LATHAM & WATKINS LLP

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File No. 030137-0008

January 18, 2008

VIA FEDEX

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 06-AFC-9
1516 Ninth Street, MS-4
Sacramento, California 95814-5512

Re: Colusa Generating Station Project: Docket No. 06-AFC-9

Dear Sir/Madam:

Pursuant to California Code of Regulations, title 20, sections 1209, 1209.5, and 1210, enclosed herewith for filing please find a copy of a letter from URS to U.S. Army Corps of Engineers regarding the 404(b)(1) Alternatives Analysis for the above-referenced project.

Please note that the enclosed submittal was filed today via electronic mail to your attention and to all parties on the CEC's current electronic proof of service list.

Very truly yours,

Paul E. Kihm
Senior Paralegal

Enclosure

cc: CEC 06-AFC-9 Proof of Service List (w/ encl. via e-mail)
Michael J. Carroll, Esq. (w/ encl.)

URS

January 17, 2008

Mr. Brian Vierria
Regulatory Branch
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814

Re: 200600897 – Colusa Generating Station Project – 404(b)(1) Alternatives Analysis

Dear Mr. Vierria:

This letter presents the 404(b)(1) Alternatives Analysis for the proposed Colusa Generating Station (CGS) project. E&L Westcoast, LLC (E&L Westcoast) proposes to construct and commission a nominal 660-megawatt combined-cycle power plant on 31 acres of a 100-acre property leased by E&L Westcoast adjacent to Delevan Road in Colusa County, California. Two bridges would be replaced as part of the proposed project:

1. A bridge over the Glenn-Colusa Canal at the western terminus of Dirks Road (the Glenn-Colusa Canal Bridge) (Figure 1) and
2. A bridge on McDermott Road over Teresa Creek (Figure 2, View 1).

An Individual Permit Application and Jurisdictional Delineation (JD) Report for the CGS project was submitted to the U.S. Army Corps of Engineers (Corps) on April 5, 2007. Additional information requested by the Corps was submitted on May 24, 2007. The JD for the CGS project was verified on August 10, 2007. A letter summarizing a new Glenn-Colusa Canal Bridge replacement design along with the revised estimates of the potential impacts and mitigation for the proposed project was transmitted to the Corps on August 28, 2007. The Corps published the Public Notice for the proposed project on November 30, 2007.

REGULATORY BACKGROUND

The proposed project will require an Individual Permit from the Corps for the placement of fill material at the Glenn-Colusa Canal Bridge and the Teresa Creek Bridge. The Corps regulates the placement of fill material under the authority of the federal Clean Water Act (CWA).

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Section 404 of the CWA requires consideration of practicable alternatives to avoid or minimize adverse impacts to jurisdictional waters of the United States. A reasonable range of alternatives must be considered in the evaluation. Alternatives can be eliminated, prior to detailed analysis, if they are not "practicable" (under Section 404). The Section 404(b)(1) Guidelines specify that a permit can be issued for a discharge of dredged or fill material to waters of the United States only if the discharge is determined to be the least environmentally damaging practicable alternative (LEDPA) (40 Code of Federal Regulations [CFR] § 230.10(a)).

The LEDPA generally is the practicable alternative that either avoids waters of the United States or impacts the smallest area of waters. For non–water-dependent project components that require filling of special aquatic sites (e.g., wetlands), the Guidelines also presume that upland alternatives are available and that these upland sites are less environmentally damaging, unless there are significant impacts to other resources. The project proponent is required to demonstrate that the proposed project is the LEDPA as part of the alternatives analysis.

An alternative is practicable if it:

- Meets the purpose and need;
- Is available and implementable (i.e., it can be accomplished within the financial resources that could reasonably be made available, and it is feasible from the standpoint of technology and logistics); and
- Will not create other unacceptable impacts such as severe operation or safety problems, or serious socioeconomic or environmental impacts.

Alternatives can be eliminated at any stage if they are not practicable, provided, the reasons for eliminating an alternative from detailed analysis are documented.

PROJECT PURPOSE

The purpose of the proposed CGS project is the construction and operation of a nominal 660-megawatt combined-cycle power plant in northern California.

PROJECT ALTERNATIVES CONSIDERED

A broad range of project alternatives was considered as part of the initial project analysis, including:

- No Project Alternative
- Site Alternatives
- Generation Technology and Plant Configuration Alternatives
- Water Supply/Cooling System Alternatives
- Transmission Interconnection Alternatives
- Gas Supply Alternatives

A comprehensive evaluation of these alternatives is presented in Appendix A. Appendix A summarizes information that was previously submitted to the California Energy Commission (CEC) as part of the following documents:

1. November 2006 Application for Certification (AFC) for the CGS project, Section 9.0, Alternatives; and
2. E&L Westcoast's February 12, 2007 Response to the CEC's January 11, 2007 Data Requests.

As a result of these analyses, the preferred location of the project site was deemed to be the most practicable and the least environmentally damaging alternative. Alternative Site 1, Cortina, did not appear to have any additional environmental impacts and costs; however, this alternative is less feasible because of multiple landowners and existing agricultural production on site (Appendix A). Alternative Site 2, Holthouse Ranch, has potential for significant environmental impacts due to the presence of wetlands (Appendix A). The preferred location for the CGS is superior to the alternative sites because impacts to sensitive biological resources would be avoided or substantially minimized compared to the other potential project sites. The preferred location for the CGS would not impact jurisdictional waters, although, two existing bridges that provide access to the site would need to be replaced as part of the proposed project. The proposed bridge replacements are evaluated below.

The bridge replacements would require the use of heavy equipment and the installation of several large components. This equipment and the associated components would need to be transported to the site during construction. To reach the project site, these items would be transported from Interstate 5 via Delevan Road, McDermott Road, Dirks Road, and an existing PG&E access road. The proposed power plant site is approximately 0.75 mile west of the terminus of Dirks Road via the PG&E access road. This route includes a bridge across Teresa Creek and a bridge across the Glenn-Colusa Canal. The Teresa Creek Bridge and the bridge across the Glenn-Colusa Canal are structurally deficient and would need to be replaced to accommodate the heavy equipment and the largest project components.

Several alternatives were evaluated for the transport of heavy equipment to the proposed site. The objective was to identify the alternative with the least environmental impacts that would meet the purpose and need of the proposed project. The primary focus of this analysis is on avoidance of waters of the United States at the Glenn-Colusa Canal Bridge site and the Teresa Creek Bridge site.

The alternatives for moving heavy equipment to the site include:

- Alternative 1 – Use of Existing Bridges and Roads (No Replacement of Bridge(s))
- Alternative 2 – Replacement of Bridge(s).

Both of these alternatives were evaluated, at each bridge site, using the following criteria:

- Ability to meet the purpose and need;
- Practicability (can be accomplished within the financial resources that could reasonably be made available, and is feasible from the standpoint of technology and logistics); and
- Environmental impacts (unacceptable impacts such as severe operation or safety problems, or serious socioeconomic or environmental impacts).

Specifically, the cost, construction limitations, overall environmental impact, and the amount of fill in waters of the United States have been considered for each bridge alternative at each site.

Glenn-Colusa Canal Bridge

The existing Glenn-Colusa Canal Bridge is currently not adequate to accommodate the heavy construction vehicles and project components that would be required to construct the power plant. The current bridge was built in 1965 to support the construction of the PG&E Delevan Gas Compressor Station. This bridge is a four-span concrete-decked structure that is 74 feet long by 20 feet wide. The bridge provides weight-limited one-way truck traffic and speed-limited two-way automobile traffic (due to the reduced lane width of 8 feet) with 2-foot shoulders. The bridge was originally designed for a 40-ton load, but is currently rated H-20, a 20-ton load, by the American Association of State Highway and Transportation Officials (AASHTO).

If the current power plant site location is used, either the existing Glenn-Colusa Canal Bridge would need to be replaced in time to accommodate the heavy haul equipment required to construct the CGS, or another bridge location would need to be used.

Alternative 1: Use of Existing Bridges and Roads

Transport of heavy equipment and project components to the project site via alternate bridge locations besides the Glenn-Colusa Canal Bridge is not considered a feasible alternative. No other bridges in the vicinity of the proposed project have load ratings high enough to support the heavy construction vehicles and equipment that would be required to construct the power plant.

Only one other bridge across the Glenn-Colusa Canal is potentially available to access the power plant site. The bridge is located along Delevan Road, approximately one mile southeast of Dirks Road. The current bridge at this location is unlikely to be able to support the weight of the construction equipment or the project components that would need to access the proposed power plant site. Even if the construction equipment could safely cross the existing bridge or a newly constructed bridge at this location, the route from this bridge to the proposed power plant site would be inadequate. The route is along a narrow unpaved access road (owned by the Glenn-Colusa Irrigation District) that parallels the Glenn-Colusa Canal.

If the existing Glenn-Colusa Canal Bridge is not replaced, construction of the proposed power plant at the current location would not be feasible, because the heavy construction equipment that is required to construct the power plant and associated features would not have access to the site.

Alternative 2: Replacement of the Glenn-Colusa Canal Bridge

If the existing Glenn-Colusa Canal Bridge is replaced, the new bridge would be rated for the heaviest equipment for the power plant construction and would exceed the HS-20 rating per AASHTO standards. The bridge would provide two 12-foot lanes with 3-foot shoulders giving unimpeded two-way traffic flow. The bridge would be fitted with side guardrails and would be striped to permit safe passage of traffic. The access road on both sides would be realigned to straighten and widen the approaches to allow for unimpeded two-way traffic, re-aligning with the current Dirks Road right-of-way as soon as practical. The new bridge would be capable of handling the heaviest loads required for the construction and operation of the power plant, without any other temporary modifications. The new bridge and road alignment would be constructed to minimize impacts to waters of the United States.

A 1.09-acre temporary construction staging area would be required on the east side of the bridge because the west side would not be accessible during construction (Figure 1). A location southeast of the existing bridge was selected to avoid impacts to the irrigation ditch and culvert northeast of the existing bridge and the freshwater marsh wetlands along the east side of the

Glenn-Colusa Canal embankment. The bridge would be built from east to west and all the construction material would arrive from I-5, which is east of the existing bridge.

