee;
33 the East Levee; portions of the Garden Highway; Powerline Road, Riego Road, and
34 Natomas/East Levee Road; the North, East, and West Drainage Canals; Natomas
35 Main Drainage Canal; Natomas East Main Drainage Canal; Cross Canal and Levee;

1 Pleasant Grove Canal; and Pumping Plants 1-A, 2, and 3. The Line 407 route
2 crosses several of these features.

3 **Site P-31-000096** consists of two single-family residences, four sheds or barns, and
4 a trailer. Mr. Gerald Minatre, the current landowner, reports that the house was built
5 in 1917 by the Pullman family. Mr. Minatre's family bought the land in 1955. The
6 three buildings on the south side of the lot are the house, a two-story gambrel barn,
7 and a one-story building in the southwest corner that was once a bunkhouse, now
8 converted into an apartment for family members.

9 **Sites 1 and 2** are two residences built after World War II but before 1953, probably
10 ca. 1950, during a time of great expansion in Sacramento county. Each is simple in
11 design, with few architectural embellishments.

12 **Site 34** includes a Minimal Tradition-style house, two barns converted into
13 workshops, three sheds, and a modern log house. The current owners have created
14 an irrigation pond and extensive wetlands landscaping around the new house, with
15 willows, pistachios, pecan trees, camphor trees, and ornamental and native plants
16 and shrubs. According to the current landowners, this house and property were part
17 of the Stolenberg farm from the 1950s through the 1970s. The house is depicted on
18 a 1953 USGS map and may date back to the late 1930s.

19 **Site 3** is a residence built ca. 1920. The 1911 Arcade USGS quadrangle shows a
20 structure at this location, but based on architectural style and materials, it is believed
21 that the current structure was built later. The residence is also depicted on the 1953
22 USGS quadrangle.

23 **Site P-31-002684** is an historic-period structure that was recorded in 2002 by JRP
24 Historical Consulting. It is an irregularly-shaped Minimal Tradition residence with a
25 composition shingle roof, wooden board-and-batten siding with a brick skirt, and an
26 attached garage. It has been recently modified, as evidenced by sliding aluminum
27 windows and aluminum garage doors. The house was built just after World War II.

28 **The Eagle Hotel** (P-31-003307) and an adjacent barn are depicted on GLO plat
29 maps dating from the 1850s. Roadhouses were common throughout the area during
30 this period. Many, such as this one, disappeared into obscurity after a few years
31 and left no historical record. There are no references in either Sacramento or Sutter
32 county histories to an Eagle Hotel in this area. None of the hotel's architectural
33 elements were observed on the surface, nor were any artifacts found dating to this

1 period. Surface finds included modern day concrete rubble piles, a refuse pile
2 dating between the 1950s and 1970s, a concrete slab with a metal pipe, and planted
3 fruit and shade trees. The only surface feature that may be associated with the
4 Eagle Hotel is an 8-foot-wide, 1-foot-deep depression where recent concrete block
5 fragments have been dumped. With the possible exception of the planted trees, all
6 other artifacts and landscape features appear to date to the early-to mid-20th
7 century. It is possible, however, that subsurface features associated with the hotel
8 (cellars, privies, dumps, wells, etc.) are present on the property.

9 One isolated obsidian biface was found in a shallow, narrow drainage furrow near
10 the base of a moderate southeast-facing slope, approximately 300 feet west of an
11 unnamed drainage. The tool was made from opaque black obsidian and measured
12 2.1 inches long by 1 inch wide and 0.3 inches thick. The surrounding area was
13 carefully examined, and no other archaeological material was found.

14 **Site P-31-001137** is a small, unornamented, one-story building used to assist
15 instrument landings at McClellan Air Force Base. It was built after 1952 but was
16 abandoned by 1987, when the Air Force sold the property. The structure has been
17 recommended as not eligible for the National Register (Napoli 2000).

18 **Site CA-PLA-945H (P-31-001135)** is a small, historic-period refuse scatter recorded
19 in 1999 in a plowed field within the Line 407 corridor. Artifacts noted included dark-
20 brown earthenware, yellow earthenware, and white ironstone ceramics, as well as
21 clear-glass bottle fragments. The only artifacts that were observed in the dense
22 weeds during current Project fieldwork were a faceted aqua glass fragment and a
23 fragment of yellow earthenware ceramic.

24 **Wells**

25 Four wells were recorded within the Line 407 study corridor. These range from
26 abandoned wells with dilapidated concrete structures (W15); to intact, working
27 systems with a pump house, vent, and concrete drain (W13); an original concrete
28 drain with a new pump (Road 16A Well); and a metal stand pipe abandoned in favor
29 of a new well (Road 17 Well).

30 Wells W13 and W15 are included in RD 820, a small district established soon after
31 completion of the Knights Landing Ridge Cut in 1915. The wells along CR-16A and
32 CR-17 do not appear to be associated with a formal irrigation district and are
33 privately owned and operated.

1 Culverts, Ditches, Canals, Private Levee

2 Two culverts on CR-17 were newly recorded. Both are board-form concrete
3 structures still functioning as culverts.

4 One irrigation ditch was noted during the course of the Line 406 realignment survey
5 west of the town of Yolo. The irrigation ditch was recorded and plotted on an aerial
6 map, but it is unclear whether this ditch is historic or modern in age. Subsequent
7 historical research (which is planned as part of upcoming survey for the Line 406
8 alternative routes) will provide information to determine if the irrigation ditch is
9 historic (over 45 years of age). If it is over 45 years old, a DPR Primary form will be
10 completed and submitted to the Northwest Information Center in Sonoma.

11 Six ditches or canals were recorded in the Line 407 study corridor, all in eastern
12 Yolo County. All are features that currently deliver irrigation water to agricultural
13 fields. Two ditches were newly recorded west of the Colusa Drain on either side of
14 CR-17 (Ditches 1 and 2), and a third (Ditch 3) was newly recorded east of the
15 Colusa Drain. The ditch system previously recorded as P-57-000521 was revisited
16 and the site record updated to include additional distribution ditches.

17 Finally, one private levee was previously recorded as CA-YOL-212H. The site
18 record was adequate and therefore was not updated for this study.

19 Historic-period Roads

20 Four historic-period road alignments were recorded near the western terminus of the
21 Line 407 corridor north of the town of Yolo. These are all single-lane paved
22 surfaces, and all are patched and maintained for current use. They include CR-98A,
23 98E, 99A, and the portion of CR-17 west of its intersection with SR-113.

24 East of the Sacramento River, nine road alignments that intersect Riego Road and
25 Baseline Road are plotted on historic-period USGS quadrangles (1953 or earlier):
26 Pacific Avenue, Pleasant Grove Road, Elder Road, Locust Road, Brewer Road,
27 Palladay Road, Country Acres Road, Watt/Center Joint Roads, and a recently
28 abandoned segment of Walerga Road. Pacific Avenue and Pleasant Grove Road,
29 which have been thoroughly rebuilt, retain no historical integrity. Except for Walerga
30 Road, all roads are modern, paved, currently maintained, and in use. Two of these
31 roads appear to be associated with RD 1000.

1 Historic-period Railroads

2 Two railroads, one still in operation, run roughly north-south along the eastern edge
3 of the American Basin, a region east of Highway 99 that centers immediately west of
4 the town of Rio Linda. The Western Pacific Railroad is an extant rail line. The
5 abandoned Sacramento Northern Railroad is about 1,000 feet to the east; all of its
6 rails and ties have been removed. The portions of each of the railroads in Placer
7 and Sacramento counties have been recommended not eligible for listing on the
8 National or California registers (Waechter et al. 2007), but the segments of each in
9 Sutter County remain unevaluated.

10 Other Potential Resources

11 A review of geological and soils data identified seven areas on the Line 407 corridor
12 that are considered sensitive for buried archaeological resources that might be
13 obscured by recent alluvial deposits. These areas occur on levee ridges adjacent to
14 stream channels, and are overlain by soil series with documented buried soil
15 horizons on which archaeological sites might be located.

16 Structures built in the 1800s or early 1900s often had privies, trash dumps, or wells
17 constructed behind the main buildings that subsequently were filled in or buried.
18 Such features can contribute to a site's overall National Register eligibility. Within
19 the survey area, there are several such locations where subsurface features could
20 occur. The most sensitive location is the site of the former Eagle Hotel previously
21 located at the northeast corner of Baseline Road and Country Acres Road. Parcels
22 where the recommended-eligible Cramer House and eight unevaluated historic-
23 period residences are located may also have associated buried features. These
24 parcels include the locations of structures 1-4, P-51-000406, and the parcel of the
25 1917 residence on Powerline Road (P-51-00096). The Powerline Road residence is
26 within the boundary of RD 1000 and may need to be addressed as part of the
27 district.

