

American River Watershed Project

Post-Authorization Change Report And Interim General Reevaluation Report

American River Watershed

Common Features Project

Natomas Basin

Sacramento and Sutter Counties, California



Sacramento
Area Flood
Control
Agency



US Army Corps
of Engineers®

Sacramento District
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**REAL ESTATE PLAN
AMERICAN RIVER COMMON FEATURES PROJECT,
NATOMAS BASIN
POST-AUTHORIZATION CHANGE REPORT**

1. General Project Description

Project Location and Introduction

The Natomas Basin is located at the confluence of the American and Sacramento Rivers. Encompassing approximately 53,000 acres, the basin extends northward from the American River and includes portions of the City of Sacramento, the County of Sacramento, and the County of Sutter. The basin is bounded by a levee system. Originally constructed in the early part of the 20th century, this levee system is bordered by the Natomas Cross Canal (NCC) to the north, the Sacramento River to the west, the American River to the south, and the Pleasant Grove Creek Canal (PGCC) and the Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek to the east. This levee system was initially designed to improve navigation and reduce the risk of flooding for the purposes of facilitating agricultural development of the extensive floodplains encompassed by the Sacramento Valley. Levees set closely along the rivers were designed to contain flows generated by common floods, and bypasses were constructed to carry overflows generated by large floods. The close-set levees along the rivers ensured that velocities in the river would help scour the river bottom and move sediment through the system, reducing dredging costs for sustaining navigation. Together, the river channels and bypasses were designed to transport a flood of the magnitude of the 1907 and 1909 Sacramento River floods.

This post authorization change report was prepared as the result of a limited reevaluation study of the American River Common Features project that specifically identified changes to the Natomas portion of the authorized project. The Natomas Basin is a separable element of the authorized Common Features Project. While other significant changes are expected in the future to reduce risks in areas subject to flooding from the Lower American and Sacramento Rivers, only improvements to the Natomas Basin levees are the subject of proposed changes at this time.

The Sacramento Area Flood Control Agency (SAFCA) was formed in 1989 to address the Sacramento area's vulnerability to catastrophic flooding. This vulnerability was exposed during the record flood of 1986 when Folsom Dam exceeded its normal flood control storage capacity and several area levees nearly collapsed under the strain of the storm. In response, the City of Sacramento, the County of Sacramento, the County of Sutter, the American River Flood Control District and Reclamation District 1000 created SAFCA through a Joint Exercise of Powers Agreement to provide the Sacramento region with increased flood protection along the American and Sacramento Rivers. The Sacramento Area Flood Control Agency (SAFCA) , in cooperation with the California Department of Water Resources through the Central Valley Flood Protection Board, has initiated urgently needed improvements to the Federal project levee system protecting the Natomas Basin. These improvements address identified deficiencies in the levee system based on changing engineering standards that have caused experts to significantly downgrade the system's performance capability. In July of 2006, the Corps withdrew the certification of the Natomas Levee System. And, in response, FEMA withdrew the 100-year flood protection certification that was granted to the levee system only a decade ago. These events have created

substantial public safety and economic challenges for the Sacramento Area, the State and the Federal Government. A catastrophic failure of the levee system around the Natomas Basin would imperil the health and safety of 80,000 residents, shut down Sacramento International Airport and two of California's most important interstate freeways, severely damage an emerging Federal wildlife refuge, and cause a loss of over \$7 billion in residential, commercial and industrial property damage. SAFCA and the State are addressing these challenges by moving aggressively forward with the Natomas Levee Improvement Program. The Program implements features from the several prior Congressional authorizations of the Common Features Project. SAFCA and the State anticipate that the early implementation project will be incorporated into the federally authorized American River Common Features Project. The USACE must formally advise the non-Federal sponsor in writing of the risks associated with advanced acquisition under such circumstances and that the Non-Federal Sponsor assumes full and sole responsibility for any and all costs, responsibility, or liability arising out of the acquisition effort.

Authority

The Common Features Project was authorized in Section 101(a)(1) of the Water Resources Development Act (WRDA) 1996 (Public Law 104-303), as amended by Section 130 of the Energy and Water Development and Related Agencies Appropriations Act, 2008 (Public Law 110-161). Additional authority was provided in Section 366 of WRDA 1999. Significant changes to the project were approved via the Supplemental Information Report of March 2002. Additionally, Section 129 of the Energy and Water Development Appropriations Act, 2004 (Public Law 108-137) increased the authorized total cost of the project to \$205,000,000

Project Description/Post Authorization Change PAC Purpose

The Sacramento Valley experienced a flood event in 1997 where considerable seepage occurred on the Sacramento River and the American River. Subsequent investigations confirmed that deep under seepage was of significant concern (this conclusion was also later confirmed by the levee seepage task force in 2003). The additional effort to address under seepage led to considerable cost increases over what was originally authorized by Congress and led to two congressionally authorized increases in the cost for the Common Features project. The last report to Congress recognized that significant additional work was going to be needed in providing flood risk management to the Natomas Basin and would require increases in the authorized cost that would be the subject of a future reauthorization.

Because of the considerable cost increase of seepage remediation on the American River, all funds appropriated by Congress throughout the late 1990s and the early part of the 2000s were used for construction activities on the American River instead of for design efforts for the Natomas Basin. Combining this with the recognition that work in the Natomas Basin would also require significantly more effort than was anticipated at the time of authorization, it was decided in 2002 that a reevaluation would be needed for the Natomas Basin portion of the Common Features project. However, for a variety of reasons, this reevaluation was not begun until 2006. The results of this reevaluation are presented in the post authorization change report. While

other significant changes are expected in the future to reduce risks in areas subject to flooding from the Lower American and Sacramento Rivers, only improvements to the Natomas Basin levees are the subject of proposed changes at this time.