The existing Glenn-Colusa Canal Bridge would be used for initial construction mobilization site access while the new bridge is being installed, but would be removed after construction is completed. The concrete deck would be removed, along with the three rows of five piers that are in the channel of the Glenn-Colusa Canal. The two bridge abutments would be left in place to minimize impacts to the canal and the embankments. Leaving the abutments in place would not affect the operation of the canal. Pile driving equipment would be used to install the piers in the canal. Earthmoving equipment (tractor, dozer, trucks, and a backhoe) would be used to construct the road alignment. The original bridge approaches would be final-graded to match the surrounding land contours and seeded with grass native to the region.

Avoidance and minimization measures would be implemented to minimize impacts to potentially jurisdictional waters of the United States, as described in the Section 404 Individual Permit Application submitted to the Corps on April 5, 2007 and supporting documentation. Unavoidable permanent impacts to waters of the United States would be offset with compensatory mitigation, as discussed in the Revised Bridge Design Letter transmitted to the Corps on August 28, 2007. All temporarily disturbed areas would be returned to pre-project conditions after construction is complete. All disturbed areas would be revegetated with native species.

Four design options for the Glenn-Colusa Canal Bridge replacement were evaluated and are discussed below. Option 1 would replace the bridge at its current location. Option 2 would replace the bridge north of the existing Glenn-Colusa Canal Bridge, while Options 3 and 4 would replace the bridge south of the existing bridge (Figure 1). Option 4 is the preferred option for the project.

Tables 1 and 2 summarize the area of potentially jurisdictional wetlands and non-wetland waters of the United States that would be affected by the Glenn-Colusa Canal Bridge design options. Numbers highlighted in bold refer to the design option with the lowest impact acreage.

Option 1 – Replacement of Glenn-Colusa Canal Bridge at Existing Bridge Location

The existing Glenn-Colusa Canal Bridge cannot be removed and replaced at its original location during construction because a bridge would need to be in service at all times during construction to provide access to the proposed power plant site and to keep the existing PG&E Compressor Station operational. The replacement of the Glenn-Colusa Canal Bridge at its existing location is not a feasible option. Therefore, three other locations have been considered:

Table 1
Glenn-Colusa Canal Bridge Replacement Impacts to Jurisdictional Waters of the United States by Habitat Type

Bridge Options[1]	Impacts (acres)									
	Wetlands						Non-wetland			
	Freshwater Marsh		Seasonal Wetland		Cultivated Rice Field		Irrigation Ditch		Glenn-Colusa Canal	
	P[2]	T[2]	P	T	P	T	P	T	P	T
Option 2 – North	**0.162**	**0.070**	**0.001**	0.054	0.471	2.479[3]	0.307	**0.060**	**0**	**0**
Option 3 – South	0.233	0.146	0.080	**0.044**	**0.187**	1.289[3]	0.060	0.140	0.029	0.006
Option 4 - Farthest South, Preferred Option	0.279	0.120	0.018	0.052	0.362	**1.287**[3]	**0**	0.214	0.029	0.006

Notes:

Bold font refers to the Bridge Option with the smallest impact.

[1] The design "Replacement of Glenn-Colusa Canal Bridge at Existing Bridge Location" is not included in this table because this bridge replacement option is not feasible, as described below.

[2] "P" refers to permanent impacts, while "T" refers to temporary impacts.

[3] Per a previous conversation with the Corps, temporary impacts to cultivated rice fields would not be considered impacts to jurisdictional waters of the United States.

Table 2
Total Impacts to Potentially Jurisdictional Waters of the United States by the Glenn-Colusa Canal Bridge Replacement and Road Alignment

Bridge Options	Impacts (acres)					
	Wetlands		Non-wetland		Total (Wetland + Non-wetland)	
	Permanent	Temporary[1]	Permanent	Temporary	Permanent	Temporary[1]
Option 2 - North	0.634	**0.124**[1]	0.307	**0.060**	0.941	**0.184**
Option 3 - South	**0.500**	0.190[1]	0.089	0.146	**0.589**	0.336
Option 4 - South, Preferred Option	0.659	0.172[1]	**0.029**	0.220	0.688	0.392

Note:

[1] Temporary impacts to cultivated rice field are not included in the calculation of total temporary impacts to wetlands. Per a previous conversation with the Corps temporary impacts to cultivated rice fields are not considered impacts to jurisdictional waters of the United States.

- North of Existing Location (Option 2);
- South of Existing Location (Option 3);
- South of Existing Location (Option 4 and the Preferred Option).

Option 2 – Replacement of Glenn-Colusa Canal Bridge North of Existing Bridge Location

The northern bridge design would be a free-span steel beam and concrete bridge approximately 100 feet long by 30 feet wide (Figure 1). The east approach would be located approximately 20 feet north of the existing bridge, and the west approach would be located about 40 feet north of the existing bridge. Since piers would not be constructed in the canal, the bridge would likely block the Glenn-Colusa Irrigation District's access roads.

The northern bridge design would have permanent impacts on the largest area (0.941 acre) of potentially jurisdictional waters of the United States. Permanent impacts to cultivated rice fields (0.471 acre) and an irrigation ditch east of the Glenn-Colusa Canal (0.307 acre) are the largest contributors to these impacts. The permanent impacts would be larger because the bridge would be free span and the approach to the bridge would be higher than other bridge designs evaluated here. The northern alignment would affect more cultivated rice field habitat that is potentially used by the federal and state threatened giant garter snake (*Thamnophis gigas*).

This design would have temporary impacts on the smallest area (0.184 acre) of potentially jurisdictional waters of the United States. This difference is primarily a function of the lower freshwater marsh impacts of this option. The northern location of the eastern bridge approach would avoid a freshwater marsh area that is affected by the other two bridge alternatives.

Option 3 – Replacement of Glenn-Colusa Canal Bridge South of Existing Bridge Location

Option 3 would be a steel beam and concrete bridge, approximately 100 feet long and 30 feet wide (Figure 1). Ten 6-foot-tall piers would be placed in the Glenn-Colusa Canal to support the bridge deck and would be designed and oriented to reduce impeding the flow of water and to minimize the collection of floating debris.

Option 3 would have total permanent impacts on the smallest area (0.589 acre) of potentially jurisdictional waters of the United States. This is because it would have the smallest permanent impacts on cultivated rice wetlands (0.187 acre, compared with 0.471 acre for Option 2 and 0.362 acre for Option 4). While it would have the smallest permanent impacts on cultivated rice wetlands, it would have the largest impacts to seasonal wetlands (0.080 acre, compared with 0.001 acre for Option 2 and 0.018 acre for Option 4), and would have permanent impacts on

freshwater marsh similar to those of Option 4 (0.233 acre, compared with 0.279 acre for Option 4 and 0.162 acre for Option 2).

The ten 6-foot-long piers in the Glenn-Colusa Canal would fill 0.029 acre of the irrigation canal. To minimize the impact of the new piers on the flow of water in the canal, the existing piers and the superstructure of the Glenn-Colusa Canal Bridge would be removed.

Option 4 – Replacement of Glenn-Colusa Canal Bridge South of Existing Bridge Location

Option 4 would replace the Glenn-Colusa Canal Bridge south of the existing bridge and would use the same bridge design as Option 3. However, the western end of the bridge and the road approach to the bridge would be located closer to the existing road than Option 3 (see Figure 1). This alignment would minimize impacts to seasonal wetlands and freshwater marsh on the west side of the Glenn-Colusa Canal.

Option 4 would be a three-span steel beam and concrete bridge approximately 100 feet long by 30 feet wide. The east approach would be located approximately 75 feet south of the existing bridge and the west approach would be located about 45 feet south. Two rows of five 6-foot-long piers would be constructed in the canal to support the bridge, as described for Option 3.

Option 4 has total permanent and temporary impacts to waters of the United States that are similar to Option 3 (permanent: 0.688 acre, compared to 0.589 acre for Option 3; temporary: 0.386 acre, compared to 0.330 acre for Option 3). Unlike the previous two designs, this design would completely avoid permanent impacts to the irrigation ditch east of the existing bridge. This design also has fewer permanent impacts to seasonal wetlands than Option 3 (0.018 acre, compared to 0.080 acre for Option 3) and similar permanent impacts to freshwater marsh as Option 3 (0.279 acre, compared to 0.233 acre for Option 3).

The ten 6-foot-long piers in the Glenn-Colusa Canal would fill 0.029 acre of irrigation canal. To minimize the impact of the new piers on the flow of water in the canal, the existing piers and the superstructure of the Glenn-Colusa Canal Bridge would be removed.

Of the three bridge designs, this design is the preferred option. It would minimize impacts to freshwater marsh, seasonal wetlands, cultivated rice fields, and the Glenn-Colusa Canal, and completely avoid impacting the irrigation ditch that parallels the north side of Dirks Road east of the Glenn-Colusa Canal.

Teresa Creek Bridge

The existing Teresa Creek Bridge is located 0.6 mile north of Delevan Road on McDermott Road. This bridge has a wood deck between two concrete abutments and currently is not adequate to accommodate heavy construction traffic. Either this bridge would need to be replaced or alternative existing roads would need to be used to access the power plant site.

Alternative 1: Use of Existing Bridges and Roads

If the current Teresa Creek Bridge is not replaced, construction traffic would have to access the power plant site from another route. The new route would be as follows: vehicles would not take the Delevan Road exit off of I-5, instead they would continue northbound on I-5 (approximately 4 miles), and then travel west on Road 68, a paved two-lane roadway with one travel lane in each direction (approximately 2 miles), southbound on McDermott Road (approximately 3 miles), westbound on Dirks Road to terminus of the road (approximately 1.4 mile), and then west of the terminus (0.75 mile). An additional 6 miles of travel distance would be added to access the site. The additional travel distance would increase travel time and construction costs, as well as environmental impacts associated with the additional vehicle distance traveled, for the proposed project.

The large amount of construction traffic passing over the interstate, county road, and rural roadways of the new route during the three to four months required to construct the Teresa Creek Bridge would increase the amount of car exhaust in the air and potential dust generation, thereby increasing air pollution in the region.

Additionally, federal and/or state listed species, such as the giant garter snake, may be adversely affected by the longer route. Giant garter snake may inhabit irrigation ditches and freshwater marsh wetlands near the roadways and would have an increased risk of accidental mortality or harm.