28 **Traditional Cultural Properties/Areas of Native American Concern**

29 To date, no traditional cultural properties or specific areas of Native American
30 concern have been identified within the Project area. One Native American asserted
31 that he knew of sites near the Project corridor, but none within the APE. Several
32 Native American individuals expressed concern about the Project in general, and
33 one recommended the preparation of a discovery plan in the event that cultural

1 remains were uncovered during construction, but no one had information to share
2 about particular sites or specific locations that needed protection.

3 **Resources Dropped from Consideration**

4 *Utility Pole Lines*

5 Utility poles run along parts of CR-16A and 17. Although these routes are depicted
6 on early historic maps, the existing poles are tall, modern replacements of the
7 original wooden poles. Only a few shorter poles were noted along CR-17. The pole
8 line routes were not formally recorded because of their compromised integrity.

9 **Project Historic Architectural Study Area Record Search and Survey Results**

10 The Area of Potential Effects (APE) for the Project was established to include all
11 resources that could potentially be directly or indirectly affected by the proposed
12 undertaking. All of the resources are located within 50 feet of either side of the
13 pipeline centerline and are within Yolo County. Appendix F-5, APE map, illustrates
14 the boundaries delineating the APE and notes the location of the ten properties
15 evaluated during the historic architectural survey.

16 During the course of the historic architectural survey, nine properties located within
17 the Project APE required evaluation. The Herman Richter house located at 13464
18 County Road 97F was previously recorded and is listed in the Historic Resources
19 Inventory. However, it does not appear to have been previously evaluated for the
20 NRHP and CRHR. Additionally, the other eight properties have not been previously
21 evaluated for listing on the NRHP or the CRHR. Following are brief descriptions of
22 the nine properties.

23 **27390 County Road 17** is a farmstead including a one-story single-family residence
24 with no architectural style and an associated machinery barn. Built ca. 1940s, it is
25 considered not eligible for listing on the NRHP or CRHR.

26 **27960 County Road 19** is a farmstead with a one-story single-family residence with
27 no architectural style and an associated horse barn. Constructed ca. 1940s, it is
28 considered not eligible for listing on the CRHR or NRHP.

29 **27660 County Road 19** is a farmstead containing a one-story single-family
30 residence with no architectural style and a few associated wood outbuildings.
31 Constructed ca. 1950s, it is considered not eligible for inclusion on the CRHR or
32 NRHP.

1 **32840 County Road 17** is the Horgan family farmstead consisting of two one-story
2 single-family residences in the Craftsman and Minimal Traditional styles. This farm
3 also has a wood frame barn dating to the late nineteenth century, a two-story grain
4 storage building from the 1930s and a metal barn from the 1950s. The Craftsman
5 was built in the late 1920s and had a significant remodel in 2006, and the Minimal
6 Traditional was constructed ca. 1950s. Neither of the residences or buildings are
7 considered eligible for listing on the CRHR or NRHP.

8 **13464 County Road 97F** is the Herman Richter House, a two-story Mediterranean
9 Revival style single-family residence. There is an associated older house on the
10 property. This farmstead has ancillary buildings such as an early 1900s garage, a
11 smoke house, a birdhouse, a barn, and a granary. The Mediterranean Revival
12 residence was constructed in 1927 and the one-story residence was built circa 1865
13 to 1875 but had significant remodels beginning in 1949. This property is considered
14 eligible for listing on the CRHR and NRHP.

15 **13488 County Road 98** is the Gorman Ranch consists of a two-story Prairie style
16 single-family residence, as well as a one-story house. There are several ancillary
17 buildings and structures including a barn, a windmill, garages, wells, and a modern
18 warehouse. The Prairie style residence was constructed ca. 1900 but underwent a
19 significant remodel ca. 2000. The one-story residence was built ca. 1930s. None of
20 the buildings are considered eligible for listing on the CRHR or NRHP.

21 **38023 County Road 16A** is a farmstead with a one-story single-family residence
22 with no architectural style, a barn/garage, two sheds and a modern warehouse. Built
23 ca. 1900 with remodels in the 1930s and 1990s, this property is considered not
24 eligible for listing on the CRHR or NRHP.

25 **38871 County Road 16A** is a farmstead with a one-story single-family residence
26 with no architectural style, a three-car garage and a barn. Built ca. 1910, this
27 property is considered not eligible for the CRHR or the NRHP.

28 **14020 County Road 99A** is a farmstead with a two-story single-family residence
29 with no architectural style and two barns. Built in the late 1880s, the buildings are
30 not considered eligible for listing on the CRHR or the NRHP.

31 **Results of Historic Architectural Survey**

32 During the course of the architectural survey, nine farmstead properties were
33 identified within the Project APE with buildings that are more than 45 years old and

1 therefore required consideration for inclusion on the NRHP or the CRHR. Although
2 the Herman Richter House located at 13464 County Road 97F was previously
3 recorded and is listed on the Historic Resources Inventory, it does not appear to
4 have been evaluated against the NRHP or CRHR criteria. In addition, the other
5 eight properties have not been previously evaluated using the NRHP or the CRHR
6 criteria.

7 Therefore, in accordance with 36 Code of Federal Regulations (CFR) Part 800.4(c)
8 of section 106, the NRHP criteria were applied to determine whether there are
9 eligible historic properties (36 CFR Part 63). A historical resource, for the purposes
10 of CEQA, is defined by Public Resources Code (PRC) 5020.1 (j), as any object,
11 building, structure, site, area, place, record, or manuscript which is determined to be
12 historically significant in the architectural, engineering, scientific, economic,
13 agricultural, educational, social, political, military, or cultural annals of California.
14 The criteria used for evaluation in these areas include those criteria outlined in PRC
15 section 5024.1, Title 14 CCR, section 4852 for inclusion in the CRHR.

16 Of the nine farmstead properties identified within the Project APE that required
17 consideration for inclusion on the NRHP or the CRHR, only one historic property that
18 may be affected by the Project was considered to meet the NRHP and CRHR
19 criteria. This property consisted of the Herman Richter House, a Mediterranean
20 Revival style single-family residence located at 13464 County Road 97F. The other
21 eight properties did not meet the criteria for inclusion in the NRHP or CRHR.

22 The Herman Richter House was determined to be a historic property for the
23 purposes of section 106 and a historical resource under CEQA. Therefore, this
24 property may be affected by the Project for the purposes of section 106 and this
25 resource may be impacted by the Project for the purposes of CEQA.

26 Under section 106, an assessment was made whether the Project would have an
27 adverse effect on this property. An adverse effect is found when an undertaking
28 may alter, directly or indirectly, any of the characteristics of a historic property that
29 qualify the property for inclusion on the NRHP in a manner that would diminish the
30 integrity of the property's location, design, setting, materials, workmanship, feeling,
31 or association (section 800.5(a)(1)). An example of an adverse effect is the physical
32 destruction of or damage to all or part of the property.

33 Under CEQA, the potential for the proposed Project to have a significant effect on
34 the environment was considered. A project that may cause a substantial adverse

1 change in the significance of an historical resource is a project that may have a
2 significant effect on the environment (PRC section 21084.1). The purpose of this
3 assessment of impacts is to determine whether the proposed Project would cause a
4 substantial adverse change on the identified historical resource within the proposed
5 Project area. Substantial adverse change to a historical resource includes
6 demolition, destruction, relocation, or alteration such that the significance of an
7 historical resource would be impaired (PRC section 5020.1 (q)). The CEQA
8 Guidelines provide that a project that demolishes or alters those physical
9 characteristics of a historical resource that conveys its historical significance (i.e., its
10 character defining features) that justify its inclusion in the CRHR or its significance in
11 a historical resource survey, can be considered to materially impair the resource's
12 significance.

13 The Project pipeline route would be located approximately 100 feet south of the
14 Herman Richter historic residence. At this location, the section of pipeline within the
15 APE involves 2,000 feet of horizontal directional drilling (HDD). HDD is a trenchless
16 construction method that uses a hydraulically-powered horizontal drilling rig to tunnel
17 under vertically, and in this case, horizontally large and sensitive surface areas. In
18 recent years, this has become a preferred method for the installation of oil and gas
19 pipelines in sensitive areas because it is a potentially low impact construction
20 technique. It is used in situations such as lake crossings, wetland crossings, and
21 sensitive wildlife habitat.