2. Real Estate Requirements

The U. S. Army Corps of Engineers (USACE) has divided the flood damage reduction improvements within the Natomas Basin perimeter levee system into nine reaches (Reaches A–I). USACE’s reach designations differ from SAFCA’s reach designations, which are more finely subdivided than the USACE system for the Sacramento River east levee, American River north levee, and the NCC. In **Figure 1**, lettered reaches follow the USACE designation, while numbered reaches follow the SAFCA designations:

- ▶ Sacramento River east levee: Reach A:16–20
- ▶ Sacramento River east levee: Reach B:5A–15
- ▶ Sacramento River east levee: Reach C:1–4B
- ▶ NCC: Reach D:1–7
- ▶ PGCC: Reach E: there are no SAFCA reaches, just station numbers
- ▶ NEMDC North: Reaches F–G
- ▶ NEMDC South: Reach H
- ▶ American River north levee: Reach I:1–4

These reaches are common to all alternatives, they are identified below:

Sacramento East River Levee

The east levee of the Sacramento River, referenced in this document as the “Sacramento River east levee,” protects the 18-mile west side of the Natomas Basin between the NCC and the American River. For planning purposes, SAFCA has divided the levee into 20 reaches. Cut off walls have been constructed through the levee in Reaches A. The USACE divides the levee into 3 reaches: A, B, and C. Garden Highway is located on top of the levee crown through all 20 (3) reaches.

Reach A: Sacramento River East Levee (SREL SAFCA Reaches 1-4) from I-5 to San Juan Road north of the Sacramento Bypass. Cut off walls have been constructed through the levee in Reaches A. These improvements were components of the Sacramento Urban Levee Reconstruction Project and the Common Features Project.

Reach B: Sacramento River East Levee (SREL - SAFCA Reaches B:5A - 20) from Elverta Road to San Juan Road. Along the landside, B:5A–13 is bordered mainly by private agricultural lands containing a few rural residences, the Airport, and two farmed parcels owned and managed by The Natomas Basin Conservancy (TNBC). The Airport lands bordering Reaches B:5A–13 are referred to as the “Airport north bufferlands.” Teal Bend Golf Club is west of the Airport, adjacent to the levee along Reach B:6. The parcels bordering Reaches B:14–15 contain more residences, several rural estates, and three TNBC parcels. Several marinas and restaurants are located along the waterside of the levee in Reaches B:5A–15, along with many residences and

numerous private boat docks. Many fences, gates, and other appurtenances associated with these properties are located on the levee itself.

Reach C: Sacramento River East Levee (SREL - SAFCA Reaches 1-5A) from Sankey Road to Elverta Road. A 10- foot-wide drained stability berm is present on the landside slope of the levee between the Natomas Cross Canal and Elverta (Reaches C:1–4B). Along the landside, Reaches C:1–4A are bordered mainly by private agricultural lands containing a few rural residences, the Airport, and two farmed parcels owned and managed by TNBC. Several marinas and restaurants are located along the waterside of the levee along with more many residences and numerous private boat docks. Many fences, gates, and other appurtenances associated with these properties are located on the levee itself.

Reach D - The Natomas Cross Canal, (SAFCA Reaches:1-7), carries water from several tributary watersheds in western Placer County and southern Sutter County to the Sacramento River. The 5.3-mile-long channel at the north boundary of the project begins at the PGCC and East Side Canal, and extends southwest to its confluence with the Sacramento River near the Sankey Road/Garden Highway intersection. Raised water elevations that can affect the NCC levees come during periods of flooding. The Sutter Bypass, Sacramento River, Feather River, and NCC all contribute to flooding of the NCC. For planning purposes, the NCC south levee has been divided by SAFCA into seven reaches. USACE designates the NCC as Reach D. In the pre-NLIP project condition, much of the south levee contained a stability berm with an internal drainage system that was constructed as part of the North Area Local Project (NALP). Levee slopes were approximately 3:1 horizontal to vertical (3H:1V) on the waterside and 2H:1V on the landside, with an approximately 80- to 100-foot maintenance access area on the landside of the levee through most of the NCC's length. The Phase 2 Project widened the levee footprint by raising the levee, flattening the landside levee slope, and constructing a cutoff wall. Most of the land along the south levee consists of privately owned farmland and habitat owned and managed by The Natomas Basin conservancy (TNBC).

Reach E: Pleasant Grove Creek Canal (PGCC) The PGCC west levee, Reach E, extends southerly for approximately 3.3 miles from the east end of the NCC south levee at Howsley Road to the north end of the NEMDC/Steelhead Creek levee near the Sankey Road crossing). The PGCC west levee protects the Natomas Basin from flood flows from Pleasant Grove Creek, tributary creeks in western Placer County and southern Sutter County, and water backed up in the NCC from high river stages in the Sacramento River. Levee slopes are generally 2H:1V on both the waterside and landside of the levee. Natomas Road is located on top of the levee crown. No berms support this levee. However, as part of implementing the(NLAP) North Area Local Project, SAFCA constructed concrete-capped sheet pile walls at Howsley, Fifield, and Sankey Roads to provide hardened sections at these roadway crossings where levee height was inadequate. The Fifield Road/Natomas Road intersection was subsequently raised by Sutter County when it replaced the Fifield Road Bridge over the PGCC. Several drainage culverts cross under the PGCC to drain areas to the east into the Reclamation District (RD) 1000 drainage system. A private irrigation canal extends parallel to the PGCC west levee for about 1,500 feet at the landside levee toe. The land uses along the PGCC are primarily agricultural uses along with minimal industrial manufacturing and rural residential uses.

Reach F: Natomas East Main Drainage Canal North (NEMDC North) starting at Sankey Road continuing along the East Levee Road south to Elverta Road. The NEMDC (also known as Steelhead Creek) extends for approximately 13.3 miles from high ground near Sankey Road to the American River north levee and, with the PGCC west levee, forms the easterly boundary of the Natomas Basin. The west levee of the NEMDC confines the canal through the entire reach. The east side of the canal is unconfined north of SAFCA's NEMDC stormwater pumping station. This facility is connected to the NEMDC west levee and the Dry Creek north levee. It prevents elevated floodwaters in Dry Creek and the southern reach of the NEMDC from entering the northern reach of the NEMDC. The pumping facility also collects local flood runoff from the Natomas East Stream Group and from spills (PGCC floodwaters) over the high ground near Sankey Road, and discharges this stormwater into the southern reach of the NEMDC. The east side of this southern reach intersects Dry/Robla Creek and Arcade Creek and is confined by the NEMDC east levee, which extends for about 4 miles from the Dry/Robla Creek south levee to the Arcade Creek north levee and from the Arcade Creek south levee to the American River north levee at the mouth of the NEMDC. East Levee Road extends along the crown between Sankey Road and Main Avenue.