Alternative 2 – Replacement of Teresa Creek Bridge

If the Teresa Creek Bridge is replaced, the new bridge would be a clear span bridge with no piers or abutments in waters of the United States (Figure 2, View 1).

The new Teresa Creek Bridge would permanently impact Teresa Creek. Teresa Creek is the southernmost tributary of Hunters Creek, which drains into the Sacramento River. The active channel of this stream is a jurisdictional water of the United States. During the bridge

replacement, a wingwall on the northwest side of the bridge abutment would be constructed to prevent erosion of the bank where two drainage culverts discharge into Teresa Creek. Water draining from the culverts has eroded a wide section of bank below the outfall. The culverts would be extended through the wingwall and the stream bank behind the wall, which has been eroded, would be back-filled. The area where this wall would be constructed is primarily unvegetated, but the site is below the ordinary high water elevation of the stream. The wingwall, construction, and backfill would result in permanent filling of approximately 0.014 acre of non-wetland waters of the United States.

The new bridge would span the stream, and the abutments would be set back farther from the stream than those of the existing bridge. The existing Teresa Creek Bridge is approximately 31 feet long, while the new bridge would be 38 feet long. A longer bridge would set the bridge abutments bank an additional 3 feet, creating a wider channel. Therefore, replacement of the Teresa Creek Bridge would not result in permanent loss of seasonal wetland habitat, which borders both sides of the channel, and could potentially result in a small increase in the amount of jurisdictional wetlands present at the site.

There are two options for replacement of the existing Teresa Creek Bridge:

- Option 1 – Replace the bridge as the first scheduled construction event, and detour traffic from McDermott Road between Delevan Road and Dirks Road. No temporary bypass would be installed.

- Option 2 – Install a temporary 14-foot-wide bridge and detour road immediately downstream of the existing bridge prior to construction of the new bridge.

These options are discussed below.

Avoidance and minimization measures would be implemented to minimize impacts to potentially jurisdictional waters of the United States, as described in the Section 404 Individual Permit Application submitted to the Corps on April 5, 2007 and supporting documentation. All disturbed areas would be revegetated with native species. Unavoidable permanent impacts to waters of the United States would be offset with compensatory mitigation, as discussed in the Revised Bridge Design Letter transmitted to the Corps on August 28, 2007.

Option 1 – Replacement of Teresa Creek Bridge without Temporary Bypass

Traffic would need to be detoured if the temporary bypass on Teresa Creek was not constructed. This detour would reroute traffic on either I-5 or 99-W to the Road 68 exit north of the Delevan Road exit (4 miles), west on Road 68 (2 miles) and south on McDermott Road (3 miles) to reach Dirks Road, westbound on Dirks Road to the terminus of the road (approximately 1.4 miles), and then west of the terminus to the proposed power plant site (0.75 mile). With the detour, an additional 6 miles of travel distance would be added to access the site. The additional travel distance would increase travel time and construction costs for the proposed project.

The detour includes a longer travel distance over the interstate, county roads, and rural roadways. Old 99W is a paved two-lane state highway that runs parallel to I-5. Road 68 is a paved two-lane roadway with one travel lane in each direction. McDermott Road between Road 68 and Dirks Road is a rural roadway with unpaved travel lanes and no shoulders. Increased air quality degradation would last during the three to four months while the new Teresa Creek Bridge is being constructed.

Increased travel time would adversely affect local farming production. According to the Colusa County Department of Public Works, three-fourths of the traffic that would be detoured if the Teresa Creek Bridge is closed would be farm equipment.

Additionally, federal and/or state listed species, such as the giant garter snake, may be adversely affected by the longer route. Giant garter snakes may inhabit irrigation ditches and freshwater marsh wetlands near the roadways and would have an increased risk of being accidentally harmed or taken.

Option 2 – Replacement of Teresa Creek Bridge with a Pipe Culvert Temporary Bypass

This option would include installation of a temporary 14-foot-wide bypass and associated temporary detour road immediately downstream of the existing Teresa Creek Bridge, thereby allowing traffic to pass through this area during reconstruction of the bridge. Figure 2, View 1 provides a conceptual design for this bridge replacement option. Construction of the bypass would temporarily fill approximately 0.040 acre of jurisdictional waters of the United States. Approximately 0.023 acre of the seasonal wetland vegetation between the existing bridge and the temporary crossing would be disturbed during construction.

The construction of the new Teresa Creek Bridge would be divided into three components, as generally described below.

1. **Temporary bypass**. Construction of the new bridge would occur during the dry season. Temporary culverts would be placed in the stream channel to convey the expected flows in Teresa Creek while the detour route is in place. At this time, the culvert is expected to be 16 feet wide and 11 feet high. This would be confirmed during final design. The applicant would coordinate construction activities with Colusa County and the Glenn-Colusa Irrigation District to determine the anticipated flow rate of discharges into Teresa Creek during the construction period. The pipe culverts would be installed with truck tractor and equipment. The culverts would be laid on gravel placed on the creek bed, and overlain with gravel and backfill to form a roadway embankment placed over the culverts, and the road would be graded. Earthmoving equipment (tractor, dozer, backhoe) would be used to place and remove the temporary embankment. Paving machines and rollers would be used if the temporary bypass were paved (depending on the average daily traffic count) for the passage of traffic.

2. **Bridge Removal.** Bridge demolition equipment would be needed to remove the existing structure. The timber superstructure would be removed with a small crane, tractor, and truck. Abutments would be demolished using concrete demolition equipment. The use of sheet piling or cofferdams could be considered during the final design process, to limit work within flowing water during bridge demolition. All existing bridge structure and materials would be removed from the site and disposed in an approved landfill. It is not known whether the existing bridge abutment is on piles. If piles are present, the top 2 feet would be removed in accordance with the Caltrans Standard Specifications.

3. **Permanent Structure.** The permanent replacement bridge would be constructed after the temporary bridge is installed and operational. The permanent structure would meet all applicable design standards for conveying expected flows to avoid changes in stream depth and flow rates in the project area. Culvert or abutment walls would use wood forms to accommodate cast-in-place construction. Wingwalls at the upstream and downstream sides of the structure would be constructed to prevent scouring of the bridge abutments.

After the permanent bridge has been constructed, the temporary stream crossing would be removed and all disturbed areas would be returned to pre-project conditions. During construction, adequate flows allowing for fish passage would be maintained at all times. The culverts installed for the temporary bridge would be large enough so as not to restrict peak

expected flows. If dewatering of some areas were required during construction, a qualified biologist would be present during dewatering to ensure that fish are not injured. Fish that may be trapped behind the cofferdam would be netted and removed from the dewatering area. Additionally, a net or some other type of fish screen would be used on the end of the dewatering pump, to prevent any fish from being sucked into the pumping mechanism, providing the biologist with adequate opportunity to remove the fish from the area. All disturbed areas would be revegetated, including disturbed areas adjacent to the active channel. All disturbed areas would be revegetated with native species.

The creation of a temporary bypass is the preferred option for the project. The temporary bypass would allow traffic to continue using McDermott Road while the new bridge is being built and the proposed design would minimize the temporary impact to jurisdictional waters of the United States. Keeping McDermott Road open would also minimize impacts to local farming production, prevent potentially greater impacts to listed species, and keep construction costs down (i.e., fuel costs, travel time for workers).

DISCUSSION OF LEDPA CONCLUSIONS

Construction of the CGS would not be feasible without replacement of the Glenn-Colusa Canal Bridge and Teresa Creek Bridge. No other existing bridges are available for crossing the Glenn-Colusa Canal. Using a road detour instead of replacing the Teresa Creek Bridge would create unacceptable construction costs and would create additional unacceptable environmental impacts, including increased air pollution and potential adverse effects to listed species. Increased travel time would also adversely affect local landowners and farming production.

The options for replacing the Glenn-Colusa Canal Bridge are not substantially different in terms of impacts. The northern option was determined to be infeasible due to the inability to secure landowner agreements. The preferred option, Option 4, would retain the existing Glenn-Colusa Irrigation District access road, minimize impacts to seasonal wetlands and freshwater marsh on the west side of the Glenn-Colusa Canal, and completely avoid any permanent impacts to the irrigation ditch that parallels the north side of Dirks Road east of the Glenn-Colusa Canal.

Use of a temporary detour road is the preferred option for replacement of the Teresa Creek Bridge. Keeping the road open would decrease travel time, construction costs, potential adverse effects to listed species, and would minimize impacts to local farming production.

If you have any questions regarding this letter please contact Steve Leach at (510) 874-3205 or Melissa Newman at (510) 874-1747.