22 **Paleontologic Resources**

23 Paleontologic resources are fossilized evidence of past life found in the geologic
24 record. Despite the prodigious volume of sedimentary rock deposits preserved
25 worldwide and the enormous number of organisms that have lived through time,
26 preservation of plant or animal remains as fossils is an extremely rare occurrence.
27 Because of the infrequency of fossil preservation, fossils (particularly vertebrate
28 fossils) are considered to be nonrenewable resources. Because of their rarity and
29 the scientific information they can provide, fossils are highly significant records of
30 ancient life. As such, paleontological resources may be considered "historically
31 significant" in the scientific annals of California under the CEQA Guidelines section
32 15064.5[3].

33 Assessment of the Project site's paleontological sensitivity and potential, prior to
34 construction, was determined by (1) reviewing available geologic maps and
35 publications, and prior reports, to determine the geologic units that could be

1 impacted; and (2) searching the University of California Museum of Paleontology
2 database for localities and specimens recorded from those geologic units in each of
3 the counties involved.

4 The Project, including its alternative routes, transects a relatively flat area in the
5 Central Valley where five sedimentary rocks units, and some Sierran basement
6 rocks, are mapped. The sedimentary units, from oldest to youngest, are the
7 Modesto Riverbank, Turlock Lake, and Red Bluff formations of Pleistocene age, and
8 the Pliocene Tehama Formation. These units consist mostly of alluvial deposits
9 derived from erosion of the highlands flanking the Central Valley (e.g., Coast
10 Ranges to the West, Sierra Nevada to the east).

11 **4.5.2 Regulatory Setting**

12 The regulatory framework that mandates consideration of cultural and
13 paleontological resources in project planning includes Federal, State, and local
14 governments. Government agencies have developed laws and regulations designed
15 to protect significant cultural resources that may be affected by projects regulated,
16 funded, or undertaken by the agency. Federal and State laws that govern the
17 preservation of historic and archaeological resources of national, State, regional,
18 and local significance include the National Environmental Policy Act (NEPA), the
19 National Historic Preservation Act (NHPA), and CEQA. In addition, laws specific to
20 work conducted on Federal lands includes the Archaeological Resources Protection
21 Act (ARPA), the American Antiquities Act, and the Native American Graves
22 Protection and Repatriation Act (NAGPRA).

23 **Federal**

24 Federal agencies are required to consider the effects of their actions on historic
25 properties and afford the Advisory Council on Historic Preservation (ACHP) a
26 reasonable opportunity to comment on such undertakings under NEPA. Federal
27 agencies are responsible for initiating NEPA and NHPA section 106 review and
28 completing the steps in the process that are outlined in the regulations. They must
29 determine if NHPA section 106 applies to a given project and, if so, initiate review in
30 consultation with the SHPO and/or Tribal Historic Preservation Officer (THPO).
31 Federal agencies are also responsible for involving the public and other interested
32 parties. Furthermore, NHPA section 106 requires that any Federal or federally
33 assisted undertaking, or any undertaking requiring Federal licensing or permitting,
34 consider the effect of the action on historic properties listed in or eligible for listing on
35 the NRHP. Under 36 CFR Part 800.8, Federal agencies are specifically encouraged

1 to coordinate compliance with NEPA, section 106 of the NHPA, and the NEPA
2 process. The implementing regulations “Protection of Historic Properties” are found
3 in 36 CFR Part 800. Resource eligibility for listing on the NRHP is detailed in 36
4 CFR Part 63 and the criteria for resource evaluation are found in 36 CFR Part 60.4
5 [a-d].

6 The NHPA established the NRHP as the official Federal list for cultural resources
7 that are considered important for their historical significance at the local, State, or
8 national level. To be determined eligible for listing in the NRHP, properties must
9 meet specific criteria for historic significance and possess certain levels of integrity
10 of form, location, and setting. The criteria for listing on the NRHP are significance in
11 American history, architecture, archaeology, engineering, and culture as present in
12 districts, sites, buildings, structures and objects that possess integrity of location,
13 design, setting, materials, workmanship, feeling, and association. In addition, a
14 resource must meet one or all of these eligibility criteria:

- 15 A. Is associated with events that have made a significant contribution to the
16 broad patterns of our history;
- 17 B. Is associated with the lives of persons significant in our past;
- 18 C. Embodies the distinctive characteristics of a type, period, or method of
19 construction; represent the work of a master; possess high artistic values,
20 represent a significant and distinguishable entity whose components may
21 lack individual distinction; or
- 22 D. That have yielded, or may be likely to yield, information important in
23 prehistory or history.

24 Criterion D is usually reserved for archaeological resources. Eligible properties must
25 meet at least one of the criteria and exhibit integrity, measured by the degree to
26 which the resource retains its historical properties and conveys its historical
27 character.

28 *Criteria Considerations*

29 Ordinarily cemeteries, birthplaces, graves of historical figures, properties owned by
30 religious institutions or used for religious purposes, buildings that have been moved
31 from their original locations, reconstructed historic buildings, properties primarily
32 commemorative in nature, and properties that have achieved significance within the

1 past 50 years would not be considered eligible for the NRHP. However, such
2 properties would qualify if they were integral parts of districts that do meet the
3 criteria or if they fall within the following categories:

- 4 • A religious property deriving primary significance from architectural or artistic
5 distinction or historical importance;
- 6 • A building or structure removed from its original location but which is primarily
7 significant for architectural value, or which is the surviving structure most
8 importantly associated with a historic person or event;
- 9 • A birthplace or grave of a historical figure of outstanding importance if there is
10 no appropriate site or building associated with his or her productive life;
- 11 • A cemetery that derives its primary importance from graves of persons of
12 transcendent importance, from age, from distinctive design features, or from
13 association with historic events;
- 14 • A reconstructed building when accurately executed in a suitable environment
15 and presented in a dignified manner as part of a restoration master plan, and
16 when no other building or structure with the same association has survived;
- 17 • A property primarily commemorative in intent if design, age, tradition, or
18 symbolic value has invested it with its own exceptional significance; or
- 19 • A property achieving significance within the past 50 years if it is of exceptional
20 importance.

21 *Thresholds of Significance*

22 In consultation with the SHPO/THPO and other entities that attach religious and
23 cultural significance to identified historic properties, the lead agency shall apply the
24 criteria of adverse effect to historic properties within the APE. The lead agency
25 official shall consider the views of consulting parties and the public when considering
26 adverse effects.

27 *Federal Criteria of Adverse Effects*

28 Under Federal regulations, 36 CFR Part 800.5, an adverse effect is found when an
29 undertaking alters, directly or indirectly, any of the characteristics of a historic
30 property that qualifies the property for inclusion in the NRHP in a manner that

1 diminishes the integrity of the property's location, design, setting, materials,
2 workmanship, feeling, or association. Consideration would be given to all qualifying
3 characteristics of a historic property, including those that may have been identified
4 subsequent to the original evaluation of the property's eligibility for listing in the
5 NRHP. Adverse effects may include reasonably foreseeable effects caused by the
6 undertaking that may occur later in time, be farther removed in distance, or be
7 cumulative.

8 Pursuant to 36 CFR Part 800.5, adverse effects on historic properties include, but
9 are not limited to, those listed below:

- 10 • Physical destruction of or damage to all or part of the property;
- 11 • Alteration of a property, including restoration, rehabilitation, repair,
12 maintenance, stabilization, hazardous material remediation, and provision of
13 handicapped access, that is not consistent with the U.S. Secretary of the
14 Interior's Standards for the Treatment of Historic Properties in accordance with
15 36 CFR Part 68 and applicable guidelines;
- 16 • Removal of the property from its historic location;
- 17 • Change of the character of the property's use or of physical features within the
18 property's setting that contribute to its historic significance;
- 19 • Introduction of visual, atmospheric, or audible elements that diminish the
20 integrity of the property's significant historic features;
- 21 • Neglect of a property that causes its deterioration, except where such neglect
22 and deterioration are recognized qualities of a property of religious and cultural
23 significance to an Indian tribe or Native Hawaiian organization; or
- 24 • Transfer, lease, or sale of property out of federal ownership or control without
25 adequate and legally enforceable restrictions or conditions to ensure long term
26 preservation of the property's historic significance.

27 *If Adverse Effects Are Found*

28 If adverse effects are found, the agency official shall continue consultation as
29 stipulated at 36 CFR Part 800.6. The agency official shall consult with the
30 SHPO/THPO and other consulting parties to develop alternatives to the undertaking
31 that could avoid, minimize, or mitigate adverse effects to historic resources.

1 Pursuant to 36 CFR Part 800.14(d), if adverse effects cannot be avoided then
2 standard treatments established by the ACHP maybe used as a basis for
3 Memorandum of Agreement (MOA).

