DRAFT

GRIMES PIPELINE PROJECT TECHNICAL MEMORANDUM TO THE SUTTER ENERGY CENTER (97-AFC-02) CULTURAL RESOURCES MONITORING AND MITIGATION PLAN

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Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
CCFC	Calpine Construction and Finance Company, L.P a wholly owned subsidiary of Calpine Corporation
CEC	California Energy Commision
CPM	construction project manager
CRMMP	Cultural Resources Monitoring and Mitigation Plan
CRM	Cultural Resources Monitor
CRR	Cultural Resources Report
CRS	Cultural Resource Specialist
GPP	Grimes Pipeline Project
MLD	Most Likely Descendent
NABPP	Native American Burial Protection Plan
NAHC	Native American Heritage Commission
PVC	polyvinylchloride
SHPO	State Historic Preservation Officer
USACE	U.S. Army Corps of Engineers
WEAP	Worker Environmental Awareness Program

The Grimes Pipeline Amendment to the Sutter Energy Center (97-AFC-02) Cultural Resources Monitoring and Mitigation Plan

1.0 Introduction and Overview of Project

Calpine Construction and Finance Company, L.P (CCFC), a wholly owned subsidiary of Calpine Corporation, and CPN Pipeline Company are proposing to construct the Grimes Pipeline Project (GPP) to provide a connection between local gas wells owned and operated by Venoco and other gas producers in the Grimes natural gas field and CCFC's existing Sutter Energy Center natural gas pipeline system (Figures 1 and 2). The proposed project includes the following components.

- A 2.8-mile gas pipeline and 450-foot gas pipeline interconnection to the existing 20-inch diameter Sutter pipeline that serves the Sutter Energy Center.
- A 0.22 acre metering facility (referred to in this report as *Grimes Station*), as shown in Figure 3.
- Two new gas meters, one at Venoco's existing Eastside master meter site and another at its 32-33-3 master meter site.
- A below ground connection between the Grimes Pipeline and the existing Sutter Pipeline.

Once constructed, the proposed pipeline would transport approximately 10 million standard cubic feet per day[1] of natural gas from Venoco's and other producers' existing wells through the Sutter Energy Center pipeline system to the Sutter Energy Center.

The 2.8-mile pipeline and Grimes Station will be owned and operated by CPN Pipeline Company. Venoco will continue to operate its existing Eastside master meter and 32-33-3 master meter sites. The lands occupied by the project facilities are under lease from the property owners through lease agreements. The leases would remain in effect until CPN Pipeline Company chooses to surrender them to the landowners.

This technical memorandum supplements the Sutter Energy Center (97-AFC-02) Cultural Resources Monitoring and Mitigation Plan (CRMMP), as required by condition CUL-3 of the Sutter Energy Center (97-AFC-02) Decision to address measures to protect cultural resources during construction of the GPP. Attachment 1 contains the Cultural Resources Daily Monitoring Log form. Attachment 2 contains the Worker Environmental Awareness Program (WEAP) training certification log. Attachment 3 contains the resume for the proposed Cultural Resource Specialist (CRS). The CRMMP, when accompanied by this memorandum, is therefore proposed to meet condition CUL-3 for the project.

[1] A standard cubic foot is a measure of quantity of gas often defined as a cubic foot of volume at 60°F and 14.7 pounds per square inch (PSI) of pressure.

1.1 Project Components

1.1.1 Natural Gas Pipelines

CCFC and CPN Pipeline Company will construct a 2.8-mile, 6-inch-diameter pipeline to transfer gas from Venoco's and other gas producers' existing gas wells to the proposed Grimes Station. The proposed pipeline crosses agricultural fields (primarily cultivated rice fields) and beneath two Sutter County public roads (near the intersection of Wilbur and Hageman Roads). In addition to this pipeline, a 450-foot, 6-inch diameter gas pipeline would be constructed between the Grimes Station and the 20-inch diameter gas pipeline that serves the Sutter Energy Center.

1.1.2 Grimes Station

The Grimes Station would be located on Girdner Road just west of Hageman Road. The site is currently an agricultural field planted with row crops; the final facility would be a 0.22 acre gravel pad. The facility comprises the following components.

- A natural gas master meter to measure gas flow into the Sutter Pipeline.
- A horizontal filter-separator to ensure that high-quality gas is received.
- A pig receiver to conduct in-line inspections and perform maintenance activities on the gas pipeline.
- A flow control valve to control flow through the pipeline and shut down if necessary during an emergency or other conditions.
- An aboveground 100-barrel drain tank to collect any liquids that might be present in the natural gas and are removed in the filter-separator. This tank will be an atmospheric tank with a vent on top. The tank will be fully contained within a secondary steel tank to prevent uncontrolled runoff. The tank will be 8 feet tall and 10 feet in diameter.
- Communication equipment (powered by solar panels) for CPN Pipeline Company to remotely monitor conditions at the site and operate control valves, if necessary.
- Provisions for a future gas scrubber to assist in liquid removal, if necessary.

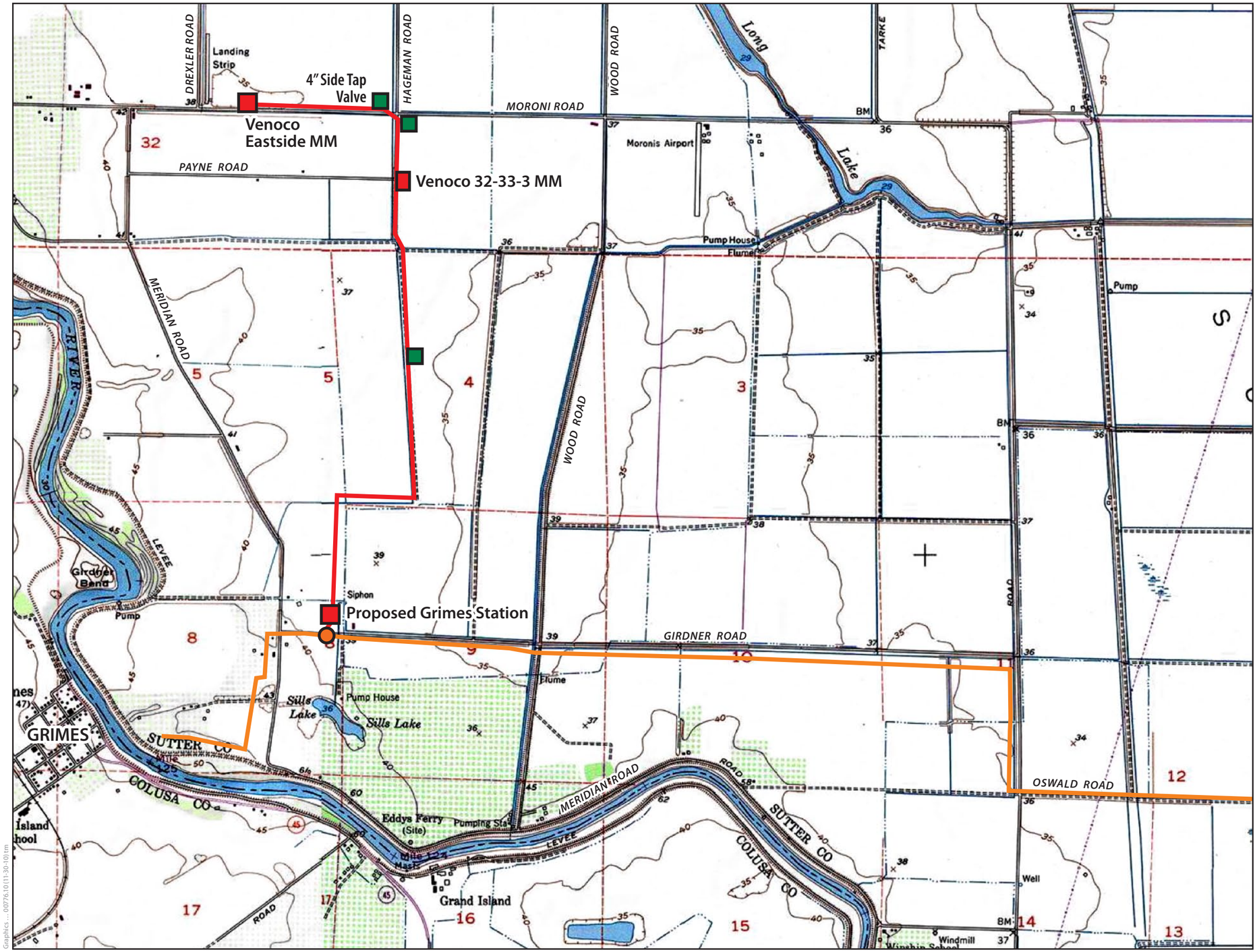
The gravel pad would accommodate the facilities described above, as well as equipment and vehicle access and turnouts. The station would be protected by a 6-foot-tall chain-link fence with three barbed wire arms.