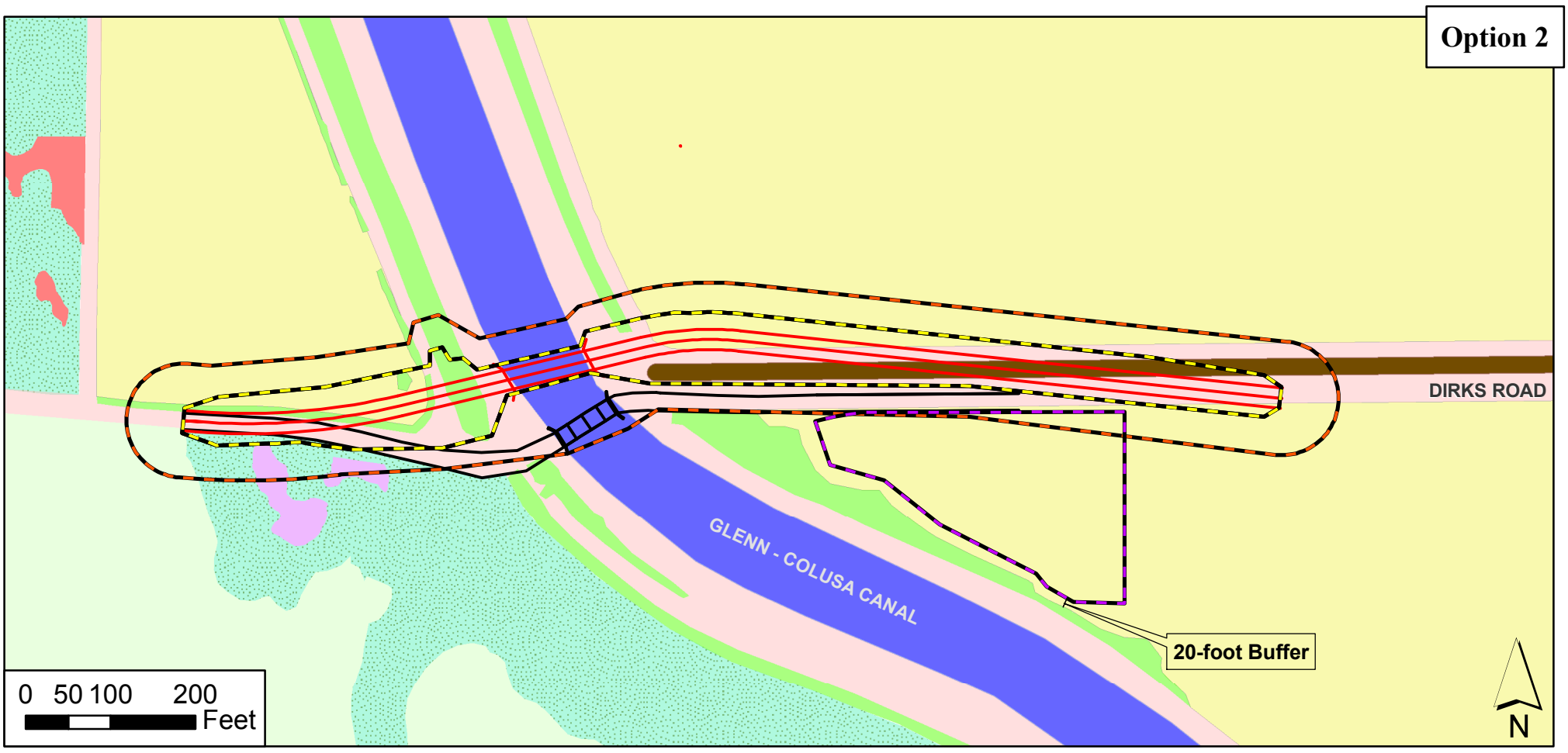
Sincerely,
URS CORPORATION

Steve Leach
Senior Biologist

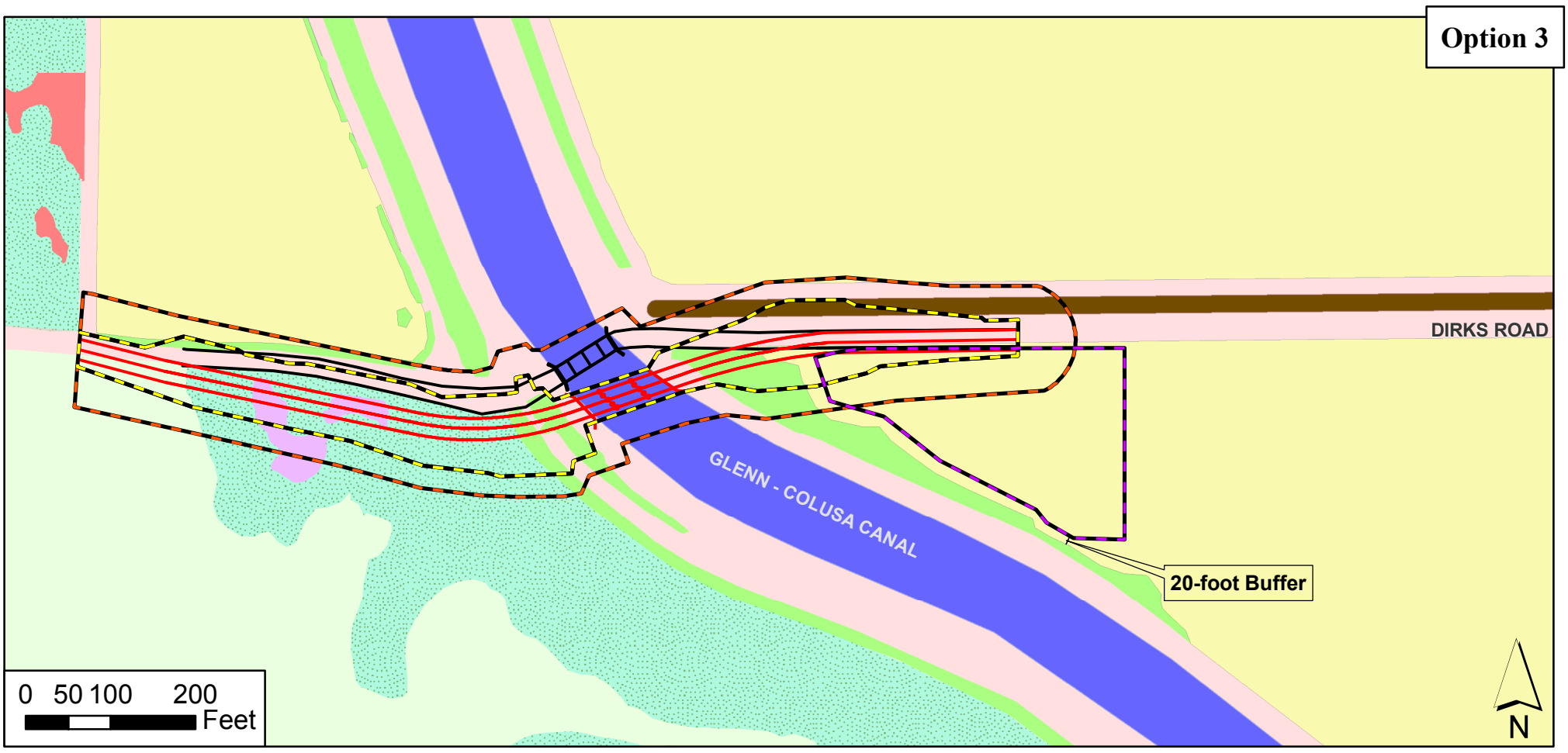
Enclosures Figures 1 and 2
Appendix A – Alternatives Evaluation
For EPA only: CD containing previous CGS project submittals to Corps

cc: Andrew Welch, E&L Westcoast
Dale Shileikis, URS
Kim McCormick, E&L Westcoast Consultant
Andrea Grenier, PG&E Consultant
Valentina Cabrera-Stagno, EPA
Shaheerah Kelly, EPA
Michelle Tovar, USFWS
Amy Kennedy, CDFG
Jenny Marr, CDFG
Rick York, CEC
Misa Ward, CEC
Patrick Gillum, RWQCB
Steve Leach, URS
Melissa Newman, URS

Option 2



Option 3



Option 4 (Proposed Project Option)

Existing Features
- Existing Bridge
- Existing Road Alignment

Proposed Features
- Proposed Road Alignment
- Proposed Free-Span Bridge
- Proposed Bridge with Piers

Impacts
- Permanent Impact
- Temporary Impact
- Temporary Construction Staging Area

Jurisdictional Habitats
- Canal
- Freshwater Marsh
- Rice
- Seasonal Wetland
- Vernal Pool

Non-jurisdictional Habitats
- CA Annual Grassland
- Disturbed
- Irrigation Ditch
- Vernal Pool Grassland