4 Pursuant to 36 CFR Part 800.11(e) the filing of an approved MOA, and appropriate
5 documentation as specified, concludes the section 106 process. The MOA must be
6 signed by all consulting parties and approved by the ACHP prior to construction
7 activities. If no adverse affects are found and the SHPO/THPO or the ACHP does
8 not object within 30 days of receipt, the agencies responsibilities under section 106
9 would be satisfied upon completion of report and documentation as stipulated in 36
10 CFR Part 800.11. The information must be made available for public review upon
11 request, excluding information covered by confidentiality provisions.

12 There are no Federal regulations pertaining to paleontological resources.

13 **State**

14 *Cultural Resources*

15 An archaeological site may be considered a historical resource if it is significant in
16 the architectural, engineering, scientific, economic, agricultural, educational, social,
17 political, military or cultural annals of California in accordance with Public Resources
18 Code (PRC) section 5020.1(j) or if it meets the criteria for listing on the CRHR that
19 are consistent with Title 14 CCR section 4850.

20 The most recent amendments to the CEQA Guidelines direct lead agencies to first
21 evaluate an archaeological site to determine if it meets the criteria for listing in the
22 CRHR. If an archaeological site is a historical resource, in that it is listed or eligible
23 for listing in the CRHR, potential adverse impacts to it must be considered, in
24 accordance with PRC sections 21084.1 and 21083.2(l). If an archaeological site is
25 considered not to be a historical resource, but meets the definition of a “unique
26 archeological resource” as defined in PRC section 21083.2, then it would be treated
27 in accordance with the provisions of that section.

28 With reference to PRC section 21083.2, each site found within a project area will be
29 evaluated to determine if it is a unique archaeological resource. A unique
30 archaeological resource is described as an archaeological artifact, object, or site
31 about which it can be clearly demonstrated that, without merely adding to the current
32 body of knowledge, there is a high probability that it meets one or more of the
33 following criteria:

-
- 1 • Contains information needed to answer important scientific research questions
2 and that there is a demonstrable public interest in that information;
 - 3 • Has a special and particular quality such as being the oldest of its type or the
4 best available example of its type; or
 - 5 • Is directly associated with a scientifically recognized important prehistoric or
6 historic event or person.

7 As used in this analysis, “non-unique archaeological resource” means an
8 archaeological artifact, object, or site that does not meet the criteria for eligibility for
9 listing on the CRHR, as noted in subdivision (g) of PRC section 21083.2. A non-
10 unique archaeological resource requires no further consideration, other than simple
11 recording of its components and features. Isolated artifacts are typically considered
12 non-unique archaeological resources. Historic structures that have had their
13 superstructures demolished or removed can be considered historic archaeological
14 sites and are evaluated following the processes used for prehistoric sites. Finally,
15 the Office of Historic Preservation (OHP) recognizes an age threshold of 45 years.
16 Cultural resources built less than 45 years ago may qualify for consideration, but
17 only under extraordinary circumstances.

18 Title 14, CCR, Chapter 3 section 15064.5 is associated with determining the
19 significance of impacts to archaeological and historical resources. Here, the term
20 historical resource includes the following:

- 21 • A resource listed in, or determined eligible by the State Historical Resources
22 Commission, for listing in the CRHR (PRC section 5024.1; Title 14 CCR,
23 section 4850, et seq.);
- 24 • A resource included in a local register of historical resources, as defined in
25 PRC section 5020.1(k) or identified as significant in an historical resource
26 survey meeting the PRC section 5024.1(g) requirements, shall be presumed to
27 be historically or culturally significant. Public agencies must treat any such
28 resource as significant unless the preponderance of evidence demonstrates
29 that it is not historically or culturally significant; and
- 30 • Any object, building, structure, site, area, place, record, or manuscript, which a
31 lead agency determines to be historically significant or significant in the
32 architectural, engineering, scientific, economic, agricultural, educational, social,
33 political, military, or cultural annals of California may be considered an historical

1 resource, provided the lead agency's determination is supported by substantial
2 evidence in light of the whole record. Generally, a resource shall be considered
3 by the lead agency to be historically significant if the resource meets the criteria
4 for listing on the California Register of Historical Resources (PRC section
5 5024.1; Title 14 CCR section 4852) including the following:

- 6 A. Is associated with events that have made a significant contribution to the
7 broad patterns of California's history and cultural heritage;
- 8 B. Is associated with the lives of persons important in our past;
- 9 C. Embodies the distinctive characteristics of a type, period, region, or
10 method of construction, or represents the work of an important creative
11 individual, or possesses high artistic values; or
- 12 D. Has yielded, or may be likely to yield, information important in prehistory
13 or history.

14 Typically, archaeological sites exhibiting significant features qualify for the CRHR
15 under the criterion D. because such features have information important to the
16 prehistory of California. A lead agency may determine that a resource may be a
17 historical resource as defined in PRC section 5020.1(j) or 5024.1 even if it is:

- 18 • Not listed in or determined to be eligible for listing in the CRHR;
- 19 • Not included in a local register of historical resources pursuant to PRC section
20 5020.1(k); or
- 21 • Identified in an historical resources survey per PRC section 5024.1(g).

22 *Paleontological Resources*

23 Public Resources Code Section 5097.5

24 California Public Resources Code section 5097.5 prohibits excavation or removal of
25 any "vertebrate paleontological site, or any other archaeological, paleontological or
26 historical feature, situated on public lands, except with the express permission of the
27 public agency having jurisdiction over such lands." Public lands are defined to
28 include lands owned by or under the jurisdiction of the state or any city, county,
29 district, authority or public corporation, or any agency thereof. Section 5097.5 states
30 that any unauthorized disturbance or removal of archaeological, historical, or
31 paleontological materials or sites located on public lands is a misdemeanor.

1 **Local**

2 Yolo, Sacramento, Sutter, and Placer counties maintain general plans that reflect
3 elements found in the CEQA Guidelines. The Yolo County General Plan Historic
4 Preservation Element states in HP1 Goal, that Yolo County “shall support the
5 preservation and enhancement of historic and prehistoric resources within the
6 County when fiscally able.” The Yolo County General Plan does not specifically
7 address paleontological resources.

8 Although there is no specifically stated goal within the Sutter County General Plan
9 concerning historic or archaeological resources, the Parks and Recreation Advisory
10 Commission is tasked with “encourage(ing) the planned development of . . . special
11 facilities accommodating such leisure-time activities as golf, zoological attractions,
12 and historical areas . . .” There is no specifically stated goal within the Sutter County
13 General Plan concerning paleontological resources.

14 The Sacramento County General Plan Goal under Section VI, Cultural Resources, is
15 to “promote the inventory, protection, and interpretation of the cultural heritage of
16 Sacramento County, including historical and archaeological settings, sites, buildings,
17 features, artifacts, and/or areas of ethnic historical, religious or socio-economical
18 importance.” There is no specifically stated goal within the Sacramento County
19 General Plan concerning paleontological resources.

20 The Placer County General Plan Cultural Resources Goal 5.D. for cultural and
21 paleontological resources is to “identify, protect, and enhance Placer County’s
22 important historical, archaeological, paleontological, and cultural sites and their
23 contributing environment.”

24 **4.5.3 Significance Criteria**

25 **Cultural Resources**

26 An adverse impact on cultural resources is considered significant and would require
27 mitigation if Project construction or operation would:

- 28 1. Result in damage to, the disruption of, or otherwise adversely affect a
29 property that is listed in the NRHP, the CRHR, or a local register of historical
30 resources as per section 5020.1 of the Public Resources Code;
- 31 2. Result in damage to, the disruption of, or otherwise adversely affect an
32 important archaeological resource (prehistoric or historic) such that its

1 integrity could be compromised or its eligibility for future listing in the NRHP or
2 CRHR could be diminished;

3 3. Result in damage to, the disruption of, or otherwise adversely affect an
4 important historical resource such that its integrity could be compromised or
5 its eligibility for future listing in the NRHP or CRHR diminished; or

6 4. Disturb any human remains.

7 **Paleontological Resources**

8 An impact to an identified paleontologic resource is considered "historically
9 significant" and would require mitigation if:

10 1. Project construction or operation would result in damage or loss of vertebrate
11 or invertebrate fossils that are considered important by paleontologists and
12 land management agency staff; or

13 2. The resource is considered to have scientific or educational value. A
14 paleontological resource can be considered to have scientific or educational
15 value if it:

16 a. provides important information on the evolutionary trends among
17 organisms, relating living inhabitants of the earth to extinct organisms;

18 b. provides important information regarding development of biological
19 communities or the interaction between botanical and zoological biota;

20 c. demonstrates unusual or spectacular circumstances in the history of life;

21 d. is in short supply and in danger of being depleted or destroyed by the
22 elements, vandalism, or commercial exploitation and is not found in other
23 geographic locations;

24 e. is recognized as a natural aspect of our national heritage;

25 f. lived prior to the Holocene (~11,000 B.P.); and

26 g. is not associated with an archaeological resource, as defined in section
27 3(1) of the Archaeological Resources Protection Act of 1979 (16 USC
28 section 470bb[1]).