1.1.3 Meter Sites

CCFC and CPN Pipeline Company will install two meters, one at Venoco's existing Eastside master meter site and the other at the 32-33-3 master meter site. These meters will serve as the custody transfer points for the natural gas. CCFC and CPN Pipeline Company will install the meters on the existing Venoco meter pads and have determined that no pad extensions will be required.

2.0 Project Implementation Sequence and Schedule

This section describes the sequence of project-related tasks. Table 1 provides a schedule of all project-related tasks, including preconstruction, construction, and post-construction tasks. The



Legend

- Proposed 6-inch Natural Gas Pipeline
- Existing 20-inch Sutter Energy Center Gas Pipeline
- Below Ground Hot Tap and Valve
- Proposed Construction Laydown Area
- Venoco's Existing Master Meter Sites and Proposed Grimes Station Site

N

1,000 0 1,000 2,000 3,000 4,000

feet

Scale = 1:24,000

Base Map:
National Geographic TOPO
Gilsizer Slough, CA (1973), Tilsdale Weir, CA (1973)

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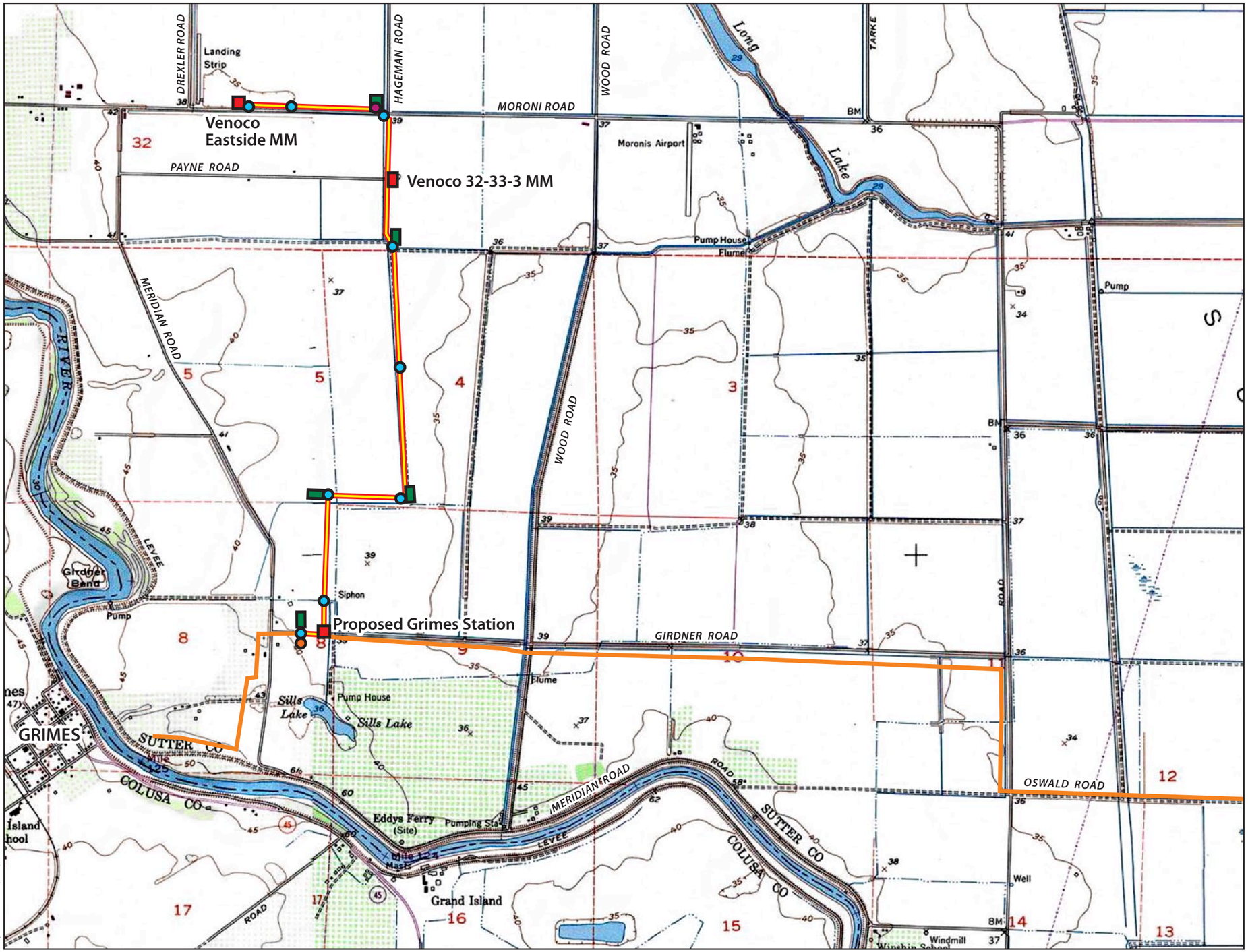
Figure 1
Grimes Pipeline Project Location



Legend

- Area Surveyed
- Existing 20-inch Sutter Energy Center Gas Pipeline
- Natural Gas Pipeline Alignmen t
- Below Ground Hot Tap and Valve
- Proposed Construction Laydown Area
- Venoco's Existing Master Meter Sites and Proposed Grimes Station Site
- 4" Side Tap Valve
- Bore

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1,000 0 1,000 2,000 3,000 4,000

feet

Scale = 1:24,000

Base Map:
National Geographic TOPO
Gilsizer Slough, CA (1973), Tilsdale Weir, CA (1973)

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Figure 2
Survey Coverage Map

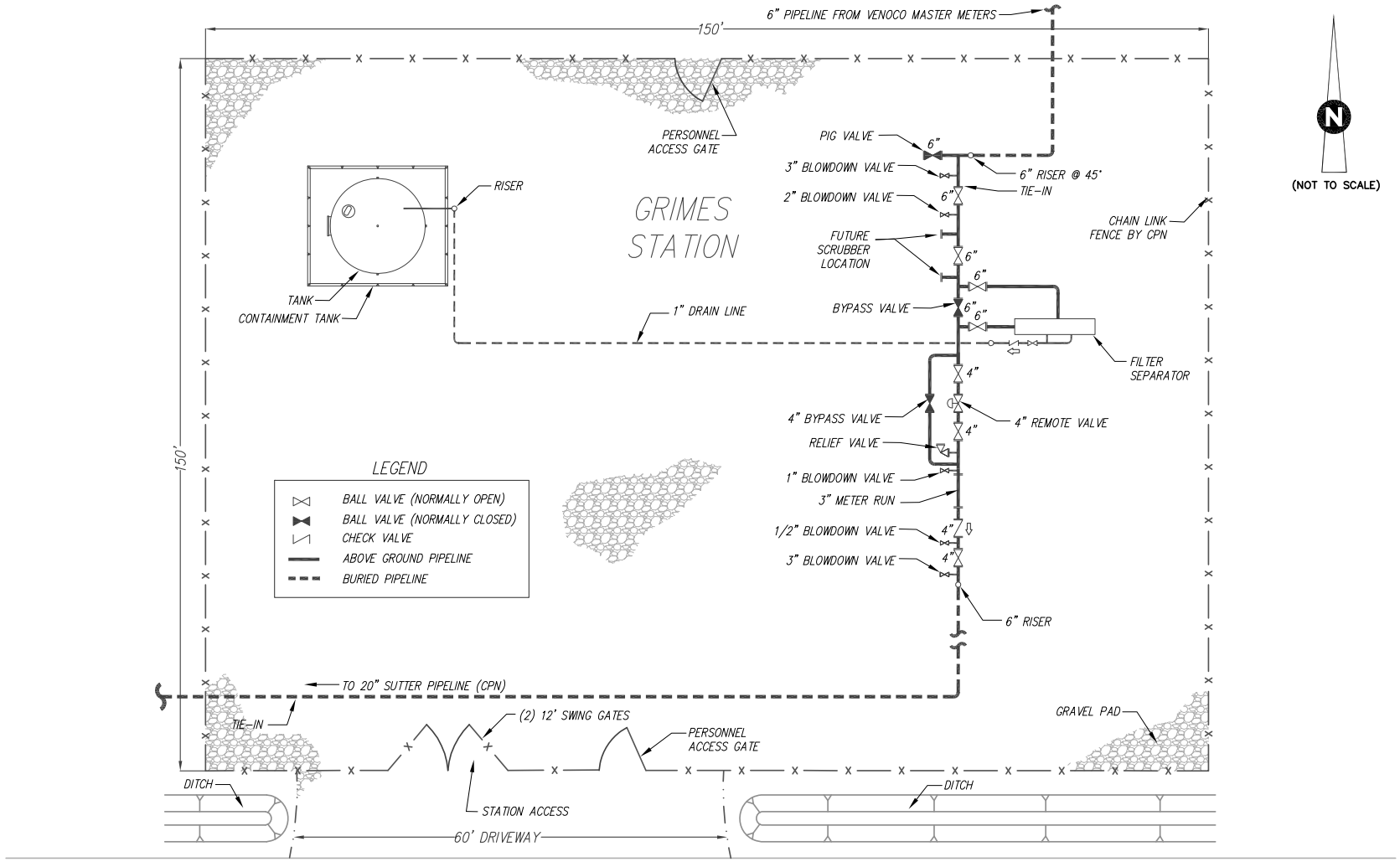

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Figure 3
Grimes Station Layout