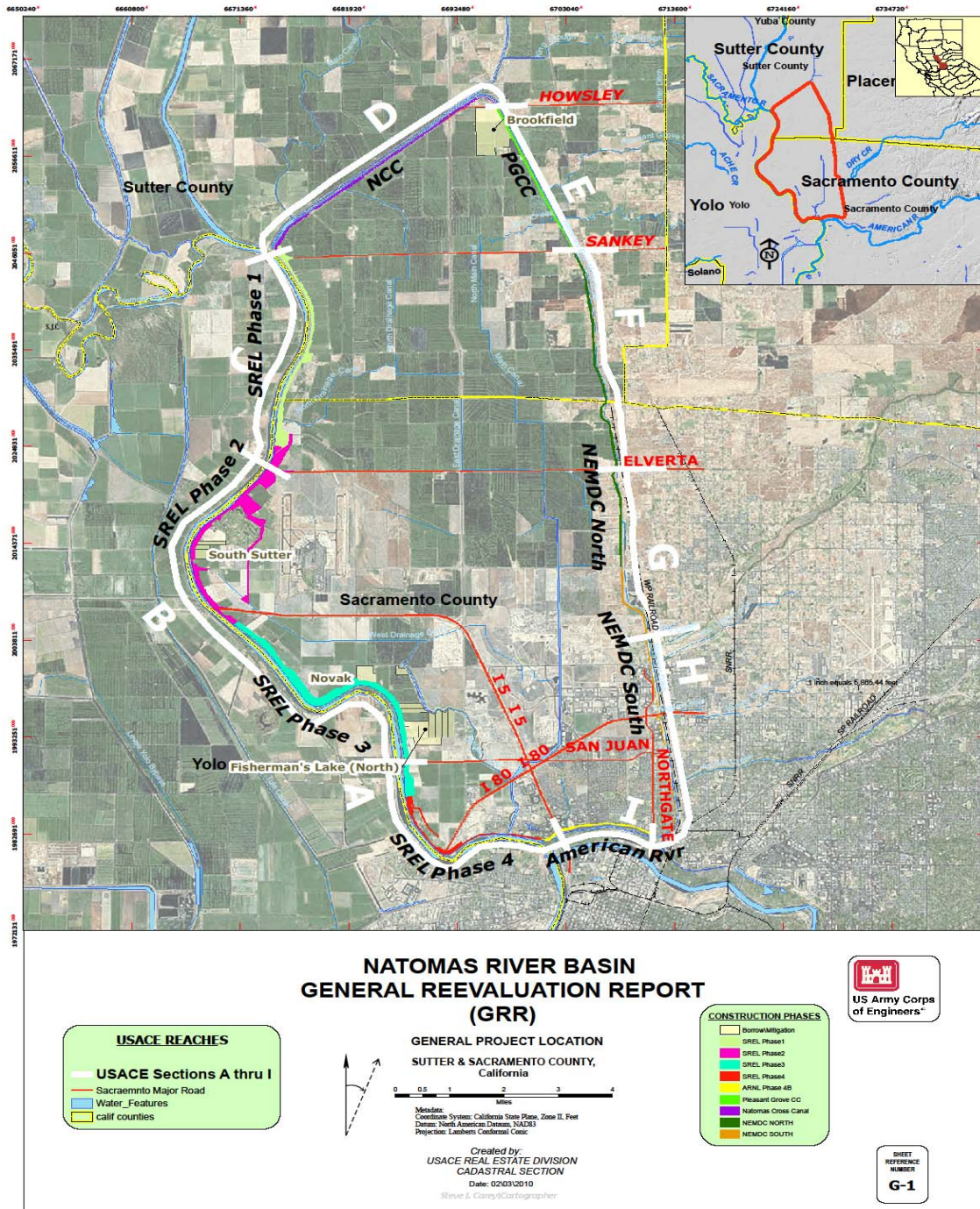
As part of the NALP, SAFCA raised the west levee of the NEMDC from 2.0 to 4.5 feet between the NEMDC stormwater pumping station and the American River north levee and raised the east levee of the NEMDC from 1.0 to 3.5 feet between the Dry/Robla south levee and the American River north levee. These improvements were designed to provide a high level of flood risk reduction to the Natomas Basin by providing at least 3 feet of levee height above the 200-year (0.005 AEP) flood in Dry Creek and Arcade Creek combined with the maximum water surface likely to be produced at the mouth of the NEMDC by a 200-year (0.005 AEP) or greater flood along the American River.

Reach G: Natomas East Main Drainage Canal (NEMDC North) this northern reach begins at Sankey Road and continues south along East Levee Road to the NEMDC pumping station. NEMDC North and South (also known as Steelhead Creek) extends for approximately 13.3 miles from high ground near Sankey Road to the American River north levee and, with the PGCC west levee, forms the easterly boundary of the Natomas Basin. (The west levee of the NEMDC confines the canal through the entire reach. The east side of the canal is unconfined north of SAFCA's NEMDC stormwater pumping station. This facility is connected to the NEMDC west levee and the Dry Creek north levee. It prevents elevated floodwaters in Dry Creek and the southern reach of the NEMDC from entering the northern reach of the NEMDC. The pumping facility also collects local flood runoff from the Natomas East Stream Group and from spills (PGCC floodwaters) over the high ground near Sankey Road, and discharges this stormwater into the southern reach of the NEMDC. The east side of this southern reach intersects Dry/Robla Creek and Arcade Creek and is confined by the NEMDC east levee, which extends for about 4 miles from the Dry/Robla Creek south levee to the Arcade Creek north levee and from the Arcade Creek south levee to the American River north levee at the mouth of the NEMDC. East Levee Road extends along the crown between Sankey Road and Main Avenue. As part of the NALP, SAFCA raised the west levee of the NEMDC from 2.0 to 4.5 feet between the NEMDC stormwater pumping station and the American River north levee, and raised the east levee of the NEMDC from 1.0 to 3.5 feet between the Dry/Robla south levee and the American River north levee. These improvements were designed to provide a high level of flood risk reduction to the Natomas Basin by providing at least 3 feet of levee height above the 200-year (0.005 AEP) flood in Dry Creek and Arcade Creek combined with the maximum water surface likely to be produced at the mouth of the NEMDC by a 200-year (0.005 AEP) or greater flood along the American River side slopes.