OPTIONS FOR THE GLENN-COLUSA CANAL BRIDGE REPLACEMENT

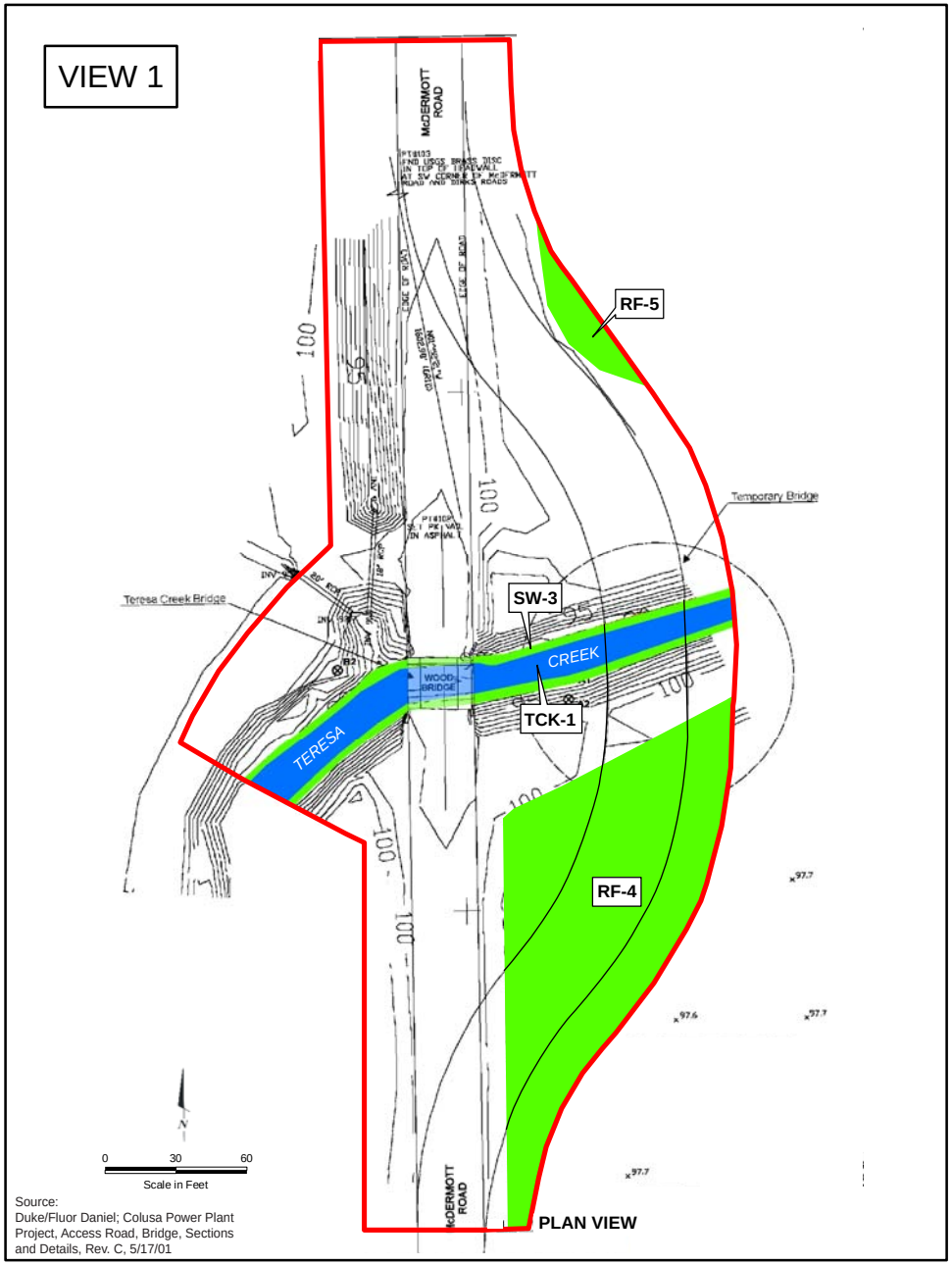
28067004
January 2008

Colusa Generating Station
E&L Westcoast, LLC
Colusa County, California

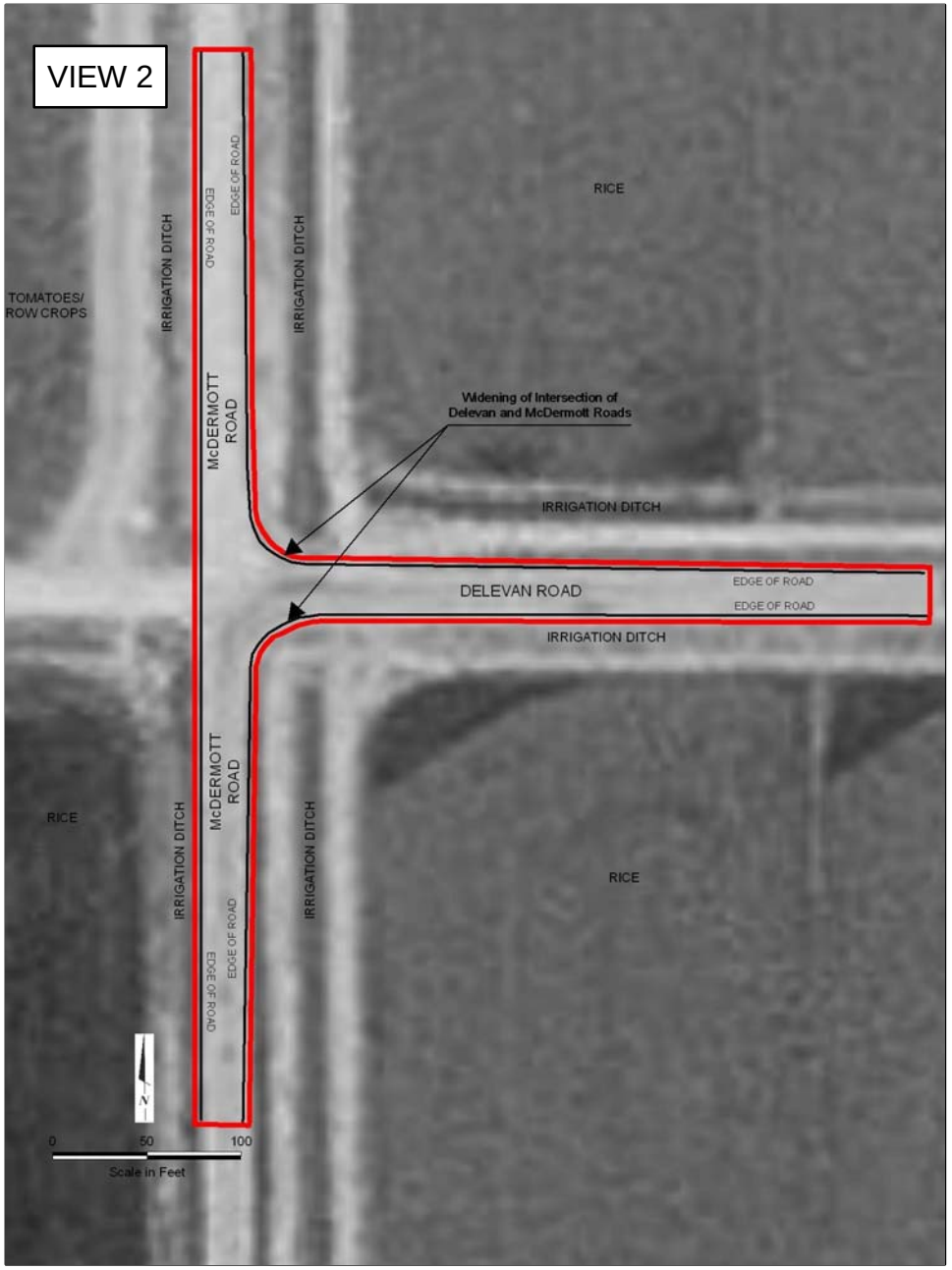
URS

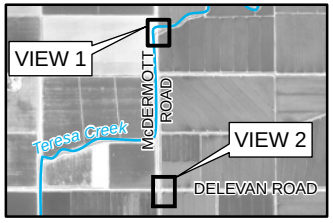
FIGURE 1

URS Corporation: L:\Projects\Colusa_28067004\MXD\Current Working Documents\ACOE_requestBridge_Options.mxd



Source:
Duke/Fluor Daniel; Colusa Power Plant Project, Access Road, Bridge, Sections and Details, Rev. C, 5/17/01





Legend

- Jurisdictional Delineation Study Area
- A1 ⊗ Delineation Data Point

Aquatic and Wetland Habitats

- SW Seasonal Wetland
- TCK Teresa Creek (Non-Wetland Waters of the U.S.)
- RF Cultivated Rice Field

HABITATS IN THE VICINITY OF THE TERESA CREEK BRIDGE REPLACEMENT AND DELEVAN/McDERMOTT INTERSECTION IMPROVEMENT

28067004
January 2008

Colusa Generating Station
E&L Westcoast, LLC
Colusa County, California

URS

FIGURE 2

URS Corporation L:\Projects\Colusa_28067004\MXD\Current Working Documents\Delineation_report\figure_4B.mxd Date: 12/18/2006 5:11:10 PM Name: smlewis0

Appendix A
Colusa Generating Station
Evaluation of Project Alternatives

A broad range of project alternatives were considered as part of the project development process for the Colusa Generating Station. The following project alternatives were evaluated:

- No Project Alternative
- Site Alternatives
- Generation Technology and Plant Configuration Alternatives
- Water Supply/Cooling System Alternatives
- Transmission Interconnection Alternatives
- Gas Supply Alternatives

A comprehensive evaluation of these alternatives is presented below. This evaluation summarizes information that was previously submitted to the California Energy Commission (CEC) as part of the following documents:

1. November 2006 Application for Certification (AFC) for the CGS project, Section 9.0, Alternatives; and
2. E&L Westcoast's February 12, 2007 Response to the CEC's January 11, 2007 Data Requests.

NO PROJECT ALTERNATIVE

Should the No Project Alternative occur, the primary result would be the loss of 660 nominal megawatts (MW) of generating capacity to provide energy to the State of California.

If the No Project Alternative is adopted, the following would occur:

- Approximately 31 acres of land would remain grassland.
- Approximately 15 acres of land would remain undisturbed from the installation of underground pipelines, transmission facilities, and access road.
- The Teresa Creek bridge and Glenn-Colusa Canal bridge would remain in their current condition and would not be upgraded by the project.
- The intersection of Delevan Road and McDermott Road would not be improved.

- Approximately 126 acre-feet per year of existing water would remain allocated to the Glenn Colusa Irrigation District (GCID) and would not be used by Colusa County for industrial purposes.

- Colusa County would forego approximately $1.575 million to $2 million in annual tax revenue.

- Land uses, habitat values, ambient noise, landform, and visual quality of the area would remain unchanged.

The adverse consequences of the No Project Alternative include the following:

Loss of generating capacity to serve California load – The State of California is in the midst of an energy supply shortfall to meet existing and future electrical loads. Development of new energy supplies is not meeting increasing demands in the state (CEC, 2005). PG&E estimates that it will need to acquire approximately 2,200 MW of dispatchable capacity by 2010.

The supply shortfall has resulted in governmental initiatives to bring new generating capacity on line. Power plants that have recently been approved by the CEC are not expected to completely resolve the state's shortfall. The No Project Alternative would eliminate a source of 660 MW of reliable energy supply that is needed to alleviate the shortfall in generating capacity and ease the energy situation in California.

Loss of reliability – Under certain circumstances, supply shortfalls can result in planned or unplanned blackouts. During blackouts, emergency standby generators are used as an alternative source of power. These generators typically run on fuels (e.g., diesel) that have much higher emissions than natural gas and are much less efficient. Thus, the absence of reliable sources of power can lead to serious air quality and public health consequences.

Loss of increase in energy conversion efficiency – As a gas turbine combined cycle generating facility, the proposed CGS would be one of the most efficient generating facilities in the state. Its highly efficient energy conversion capability (natural gas to electricity) would produce less air emissions and other environmental effects per kilowatt hour of energy produced than most of the power plants that are currently operating and than those that are being constructed on an expedited basis to provide immediate power to the state. When in operation, the Colusa Generating Station (CGS) would incrementally increase the state's average energy conversion efficiency. Under the No Project Alternative, the increase in efficiency would not be realized because less efficient older and peaking plants would run more hours of the year.

SITE ALTERNATIVES

Two alternatives to the proposed project site were evaluated during project formulation:

1. Cortina Substation (Alternative Site 1)

2. Holthouse Ranch (Alternative Site 2)

These site alternatives were selected based on the following criteria:

- **Proximity to infrastructure** – The site must be located in close proximity to high voltage transmission lines, a high-pressure major gas transmission system, and potential water source(s).

- **Environmental viability** – The site should have few or no environmentally sensitive areas and should allow development with minimal environmental impacts.

- **Minimal impact on surrounding community** – The site should enable the development of a power plant with minimal negative impact on the surrounding community.

- **Compliance with Laws, Ordinances, Regulations, and Standards (LORS)** – The site should provide opportunity for compliance with all LORS.

Two sites were analyzed as alternative sites that would feasibly meet most of the above criteria.