tasks listed in Table 1 are in the approximate sequence in which they will occur and give approximate times needed to complete each task, where known. A discussion of construction sequences follows, and methods for accomplishing tasks are further discussed in subsequent sections.

2.1 Pre-construction Phase Tasks

Pre-construction phase tasks include designating and obtaining approval of a CRS and alternate CRS, approving the qualifications of cultural resources specialists, submitting and obtaining California Energy Commision (CEC) approval for a project CRMMP, and preparing and obtaining approval of the WEAP. Prior to the start of project construction, the project owner will conduct a preconstruction reconnaissance and staking in all areas expected to be affected by construction and operation of the proposed project and its associated linear facilities. The designated cultural resource specialist will also prepare an employee training program and submit the training program to the construction project manager (CPM) for review and written approval.

2.2 Construction Phase Tasks

Construction phase tasks include providing onsite cultural resources awareness training to all new employees during their first week of employment, keeping current with the project schedule, monitoring for cultural resources when necessary, evaluating any cultural resources discovered during construction, and mitigating any impacts on cultural resources if avoidance is not possible. Additional construction phase tasks include providing daily statements to the CEC CPM that "no cultural resources over 50 years were discovered" (assuming there were no discoveries); notifying the CPM within 24 hours of any discoveries not subject to prescriptive treatment; and maintaining daily logs, weekly summaries, and monthly compliance reports of all cultural resources monitoring and mitigation activities at the project site.

2.3 Post-construction Phase Tasks

Post-construction phase tasks include completing test investigation or data recovery analysis and reports if buried sites are discovered during construction, preparing artifacts and other cultural materials for curation, transferring these materials to the approved curation facility, and preparing the final Cultural Resources Report (CRR) as a final report on all cultural resources management activities for the project.

Table 1. Schedule of Preconstruction, Construction, and Post-Construction Tasks

Timing	Task
Preconstruction Phase Tasks	
Prior to construction	Designate a CRS and alternate CRS and obtain CPM approval (CUL-1-GP).
10 days before ground disturbance	Project owner to provide project documents, maps, and drawings of final footprint of the power plant and linears to the CRS and Cultural Resources Monitors (CRMs) in consultation with the CPM (CUL-2-GP).
30 days before ground disturbance	Designate the CRMs, document their qualifications, and provide a letter to the CPM, signed by the CRS naming the CRMs and stating that they meet the qualifications stated by CUL-1-GP. Condition CUL-2-GP.
10 days before ground disturbance	The project owner shall confirm in writing to the CPM that the previously approved designated cultural resources specialist and the team of assistants are prepared to implement the monitoring and mitigation measures for cultural resources, as described in the CRMMP, prepared per condition (CUL-3-GP). Condition CUL-2-GP.
10 days before additional ground disturbance	The project owner shall submit to the CPM for review, comment, and written approval, the proposed employee training program and set of reporting procedures the workers are to follow if cultural resources are encountered during project construction (CUL-5-GP)
15 day before ground disturbance	CPM shall provide written approval or disapproval of the employee training program and set of procedures after receipt of the submittal. If the draft training program is not approved, the project owner, the designated cultural resource specialist, and the CPM shall confer as needed to achieve any necessary changes (CUL-5-GP).
10 days before ground disturbance	The project owner shall provide to the CPM for review and approval an amendment to the CRMMP, prepared by the designated CRS. The amendment may be submitted as an appendix to the CRMMP (CUL-3-GP).
10 days before ground disturbance	The project owner will complete a pre-construction reconnaissance and staking of the post miles and right-of-way boundaries in all areas expected to be affected by construction and operation of the proposed project and its associated linear facilities (CUL-4-GP).
Construction Phase Tasks	
10 days before task	Provide the resumes of additional technical specialists (as needed) to CPM for review and approval (CUL-1-GP).
10 days in advance	Designate a new CRS if replacement is necessary and submit qualifications to the CPM for approval (CUL-1-GP).
During ground-disturbing activities	The designated CRS or designee shall be present at the construction site at all times when construction-related grading, excavation, trenching, and/or augering occur in the areas that lie within the natural river levee zone (found to be generally associated with the Shanghai-Nueva-Columbia soils group). Project areas where the natural levee zones may be found include the Grimes Station site and vicinity, and the connection between the Grimes Pipeline and the existing Sutter Pipeline (CUL-8-GP).
Monthly	Provide in the Monthly Compliance Report (MCR) a summary of daily logs prepared by the CRS (CUL-7-GP).
Within 24 hours of a discovery	Halt construction in the vicinity of the find and notify the CPM. Evaluate the find and obtain the CPM's concurrence and complete any necessary mitigation (CRMMP).

Timing	Task
After the discovery of human remains	When human remains are encountered, construction shall be halted in the vicinity of the find, and the coroner will immediately be contacted. The project owner shall immediately inform the CPM, who will initiate a resolution process (CUL-9-GP).
Throughout construction	The project owner, through the CRS, shall ensure the recovery, preparation for analysis, analysis, and identification and inventory of significant archaeological materials identified during construction (CUL-10-GP).
Post-construction Tasks	
Maintain files on-site for a period of at least two years after completion of the approved final CRR	The project owner, through the CRS, shall ensure the preparation for curation, and the delivery for curation of all significant cultural resource materials encountered and collected during the monitoring, data recovery, mapping, and mitigation activities related to the project. The project owner shall keep related files on-site and available for periodic audit by the CPM (CUL-10-GP).
90 days after completion of analysis	Prepare and submit the preliminary CRR to CPM for approval (CUL-11-GP).
90 days after completion of analysis	Prepare and submit the final CRR to CPM for approval (CUL-12-GP).
After completion of final report	The project owner shall maintain, in its compliance files, copies of all documentation related to the filing of the original materials and the approved final cultural resources report with the public institution receiving the recovered data and materials for curation, with the appropriate regional archaeological information repository, the U.S. Army Corps of Engineers (USACE), and the State Historic Preservation Officer (SHPO). If no cultural resource materials were recorded or recovered, then the approved Preliminary CRR shall serve as the final report and is to be filed with these same agencies (CUL-13-GP).
30 days after CPM approval of CRR	Provide a copy of an agreement with a qualified curation facility to accept cultural materials from the project. The project owner shall pay curation fees (CUL-14-GP).

3.0 Cultural Resources Monitoring and Mitigation Plan

As described in Section 4.2, *Cultural Resources*, of the Amendment to the Sutter Energy Center Application For Certification the following Conditions of Certification are proposed for implementation as part of the GPP to ensure that buried cultural resources are adequately documented and avoided. These conditions are based upon Conditions of Certification for cultural resources approved in the 1999 Commission Decision for the Sutter Energy Center and follow the respective numbered conditions in the 1999 Conditions of Certification. To distinguish these proposed 2011 Conditions as applicable to the Grimes Pipeline, the letters “GP” have been added to the applicable Conditions. CCFC and CPN Pipeline Company recommend the following cultural resources Conditions of Certification for the GPP.

This amendment updates several sections of the original CRMMP as part of the GPP. The major elements and measures within the CRMMP are shown in Table 2 with corresponding document and section where the information can be found.