Reach H: Natomas East Main Drainage Canal (NEMDC South) This reach description is the same as Reach G but includes only the southern portion and begins on the East Levee Road at the NEMDC pumping station and continues to Northgate Blvd.

Reach I: American River (SAFCA Reaches 1-4) This section begins at Northgate Boulevard along the north bank of the American River and Sacramento River East Levee to Interstate Highway 5. The Natomas section of the American River north levee, Reach I, extends for about 2.2 miles from its junction with the Sacramento River east levee at the mouth of the American River to its junction with the NEMDC west levee near the mouth of the NEMDC. This levee was constructed as part of the Natomas perimeter levee system and is designed to prevent floodwaters in the American River from entering the Natomas Basin. Built before the construction of Folsom Dam, this levee is set back over 1,000 feet north of the American River main channel and is high enough to provide 3 feet of levee height above the maximum water surface elevation likely to be produced at the mouth of the NEMDC by a 200-year (0.005 Annual Exceedance Probability) or greater flood along the American River. For NLIP planning purposes, SAFCA has divided the levee into four reaches. USACE designates one reach, Reach I for the American River north levee. The general configuration of the levee in these reaches is 3H:1V waterside slopes and 2H:1V landside slopes. Levee crown widths range from 30 to 60 feet. Garden Highway runs along the levee crown for most of these reaches and ranges from two to four lanes.

USACE Reaches common to all alternatives:



ARRAY OF NATOMAS ALTERNATIVES

Based on the evaluations of reaches described above, a final array of alternatives was formulated based tradeoffs between different planning constraints. This array of plans primarily demonstrates the trade-offs between the constraint of minimizing the relocation and/or removal of structures to the extent practicable with the constraints of avoiding effects to existing infrastructure to the extent practicable and avoiding impacts to riparian vegetation to the extent practicable.

Current state law mandates a 200-year level of flood protection for all urban basins in the Sacramento River Flood Control Project system. The State has indicated that this will require levees to be high enough to contain the estimated 200-year water surface elevation with three feet of freeboard assuming no upstream levee failures.

The alternative plans include:

Plan 1: No Action. The without project condition assumes that no additional features would be implemented by the Federal Government or by local interests to achieve the planning objectives, over and above those authorized elements of the Common Features project that will have been implemented prior to reauthorization of the project. Critical assumptions in defining the no action alternative include:

- In 2014, the Joint Federal Project, auxiliary spillway with six submerged tainter gates at Folsom Dam will be completed.
- In 2016, the 3.5-foot mini-raise of the Folsom Dam will be completed. At that point, the American River levees will be able to pass an objective release from Folsom Dam of 145,000 cfs.
- SAFCA will put their Life Cycle Management (LCM) plan for vegetation management on levees into place.
- The County of Sacramento and the City of Sacramento have a flood warning and evacuation plan in place and will implement it in the event of a flood.

The No-Action Alternative serves as the baseline against which the impacts and benefits of the action alternatives for the Natomas Basin are evaluated.

Plan 2: Authorized Project. The authorized project includes the Common Features components that are a part of the WRDA 1996 and 1999 authorizations. It has a current cost estimate of \$279,500,000. At the time, it was thought that the relatively modest scope of the authorized improvements would be sufficient to protect the Natomas Basin from very rare floods in the Sacramento-Feather River watershed. However, subsequent engineering analyses have made it clear that substantial modifications to the scope of the Common Features Project are needed to achieve the flood risk management benefits of the authorized project in the Natomas

Basin. As authorized, the project would not reduce risk associated with failure mechanisms other than overtopping and would not attain the anticipated benefits.

Plan 3: Fix In-Place Alternative.

Strategy: Meet the planning objectives by improving the perimeter levees around the Natomas Basin by fix in-place methods. By mitigating levee problems in place, the relocation and/or removal of homes and businesses is minimized to the extent practicable.

Fix In-Place Alternative Measures

Reach	Measures				
	Seepage	Stability	Erosion	Vegetation	Over-Topping
NAT A	Cut-off Wall	Drained Stability Berm	-	Long-term	Raise
NAT B	Cut-off Wall/Seepage Berm	-	*	Long-term	Raise
NAT C	Cut-off Wall/Seepage Berm	-	*	Long-term	Raise
NAT D	Cut-off Wall	-	-	Long-term	Raise
NAT E	Cut-off Wall	-	Waterside Armor	Long-term	Raise
NAT F	Flattened Landside Slope	Stability Berm	Waterside Armor	Long-term	Raise
NAT G	Cut-off Wall	-	-	Long-term	Raise
NAT H	Cut-off Wall	-	-	Long-term	-
NAT I	Cut-off Wall	-	-	Long-term	-

**Waterside Armor for Reaches B and C will be done under the Sac Bank Program; not included as a cost feature*

Discussion: While fixing or raising the levee in-place minimizes the relocation of houses and businesses by confining the footprint of the levee to nearly its existing footprint, the construction will require the reconstruction of the Garden Highway to roadway standards, significantly increasing its width, and therefore, the costs of this plan. Additionally, compliance with the vegetation ETL will require that vegetation is removed from the levee. The costs of removal of this vegetation and the costs for mitigation for the loss of habitat provided by the vegetation are not included, as they are being treated as deferred maintenance that must be performed by the local sponsor prior to the implementation of a Federal project.