Alternative Site 1 (Cortina) – The Cortina substation site is located approximately 4.5 miles southwest of Williams on Walnut Drive. The proposed alternative site considered is adjacent to PG&E's 230 kilovolt (kV) Cortina substation, on the substation's west side. Alternative Site 1 is shown on Figure A-1. The alternative site considered encompasses approximately 26 acres. Beginning approximately 100 yards north of Walnut Drive, the majority of the site lies within property owned by PG&E and a local landowner. The site elevation is approximately 40 feet above mean sea level (msl), and varies no more than 10 feet on average. The land surrounding the alternative site is also relatively flat with insignificant topographic features. The alternative site consists of both non-agricultural grassland and active farmland.

This alternative site meets the project's basic criteria, because it is located close to major gas and power transmission infrastructure. Alternative Site 1 would interconnect to the PG&E transmission system at the adjacent Cortina Substation and would have sufficient capacity to accommodate the output of the proposed power plant. Natural gas is available via PG&E's #400 and #401 gas pipelines approximately one-half mile to the west of Alternative Site 1. Water for the plant could be provided from the Tehama-Colusa Canal under the same contractual terms as the proposed project site.

Based on a reconnaissance survey of the Cortina Site on November 29, 2001, construction of the power plant at this location would not have fewer environmental impacts than the preferred site alternative. URS biologists observed seasonally ponded depressions adjacent to the Cortina Substation that could be directly impacted by construction of a power plant at this site. Access to the Cortina site would require crossings of the Glenn-Colusa Irrigation District Canal and Spring Creek. The existing crossings of these waterways would require additional evaluation and potential replacement or upgrades to accommodate the transport of heavy equipment and the largest project components to the site. Improvements to access roads and bridges at these locations could affect potentially jurisdictional waters of the United States and/or listed species such as the giant garter snake (*Thamnophis gigas*). Also, the construction of the water supply pipeline to the Tehama-Colusa Canal could have additional impacts to biological resources. Therefore, Alternative Site 1 is unlikely to have fewer impacts to aquatic habitats or listed

species than the preferred site and could result in greater impacts to jurisdictional waters of the United States due to the presence of seasonally ponded depressions within the plant site.

For Alternative Site 1, it is anticipated that existing farmland would need to be taken out of production to create a footprint large enough for the project. To obtain site control and lateral easements, negotiations would be required with several landowners. The site is located within 1.7 miles of one residence and within 2 miles of numerous others. Like the preferred site, the parcels are not currently zoned for industrial use or designated for industrial use in the Colusa County General Plan. Additionally, this site appeared to include construction issues that were not significantly different from those at the preferred site. It was concluded that this site did not avoid the current existing land use designation conflict, that it brought no particular advantage over the preferred site, and in fact, had certain disadvantages such as multiple owners and existing agricultural production on site.

As a result of the potential biological resource issues and land use conflicts at this site, further investigation was not pursued.

Alternative Site 2 (Holthouse Ranch) – This site is located approximately 14 miles north of the community of Williams, approximately 5 miles to the west of Interstate 5 near Delevan Road. It is located in the southeastern portion of the Holthouse Ranch. Alternative Site 2 is shown on Figure A-2. The alternative site encompasses approximately 26 acres. Topography in this area of the ranch is relatively flat to undulating. The site elevation is approximately +140 feet above msl with topographic variation of no more than 20 to 30 feet. The site and surrounding area are currently used for cattle grazing.

Located just south of the ranch headquarters along the eastern boundary of the property, this site would provide many of the same benefits as the CGS project site. There is adequate transmission and gas infrastructure, and only one landowner would need to be negotiated with for both site control and lateral easements. Interconnection to the PG&E transmission system would be to PG&E's north-south transmission corridor via a new switchyard. Natural gas is available via PG&E's #400 and #401 gas pipelines located less than one-half mile to the west of Alternative Site 2. Water for the plant could be provided from the Tehama-Colusa Canal under the same contractual terms as the preferred site. As with the preferred site, this site appears to present no unique obstacles to construction. However, the potential for significant biological impacts exists at this location due to the presence of wetlands and vernal pools. It was deemed that these areas would not only be affected by the power block and switchyard footprints, but by the transmission interconnection and construction laydown areas as well. Due to the potential biological impacts associated with this location, the preferred site was selected over this alternative site.

The preferred location for the CGS is superior to the alternative sites because linear interconnections are minimized, impacts to sensitive biological resources can be avoided and minimized, and the owner of the Holthouse Ranch is interested in making this portion of the ranch available for power plant development.

GENERATION TECHNOLOGY AND CONFIGURATION ALTERNATIVES

After construction and commissioning, E&L Westcoast would transfer ownership and operation of the plant to PG&E to supply energy to the California market. To meet PG&E's resource needs, both peaking and shaping generation are needed to fill in the gaps between projected production from existing generation and contracted resources and projected demand. Facilities must be flexible and highly reliable.

PG&E's requirements include the following:

- Meet all air emission permit limits at startup, shutdown, and during all operating loads;
- Provide Automatic Generation Control (AGC) to comply with the California Independent
- System Operator's (CAISO's) requirements;
- Meet minimum downtimes and minimum ramp rates for shaping generation units; and
- Have a design life of 30 years.

Generation Technology Alternatives

In preparing the response to PG&E's Request Offers, various generation technologies were evaluated:

- Fossil fueled/steam electric (gas turbine, conventional boiler fueled by natural gas, distillate or coal)
- Nuclear
- Solar
- Biomass
- Hydroelectric
- Wind
- Geothermal

Fossil – An evaluation of fossil generation technology necessarily involves consideration of both generation technology and fuel alternatives. Technology alternatives include combustion turbine generation (both simple and combined cycle) and conventional boilers. Fuel alternatives include natural gas, coal, and distillate. Of the fuel alternatives, natural gas, with its lower sulfur dioxide and particulate emissions, is the preferable fossil fuel for use in California. Local air district air permitting regulations prohibit the use of coal. Distillate fuels are also discouraged for units that are designed to run more than a limited number of hours per year.

Nuclear – Nuclear generation was not considered to be a feasible technology because of the associated long lead time and high initial capital cost. No new nuclear power plants have been constructed in California since Diablo Canyon and little of the engineering and construction industry capacity required for this technology is available at the current time. Furthermore, it would take more than 5 years to permit such a facility, and a similar amount of time for construction. In addition, the State of California has a moratorium on the construction of any new nuclear facilities until a licensed permanent waste disposal facility is in operation.

Solar – Solar technology is most appropriate as a demand reduction technology. When operated to supply individual energy users, it reduces the amount of energy required from the electrical grid. However, it cannot be controlled by a central system operation that increases/decreases facility output in response to systemwide energy demand. Solar thermal technologies do not provide the continuous reliable power that is one of the key objectives for the CGS. Solar facilities use large tracts of land; parabolic troughs typically require approximately 4 to 5 acres per megawatt output (CEC, 1996). To produce 660 MW, approximately 2,640 to 3,300 acres of land would be needed for a parabolic trough system. This would be more than 26 times the amount of land to be used by the proposed project. Therefore, this technology was not considered to be a feasible technology for the CGS.

Biomass – Biomass technology is similar to conventional boiler facilities but is generally limited to a much smaller project size (typically 10 to 25 MW) and has lower thermal conversion efficiency. To produce 660 MW, more than 20 biomass units would be required. Emissions from biomass projects are typically greater than from gas-fired projects. The ability to meet air quality requirements, especially with this many units, may not be achievable. Because of size and efficiency limitation, biomass technology was not selected.

Hydroelectric – Hydroelectric technology was determined to be infeasible because of the extensive time such a project would require and significant impacts typically associated with hydroelectric development.

A significant obstacle to development of a privately initiated hydroelectric facility is acquisition of land suitable for this technology. In addition, the environmental review and approval process for a new hydroelectric project of similar scale to the proposed CGS could take more than 5 years. Construction could take several more years. Such a project would not come on line for 8 or more years. Such long lead times and the uncertainty of the licensing process make this technology infeasible as a technology alternative.

Wind – Wind energy was not considered to be a feasible technology for several reasons. Due to the natural intermittent availability of wind resources, wind energy is not always available. This technology is characterized by a low average capacity factor and therefore does not provide a source of reliable energy. It also requires significant land area and the installation of a large number of individual machines to form a significant amount of generating capacity in aggregate. Wind generation farms generally require large tracts of land; approximately 17 acres of land are needed to produce 1 megawatt of electricity (CEC, 1996). In order to produce 660 MW, approximately 11,200 acres of land would be required. This would be more than 100 times the amount of land used by the proposed project and more than two times the amount of land held by the Holthouse Ranch. With these characteristics, wind energy was rejected as a feasible technology alternative.

Geothermal – Geothermal technology was determined to be infeasible because it is limited to specific geologic conditions that are present only in certain areas of California.

Other Plant Configurations

In addition to generation technology alternatives, alternative machine types and sizes were considered. However, PG&E requested that GE Frame 7FA turbines be used for the project because of the equipment's proven history for reliability. The following plant configurations and maximum output alternatives were evaluated:

- 1,000 MW Combined Cycle Plant – A plant of this size would have employed two 2 × 1 gas/steam turbine configurations.
- 850 MW Combined Cycle Plant – This plant configuration would have consisted of a 3 × 1 gas/steam turbine combination.
- 660 MW Combined Cycle Plant – This plant, which was ultimately chosen, uses a 2 × 1 gas/steam turbine configuration, with additional peaking output.
- 520 MW Simple Cycle Plant – A simple cycle configuration of 3 × 0 gas/steam turbine configuration was evaluated.

During the evaluation stage of the development process, both the 1,000 MW and 850 MW plants were ruled out as viable options due to transmission constraints. The simple cycle plant was not chosen due to its less efficient fuel use and other economic considerations. The 520 MW simple cycle plant is less efficient and did not meet PG&E's requirements to satisfy needed capacity and operational flexibility.

WATER SUPPLY/COOLING SYSTEM ALTERNATIVES

The CEC implements state water policy to minimize the use of fresh water, promote alternative cooling technologies, and minimize or avoid degradation of the quality of the state's water resources. The state's water policy, adopted by the State Water Quality Control Board (SWRCB), is specified in Resolution 75-58. The Commission's 2003 Integrated Energy Policy Report (IEPR) provides that "...the Commission will approve use of fresh water for cooling purposes…only where alternative water supply sources and alternative cooling technologies are shown to be 'environmentally undesirable' or 'economically unsound.'" Economically unsound is defined as economically or otherwise infeasible. Feasible means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, legal, social, and technological factors.