Table 2. Grimes Pipeline CRMMP Elements and Measures

CRMMP Required Element	Information Provided In
Research design	Sutter Energy Center CRMMP
Implementation sequence and estimated time frames for all project-related tasks	Amendment to CRMMP
Personnel qualifications, responsibilities, and reporting procedures	Amendment to CRMMP
Native American monitoring	Amendment to CRMMP
Incorporation of the Applicant's mitigation measures	Sutter Energy Center CRMMP
Flagging, fencing, and other measures to restrict access	Sutter Energy Center CRMMP
Cultural resources recording mapping, photographing, collection, and curation criteria	Sutter Energy Center CRMMP
Reporting procedures	Sutter Energy Center CRMMP
Work curtailment procedures	Amendment to CRMMP
Equipment and supplies availability	Sutter Energy Center CRMMP

3.1 Mitigation Implementation Measures

The Grimes Pipeline Amendment to the Sutter Energy Center Application for Certification identified mitigation measures to avoid, minimize, and compensate for potential effects to sensitive archaeological resources. Amendments to these measures are discussed in the following sections.

3.1.1 Designated Cultural Resources Specialist

CUL-1-GP. Prior to the start of project construction (defined as any construction-related vegetation clearance, ground disturbance and preparation, and site excavation activities), the project owner shall provide the CEC CPM with the name(s) and qualifications of its designated CRS and mitigation team members. The designated CRS shall be responsible for implementing all of the cultural resource Conditions of Certification, using qualified personnel to assist him or her in project-related field surveys, monitoring, data collection and artifact recovery, mapping, mitigation, analysis of recovered cultural resources and data, or report preparation. After CPM approval of the CRMMP (described below in condition CUL-3-GP), the designated CRS and team shall be available to implement the mitigation plan prior to, and throughout construction of, the project.

Protocol: The project owner shall provide the CPM with a resume or statement of qualifications for its designated CRS and mitigation team members. The resume(s) shall include the following information.

1. The resume for the designated CRS shall demonstrate that the specialist meets the following minimum qualifications: a graduate degree in archaeology, anthropology, California history, or cultural resource management; at least three years of cultural resource mitigation and field experience in California, including at least one year's experience leading cultural resource field surveys; leading site mapping and data recording; marshalling equipment necessary and leading archaeological resource recovery operations; preparing recovered materials for analysis and identification; recognizing the need for appropriate sampling and/or testing in the field and in the lab; directing the analyses of mapped and recovered materials and data; completing the identification and inventory of recovered cultural materials; and the preparation of appropriate

reports to be filed with the receiving curation repository, the appropriate regional information center(s), and the CPM.

2. The resume for the designated CRS shall include a list of specific projects the specialist has previously worked on; the role and responsibilities of the specialist for each project listed; and the names and phone numbers of contacts familiar with the specialist's work on these referenced projects.

3. If additional personnel will be assisting the designated CRS in project-related field surveys, monitoring, data and artifact recovery, mapping, mitigation, material analysis, or report preparation, the project owner shall also provide names, addresses, and resumes for these mitigation team members.

4. If the CPM determines that the qualifications of the proposed CRS are not in concert with the above requirements, the project owner shall submit another individual's name and qualifications for consideration.

5. If the previously approved, designated CRS is replaced prior to completion of project mitigation, the project owner shall obtain CPM approval of the new designated CRS by submitting to the CPM the name and qualifications of the proposed replacement specialist, at least ten (10) days prior to the termination or release of the preceding designated CRS.

CUL-2-GP. Prior to the start of construction, the project owner shall provide the designated CRS and the CPM with maps and drawings for the GPP. The final center lines and right-of-way boundaries shall be provided on 7.5 minute quad maps, and the location of all of the various areas where surface disturbance may be associated with the project including pipe pulling sites, laydown sites, and the Grimes Station and tap sites.

3.1.2 Cultural Resources Monitoring and Mitigation Plan

CUL-3-GP. Prior to the start of project construction, the designated CRS shall prepare a draft CRMMP to identify general and specific measures to minimize potential impacts to significant cultural resources. The CPM will review, and must approve in writing, the draft CRMMP.

Protocol: The CRMMP shall include, but not be limited to, the following elements and measures.

a. A discussion of the sequence of project-related tasks, such as construction monitoring; mapping and data recovery; preparation for recovery of cultural resources; preparation of recovered materials for analysis, identification, and inventory; preparation of preliminary and final reports; and preparation of materials for curation.

b. An identification of the person(s) expected to assist with each of the tasks identified in a, above, and a discussion of the mitigation team leadership and organizational structure, and the interrelationship of tasks and responsibilities.

c. If sensitive areas are identified during construction, the designated cultural resource specialist shall identify measures such as flagging or fencing to prohibit or otherwise restrict access to sensitive resource areas. The discussion should address how these measures will be implemented prior to the start of construction and how long they will be needed to protect the resources from project-related effects.

d. Where the need for monitoring of project construction activities has been determined, the designated CRS, in consultation with the CPM, will establish a schedule for the monitor(s) to

be present. If the designated CRS determines that the likelihood of encountering cultural resources or sites in certain areas is slight, monitoring may be discontinued in that location.

e. If cultural resources are encountered during earth disturbing activities, the designated CRS shall have the authority to half or redirect construction in the immediate vicinity of the find until the CRS can determine the significance of the find. The designated CRS shall act in accordance with the following procedures.

- The project owner, or designated representative, shall inform the CPM within one working day of the discovery of any potentially significant cultural resources and discuss the specific measures(s) proposed to mitigate potential impacts to these resources.
- The designated CRS, representatives of the project owner, and the CPM shall confer within 5 working days of the notification of the CPM, if necessary, to discuss any mitigation measures already implemented or proposed to be implemented, and to discuss the disposition of any finds.
- The SHPO will be consulted on potential eligibility, effect, and proposed mitigation measures. USACE will initiate the consultations with the SHPO.
- All required data recovery and cultural resource impact mitigation shall be completed as expeditiously as possible.

f. All isolates encountered will be recorded and mapped; all lithic scatters and/or cultural resource sites will be recorded and mapped and all diagnostic artifacts will be collected for analysis; and all recovered cultural resource materials will be prepared and delivered for curation into a retrievable storage collection in a public repository or museum which meets the Title 36 Code of Federal Regulations 79 standards for the curation of cultural resource materials.

g. Identify the public institution that has agreed to receive any maps and data, records, reports, and any cultural resource materials recovered during project-related monitoring and mitigation work. Also include a discussion of any requirements or specifications for materials delivered for curation and how they will be met. The name and phone number of the contact person at the institution shall be included as well.

3.1.3 Cultural Resources Preconstruction Reconnaissance

CUL-4-GP. Prior to the start of project construction, the project owner shall conduct a preconstruction reconnaissance and staking in all areas expected to be affected by construction and operation of the proposed project and its associated linear facilities. The staking of the linear facilities shall use the final design, centerlines, rights-of-way, and mile posts delineated in the construction drawings and maps prepared under condition CUL-2-GP. The designated CRS will use the mile post stakes and boundary markers to identify sensitive areas with the potential to produce cultural resources and for implementation of specific measures, as described in condition CUL-8-GP below.

3.1.4 Cultural Resources Worker Training Program

CUL-5-GP. Prior to the start of construction on the project, the designated CRS shall prepare an employee training program and submit it to the CPM for review and written approval.

Protocol: The training program will address the potential to encounter cultural resources during project-related site preparation and construction activities, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources. The training program shall also include the set of reporting procedures that workers are to follow if any cultural resources are encountered during project activities. This training program may be combined with other training programs prepared for paleontological and biological resources, hazardous materials, or any other areas of interest or concern.

CUL-6-GP. Prior to the start of construction, and throughout the project construction period as needed for all new employees, the project owner and the designated CRS shall provide the approved training to the construction supervising chief inspector and resident engineer and workers who operate ground-disturbing equipment. The project owner and construction manager shall brief the workers on the role and responsibility of the CRS and will provide the workers with the approved set of procedures for reporting any cultural resources that may be discovered during project-related ground disturbance. The training session will include information on the legal and/or regulatory implications of knowingly destroying cultural resources or removing artifacts, human remains, bottles, and other cultural materials from the site. The training shall be presented by the CRS or another qualified individual approved by the CPM and may be combined with other training programs.

All workers who complete the training will be required to sign a form certifying they understand the content of the training and will abide by its guidelines. Additionally, documentation will be provided to the CPM of the cultural resources awareness training of all project managers, supervisors, and workers (see Attachment 2).

3.1.5 Cultural Resources Monitoring

CUL-7-GP. Throughout the project construction period, the project owner shall provide the designated CRS with a current schedule of anticipated weekly project activity and a map indicating the area(s) where construction activities will occur. The designated CRS shall consult daily with the project superintendent or construction field manager to confirm the area(s) to be worked on the next day(s).