Plan 4: Adjacent Levee Alternative/Federally Supportable Plan

Two strategies were developed which resulted in the same combination of measures.

Strategy: Meet the planning objectives by improving the perimeter levees around the Natomas Basin by adjacent levee methods, where practical. By mitigating levee problems with an adjacent levee, effects to existing infrastructure are avoided to the extent practicable and impacts to riparian vegetation are avoided to the extent practicable.

Strategy: Meet the planning objectives by improving the perimeter levees around the Natomas Basin by choosing the least cost levee improvement method for each reach.

Measures: This strategy is best met by the construction of an adjacent levee where practical that would include a cut-off wall where seepage is an issue. The measures for this plan are shown by reach in Table 3-8.

Table 3-8. Adjacent Levee Alternative Measures

Reach	Measures				
	Seepage	Stability	Erosion	Vegetation	Over-Topping
NAT A	Cut-off Wall	Stability Berm	-	Widen Existing Levee	Raise
NAT B	Cut-off Wall/Seepage Berm	-	Adjacent	Adjacent	Raise
NAT C	Cut-off Wall	-	Adjacent	Adjacent	Raise
NAT D	Cut-off Wall	-	Waterside Armor	-	Raise
NAT E	Cut-off Wall	-	Waterside Armor	-	Raise
NAT F	Flattened Landside Slope	-	Waterside Armor	-	Raise
NAT G	Cut-off Wall	-	-	-	Raise
NAT H	Cut-off Wall	-	-	-	-
NAT I	Cut-off Wall	Widen Existing Levee	-	Widen Existing Levee	-

Discussion: Improvement of levee problems through an adjacent levee avoids costs associated with mitigation of habitat loss due to the removal of vegetation. Examination of the screening level estimates reveals that avoiding the costs of mitigation for habitat loss provides a substantial costs savings over the Fix In-Place alternative. Additionally, this alternative offers substantial savings in the avoidance of major alteration to the Garden Highway. This alternative is dependent upon the approval of a variance to the requirements of the ETL.

Incremental Analysis. As discussed in the section on levee problems, the Natomas levees were divided into nine reaches, based on similar problems. An incremental economic analysis was conducted using nine different index points, each associated with one of the nine reaches identified for the Natomas Basin. The economic analysis of separate levee segments is not intended as a traditional incremental analysis for the purpose of determining which reaches are to be included in the selected plan and which are separable items. The analysis of separate levee sections is used to determine the efficiency of the method of levee repair and its construction sequencing.

The approach used to perform the incremental analysis takes into account the risk to the Natomas Basin in terms of the chance of flooding and the consequences of flooding (damages) on a Basin-wide basis. Damages are based on suites of seven floodplains from a levee breach at each of the nine reaches, for a total of 63 unique floodplains (9 reaches multiplied by 7 floodplains per reach) in the floodplain “bag.” Together, the chance of flooding and the consequences of flooding describe the overall flood risk in the Basin.

The incremental analysis starts with the reach in which the chance of flooding and the consequences of flooding were the greatest (reach D). A fix in this reach represents the first incremental fix, which essentially improves (reduces) the chance of flooding in this reach (and therefore the entire Basin) and theoretically removes floodplains from the “bag” of floodplains, resulting in a reduction in consequences (damages). The next fix occurs in the reach where the chance and consequences of flooding are the next greatest, which again reduces the chance of flooding and consequences of flooding in the Basin. This process is used to perform the entire incremental analysis.

Generally, with each incremental fix either the chance of flooding in the Basin, the consequences of flooding in the Basin, or both are reduced, resulting in the overall risk of flooding in the Basin to be reduced and incremental benefits to be achieved. While each incremental fix may have resulted in benefits, the population and property at risk remain constant, as flood risk is merely transferred to next weakest point (levee reach) around the Basin.

Because the levees around the Natomas Basin have different problems, or different combinations of problems, each has a different probability of failure performance in a flood. Furthermore, with each levee reach there are different consequences when the levee fails. Of the nine reaches analyzed, Reach D, at the NCC, had the highest probability of failure. Therefore, for the incremental analysis, it was assumed that in the event of a flood, a failure at Reach D would occur first. As long as the benefits exceed the costs, another increment would be added. The increments were developed by first taking into consideration that fixes to the existing levees would occur first, and then raises would follow.

- Increment 0 -- Without-Project
- Increment 1-- Fix Reach D
- Increment 2 -- Fix Reach D+A
- Increment 3 -- Fix Reach D+A+E
- Increment 4 -- Fix Reach D+A+E+B
- Increment 5 -- Fix Reach D+A+E+B+C
- Increment 6 -- Fix Reach D+A+E+B+C+H
- Increment 7 -- Fix Reach D+A+E+B+C+H+G
- Increment 8 -- Fix Reach D+A+E+B+C+H+G+F
- Increment 9 -- Fix Reach D+A+E+B+C+H+G+F+I
- Increment 10 -- Fix All + Raise D, B, E, F
- Increment 11 -- Fix All + Raise D, B, E, F, A, C, I, G
- Increment 12 -- Fix All + Raise All

Federally Supportable Plan.

The Federally Supportable Plan is the NED plan. This is the plan that would be implemented by the Corps if the non-Federal interests had not initiated implementation of the project and establishes a limit on Federal participation in the recommended reauthorization.

As the Adjacent Levee Alternative is the most cost effective plan and meets other planning criteria, it forms the basis for the Federally Supportable Plan. The Adjacent Levee Alternative was carried forward for additional design activities that are required for the development of detailed cost estimates. In the cost estimates for the initial array of alternatives, the differences in the screening level costs for Reach E in the Adjacent Levee Alternative and the Fix In-Place Alternatives are well within the range of contingencies. The differences in the costs were a trade-off between road reconstruction costs and the costs of fill material and real estate. The assumption for the Adjacent Levee alternative was that road reconstruction would not be required. In further development of the designs, however, it was determined that construction activities would require reconstruction of the road. In addition, the smaller construction footprint minimizes the real estate that would have to be acquired through the condemnation process, a process that would be expected to be lengthy. Since the alternatives in these reaches are neutral with respect to vegetation impacts, impacts to special status species and impacts to the Garden Highway, it became the engineers' choice to include fix in-place repairs for Reach E as a part of the Adjacent Levee Alternative. These decisions may be revisited in Value Engineering studies during the design phase of the project.