The CEC's regulations require the Applicant to provide information on the source of water supply, the rationale for its selection, and whether fresh water is to be used for cooling purposes, to discuss all other potential sources and why they were not considered feasible.

Alternative Plant Cooling System Considerations

The consideration of power plant water supply includes consideration of water requirements to meet process needs and the availability of alternative water supplies. Power plant water requirements, other than for general maintenance and personnel needs, are related to cooling and to the steam cycle. All of the generation technologies that include a steam cycle (generation of steam to drive a steam turbine generator) require water for steam generation. A heat transfer medium is also required to condense the low-quality steam at the end of the cycle. Two methods

of steam condensing are typically used: circulating cooling water through a condenser, and direct condensation of the steam in an air-cooled condenser. The use of a circulating cooling water system entails the use of cooling towers, which can have a significant impact on plant water requirements.

Cooling system alternatives that are available range from wet cooling towers to air cooled condensers (dry system). An intermediate alternative is a hybrid system that incorporates a portion of both the wet and dry technology. Because wet towers and an air cooled condenser system represent the extremes in water requirements, these two cooling system alternatives were evaluated. A comparison of the general features of these two systems shows:

- Installed costs for the air cooled condenser are significantly more than for a wet cooling tower.
- When using an air cooled condenser, plant output is less than when using a wet cooling tower.
- Water requirements for the air cooled condenser can be on the order of 2,500 acre-feet per year less than the wet cooling tower for a 500 MW plant (CEC, 2006).
- The use of wet cooling technology was considered as an alternative to dry cooling technology. The benefits of using wet cooling technology would include the following:
  - Higher efficiency (less natural gas consumption).
  - Less air emissions.
  - Less visual impacts.

When comparing fuel consumption of dry versus wet cooling technologies, it was determined that natural gas savings alone using wet cooling could have supplied energy for a significant number of households. Wet cooled technology would also have produced less nitrogen oxide (NO_x), volatile organic compound (VOC), and carbon dioxide (CO_2) emissions than dry cooled technology. In addition, when considering visual impacts, wet cooling would have included a 50-foot-tall wet cooling tower rather than a 144-foot-tall air cooled condenser.

Water consumption requirements for wet cooling, however, are significantly higher than dry cooling. Anticipated water use for wet cooling was estimated at 3,000 to 3,500 acre-feet per year rather than the 126 acre-feet per year for dry cooling. Although it was determined that there was an abundant water supply in the region and water consumption requirements could be met for wet cooling, dry cooling technology was chosen for the proposed project based on the CEC policy set forth in the 2003 IEPR.

Alternative Water Supply Considerations

The Applicant evaluated several different alternative water supply and conservation options as part of the project. Based on the annual water requirements of approximately 126 acre-feet per year, which is less than 0.03 percent of the amount of water transported and delivered to Colusa County via both the Tehama-Colusa Canal and the Glenn-Colusa Canal, the use of Glenn-Colusa Irrigation District (GCID) water is preferred as the primary water supply option for the project. Selection of this source is based on the following:

- Both the Tehama-Colusa Canal and Glenn-Colusa Canal are located near the site. Therefore, offsite linear facilities would not be extensive and no new interconnections would be required.
- GCID has senior water rights, so that supply is not curtailed more than 25 percent.
- Water transfers can be made through Colusa County because the County is a Central Valley Project contractor.
- GCID has an existing wheeling agreement with Tehama-Colusa Canal Authority (TCCA) that allows water supplied by GCID to be conveyed via the Tehama-Colusa Canal to the site vicinity.
- The water supply and quality meets the requirements for the project.
- A more than adequate water supply from GCID and robust storage capacity are available at the project site.

Other potential sources of water, as listed in SWRCB Resolution 75-58, were considered but deemed to be infeasible as summarized below.

Alternative 1: Ocean Water

Ocean water is not considered a feasible alternative because this water source is not locally available.

Alternative 2: Brackish Water from Irrigation Return Flow or Groundwater

Irrigation return flow is considered infeasible due to the cost of infrastructure that would be required to deliver the water to the project site and the unreliability of the flows.

GCID operates eleven drains within its system. These drains receive irrigation return flow which consists primarily of water from rice fields, as well as from row crops, orchard, or pasture lands. GCID allows fields to release water into its system in accordance with established polices and rules (e.g., herbicides cannot be released into the drain system). Information on the eleven drains is summarized in Table 8.14-14 of the AFC. The use of irrigation return flow from the GCID drains is considered impracticable for the following reasons:

- An extensive and costly infrastructure system would be required to deliver the water from the drain to the site. The three closest drains are located between 7 and 10 miles east of the site and are located east of I-5. Pipelines would need to be constructed within the existing road rights-of-way; therefore, the length of the pipeline would be considerably longer than the direct-line distance between the site and the drain. The pipeline routes would cross several creeks and canals/ditches. A pump station would be required because all of the drains are located at elevations lower than the site. The approximate elevations of the three closest drains are between 60 and 70 feet above msl, while the site is at approximately elevation 183 feet above msl.
- The drains provide an unreliable source of water. The amount of water that is available at each drain depends on how the fields are operated, which depends on the crop, climate, etc. Based on data from GCID for the period 1996 through 2005, outflow at the eleven drains is highly variable throughout the year. Typically there is no outflow during

February and March. There is no sustained minimum outflow at any of the drains during the remainder of the year.

- As a result of increased water conservation measures by upstream users, including more efficient irrigation practices and conversion to more water-efficient crops, irrigation return flows have become an increasingly unreliable source of water (USBR, 2005).
- The irrigation return flow may require treatment for use at the plant. Limited water quality data are available for the return flows, but based on the nature of the water and electric conductivity data, the water from these drains would be expected to have elevated amounts of salts and minerals. Limited information is available regarding the use of poorer quality groundwater from deeper zones in the vicinity of the project. The base of the fresh water occurs about 400 feet below msl at the site (DWR, 2003), or about 550 to 600 feet below the site. The limited data available indicate the deeper strata may be largely non–water-bearing. Few wells have been drilled to these depths. An exploratory well was drilled on the west side of the valley near Willows in the last few years to a depth of about 1,000 feet. No significant water-producing materials were encountered below a depth of about 80 feet (Staton, 2006).

While it is conceivable that a water supply could be developed from those deeper materials, determining whether that supply exists could entail substantial expense in drilling exploratory wells to find strata that might yield significant amounts of water to wells. Furthermore, even if promising water-bearing strata were identified, substantial uncertainties would remain as to the sources of recharge for those strata, and the long-term viability of production from such zones. Therefore, use of poorer quality groundwater from deeper zones is considered infeasible.

Alternative 3: Municipal Wastewater

The use of reclaimed municipal wastewater for power plant cooling at the CGS has been determined to be infeasible, primarily because the site is located in a rural area. Factors that make this source infeasible include: (1) the site is not within the service area of any sanitation district; (2) the closest wastewater treatment plant (WWTP) does not produce reclaimed water and even if it did it does not process sufficient quantities of wastewater; and (3) the next closest WWTPs are more than 10 miles away from the site and extensive infrastructure would be required to deliver reclaimed water, if even available, to the site.

The CGS would require a maximum flow of approximately 190,000 gallons per day (gpd) (132 gallons per minute [gpm]) of water. The WWTP nearest to the CGS site is the Maxwell Public Utility District WWTP, approximately 5 miles southeast of the site. This plant has a design capacity of 0.2 million gallons per day (mgd) (139 gpm) and processes approximately 0.14 mgd (97 gpm) on average. As of 2006, the plant served approximately 800 to 900 residents, with approximately 414 sewer connections (Colusa LAFCO, 2006). The plant currently does not have the facilities to provide reclaimed water. Even if the plant did produce reclaimed water and assuming a conservative 90 percent recovery rate, the amount of reclaimed water would not be adequate to supply the plant.

The next closest plants are in Willows and Williams, and are approximately 12 miles north and approximately 15 miles south of the site, respectively. The Willows WWTP has a design capacity of 2.62 mgd (1,819 gpm) and processes an average of 1.22 mgd. This plant currently

does not produce reclaimed water. The Williams WWTP processes approximately 300,000 gpd (208 gpm) of wastewater; the quantity of reclaimed water produced at this plant, if any, is unknown. Costs and potential environmental impacts that are associated with construction of infrastructure to convey reclaimed water to the project from these plants would be expected to be significant. Therefore, use of reclaimed water from these plants, even if it would be available, is not considered feasible.

Alternative 4: Other Inland Waters

The following inland water supply sources were considered for the project:

- Groundwater from GCID. While primarily a surface water provider, GCID supplements its water supply with groundwater from its own well, located northeast of Willows and adjacent to the Glenn-Colusa Canal, and from more than 160 privately owned wells. In addition, GCID is in the process of installing another well, approximately 15 miles north of the existing well, that is expected to be operational in 2007. While this source would provide a sufficient and reliable supply to the plant, the use of water from the Tehama-Colusa Canal is preferred due to delivery and avoidance of potentially sensitive habitat (adjacent to the Glenn-Colusa Canal).
- Groundwater at or near the project site. In 2001, three test wells were drilled on site to provide information about the local groundwater regime. The test program, detailed in Appendix O and summarized in Section 8.14.1.1 of the AFC, suggested that a sustained potential yield of about 200 gpm might be available from one onsite location. A sustained safe yield for year-round use was not determined. Because of uncertainty about whether a reliable source of sufficient groundwater is available to meet the proposed project's water supply needs, groundwater was determined to be less reliable than a surface water source.
- Potable water from the Maxwell Public Utility District. The nearest water supply system is in Maxwell, approximately 5 miles southeast of the site. Its annual production capacity is about 3,700 acre-feet. Due to distance and limited capacity of the system, use of this system was determined to be infeasible. No other inland waters exist; therefore inland water alternatives are considered environmentally and economically infeasible.

TRANSMISSION INTERCONNECTION ALTERNATIVES

The project site is located approximately 1,800 feet from PG&E's 230 kV transmission system from Cottonwood to Vaca-Dixon. To the west and farther away from the project site is the California-Oregon Transmission Project (COTP) transmission line, which operates at 500 kV.