Throughout the monitoring and mitigation phase of the project, the designated CRS shall maintain a daily log of monitoring and mitigation activities carried out by the specialist and members of the cultural resource mitigation team. The designated CRS shall prepare summary reports on monitoring activities, any cultural resource finds and recovery efforts, and the progress or status of the resource monitoring, mitigation, preparation, identification, and analytical work being conducted for the project. Copies of these summaries shall be included in the Monthly Compliance Reports filed with the CPM by the project owner. The designated CRS may informally discuss the cultural resource monitoring and mitigation activities with their CEC technical counterpart at any time.

CUL-8-GP. The designated CRS or his or her designee shall be present at the construction site at all times when construction-related grading, excavation, trenching, and/or augering occur in the areas that lie within the natural river levee zone (found to be generally associated with the Shanghai-Nueva-Columbia soils group). Project areas where the natural levee zones may be found include the Grimes Station site and vicinity, and the connection between the Grimes Pipeline and the existing Sutter Pipeline. Using mileposts and boundary stakes placed by the project owner, the designated

CRS or his or her designee shall monitor the Grimes Station site and vicinity, and the connection between the Grimes Pipeline and the existing Sutter Pipeline. Other sections of the Grimes pipeline route may be monitored as deemed necessary by the CPM. Additionally, the CRS will coordinate with a Native American monitor, who will observe construction surrounding the Grimes Station and the connection between the Grimes Pipeline and the existing Sutter Pipeline. The Native American monitor will contribute daily monitoring logs as described for the CRS under condition CUL-7-GP.

CUL-9-GP. If buried human remains are encountered during project-related grading, excavation, augering, and/or trenching, the construction crew shall halt or redirect construction in the immediate vicinity of the find and immediately contact the county coroner and the designated cultural resource specialist. If the coroner determines that the find is of Native American origin, the coroner shall notify the Native American Heritage Commission (NAHC) to request a determination of "most likely descendant". The NAHC is required to notify the descendant(s) and request that they inspect the burial and make recommendations for treatment or disposal.

CUL-10-GP. The project owner, through the designated cultural resource specialist, shall ensure the recovery, preparation for analysis, analysis, identification and inventory, the preparation for curation, and the delivery for curation of all significant cultural resource materials encountered and collected during the monitoring, data recovery, mapping, and mitigation activities related to the project.

3.1.6 Cultural Resources Report

CUL-11-GP. The project owner shall ensure preparation of a preliminary CRR following completion of data recovery and site mitigation work. The preliminary CRR is to be prepared by the designated CRS and submitted to the CPM for review and written approval.

Protocol: The preliminary CRR shall include (but not be limited to) preliminary information on the survey report(s), methodology and recommendations; site records and maps; determinations of significance; data recovery and other mitigation activities; discussion of possible results and findings of any analysis to be conducted on recovered cultural resource materials and data; proposed research questions that may be answered, or that may have been raised by the data from the project; related information such as maps, diagrams, charts, photographs, and other appropriate materials; and an estimate of the time needed to complete the analysis of recovered cultural resource materials and prepare a final report.

If no cultural resource materials are recovered during project-related construction activities, the approved preliminary CRR shall also serve as the final CRR and shall be filed with appropriate entities, as described in conditions CUL-13-GP and CUL-14-GP.

CUL-12-GP. The project owner will ensure preparation of a final CRR by the designated CRS, if cultural resource materials are found and recovered during project-related monitoring and mitigation. This final CRR shall be submitted to the CPM for review and written approval.

Protocol: The final CRR shall include the survey report(s), methodology, and recommendations; site records and maps; description and inventory list of recovered cultural resource materials; determinations of sensitivity and significance; summary of data recovery and other mitigation activities; results and findings of any special analyses conducted on recovered cultural resource materials and data; research questions answered or raised by the data from the project; and the

name and location of the public institution receiving the recovered cultural resource materials for curation.

CUL-13-GP. The project owner shall ensure that the USACE is provided with an original (or an original-quality) copy of the approved final CRR, and other copies necessary to submit to the public institution receiving the recovered data and materials for curation, to the SHPO, and to the appropriate regional archaeological information center(s). A legible copy of the approved final CRR shall be filed with the CPM, with a request for confidentiality, if needed to protect any sensitive resources or sites.

The CRR copy sent to the curating institution and to the appropriate regional information centers shall include the information required by 36 Code of Federal Regulations 79 and the regional archaeological information centers.

CUL-14-GP. Following filing of the final CRR with the CPM and the appropriate entities, the project owner, through the designated CRS, shall deliver for curation all cultural resource materials collected during data recovery and mitigation for the project.

3.2 Mitigation Implementation Measures

The Sutter Energy Center CRMMP identified mitigation measures to avoid, minimize, and compensate for potential effects to archaeological resources. These measures are discussed in the following sections.

3.2.1 Cultural Resources Specialist

Prior to the start of any project-related ground disturbance, the project owner shall ensure that a CRS who meets the minimum qualifications specified in the U.S. Secretary of the Interior Guidelines, and who will be responsible for the implementation of all cultural resources Conditions of Certification.

The proposed CRS for the GPP is Gabriel Roark (resume provided in Attachment 3).

3.2.2 Research Design

Condition CUL-3 requires a research design section within the CRMMP, to include a summary of the prehistoric, historic, and ethnographic background of the project area, as well as pertinent research questions and data sources to answer questions. The SEC CRMMP contains a research design, which will be employed for the GPP.

3.2.3 Worker Environmental Awareness Training

A preconstruction meeting and training session will be provided to all project managers, all construction supervisors, and all workers operating ground-disturbing equipment to brief them on the role and responsibility of the archaeologist and the procedures to follow in the event of a cultural resources discovery. The training session will include information on the legal and/or regulatory implications of knowingly destroying cultural resources or removing artifacts, human remains, bottles, and other cultural materials from the site. The training shall be presented by the CRS, CRM, or another qualified individual approved by the CPM and may be combined with other training programs.

All workers who complete the training will be required to sign a form certifying they understand the content of the training and will abide by its guidelines. Additionally, documentation will be provided to the CPM of the cultural resources awareness training of all project managers, supervisors, and workers (see Attachment 2).

3.2.4 Mitigation Monitoring

Either the CRS or CRM (under the direct supervision of the CRS) will be present, at all times, unless the CEC determines that full-time monitoring is not necessary in certain portions of the project area or along the linear facility routes, when construction-related grading, excavation, trenching, and/or augering in the vicinity of previously recorded archaeological sites and in areas where midden deposits have been identified during project construction. Monitoring will be conducted by an archaeologist with appropriate regional experience to ensure that both aboriginal and historic cultural materials are preserved and to ascertain whether or not construction may continue after the unexpected discovery of any cultural materials. The monitoring will focus on surface site preparation, subsurface demolition activities and foundation excavation as well as trenching for gas, electric and water utilities. Daily logs will be prepared by the CRM (see Attachment 1).

The CRS or CRM will be equipped with basic archaeological field equipment necessary to map discovered sites, photograph the finds, and begin recovery of cultural materials. A full suite of field gear needed to recover cultural materials will be brought onsite as required. If necessary, the CRS will make arrangements to cache frequently needed gear or supplies with the construction superintendent's field office.

3.2.5 Emergency Discovery Procedures and Discovery Protection

In the event that any cultural resources are found during construction, the archaeologist will have the authority to temporarily halt construction operations within 10 meters (32 feet) of a find or resource exposure to determine if significant or potentially significant cultural resources are present and if they will be adversely affected by continuing construction operations (CUL-6). The CPM, the owner's project manager, and appropriate city and/or county staff inspectors (or their designated representatives) will be notified of the discovery and the temporary work stoppage. The archaeologist will maintain a log of each work stoppage with appropriate details. It is expected that a reasonable effort will be made by the owner's construction superintendent in consultation with the archaeologist to avoid or minimize harm to the discovery until the CPM determines significance and an appropriate treatment can be identified and implemented through consultation among the CPM, the project owners(s), the archaeologist, and the applicable city or county officials. During this evaluation period, construction operations outside of the find location can continue.