The formulation of the array of alternatives is hypothetical since it does not include the early implementation by the non-Federal interests. Therefore, to determine the plan that could actually be implemented, the plan is modified to reflect that early implementation by non-Federal interests has been taking place.

Reaches F and G are not included in the Federally supportable plan at this time. As shown in table 3-13, Adjacent Levee Alternative Optimization, the increases in net benefits afforded by reaches F and G are not significant as compared to the overall net benefits achieved by other reaches of the project, therefore, these reaches are not included in the Federally Supportable Plan

at this time. The benefits for these reaches in the current analysis are small compared with the benefits for the other elements of the Adjacent Levee Alternative. The incremental analysis also determined that levee improvements along the American River between the Southeast corner of the Natomas Basin and the confluence with the Sacramento River (Reach I) would not be incrementally justified without levee raises in other parts of the basin. This reach, also, cannot be included in the Federally supportable plan.

Follow-on studies will reexamine the inclusion of levee raises and improvements to Reaches F, G, and I once the uncertainties in the hydraulic modeling described below in Section 3-10 have been resolved.

Recommended Plan. The recommended plan is the Federally Supportable Plan, defined as the NED plan. This is the Adjacent Levee Alternative that does not include levee raising or improvements to Reaches F, G, and I. The plan includes features for improving portions of the perimeter levee system around the Natomas Basin that includes construction of an adjacent levee along the Sacramento River (the western border of the Basin); and strengthening the levees along the NCC and PGCC (the northern and northeastern borders of the Basin)

Basis for Crediting. Credit for features constructed by non-Federal interests are limited to either the costs saved by the Corps in implementing the Federally Supportable Plan or the actual expenditures by the non-Federal interests in support of a plan that provides the same level of outputs. The Recommended Plan serves as the basis for crediting. The basis of credit will be based on the non-Federal costs that are included in the detailed cost estimates prepared using the Corps' Micro-Computer Aided Cost Estimating System (MCACES)

Basis for Federal Cost Sharing. Federal cost sharing is limited by the Federal cost of the Federally Supportable Plan.

Sponsor Owned Lands

The non-Federal Sponsors have been acquiring the new interests in real estate prior to 2007 and will continue to acquire land to meet various phase construction dates through 2014 to support the construction and subsequent operation and maintenance of the project.

The primary non-Federal sponsor is the State of California Central Valley Flood Protection Board and the Sacramento Area Flood Control Agency (SAFCA). The State has a joint use agreement with Reclamation District 1000 for access. The non-Federal sponsors already have O&M and levee easements in the prior federally constructed levees. Those existing rights will not be cost-shared items. The project foot print of the levees has expanded and many additional areas are now needed for this project. Parcels already owned by Sacramento and San Joaquin Drainage District (State of California) and SAFCA include the following from prior federal projects and parcels acquired for the new federal project :

Parcels owned by the non-Federal sponsors for the Early Implementation Plan and Federally Supportable Plan include:

Reach A	Sacramento East Levee Phase 4	T.W.A.E.	F.P.L.E.	P.R.E.	U.E.	P.E.	D.D.E.
		Constr		O&M			Riverside
APN	OWNER	ACRES	ACRES	ACRES	ACRES	ACRES	ACRES
274-0220-017	SAFCA	0.3948	1.4924			0.1698	
274-0660-059	SAFCA	0.5973	3.2999			0.2288	
274-0030-014	RECLAMATION DISTRICT 1000	0.0291	0.0904	0.0749			
274-0030-019	RECLAMATION DISTRICT 1000	0.5020	0.0041				
274-0030-053	RECLAMATION DISTRICT 1000	0.1870	0.0866				

Note: DWR has joint use agreement for access on RD 1000 levee lands

Reach B	Sacramento East Levee Phase 2	T.W.A.E	D.D.E.	D.D.E.	F.P.L.E.	R.E.	U.E.
		Constr	ELKHORN Canal	GGs Canal		O&M	
APN	OWNER	ACRES	ACRES	ACRES	ACRES	ACRES	ACRES
201-0150-040	SAFCA	0.0356	1.5787	0.5159	0.0472	0.0762	0.0391
201-0150-041	SAFCA	0.6953	1.9205	1.0168	0.6419	0.7415	0.3077
201-0150-042	SAFCA	0.5785	1.6599	0.6827	0.5161	0.6267	0.2457
201-0150-020	AREA FLOOD AGENCY SACRAMENTO	0.6673	1.7493	1.3673	0.5536	0.6542	0.2640
201-0250-041	AREA FLOOD AGENCY SACRAMENTO	0.9124	6.4198	4.2748	0.7444	0.9493	0.3582
201-0240-029	AREA FLOOD AGENCY SACRAMENTO			0.7688			

Note: DWR has joint use agreement for access on RD 1000 levee lands

Reach B	SREL Phase 2	T.W.A.E.	Mitigation	F.P.L.E.	R.E.	D.D.E.	U.E.
		Constr.	Woodland	GGC Canal	O&M		
APN	OWNER	ACRES	ACRES	ACRES	ACRES	ACRES	ACRES
225-0090-035	SAFCA	0.0012					
225-0090-040	SAFCA	2.0882			6.8195	3.6811	5.0921
225-0090-013	RECLAMATION DISTRICT 1000	0.2136			0.3241	0.1067	0.0697