1 4.5.4 Applicant Proposed Measures

2 Applicant Proposed Measures (APMs) have been identified by PG&E in its
3 Environmental Analysis prepared for the California State Lands Commission
4 (CSLC). APMs that are relevant to this section are presented below. This impact
5 analysis assumes that all APMs would be implemented as defined below. Additional
6 mitigation measures are recommended in this section if it is determined that APMs
7 do not fully mitigate the impacts for which they are presented.

8 Cultural Resources

9 Where feasible, PG&E would avoid all Project impacts to eligible or unevaluated
10 cultural resources. Avoidance measures may include fencing the resource during
11 Project construction or directional drilling under the resource. If temporary fencing is
12 chosen, an archaeologist would monitor placement of the fencing to ensure resource
13 protection.

14 If Project impacts to resources cannot be avoided, each unevaluated site would
15 need to be evaluated for its eligibility to the NRHP or CRHR through archival
16 research and/or excavations (for archaeological components). Evaluation of sites
17 would be done in consultation with the CSLC and (for prehistoric resources) the
18 appropriate Native American groups(s).

19 For sites determined ineligible to the NRHP or CRHR, no further management
20 consideration is necessary. If a site proves eligible and impacts cannot be avoided,
21 it may be necessary to further mitigate those impacts. For prehistoric and historic-
22 era archaeological resources, mitigation measures can include data recovery
23 (archival research and/or excavation) by a qualified archaeologist, and public
24 outreach (interpretive displays, brochures, videos, etc.). Any data recovery at
25 prehistoric sites would be done in consultation with the CSLC and relevant Native
26 American group(s). For historical structures (buildings, canals, railroads, etc.),
27 archival research, and Historic American Buildings Survey/Historic American
28 Engineering Record (HABS/HAER) documentation by a qualified historian or
29 architectural historian are commonly considered sufficient mitigation.

30 **APM CR-1.** PG&E will evaluate all unavoidable unevaluated resources in the
31 project APE for their National Register or California Register
32 eligibility through test excavations (for archaeological sites),
33 archival research (for historic-era properties), HABS/HAER
34 recordation (for standing structures), or other means, as

1 appropriate. Resources determined through evaluation to be
2 ineligible will be dropped from further management; those
3 determined eligible will be subject to APM CR-2.

4 **APM CR-2.** PG&E will protect all significant/eligible resources in the project
5 APE from project impacts, including all contributing or potentially
6 contributing features of RD 1000. Where impacts cannot be
7 avoided, a Finding of Effect will be prepared for each
8 significant/eligible resource. Where the Finding of Effect identifies
9 an adverse impact to a significant/eligible resource, the impact(s)
10 will be mitigated through data recovery excavations, archival
11 research, HABS/HAER recordation, or other means, as
12 appropriate.

13 **APM CR-3.** PG&E will test the reported location of the historic Eagle Hotel, and
14 other areas identified as sensitive for buried archaeological
15 remains, prior to construction by backhoe trenching. All trenching
16 will be supervised by a qualified professional archaeologist and/or
17 geo-archaeologist. If any buried materials are uncovered, work will
18 stop temporarily at that location, until the monitor can assess the
19 find and determine the appropriate action.

20 **APM CR-4.** PG&E will consult with the local Native American community prior
21 to any subsurface excavation at prehistoric archaeological sites to
22 give them the opportunity to monitor the excavations. If the Native
23 American community requests it, a Discovery Plan will be
24 developed prior to excavation to outline the appropriate treatment
25 of archaeological materials or human remains. The discovery of
26 human remains outside a dedicated cemetery also will require
27 compliance with State Health and Safety Code Section 7050.5.

28 **APM CR-5.** PG&E will provide all construction personnel with environmental
29 training prior to the initiation of construction activities. Training will
30 describe the types of cultural resources in the project area and
31 emphasize the importance of the resources and the need for their
32 protection. Training will also address the possibility that previously
33 unidentified cultural resources or human remains may become
34 apparent during ground-disturbing activities, and will define
35 procedures to be implemented if they are discovered.

1 **Paleontologic Resources**

2 **APM PALEO-1.** Prior to ground-disturbing activities the project paleontologist will
3 provide input for inclusion in the environmental training to be
4 provided to all construction personnel, which will include the
5 paleontologic resource issues associated with the PG&E Line 406
6 and 407 project, including the following:

- 7 • definition of a fossil,
- 8 • types of geologic units in the project area,
- 9 • any known fossil locales in or adjacent to the project area,
- 10 • potential of the geologic units in the project area to produce
11 fossils, and
- 12 • measures to follow in the event fossils are discovered in the
13 project area.

14 **APM PALEO-2.** All workers on the project involved in ground-disturbing activities
15 will be required to participate in the environmental training and will
16 be familiar with the compliance measures pertaining to
17 paleontological resources. The worker-training program shall be
18 sufficient in scope to make the workers aware of the importance
19 and purpose of the paleontological monitoring program and is not
20 intended to enable workers to discern between fossil and non-fossil
21 material.

22 **APM PALEO-3.** For areas with high paleontological sensitivity, PG&E will retain a
23 qualified paleontologist (Conformable Impact Mitigation Guidelines
24 Committee, 1995) to organize and supervise an appropriate level of
25 monitoring of ground-disturbing activities, data recovery and
26 analysis, preparation of a data recovery report or other reports, and
27 the accession of recovered fossil material to an accredited
28 paleontological repository, such as the UCMP, for those project
29 areas lying directly on geologic units. This includes the Tehama,
30 Red Bluff, Turlock Lake, Riverbank, and Modesto formations.
31 Methods for monitoring, recovery, reporting and curation will be
32 outlined in a Discovery Plan prior to construction.

1 **APM PALEO-4.** For the portion of the Line 407 West project area east of Yolo,
2 PG&E will retain a qualified paleontologist (Conformable Impact
3 Mitigation Guidelines Committee, 1995) to organize and supervise
4 monitoring of initial ground-disturbing activities and continued spot-
5 check monitoring of ground-disturbing activities, data recovery and
6 analysis, preparation of a data recovery report or other reports, and
7 the accession of fossil material to an accredited paleontological
8 repository, such as the UCMP.

9 **APM PALEO-5.** If paleontological resources are discovered during project activities
10 when a paleontological monitor or qualified paleontologist
11 (Conformable Impact Mitigation Guidelines Committee, 1995) is not
12 present, all work within 25 feet of the discovery will be redirected
13 and/or halted until a qualified paleontologist has assessed the
14 situation and made recommendations regarding treatment of the
15 resources. Project personnel will not move or collect any
16 paleontological resources.

17 **4.5.5 Impact Analysis and Mitigation**

18 **Impact Discussion**

19 *Cultural Resources*

20 Listed Properties

21 The Project would not result in damage to, the disruption of, or otherwise adversely
22 affect a property that is listed in the National Register of Historic Places (NRHP), the
23 California Register of Historic Resources (CRHR), or a local register of historical
24 resources per section 5020.1 of the Public Resources Code. Impacts would be less
25 than significant (Class III).

26 *Important Archaeological Resources*

27 The Project would not result in damage to, the disruption of, or otherwise adversely
28 affect an important archaeological resource (prehistoric or historic) such that its
29 integrity could be compromised or its eligibility for future listing in the NRHP or
30 CRHR could be diminished. Any artifacts found on lands under the jurisdiction of the
31 CSLC are considered the property of the state of California. Any disposition of these
32 artifacts requires the approval of the CSLC and a potential transfer of title would be
33 required. Impacts would be less than significant (Class III).

1 *Important Historic Resources*

2 The Project pipeline route would be located approximately 100 feet south of the
3 Herman Richter historic residence. At this location, the section of the Project
4 pipeline within the APE involves 2,000 feet of HDD operations.

5 By using HDD at this location, there would not be direct physical destruction or
6 alteration to the identified historic property/historical resource, and therefore would
7 not change the character of the property's features or setting that contributes to its
8 significance. However, the potential for damage as a result of vibration from the
9 HDD drilling was considered. It was determined that the process would not cause
10 significant vibration to potentially physically damage the historic property/historical
11 resource that is located 100 feet away.