If the CPM determines the find is not significant, construction will continue. The archaeologist will prepare a brief memo that describes and makes a recommendation regarding the significance of the resource, as well as the methods used to determine the significance of the find. This memo shall be prepared, reviewed, submitted, and filed in accordance with the CPM's instructions. If the CPM determines that the discovery is significant, the archaeologist will determine and detail avoidance procedures or develop an appropriate Treatment Plan within 48 hours that is acceptable to the CPM, the project owner(s), CRS, and to the applicable city and/or county representative. The project owner's construction superintendent will not authorize resumption of construction activities that could affect the discovery find until the Treatment Plan has been submitted and approved by the CPM in accordance with the applicable cultural resources Conditions of Certification. Any Treatment

Plan that is developed to mitigate the inadvertent exposure of significant cultural resources will be guided by a research design appropriate to the discovery and potential research data inherent in the resource in association with suitable archaeological field techniques and analytical strategies. The Sutter Energy Center CRMMP presents a general research design and field methods to appropriately document unexpected significant discoveries. The CEC's CPM and all other interested parties will be notified upon the completion of the field portion of the approved Treatment Plan and construction will resume in the area of the find. Both an interim letter report documenting the discovery and treatment and a final professional report will be submitted to all appropriate parties in accordance with applicable Conditions.

When a grave is inadvertently disturbed during construction, the remains must be treated with respect. A Native American Burial Protection Plan (NABPP) provides general procedures to follow to ensure compliance with state mandates and the desires of the local Native American peoples. If prehistoric skeletal remains are discovered during construction, a NABPP will be followed.

3.2.6 Treatment of Cultural Materials Considered Less Than 50 Years of Age

All of the materials listed below are less than 50 years of age and, unless of exceptional significance, will not be considered cultural resources that merit consideration for recordation or mitigation. If there is any doubt regarding the age of a historic-period find, the project owner and CRS will discuss this with the CPM when giving notice of the find. The following materials will not be reported under CUL-10-GP unless exceptional.

- Plastic products limited to Styrofoam® and other foamed polystyrene products, Velcro®, Teflon® coated cookware, polyvinylchloride (PVC) pipe, high-density polyethylene, polypropylene, polyimide, thermoplastic polyester, linear low density polyethylene, liquid crystal polymers, and products marked with resin codes.
- Cans made from aluminum or bi-metal, or those with pull-tab or push-tab (metal or plastic) openings.
- Aluminum foil containers.
- Synthetic tires, car parts.
- Modern electronics (CD players, VCRs, electronic appliances, personal electronics, computers, printers).
- Compact disks, floppy computer disks, magnetic tape media.
- Unidentifiable metal fragments.
- Rubberized metal.
- Clothing or shoes made of plastic or synthetic materials.

Monitors or other staff who are examining historic materials, especially plastic materials, should have sufficient familiarity to differentiate materials that are more than 50 years of age from more recent materials. Keep in mind that even though there is a perception that plastics are all of recent production, many plastics were invented and produced in the late nineteenth and early twentieth centuries.

Any materials less than 50 years old that are found with materials older than 50 years will be reported.

3.2.7 Discovery Procedures for Archaeological Materials More than 50 Years Old

For some classes of resources, treatment (mitigation) under the CUL-8 discovery condition can be agreed upon before starting construction on the project. Defining the resource classes and treatments prior to starting project-related ground disturbance can limit delays in the construction schedule.

All cultural resources over 50 years of age will be recorded on DPR 523 forms, mapped, and photographed. Not all cultural resources over 50 years of age discovered during construction, however, are significant historical resources under the California Environmental Quality Act or Section 106 of the National Historic Preservation Act. Discovery procedures for the classes of resources over 50 years of age consist of:

- Construction is halted in the immediate vicinity of the find.
- The CRS/CRM records the find on a DPR 523A form, including a location map and a photograph. Artifacts do not have to be collected or curated.
- The CRS or the project owner notifies the CPM and USACE of the find within 24 hours. The notification includes a description of the resource, a statement that it qualifies for prescribed treatment, and the information that the treatment has been completed.
- The USACE will, following the procedures at 36 CFR 800.13(b)(3), determine actions that the USACE can take to resolve adverse effects, and notify the SHPO, Cortina Indian Rancheria, and the Advisory Council on Historic Preservation (ACHP) within 48 hours of the discovery. The notification shall describe the agency official's assessment of National Register eligibility of the property and proposed actions to resolve the adverse effects.
- The SHPO, Cortina Indian Rancheria, and the ACHP shall respond within 48 hours of the notification. The USACE shall take into account their recommendations regarding National Register eligibility and proposed actions, and then carry out appropriate actions.
- The USACE shall provide the SHPO, Cortina Indian Rancheria, and the ACHP a report of the actions when they are completed.
- Construction can resume when the CPM acknowledges notification of the discovery and the required information has been collected, including completion of the process required by 36 CFR 800.13(b)(3).
- The CRS submits the required DPR 523A form completed for the find to the CPM as an attachment to the next Cultural Resources Monthly Compliance Report.

3.2.8 Reports and Curation

Reports will follow contemporary professional archaeological standards and the general guidelines of the California Office of Historic Preservation. The CRS will prepare weekly summary reports on the progress or status of cultural-resources related activities that will be filed with the project owner for inclusion in the Monthly Compliance Report to the CPM. Interim, progress, and final

reports will be issued as required and provided to the project manager. A copy of the CPM-approved confidential Final CRR will be provided to the CPM, under CUL-12-GP.

Recovered specimens will be cleaned and reconstructed to the point of identification and, along with associated notes and reports, submitted to a qualified museum facility for curation. Following the filing of the CPM-approved Cultural Resources Report with the appropriate entities, the project owner shall ensure that all cultural resource materials, maps, and data collected during data recovery and mitigation for the project are delivered to a public repository that meets the U.S. Secretary of the Interior requirements for the curation of cultural resources. The project owner shall pay any fees for curation required by the repository under CUL-10-GP.

4.0 Native American Participation

Pursuant to CUL-8-GP, provisions will be made for the participation of a Native American monitor during ground-disturbing activities in the vicinity of Grimes Station and the connection between the Grimes Pipeline and the existing Sutter Pipeline.

If human remains are discovered during the course of monitoring or mitigation activities, then the specific protocol, guidelines, and channels of communication outlined by NAHC, and in accordance with Health and Safety Code Section 7050.5 and PRC Section 5097.98, apply. Section 7050.5(c) will guide the potential Native American involvement as follows:

> If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes the remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she will contact by telephone within 24 hours the Native American Heritage Commission.

Under typical circumstances, the NAHC will then notify the Most Likely Descendent(s) (MLD) of the discovered remains. The MLD has 48 hours after being granted access to the construction site to make recommendations to the project owner regarding treatment and disposition of the identified remains. The project owner will notify the CPM of the recommendations made by the MLD and the proposed actions to mitigate the impact in accordance with CUL-9-GP.

Attachment 1
Cultural Resources Daily Monitoring Log Form

Grimes Pipeline Project
Additional Comment Sheet

Project Name:
Segment(s) Examined:
Date:
Monitoring Location
Site Type: _____

USGS Quad and Drawing Sheet No: _____

Station Number: _____

Other Locational Information: _____

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Additional Comments: _____

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Signature: _____

Grimes Pipeline Project
Daily Archaeological Monitoring Log

☐ Additional Comment Sheet Attached

Project Name:
Segment(s) Examined:
Date:
Monitoring Location
Site Type: _____

USGS Quad and Drawing Sheet No: _____

Station Number: _____

Other Locational Information: _____

_____

Construction Activities (Describe)

Project and Segment	Construction Activities

Monitoring Methods (Describe, Including Time in and Out)

Project and Segment	Monitoring Methods and Observations

Findings:

☐ Archaeological Materials Identified (complete Additional Comment Sheet)

☐ Buried Soil Horizon or Other Sensitivity Indicator Identified (complete Additional Comment Sheet)

☐ No Archaeological Materials or Sensitivity Indicators Identified

☐ Work Cessation Required

☐ Continued Monitoring Recommended

☐ No Further Monitoring Recommended—Ground Disturbance Completed

☐ No Further Monitoring Recommended (complete Additional Comment Sheet)

☐ Photos Taken (Attached)

Signature: _____

Attachment 2
WEAP Training Log Form

Attachment 2

Worker Environmental Awareness Training for the Grimes Pipeline Project—Cultural Resources

Cultural Resources

- Calpine, as the project applicant, has made commitments under state and federal authorities to the reasonable protection of cultural resources.
- Accordingly, Calpine will implement this training, an inadvertent archaeological discovery plan, and construction monitoring by professional archaeologists and tribal monitors in areas of high sensitivity for archaeological resources.

Sources of Cultural Resource Commitments

- Environmental commitments related to cultural resources on the Grimes Pipeline Project were determined through state and federal environmental impact reviews, namely through section 106 of the National Historic Preservation Act and the California Environmental Quality Act (CEQA).
- The cultural resource commitments are found in several project documents; these require of Calpine and its contractors specific actions and best management practices.
- Mitigation Monitoring and Reporting Plan (MMRP) adopted by Calpine as a result of the CEQA review process
- The Grimes Pipeline Amendment to the Sutter Energy Center (97-AFC-02) Cultural Resources Monitoring and Mitigation Plan
- The Grimes Pipeline Project area of potential effects (APE).