The nearest electrical substation that provides opportunity for interconnection is located at Maxwell and is a distribution substation.

There are only two alternatives for interconnection of the CGS to the transmission grid to provide a path for export of power from the facility: construction of a new transmission interconnection to a nearby electrical substation (substation interconnection), or interconnection directly with the PG&E system (direct connection). More specifically:

- **Substation Interconnection** – This alternative would require construction of a new interconnection transmission line from the CGS switchyard to Maxwell, located approximately 5 miles from the project site. This alternative would require acquisition of approximately 5 miles of right-of-way and construction of the interconnection line. This alternative would include disturbance at tower locations, and potential construction of an access road.
- **Direct Connection** – This alternative would involve looping PG&E's existing 230 kV transmission into a new switchyard adjacent to the CGS. PG&E's existing transmission includes two parallel tower lines, each of which carries two 230 kV circuits. To loop each of these circuits into the CGS switchyard and back to the main transmission line route would involve the construction of four tower lines from the existing PG&E transmission corridor to the CGS. Two tower lines are required to bring the existing four circuits into the switchyard and two tower lines are required to return. These tower lines would be approximately 1,800 feet long, constructed in the area between the CGS site and the existing transmission line. Since this connection would be constructed in the confined area between the power plant and the existing transmission line, limited construction of new access would be required.

The direct connection alternative was selected based primarily on two factors:

- Direct connection requires less transmission line construction, and therefore, less environmental disturbance.
- Substation interconnection provides a lower level of transmission reliability because it is limited by an outage on the single interconnection circuit. Additional reliability could be provided by a second interconnection, but only at increased cost. Direct connection through the CGS switchyard allows interconnection to either or both of the major PG&E transmission circuits, offering an increased level of transmission reliability compared to the substation interconnection alternative.

It should be noted that direct interconnection to the COTP could also be included as an alternative. This interconnection would be configured in a manner similar to the interconnection to the PG&E transmission line. However, since the COTP line is approximately 1.25 miles to the west of the proposed site, the required loop lines for interconnection would be longer. Because this alternative does not offer superior performance/reliability features, it was rejected in favor of the direct connection to the PG&E system.

GAS SUPPLY ALTERNATIVES

The proposed project will require up to 4,426 million British thermal unit (Btu) per hour. Delivery of this volume of gas requires interconnection to a major gas transmission line or to a local distribution network with sufficient transmission capacity to serve the power plant's needs.

The CGS site is not located in close proximity to any local distribution system from which gas can be obtained. However, it is located less than one-quarter mile from the existing two PG&E gas transmission lines and Compressor Station.

The other alternative route for delivery of gas to the CGS is construction of a pipeline along the proposed access road. However, PG&E requested that the interconnection be located upstream (i.e., north) of the compressor. No significant environmental impacts from pipeline construction at the proposed location are expected.

The only other gas pipeline alternatives that could be considered would be alternative routes to interconnect to the PG&E system. Because the proposed gas pipeline alternative is the most direct route to the Compressor Station/pipeline, any other alternatives considered would be over a longer route. A longer pipeline route would entail greater construction disturbance and require additional capital investment.

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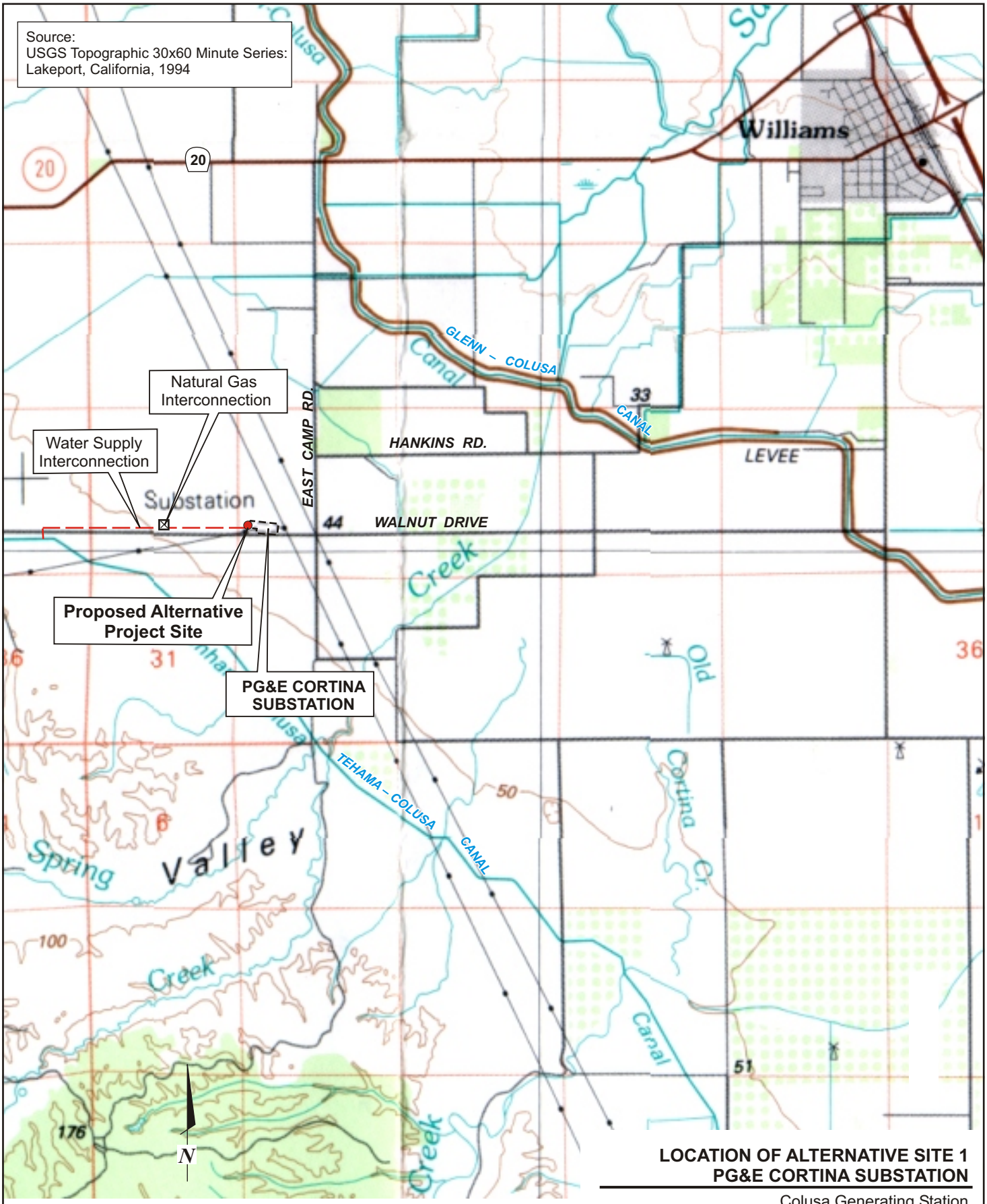

LOCATION OF ALTERNATIVE SITE 1
PG&E CORTINA SUBSTATION

28067004
January 2008

Colusa Generating Station
E&L Westcoast, LLC
Colusa County, California

URS

FIGURE A-1

2/02/07 vsa ..\28067004 CPV Colusa 2007\Data Request_feb07\51-1_Alt 1 pge cortina.cdr

Source:
USGS Topographic Maps, 7.5 Minute Series:
Logan Ridge, California, 1973
Sites, California, 1973
Colusa County Assessors Office

GLENN CO.
COLUSA CO.

25
74 AC.
(LEVELED)
GLENN-COLUSA IRR. DIST.

DUAL PURPOSE WASTEWAY

Canal

DELEVAN RD.

R 4 W
R 3 W

T. 18 N
T. 17 N

DIRKS RD.

CANAL

TEHAMA – COLUSA CANAL

GLENN – COLUSA CANAL

DELEVAN RD.

Transmission Line Interconnection

Natural Gas Interconnection

Proposed Access Road

Water Supply Lateral

Proposed Alternative Project Site

PG&E

FUNKS RESERVOIR
MAX. W.S. ELEV. 206
CREST OF DAM ELEV. 214

Funks Creek

Boundary Glenn Colusa Irr. Dist.

FUNKS CREEK

GLIDE BROS.

LOCATION OF PROPERTY

NO SCALE

MAXWELL

LOCATION MAP

N

LEGEND

- Property Boundary
- Tehama-Colusa Canal
- Electrical Transmission Lanes
- High Pressure Gas Main
- Bridge
- Reservoir
- Fence
- Building
- Dirt Road
- Paved Road

NOTES:
EXTERIOR OF PROPERTY FENCED
CANAL & WASTEWAY ARE FENCED

0 2000 4000
Scale in Feet
1:24,000

LOCATION OF ALTERNATIVE SITE 2
HOLTHOUSE RANCH

28067004
January 2008

Colusa Generating Station
E&L Westcoast, LLC
Colusa County, California

URS

FIGURE A-2

STATE OF CALIFORNIA
ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of:	)	Docket No. 06-AFC-9
	)	
Application for Certification,	)	**ELECTRONIC PROOF OF SERVICE**
for the COLUSA GENERATING STATION	)	**LIST**
by E&L Westcoast, LLC	)	
	)	**(revised August 22, 2007)**
	)	
	)	

☒ Transmission via electronic mail and by depositing one original signed document with FedEx overnight mail delivery service at Costa Mesa, California with delivery fees thereon fully prepaid and addressed to the following:

DOCKET UNIT

CALIFORNIA ENERGY COMMISSION
Attn: DOCKET NO. 06-AFC-9
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Sacramento, California 95814-5512
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DECLARATION OF SERVICE

I, Paul Kihm, declare that on January 18, 2008, I deposited a copy of the attached:

LETTER FROM URS TO U.S. ARMY CORPS OF ENGINEERS REGARDING THE 404(B)(1) ALTERNATIVES ANALYSIS

with FedEx overnight mail delivery service at Costa Mesa, California with delivery fees thereon fully prepaid and addressed to the California Energy Commission. I further declare that transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service List above.

I declare under penalty of perjury that the foregoing is true and correct. Executed on January 18, 2008, at Costa Mesa, California.

Paul Kihm