12 Therefore, in accordance with 36 CFR 800.5(b) of section 106, there is a finding of
13 no adverse effect for the Project. In accordance with CEQA, there will be no
14 significant impacts to a historic resource (Title 14 CCR section 15064.5(b)).

15 The Project would not result in damage to, the disruption of, or otherwise adversely
16 affect an important historical resource such that its integrity could be compromised
17 or its eligibility for future listing in the NRHP or CRHR diminished. Impacts would be
18 less than significant (Class III).

19 *Human Remains*

20 The Project would not disturb any human remains. Impacts would be less than
21 significant (Class III).

22 **Paleontological Resources**

23 **Impact PALEO-1: Fossils**

24 **Project construction or operation would result in damage or loss of vertebrate**
25 **or invertebrate fossils that are considered important by paleontologists and**
26 **land management agency staff (Potentially Significant, Class II).**

27 The Project transects a relatively flat area in the Central Valley where five
28 sedimentary rocks units, and some Sierran basement rocks, are mapped. The
29 sedimentary units, from oldest to youngest, are the Modesto, Riverbank, Turlock
30 Lake, and Red Bluff formations of Pleistocene age, and the Pliocene Tehama
31 Formation. Paleontologic resources are fossilized evidence of past life found in the

1 geologic record. Because of the infrequency of fossil preservation, fossils
2 (particularly vertebrate fossils) are considered to be nonrenewable resources.
3 Because of their rarity and the scientific information they can provide, fossils are
4 highly significant records of ancient life.

5 Upon implementation of APM CR-1 through CR-5 and APM PALEO-1 through
6 PALEO-5, listed above, all significant fossils that would otherwise have been
7 adversely impacted by the Project would have been salvaged and removed from the
8 Project site. Further mitigation is required for proper curation of any fossil.

9 Mitigation Measures for Impact PALEO-1: Fossils

10 **MM PALEO-1. Proper Curation of Fossil Collection.** The Project paleontologist
11 shall ensure that the fossil collection is properly curated to the point
12 of identification and complete a data recovery report that includes a
13 map plotted with fossil localities and detailed lists or tables of all
14 specimens and localities.

15 Rationale for Mitigation

16 Preliminary preparation and documentation of a fossil collection is generally required
17 prior to its acceptance by and transfer to an accredited repository. Offsite
18 preparation of specimens would include minimizing excessive matrix, labeling with
19 field locality and specimen numbers, and enclosing in adequately protective
20 packaging for transport and storage. These tasks would enhance subsequent
21 evaluation and curation by the chosen repository.

22 **Impact PALEO-2: Scientific or Educational Value**

23 **The Project is considered to be a resource having scientific or educational**
24 **value based on the significance criteria given in Section 4.6.3 (Potentially**
25 **Significant, Class II).**

26 The Project transects a relatively flat area in the Central Valley where five
27 sedimentary rocks units, and some Sierran basement rocks, are mapped. The
28 sedimentary units, from oldest to youngest, are the Modesto, Riverbank, Turlock
29 Lake, and Red Bluff formations of Pleistocene age, and the Pliocene Tehama
30 Formation. Paleontologic resources are fossilized evidence of past life found in the
31 geologic record. Because of the infrequency of fossil preservation, fossils
32 (particularly vertebrate fossils) are considered to be nonrenewable resources.
33 Because of their rarity and the scientific information they can provide, fossils are

1 highly significant records of ancient life. Upon implementation of APM CR-1 through
2 CR-5 and APM PALEO-1 through PALEO-5, listed above, all significant fossils that
3 would otherwise have been adversely impacted by the Project would have been
4 salvaged and removed from the Project site. Further mitigation is required for proper
5 delivery of any fossil to an accredited repository.

6 Mitigation Measures for Impact PALEO-2: Scientific or Educational Value

7 **MM PALEO-2. Delivery of Fossil Collection to Appropriate Location.** The
8 Project paleontologist shall ensure that the fossil collection, with a
9 copy of the report, is delivered to an accredited paleontological
10 repository, such as the University of California Museum of
11 Paleontology (UCMP) in Berkeley. Any artifacts found on lands
12 under the jurisdiction of the CSLC are considered the property of
13 the state of California. Any disposition of these artifacts requires
14 the approval of the CSLC and a potential transfer of title will be
15 required.

16 Rationale for Mitigation

17 Fossils are nonrenewable resources that have scientific and educational value.
18 Each specimen provides data that enables reconstruction of the biotic communities,
19 climate, geography, and evolution of the prehistoric world. The fossil record reveals
20 changes through geologic time that enable scientists to better understand the
21 modern world and the potential consequences of both gradual and abrupt changes
22 in its environments, whether natural or related to human activities. The mitigation
23 measure ensures that any fossil collection would be permanently incorporated into
24 the larger collection of an appropriate curatorial facility so that the specimens would
25 be properly curated and available to present and future generations of research
26 scientists and students.

27 **4.5.6 Impacts of Alternatives**

28 A No Project Alternative as well as twelve options have been proposed for the
29 alignment in order to minimize environmental impacts of the proposed Project and to
30 respond to comments from nearby landowners. The twelve options, labeled A
31 through L, have been analyzed in comparison to the portion of the proposed route
32 that would be avoided as a result of the option. Descriptions of the options can be
33 found in Section 3.0, Alternatives and Cumulative Projects, and are depicted in
34 Figure 3-2A through Figure 3-2K. A comparison of the cultural resource impacts is

1 found in Table 4.5-2. A comparison of paleontological resource impacts is found in
2 Table 4.5-3. APMs CR-1 through CR-5, and APMs PALEO-1 through PALEO-5,
3 designed to reduce cultural and paleontological impacts that would result from
4 Project construction, would apply to all twelve options.

5 **Cultural Resources**

6 *No Project Alternative*

7 Under the No Project Alternative, no natural gas pipeline would be constructed. As
8 such, there would be no impacts to cultural resources if the No Project Alternative
9 were selected.

10 *Option A*

11 Option A would shift approximately 14 miles of pipeline away from numerous
12 residences located along CR-17 to the sparsely populated area to the north. Under
13 Option A, only one residence would be located within 200 feet of the pipeline
14 construction, whereas eight residences would be located within 200 feet of
15 construction for the proposed Project. By moving away from the eight residences
16 near the proposed Project and closer to one residence under Option A, there would
17 be a reduced number of residences to evaluate for eligibility for listing on the NRHP
18 or the CRHR.

19 Option A would move a section of the pipeline farther away from the Herman Richter
20 House. Under the proposed Project, pipeline construction would occur
21 approximately 100 feet south of the Herman Richter House. Under Option A, the
22 pipeline construction would be moved nearly 0.5 mile northeast of the Herman
23 Richter House. Moving the alignment farther from the Herman Richter House under
24 Option A results in a reduced potential impact to cultural/historic resources than the
25 proposed Project. Construction of Option A would occur outside the 1,000-foot wide
26 area surveyed for Line 406, as described in Appendix F-1. Therefore, Option A may
27 impact unknown cultural resources, and cultural resource impacts associated with
28 Option A would be potentially significant (Class II). Implementation of MM CR-1, in
29 association with APM CR-1 through CR-5, would be required to reduce impacts to
30 less than significant.

1 **Impact CR-1: Impact to Unknown Cultural Resources**

2 **The project would result in damage to, disruption of or otherwise adversely**
3 **affect an important archeological or a listed or important historic resource**
4 **(Potentially Significant, Class II).**

5 **MM CR-1 Alternative Option Pre-Construction Cultural Resource**
6 **Surveys.** To ensure protection of undiscovered cultural resources,
7 pedestrian field surveys will be conducted for all Alternative Options
8 that were not included in the original field survey efforts. The
9 surveys will be conducted by qualified archaeologists meeting the
10 Secretary of the Interior's Standards and utilizing appropriate
11 transect intervals, typically 15 to 20 meters, walked in a zigzag
12 pattern to ensure complete coverage of the Area of Potential
13 Effects (APE). Previously recorded cultural resources located
14 within or immediately adjacent to the Alternative's APE would be re-
15 located and their current condition described and recorded on
16 Department of Parks and Recreation (DPR) update forms. Any
17 previously unknown cultural resources discovered during the
18 course of the Alternative Options surveys would be evaluated for
19 historic significance and recorded on appropriate DPR forms. In
20 cases where significant impacts would be unavoidable, resource
21 specific, appropriate mitigation would be required.

22 The potential Cultural Resource impacts of Option A would be greater than under
23 the proposed Project.

24 *Option B*

25 Option B would shift approximately 6.5 miles of pipeline away from numerous
26 residences located along CR-17 to the sparsely populated area to the north. There
27 are no residences located within 200 feet of the pipeline construction under Option B
28 or proposed Project. Therefore, there would be no residences to evaluate for
29 eligibility for listing on the NRHP or the CRHR.