Definitions

- Cultural Resource: Buildings, sites, structures, districts, or objects, each of which may have historical, architectural, cultural, or scientific importance. For the Grimes Pipeline Project, the project team will generally be concerned with buildings, structures, objects, sites, and individual artifacts that are 50 years or older at the time of their discovery.

Monitoring Procedures

- An archaeological and tribal monitor will observe ground-disturbing construction activities on a daily basis in the vicinity of the Grimes Station and the interconnection with the existing Sutter pipeline.

- Archaeological and tribal monitors will compile notes regarding construction and monitoring activities on a daily basis and report to Calpine at regular intervals.

Archaeological Discovery Procedures

- Immediately stop work within 30 feet of the discovery. Equipment is to be left in place and the area marked for avoidance.
- Immediately notify the archaeological and tribal monitors (if in the work area) and your supervisor of the discovery. The supervisor must notify the CPM.
- If an archaeological or tribal monitor is not in the work area at the time of discovery, the CPM will notify the monitors.
- The archaeological and tribal monitors recommend to the CPM whether the discovery is significant; if the CPM finds that the discovery is not significant, construction in the area may resume at the monitors' direction.
- If the CPM finds that the discovery is significant, or human remains are present, agency consultation will require work cessation within the vicinity of the find for a minimum of 3 days.

Penalties for Non-Compliance

- Removal or possession of Native American remains or grave goods is a felony (Public Resources Code 5097.99)
- It is a misdemeanor to damage archaeological or historic objects or sites on private or public land (Penal Code 662.5 and Public Resources Code 5097.5)

Area of Potential Effect (APE)

- Compliance with Section 106, as detailed in the consultation between the USACE and SHPO, requires that all work considered to be part of the project occur within the approved APE.
- An approved APE for the Section 401 Water Quality Certification is already in place. The APE generally corresponds exactly with permanent easements and temporary construction easements.
- Modifications to the APE are to be kept to a minimum and those that are absolutely necessary need to be approved by the USACE and SHPO.

Attachment 3
Resume of Cultural Resource Specialist

GABRIEL ROARK

Archaeologist

Gabriel Roark is an archaeologist who directs and conducts cultural resource investigations for projects involving CEQA and Section 106 of NHPA. With extensive professional experience in prehistoric archaeology, historical archaeology, and regulatory compliance, Gabriel serves as the manager and technical lead on several projects. He provides exceptional design and implementation of archaeological monitoring programs, archaeological surveys and excavations, archival research, and impact analyses. His Section 106 experience includes drafting memoranda of agreement, programmatic agreements, and historic properties treatment plans.

Project Experience

Sacramento Intermodal Transit Facility Track Relocation Project Environmental Documents for CEQA/NEPA—City of Sacramento, Sacramento County, California

Advised Caltrans and the City of Sacramento as to Section 106 and NEPA compliance concerning cultural resources. Due to the shortened compliance schedule entailed with American Recovery and Reinvestment Act funding, recommended a tiered approach that secured funding and protected cultural resources. Directed identification of surface archaeological resources, archival and geoarchaeological research to isolate potential buried archaeological resources, and preparation of an archaeological resources treatment plan. Exploratory and evaluative test excavations, components of the treatment plan, are underway.

Sacramento River Bank Protection Project EIS/EIR—Corps, Sacramento County, California

Primary author of the programmatic agreement and historic properties treatment plan (HPTP) for this state/federal levee repair program. The programmatic agreement will guide the Corps' cultural resources program for the life of the project particularly in the areas of consultation and documentation of cultural resource activities. The HPTP is a multidisciplinary

Years of Experience

- Professional start date: 1999
- ICF start date: February 1999

Education

- MA, Anthropology, California State University, Sacramento, 2009
- BA, Anthropology, California State University, Sacramento, 1999

Professional Memberships

- Society for Archaeological Sciences
- Society for California Archaeology

Special Training

- Cascade Range Archaeological Project, crew chief, 1999 (California State University, Sacramento)
- Archaeological Field School, Mammoth Lakes, California, 1999 (California State University, Sacramento, Dr. Mark E. Basgall, Director)
- Anthropology 199: Introduction to Analysis of California Gold Rush Chinese Ceramics, Independent Study, 1999 (California State University, Sacramento, Dr. Jerald J. Johnson, Instructor)
- Anthropology 195A and 192: Fieldwork and Laboratory Work in Archaeology, Coloma, California, 1997 (California State University, Sacramento, Dr. Jerald J. Johnson and Dr. Tom Strasser, Instructors)

document that stipulates appropriate identification efforts and treatment of a variety of property types: prehistoric and historic archaeology, non-archaeological properties of concern to Native Americans, historic built environment properties, cultural landscapes, and submerged resources.

Carrizo-Midway 230kV Transmission Line Reconductoring Project—PG&E, Kern and San Luis Obispo Counties, California

Lead cultural resource specialist responsible for CEQA and Section 106 compliance. Directed all aspects of the cultural resources work: research, geoarchaeological assessment, Indian consultation, survey, and reporting. Advised PG&E on feasible avoidance measures to protect archaeological sites.

Palermo to East Nicolaus Transmission Line Reconstruction Project Proponent's EA Preparation—PG&E, Northern California

Managed Section 106 and CEQA compliance tasks, including research, consultation with Indians and historical societies, archaeological and historic structures surveys, evaluation of identified resources, report preparation (cultural resources report and section of proponent's EA), and agency coordination. Designed the survey parameters such that PG&E did not have to authorize additional survey during construction.

Big Sandy Casino and Resort Project EIS—Big Sandy Rancheria Band of Western Mono Indians, Fresno County, California

Assisted Big Sandy Rancheria and the Bureau of Indian Affairs (BIA) with cultural resources compliance under NEPA and Section 106. Directed records searches and archival research, supported BIA's consultation with Indian tribes, corresponded with historical societies and non-federally recognized tribes, met with the state historic preservation officer to discuss compliance effort, conducted archaeological surveys and directed two evaluative test excavations. In addition, worked with BIA, Big Sandy, and Table Mountain Rancheria to devise a plan of action, pursuant to the NAGPRA, for the treatment of Indian human remains discovered during excavations. Also assisted with reburial of Indian remains. Preparation of the cultural resources report and EIS sections is underway.

Central California Clean Energy Transmission Project Proponent's EA—PG&E, Fresno, Kern, Kings, Madera, and Tulare Counties, California

Advised PG&E regarding cultural resources regulatory compliance strategy and responsibilities from the project design phase through late-stage project planning. Ranked alternative transmission line routes via a GIS-based model of cultural resources distribution and sensitivity. Conducted records searches and research, consulted with Indian groups, directed archaeological and built-environment surveys, and prepared iterative cultural resource reports.

Cultural Resources Compliance Support for the Railyards Initial Phase Project—Kimley-Horn Associates, Sacramento, California

Coauthored the archaeological testing plan for prehistoric and historic archaeological sites, using geotechnical data and historic maps to identify archaeologically sensitive areas. Also prepared the project inadvertent archaeological discovery plan. Crew chief for mechanical archaeological testing; identified the historic 6th Street Levee.

Suisun Marsh Management Plan EIS/EIR—DFG, Solano County, California

Prepared a geoarchaeological assessment of Suisun Marsh to estimate the potential for buried and surface-manifested cultural resources for three project alternatives. Together with records search data and historic map research, the geoarchaeological assessment formed the crux of the analysis presented in the cultural resources section of the EIS/EIR.

Sacramento Railyards Soil Remediation—ERM West, Sacramento, California

Lead Archaeological Monitor. Responsibilities included construction monitoring, staff scheduling, evaluating inadvertent archaeological discoveries and coordinating such evaluations with staff from the California State Railroad Museum, reporting, and training construction staff in the proper procedures for archaeological discoveries.

Port of Los Angeles Promenade Report of Archaeological Monitoring—Port of Los Angeles, San Pedro and Los Angeles County, California

Contributing author to the archaeological monitoring report for numerous inadvertent archaeological discoveries in the historic neighborhood known as Mexican Hollywood. Contributions included archaeological feature descriptions, tabulated artifact (functional group) analysis, and interpretation of materials.

Vantage Wind Energy Project Cultural Resources Inventory — Kittitas County, Washington

Contributing author responsible for reporting survey methods and findings, as well as recommendations for the treatment of archaeological resources. Also prepared environmental and cultural contexts for the report.