Note: DWR has joint use agreement for access on RD 1000 levee lands

Sponsor owned parcels

Reach C Sacramento River East Levee SREL Phase 1 and 1B							
APN	OWNER	T.W.A.E. Constr.	F.P.L.E.	P.R.E.	D.D.E. Elkhorn	D.D.E. GGC	U.E.
		ACRES	ACRES	ACRES	ACRES	ACRES	ACRES
35-010-020	SAC & SAN JOAQUIN DRAINAGE DIST		0.0275				
35-010-023	RECLAMATION DIST #1000	0.0285					
35-020-018	AREA FLOOD CONTROL AGENCY SAC		1.1397	0.4874			0.1732
35-020-019	AREA FLOOD CONTROL AGENCY SAC		1.7167	0.8318			0.3554
35-330-013	AREA FLOOD CONTROL AGCY SACTO		4.6459	1.1280			0.4581
201-0010-044	RECLAMATION DISTRICT 1000	0.2830	2.2277	0.2035	0.0190	0.0509	0.0802

Note: DWR has joint use agreement for access on RD 1000 levee lands

Non-Federally Owned Parcels

Reach D	Natomas Cross Canal	P.R.E.	T.W.A.E.			F.P.L.E.	D.D.E.
APN	OWNER		Haul	Staging	Constr		
		ACRES	ACRES	ACRES	ACRES	ACRES	ACRES
35-010-023	RECLAMATION DIST #1000				1.373		
35-050-027	SAFCA	0.217			0.618		0.092
35-050-028	SAFCA	0.104			0.218		0.062

Note: DWR has joint use agreement for access on RD 1000 levee lands

Reach E APN	Pleasant Grove Creek Canal OWNER	P.R.E. ACRES	T.W.A.E.			F.P.L.E. ACRES	D.E. ACRES	U.E. ACRES
			Haul ACRES	Staging ACRES	Constr* ACRES			
35-160-038	RECLAMATION DIST #1000	0.107			0.725			0.184

Note: DWR has joint use agreement for access on RD 1000 levee lands

Reach F APN	NEMDC North OWNER	T.W.A.E.			F.P.L.E. ACRES	P.R.E. ACRES	P.U.E. ACRES	P.D.E. ACRES
		Haul ACRES	Staging ACRES	Constr ACRES				
201-0100-006	RECLAMATION DISTRICT 1000			1.265	8.055			
201-0094-005	RECLAMATION DISTRICT 1000				0.011			
35-271-006	RECLAMATION DIST #1000			0.013				

Note: DWR has joint use agreement for access on RD 1000 levee lands

Reach G APN	NEMDC North OWNER	T.W.A.E.			F.P.L.E. ACRES	P.R.E. ACRES	P.U.E. ACRES	P.D.E. ACRES
		Haul ACRES	Staging ACRES	Constr ACRES				
201-0100-011	RECLAMATION DISTRICT 1000			0.492	3.030			
201-0200-025	RECLAMATION DISTRICT 1000				0.362	0.244	0.098	0.296

Note: DWR has joint use agreement for access on RD 1000 levee lands

Reach H APN	NEMDC SOUTH OWNER	T.W.A.E Constr	P.R.E. ACRES	U.E. ACRES
226-0031-019	SAFCA	0.0038	0.015099	
Sac County	SAFCA		0.228172	0.0076
226-0032-001	SAFCA		0.044146	0.0607
226-0032-002	SAFCA		0.042414	0.0615
226-0032-003	SAFCA		0.037694	0.0647
226-0032-004	SAFCA		0.029305	0.0632
226-0032-006	SAFCA		0.014754	0.0657
226-0032-007	SAFCA		0.012808	0.0623
226-0032-008	SAFCA		0.012481	0.0332
274-0173-013	RD 1000			0.0032
274-0173-014	RD 1000			0.0072
274-0173-021	RD 1000	0.0707	1.40154	0.0481
274-0173-023	RD 1000	0.3474	2.279953	

Reach H APN	NEMDC SOUTH OWNER	T.W.A.E Constr	P.R.E. ACRES	U.E. ACRES
274-0173-024	RD 1000		0.458453	0.053
274-0173-025	RD 1000	0.0726	0.023672	0.0316
274-0182-017	RD 1000	0.0873	0.027939	0.0373
274-0182-018	RD 1000		0.009449	0.0307
Columbus Ave	RD 1000	0.071	0.015238	
East Levee Rd 2	RD 1000		0.008347	0.0315
Jefferson Ave	RD 1000	0.0661	0.009816	
274-0173-038	STATE OF CALIFORNIA		0.012051	0.0304

Note: DWR has joint use agreement for access on RD 1000 levee lands

Reach I APN	OWNER	TWAE CONSTR	FPLE	PRE
274-0050-005	RECLAMATION DISTRICT 1000	2.3090		
274-0050-006	RECLAMATION DISTRICT 1000	0.8641		
274-0060-005	RECLAMATION DISTRICT 1000	2.3796		0.6858
274-0120-003	RECLAMATION DISTRICT 1000	0.0468		
274-0120-002	RECLAMATION DISTRICT 1000	0.3139		0.1140

Note: DWR has joint use agreement for access on RD 1000 levee lands

The following standard estates utilized by the Corps are identified as required for the project:

- Flood Protection Levee Easements (FPLE)** A perpetual and assignable right and easement in to construct, maintain, repair, operate, patrol and replace a flood protection levee, including all appurtenances thereto; reserving, however, to the owners, their heirs and assigns, all such rights and privileges in the land as may be used without interfering with or abridging the rights and easement hereby acquired; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.
- Temporary Work Area Easements (TWAE)** A temporary easement and right-of-way in, on, over and across, beginning with date possession of the land is granted to the United States, for use by the United States, its representatives, agents, and contractors as a (borrow area) (work area), including the right to borrow and/or deposit fill, spoil and waste material thereon) (move, store and remove equipment and supplies, and erect and remove temporary structures on the land and to perform any other work necessary and incident to the construction of the Natomas GRR Project, together with the right to trim, cut, fell and remove there from all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the limits of the right-of-way; reserving however, to the landowners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.
- Permanent Road Easement/O&M Corridor** A perpetual and assignable easement and right-of-way in, on, over and across the land (for the location, construction, operation, maintenance, alternation and replacement of (a) road(s) and appurtenances thereto; together

with the right to trim, cut, fell and remove therefrom all trees, underbrush, obstructions and other vegetation, structures, or obstacles within the limits of the right-of-way; (reserving, however, to the owners, their heirs and assigns, the right to cross over or under the right-of-way as access to their adjoining land at the locations indicated in Schedule B); 1 subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