30 Construction of Option B would occur outside the 1,000-foot-wide area surveyed for
31 Line 406, as described in Appendix F-1. Therefore, Option B may impact unknown
32 cultural resources, and cultural resource impacts associated with Option B would be
33 potentially significant (Class II). Implementation of MM CR-1, in association with

1 APM CR-1 through CR-5, would be required to reduce impacts to less than
2 significant.

3 The potential Cultural Resource impacts of Option B would be greater than under
4 the proposed Project.

5 *Option C*

6 Option C would shift approximately 1 mile of pipeline north by approximately 750
7 feet. There are no residences located within 200 feet of the pipeline construction
8 under Option C or the proposed Project. Therefore, there would be no residences to
9 evaluate for eligibility for listing on the NRHP or the CRHR. Option C was included
10 in the 1,000-foot-wide area surveyed for Line 406.

11 Option C would result in similar impacts to cultural/historic resources as compared to
12 the proposed Project. Cultural Resource impacts associated with Option C, similar
13 to the proposed Project, would be less than significant (Class III).

14 *Option D*

15 Option D would shift a section of pipeline from bisecting agricultural fields located
16 between CR-17 and CR-19 to the agricultural field boundaries near CR-17. Under
17 Option D, five residences would be located within 200 feet of the pipeline
18 construction, whereas no residences would be located within 200 feet of
19 construction for the proposed Project. By moving toward the five residences near
20 Option D, there would be an increased number of residences to evaluate for
21 eligibility for listing on the NRHP or the CRHR.

22 Construction of Option D would occur outside the 1,000-foot-wide area surveyed for
23 Line 406, as described in Appendix F-1. Therefore, Option D may impact unknown
24 cultural resources, and cultural resource impacts associated with Option D would be
25 potentially significant (Class II). Implementation of MM CR-1, in association with
26 APM CR-1 through CR-5, would be required to reduce impacts to less than
27 significant.

28 The potential Cultural Resource impacts associated with Option D would be greater
29 than under the proposed Project.

1 *Option E*

2 Option E would shift a section of pipeline from bisecting agricultural fields located
3 between CR-17 and CR-19 to the agricultural field boundaries near CR-19. Under
4 Option E, three residences would be located within 200 feet of the pipeline
5 construction, whereas no residences would be located within 200 feet of
6 construction for the proposed Project. By moving toward the three residences near
7 Option E, there would be an increased number of residences to evaluate for
8 eligibility for listing on the NRHP or the CRHR.

9 Construction of Option E would occur outside the 1,000-foot-wide area surveyed for
10 Line 406, as described in Appendix F-1. Therefore, Option E may impact unknown
11 cultural resources, and cultural resource impacts associated with Option E would be
12 potentially significant (Class II). Implementation of MM CR-1, in association with
13 APM CR-1 through CR-5, would be required to reduce impacts to less than
14 significant.

15 The potential Cultural Resource impacts associated with Option E would be greater
16 than under the proposed Project.

17 *Option F*

18 Option F would shift a portion of the pipeline east by approximately 650 feet. Under
19 Option F, no residences would be located within 200 feet of the pipeline
20 construction, whereas one residence would be located within 200 feet of
21 construction for the proposed Project. By moving away from the residence near the
22 proposed Project, there would be a reduced number of residences to evaluate for
23 eligibility for listing on the NRHP or the CRHR. Option F occurs within the areas
24 previously surveyed for cultural resources.

25 Potential impacts to cultural/historic resources would be slightly fewer under Option
26 F than for the proposed Project. Cultural Resource impacts associated with Option
27 F, similar to the proposed Project, would be less than significant (Class III).

28 *Option G*

29 Option G would shift a portion of the pipeline south by approximately 240 feet.
30 There are three residences located within 200 feet of Option G and the proposed
31 Project. Therefore, Option G would have the same number of residences to
32 evaluate for eligibility for listing on the NRHP or the CRHR as the proposed Project.
33 In addition, Option G would not lessen potential impacts to an extensive prehistoric

1 resource located north of CR-16A. Option G occurs within the areas previously
2 surveyed for cultural resources.

3 Option G would have similar potential impacts to cultural/historic resources as the
4 proposed Project. Similar to the proposed Project, Cultural Resource impacts
5 associated with Option G would be less than significant (Class III).

6 *Option H*

7 Option H would shift almost 5.5 miles of pipeline from the more densely populated
8 rural area around Line 407 West to the sparsely populated area to the south. Under
9 Option H, only one residence would be located within 200 feet of the pipeline
10 construction, whereas five residences would be located within 200 feet of
11 construction of the proposed Project. By moving away from four of the five
12 residences near the proposed Project, there would be a reduced number of
13 residences to evaluate for eligibility for listing on the NRHP or the CRHR.

14 Construction of Option H would occur outside the 600-foot-wide area surveyed for
15 Line 406, as described in Appendix F-2. Therefore, Option H may impact unknown
16 cultural resources, and cultural resource impacts associated with Option H would be
17 potentially significant (Class II). Implementation of MM CR-1, in association with
18 APM CR-1 through CR-5, would be required to reduce impacts to less than
19 significant.

20 The potential Cultural Resource impacts associated with Option H would be greater
21 than under the proposed Project.

22 *Option I*

23 Option I would shift a portion of the pipeline away from the more densely populated
24 area around Line 407 East along Baseline Road to the sparsely populated area to
25 the north. Under Option I, four residences would be located within 200 feet of the
26 pipeline construction, whereas eight residences would be located within 200 feet of
27 construction for the proposed Project. By moving away from the eight residences
28 near the proposed Project and closer to four residences under Option I, there would
29 be a reduced number of residences to evaluate for eligibility for listing on the NRHP
30 or the CRHR.

31 Option I would not avoid proximity to three recorded historic-period cultural
32 resources: the Eagle Hotel, Brewer Road, and Country Acres Road (See Appendix

1 F-6). However, similar to the proposed Project, implementation of APM CR-1, CR-2,
2 and CR-3 would avoid and/or minimize impacts to these resources.

3 The potential Cultural Resource impacts associated with Option I would be slightly
4 fewer than the proposed Project. Similar to the proposed Project, impacts
5 associated with Option I would be less than significant (Class III).

6 *Option J*

7 Option J would shift a portion of the pipeline away from the more densely populated
8 area around Line 407 East along Baseline Road to the sparsely populated area to
9 the north. Under Option J, six residences would be located within 200 feet of the
10 pipeline construction, whereas eight residences would be located within 200 feet of
11 construction for the proposed Project. By moving away from the eight residences
12 near the proposed Project and closer to six residences under Option J, there would
13 be a reduced number of residences to evaluate for eligibility for listing on the NRHP
14 or the CRHR.

15 Option J would not avoid proximity to three recorded historic-period cultural
16 resources: the Eagle Hotel, Brewer Road, and Country Acres Road (See Appendix
17 F-6). However, similar to the proposed Project, implementation of APM CR-1, CR-2,
18 and CR-3 would avoid and/or minimize impacts to these resources.

19 The potential Cultural Resource impacts associated with Option J would be slightly
20 fewer than the proposed project. Similar to the proposed project, impacts
21 associated with Option J would be less than significant (Class III).

22 *Option K*

23 Option K would shift a portion of pipeline from Baseline Road to the open and
24 agricultural fields to the north. Option K is within 150 feet of the proposed Project
25 and is within the study area conducted for previous field surveys and research.
26 There are no residences within 200 feet of Option K or the proposed Project.
27 Therefore, there would be no residences to evaluate for eligibility for listing on the
28 NRHP or the CRHR. According to the review of previous analysis, there are no
29 important cultural resources along Option K (Appendix C-2).

30 Option K would result in similar impacts to cultural/historic resources as the
31 proposed Project. Cultural Resource impacts associated with Option K, similar to
32 the proposed project, would be less than significant (Class III).

1 *Option L*

2 Option L would follow the proposed alignment for Line 407-E along Base Line Road,
 3 but would extend the proposed HDD approximately 1,345 feet to the east. This
 4 alternative would increase the depth of cover through the buffer zone to
 5 approximately 35 feet and reduce the risk potential to a planned elementary school
 6 south of Base Line Road. There are no residences within 200 feet of Option L or the
 7 proposed Project. Therefore, there would be no residences to evaluate for eligibility
 8 for listing on the NRHP or the CRHR.

9 Option L would result in similar impacts to cultural/historic resources as the
 10 proposed Project. Cultural Resource impacts associated with Option L, similar to
 11 the proposed project, would be less than significant (Class III).