Central Valley Gas Storage Project Section 106 Consultation—Central Valley Gas Storage, LLC, Colusa County, California

Completed a cultural resources inventory for compliance with Section 106. Tasks included records searches, correspondence with Indians, a geoachaeological assessment of the project area, and preparation of an inventory report.

Buena Vista Rancheria Gaming and Entertainment Facility Tribal EIR—Stevens & O'Connell, Amador County, California

Lead cultural resources manager responsible for coordinating archaeological and built-environment inventories and assessments of off-reservation road improvements. Responsibilities included conducting records searches, archival research, ethnographic literature review, archaeological survey, and contributions to the Tribal EIR. Additionally, prepared a cultural resources management plan for the Buena Vista Band of Me-Wuk Indians' property to guide heritage preservation on the casino property. Also led the

Section 106 compliance effort by meeting with agency personnel, Indian groups, and other concerned groups to arrive at reasonable terms for a memorandum of agreement.

Yuba-Feather Supplemental Flood Control Project—Yuba County Water Agency, California

Lead archaeologist for a CEQA compliance project that proposed periodic inundation of large agricultural holdings adjacent to the Feather River. Led a comprehensive archaeological survey and architectural survey of a 1,900-acre project area. One potentially significant archaeological site was identified in the project area. Worked with the agency and project engineers to devise appropriate mitigation for the site.

Madera Water Bank—Azurix Corporation, Madera County, California

Lead investigator for a cultural resources inventory and evaluation for a proposed water bank to comply with NEPA and CEQA. Responsible for designing appropriate research domains as a framework to evaluate the 20 historic resources identified through research and survey, developing a two-prong survey strategy designed to record all historic sites in the project area, providing a representative sample of the 14,000 acres encompassed by the project, conducting site evaluations, and preparing a report.

Jensen River Ranch Restoration Project—San Joaquin River Parkway and Conservation Trust, Fresno County, California

Cultural resources team lead for a multi-disciplinary restoration project. Performed background research, Native American consultation, survey of the 167-acre restoration site, and NRHP evaluation of cultural resources; prepared a technical report for CEQA/NHPA compliance. Evaluated two historic structures and a historic refuse scatter on the restoration site, including historic property research at repositories in Fresno and Sacramento.

Seaview Vineyard Development—Peter Michael Winery, Sonoma County, California

Cultural resources team leader on an archaeological test excavation of prehistoric site CA-Son-2306 that would be affected by development of a vineyard in coastal Sonoma County. The excavation was conducted to evaluate the site for California Register of Historical Resources and NRHP eligibility. Responsible

for research, development of a test excavation program, excavation, ground stone analysis, report preparation, and overall project management.

El Dorado Hills Data Recovery—Serrano Associates, LLC, El Dorado County, California

Crew member for archaeological excavations at 19th century mining camps and homestead sites located near the historic town of Clarksville. Member of the artifact analysis team and contributed to report preparation.

Archaeological Survey Report—Mendocino Coast Recreation and Park District, Mendocino County, California

Survey crew member and the chief researcher for an archaeological survey in heavily wooded terrain east of Fort Bragg.

Sacramento Region Fiber Optic Projects—XO California, Inc., Placer, Sacramento, and Yolo Counties, California

Managed cultural resources task, which consisted of providing sensitivity assessments, conducting inventories, and monitoring recommendations for more than 20 proposed fiber optic builds. Because the majority of the proposed builds were located in urban settings not surveyed for archaeological sites before development, designed inventory and assessment methods to identify areas that likely contained buried archaeological deposits. According to the results of each assessment, assigned archaeological or Native American monitors to sensitive project areas.

Cellular Tower Builds—Sprint PCS, Northern California

Lead cultural resources manager for 31 cellular tower builds, including antenna-to-building collocations and new tower projects in Alameda, Contra Costa, El Dorado, Napa, Placer, Sacramento, Solano, Sonoma, and Yolo Counties. Responsible for conducting traditional cultural resource inventories (records search and research, Native American consultation, and field survey), sensitivity assessments, viewshed analysis, and monitoring recommendations under stringent time constraints.

Lower Northwest Interceptor Project—Sacramento Regional County Sanitation District, Sacramento and Yolo Counties, California

Coordinated efforts to identify potential cultural resources issues for the pre-design and design phase of a 19-mile sewer alignment. The proposed alignment was routed through portions of the greater Sacramento region that are highly sensitive for the presence of buried archaeological sites. Led a research program consisting of archival research, modeling of historic environments, extensive cooperation with Native Americans and local archaeologists, and architectural and archaeological surveys to recommend appropriate mitigation measures for known and potential cultural resources. Prepared the cultural resources section of an EIR and the cultural resources inventory report for the project.

Lower Northwest Interceptor Project—Sacramento Regional County Sanitation District, Sacramento and Yolo Counties, California

Devised an archaeological monitoring program designed to comply with complex federal regulatory requirements, determined whether construction was likely to disturb buried archaeological deposits, trained monitors and construction staff in their roles as resource stewards during construction, and oversaw staff archaeologists' fieldwork and reporting. Monitoring program included excavation of 298 auger tests to determine whether archaeological deposits were present in the project area and monitoring by qualified archaeologists to verify the results of the auger tests.

High Winds, LLC Wind Turbine Project—FPL Energy, Inc., Solano County, California

Conducted a cultural resources inventory for a proposed wind turbine project in the Montezuma Hills that included pre-field research, Native American consultation, historic research, and a field survey of a large wind turbine generator farm for compliance with CEQA. Identified cultural resources within the boundaries of the project and recommended mitigation and avoidance measures to protect identified resources.

I-5/Cosumnes River Boulevard Interchange Project—City of Sacramento, California

Lead archaeologist for analysis of an 880-acre study area (slated for the extension of Cosumnes River Boulevard to I-5) to comply with Section 106 of the NHPA and CEQA. In addition to using standard inventory methods, led a five-person crew in presence/absence excavations designed to explore geophysical anomalies detected through remote-sensing applications.

Tri-Valley 2002 Capacity Increase Project—PG&E, Alameda and Contra Costa Counties, California

Designed a program of cultural resource compliance to satisfy the MMP previously prepared for the project. The cultural resources compliance program included archival research, consultation with Native Americans, cultural resource inventories and evaluations, and preparation of a comprehensive cultural resources treatment plan (CRTP). The CRTP set the procedures and standards for archaeological monitoring during construction, procedures for dealing with accidental discoveries, and reporting methods. Also monitored construction in sensitive areas and assisted with an inadvertent discovery of archaeological materials.

Los Banos-Gates 500-kV Transmission Line Project (Path 15)—Infrasource, Inc., Merced and Fresno Counties, California

Lead archaeologist for the Path 15 archaeological monitoring program designed by the Western Area Power Administration (Western). Evaluated cultural resources identified by resource monitors, including Native American monitors, over an 84-mile project corridor. Responded to over 70 inadvertent discoveries—recording, test excavating, and researching a total of 26 archaeological sites. Also surveyed newly added project elements and assisted Western and Infrasource with Section 106 compliance.

Battle Creek Salmon and Steelhead Restoration Project—Reclamation and State Water Board, Shasta and Tehama Counties, California

Prepared a research design and guided archaeological test excavations of five prehistoric archaeological sites in the Cascade Range foothills near Red Bluff. Worked closely with Reclamation archaeologists to devise a suitable research design and a schedule

and approach to completing Section 106 consultation under a stringent timeline.

South Delta Improvements Program EIR/EIS—DWR and Reclamation, Contra Costa and San Joaquin Counties, California

Led the cultural resources inventory and evaluation effort conducted in support of Section 106, CEQA, and NEPA compliance. Also the primary author of the cultural resources section for the project EIR/EIS. The technical team recorded and evaluated five historic-period cultural resources.

Freeport Regional Water Project—Freeport Regional Water Authority, Sacramento and San Joaquin Counties, California

Prior to construction of the FRWP, led ICF's cultural resources inventory of the 30-mile-long project and drafted a memorandum of agreement (MOA), to direct compliance with Section 106 of the NHPA. The MOA established procedures for the inventory of changes to the FRWP area, treatment of a historic property, and inadvertent archaeological discoveries during construction. Construction resulted in one inadvertent discovery of cultural resources. Worked with Reclamation and construction staff to comply with the project MOA while allowing the contractor to continue work on the project. The construction contractors identified the need for additional work areas after the MOA was executed. These areas needed to be surveyed and reported to the lead federal agency, Reclamation, and SHPO, which began to cause construction delays. Negotiated an amended MOA with Reclamation and the SHPO that streamlined the review process for newly identified project components.