12 **Table 4.5-2: Comparison of Alternatives for Cultural Resources**

Alternative	Comparison with Proposed Project
No Project	No Impacts
Option A	Greater Impacts
Option B	Greater Impacts
Option C	Similar Impacts
Option D	Greater Impacts
Option E	Greater Impacts
Option F	Slightly Fewer Impacts
Option G	Similar Impacts
Option H	Greater Impacts
Option I	Slightly Fewer Impacts
Option J	Slightly Fewer Impacts
Option K	Similar Impacts
Option L	Similar Impacts
Source: Michael Brandman Associates 2009.	

13

1 **Paleontological Resources**

2 *No Project Alternative*

3 Under the No Project Alternative, no natural gas pipeline would be constructed. As
4 such, there would be no impacts to paleontological resources if the No Project
5 Alternative were selected.

6 *Option A*

7 Option A would encounter the same paleontologically sensitive geologic units and
8 therefore have the same potential to affect significant paleontological resources as
9 the proposed Project. Similar to the proposed project, impacts associated with
10 Option A would be potentially significant (Class II). Implementation of MM PALEO-1
11 and PALEO-2 would be required to reduce impacts to less than significant.

12 *Option B*

13 Option B would encounter the same paleontologically sensitive geologic units and
14 therefore have the same potential to affect significant paleontological resources as
15 the proposed Project. Similar to the proposed project, impacts associated with
16 Option B would be potentially significant (Class II). Implementation of MM PALEO-1
17 and PALEO-2 would be required to reduce impacts to less than significant.

18 *Option C*

19 Option C would encounter the same paleontologically sensitive geologic units and
20 therefore have the same potential to affect significant paleontological resources as
21 the proposed Project. Similar to the proposed project, impacts associated with
22 Option C would be potentially significant (Class II). Implementation of MM PALEO-1
23 and PALEO-2 would be required to reduce impacts to less than significant.

24 *Option D*

25 Option D would encounter the same paleontologically sensitive geologic units and
26 therefore have the same potential to affect significant paleontological resources as
27 the proposed Project. Similar to the proposed project, impacts associated with
28 Option D would be potentially significant (Class II). Implementation of MM PALEO-1
29 and PALEO-2 would be required to reduce impacts to less than significant.

1 *Option E*

2 Option E would encounter the same paleontologically sensitive geologic units and
3 therefore have the same potential to affect significant paleontological resources as
4 the proposed Project. Similar to the proposed project, impacts associated with
5 Option E would be potentially significant (Class II). Implementation of MM PALEO-1
6 and PALEO-2 would be required to reduce impacts to less than significant.

7 *Option F*

8 Option F would encounter the same paleontologically sensitive geologic units and
9 therefore have the same potential to affect significant paleontological resources as
10 the proposed Project. Similar to the proposed project, impacts associated with
11 Option F would be potentially significant (Class II). Implementation of MM PALEO-1
12 and PALEO-2 would be required to reduce impacts to less than significant.

13 *Option G*

14 Option G would encounter the same paleontologically sensitive geologic units and
15 therefore have the same potential to affect significant paleontological resources as
16 the proposed Project. Similar to the proposed project, impacts associated with
17 Option G would be potentially significant (Class II). Implementation of MM PALEO-1
18 and PALEO-2 would be required to reduce impacts to less than significant.

19 *Option H*

20 Option H would encounter the same paleontologically sensitive geologic units and
21 therefore have the same potential to affect significant paleontological resources as
22 the proposed Project. Similar to the proposed project, impacts associated with
23 Option H would be potentially significant (Class II). Implementation of MM PALEO-1
24 and PALEO-2 would be required to reduce impacts to less than significant.

25 *Option I*

26 Option I would encounter the same paleontologically sensitive geologic units and
27 therefore have the same potential to affect significant paleontological resources as
28 the proposed Project. Similar to the proposed project, impacts associated with
29 Option I would be potentially significant (Class II). Implementation of MM PALEO-1
30 and PALEO-2 would be required to reduce impacts to less than significant.

1 *Option J*

2 Option J would encounter the same paleontologically sensitive geologic units and
 3 Therefore have the same potential to affect significant paleontological resources as
 4 the proposed Project. Similar to the proposed project, impacts associated with
 5 Option J would be potentially significant (Class II). Implementation of MM PALEO-1
 6 and PALEO-2 would be required to reduce impacts to less than significant.

7 *Option K*

8 Option K would encounter the same paleontologically sensitive geologic units and
 9 therefore have the same potential to affect significant paleontological resources as
 10 the proposed Project. Similar to the proposed project, impacts associated with
 11 Option K would be potentially significant (Class II). Implementation of MM PALEO-1
 12 and PALEO-2 would be required to reduce impacts to less than significant.

13 *Option L*

14 Option L would encounter the same paleontologically sensitive geologic units and
 15 therefore have the same potential to affect significant paleontological resources as
 16 the proposed Project. Similar to the proposed project, impacts associated with
 17 Option L would be potentially significant (Class II). Implementation of MM PALEO-1
 18 and PALEO-2 would be required to reduce impacts to less than significant.

19 **Table 4.5-3: Comparison of Alternatives for Paleontological Resources**

Alternative	Comparison with Proposed Project
No Project	No Impacts
Option A	Similar Impacts
Option B	Similar Impacts
Option C	Similar Impacts
Option D	Similar Impacts
Option E	Similar Impacts
Option F	Similar Impacts
Option G	Similar Impacts
Option H	Similar Impacts
Option I	Similar Impacts

Option J	Similar Impacts
Option K	Similar Impacts
Option L	Similar Impacts
Source: Michael Brandman Associates 2009.	

1

2 **4.5.7 Cumulative Projects Impact Analysis**

3 Because of the nature of cultural resources, adverse impacts are site specific and
4 generally not affected by cumulative development. Typically, impacts to cultural
5 resources are determined on a project-by-project basis. As described in the
6 sections above, impacts to cultural resources would be mitigated to less than
7 significant levels and are therefore not cumulatively considerable. No cumulative
8 impacts on cultural resources would result from implementation of the Project and no
9 additional mitigation measures would be required.

10 The potential for encountering paleontological resources during the course of future
11 developments is determined by whether or not paleontological resource bearing
12 strata occur at any given project site and the proposed development activities at that
13 site. In addition, not all paleontological resources have scientific value; some fossil
14 remains are quite common and have little scientific value, while others may be
15 scientifically important due to rarity and/or their ability to provide new information.
16 Therefore, the significance of cumulative impacts to paleontological resources is not
17 necessarily determined by the frequency of the impact but by the nature of the
18 impact and the significance of the fossil. Additionally, an impact to a paleontological
19 resource may not always be adverse. With appropriate mitigation, an impact may
20 lead to recovery of scientifically important fossil remains that would not have been
21 discovered otherwise. Therefore, it is not anticipated that there would be a
22 significant adverse cumulative impact to paleontological resources.

23 **4.5.8 Summary of Impacts and Mitigation Measures**

24 The impacts to cultural resources resulting from Project development would be less
25 than significant with implementation of the Applicant Proposed Measures. Therefore
26 the proposed Project does not require mitigation measures for cultural resources.

27 The Project could adversely impact significant paleontological resources.
28 Paleontological monitoring of earth-disturbing activities, fossil salvage, preliminary
29 preparation, and documentation of collected fossils, and transfer of the collection to

1 an accredited repository is recommended as mitigation necessary to reduce any
2 potential impacts to a less than significant level.

3 For paleontological resources, under criterion 1, Project construction or operation
4 would result in damage or loss of vertebrate or invertebrate fossils that are
5 considered important by paleontologists and land management agency staff.
6 Implementation of MM Paleo-1 would reduce the impact to a less than significant
7 level. For paleontological resources, under criterion 2, the Project is considered to
8 be a resource having scientific or educational value. Implementation of MM Paleo-2
9 would reduce the impact to a less than significant level.

10 Implementation of Option A, Option B, Option D, Option E, or Option H would result
11 in potentially significant impacts (Class II) to cultural resources and, in addition to
12 MM Paleo-1 and MM Paleo-2, would require implementation of MM CR-1 in order to
13 reduce impacts to less than significant (Class III).

14 **Table 4.5-4: Summary of Paleontological Resources Impacts and Mitigation**
15 **Measures**

Impact	Mitigation Measure
PALEO-1. Fossils.	PALEO-1. Proper curation of fossil collection.
PALEO-2. Scientific or educational value.	PALEO-2. Delivery of fossil collection to appropriate location.
CR-1. Impact to Unknown Cultural Resource.	CR-1. Alternative option pre-construction cultural resource surveys.
Source: Michael Brandman Associates 2009.	

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