- **Utility/Pipeline Easement** A perpetual and assignable easement and right-of-way in, on, over and across (the land for the location, construction, operation maintenance, alteration, repair and patrol of (overhead) (underground) (specifically name type of utility or pipeline); together with the right to trim, cut, fell and remove there from all trees, underbrush, obstructions and other vegetation, structures, or obstacles within the limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines laws with respect to pollution.
- **Drainage Ditch Easement** A perpetual and assignable easement and right-of-way in, over and across the land to construct, maintain, repair, operate, patrol and replace a drainage ditch, reserving, however, to the owners, their heirs and assigns, all such rights and privileges in the land as may be used without interfering with or abridging the rights and easement hereby acquired; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.
- **Fee** The fee simple title subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines. Mitigation on site will be in fee title.

The Reconnaissance cost estimates conducted by the Corps Appraiser has estimated the most probable land costs attributable to the project reaches. The levees are prior Federal, or Corps Cost-shared Projects. The cost estimates are summarized in the tables below.

The Sacramento District has developed a map set and planning level (segment) tract register for each segment of the proposed alternatives. These maps are entitled Natomas GRR Project, Real Estate Maps 2009. A set of these maps is maintained at the Technical Services Branch in the Sacramento District. These maps are dated Jan 2010. These are the maps utilized for identifying the lands required for each alternative for this report. The reference points for the descriptions of the alternatives below are shown on these maps.

The potential land costs for each alternative, contingencies and a preliminary severance damage estimate are summarized in the conclusion of this report. The cost estimate is segregated for each bank in the segment registers in the appraiser's files and in the summary section of this report.

Real Estate Requirements for the Fed Supportable Plan By Reach

Feature	Reach A	Estate	Estimated Acres	Estimated Value
Cutoff Wall, adjacent levee, seepage berms, relief wells	Sacramento River East Levee segments 16-10	Temporary Work Area Easement Construction	75.67	\$847,433
		Flood Protection Levee Easement	59.88	\$2,362,809
		Permanent Road Easement (O&M Corridor)	16.75	\$1,449,822
		Utility Easements	4.84	\$141,852
		Drainage Ditch Easement (RiverSide)	20.45	\$290,859
		Mitigation Sites	51.61	\$1,792,149
		Borrow Sites	162.87	\$2,434,109
		Sub Total		\$15,463,212
		Incremental RE Cost Estimate 35%		\$5,412,124
		Severance Damage 10%		\$3,092,642
		Total Estimate A		\$23,967,979
		Rounded	Total	\$24,000,000

Feature	Reach B1	Estate	Acres	Estimated Value
Adjacent Levee	Sacramento River East Levee segments	Temporary Work Area Easement, Construction	88.92	247,658
		Flood Protection Levee Easement	28.45	1,002,175
		Permanent Road Easement (O&M Corridor)	22.21	226,785
		Utility Easement	9.93	110,431
		Drainage Ditch Easement/ GGS Canal	44.99	372,484
		Drainage Ditch Easement/ Elkhorn	31.96	
		Borrow Sites	39.05	277,613
		Mitigation/ Woodland Corridors	26.93	112,847
		Sub Total		\$5,687,120
		Incremental RE Cost Estimate 50%		\$2,843,560
		Severance Damage 10%		\$2,843,560
		Total Estimate B1		\$11,374,240
		Rounded	Total	\$11,400,000

Feature	Reach B2	Estate	Acres	Estimated Value
Adjacent Levee	Sacramento River East Levee segments	Temporary Work Area Easement, Construction	31.97	\$116,159
		Flood Protection Levee Easement	140.10	\$2,274,438
		Permanent Road Easement (O&M Corridor)	35.16	\$465,986
		Utility Easement	13.48	\$176,590
		Drainage Ditch Easement/ GGS Canal/ Elkhorn	49.60	\$600,523
		Borrow Sites	836.25	\$17,246,738
		Mitigation/ Woodland Corridors	427.12	\$6,944,474
			10.07	\$90,000
		Sub Total		\$24,794,120
		Incremental RE Cost Estimate 50%		\$12,397,060
		Severance Damage 10%		\$3,719,118
		Total Estimate B2		\$41,000,298
			Total	\$41,000,000

Features	Reach C	Estate	Acres	Estimated Value
Adjacent Levee	Sacramento River East Levee segments 1 – 5A	Flood Protection Levee Easement	124.72	\$1,367,750
		Permanent Road Easement O & M Corridor	30.920	\$271,873
		Utility Easement	11.92	\$97,633
		Temporary Work Area Construction Easement (Construction)	26.226	\$24,054
		Staging Area	2.30	
		Drainage Ditch Easement Elkhorn	22.475	\$149,961
		Drainage Ditch Easement GGS	9.513	\$46,606
		Borrow Site	708.86	\$5,040,007
		Mitigation Fee/Woodland Corridor	85.281	\$708,550
		Subtotal		\$8,201,433
		Inc RE Cost Est 50%		\$4,100,717
		Severance Dam Est 10%		\$820,143
		Total Estimate for C		\$13,122,293
		Total Estimate Rounded		\$13,100,000

Features	Reach D	Estate	Acres	Estimated Value
Cutoff wall, levee raise	Natomas Cross Canal segments 1 - 7	Temp Construction Work Easement (Staging)	76.46	\$29,158
		Flood Protection Levee Easement	19.87	\$336,948
		Permanent Road Easement	5.63	\$39,359
		Drainage Ditch Easement	0.61	\$15,634
		Mitigation/ Fee	200	\$1,580,000
		Subtotal		\$2,370,099
		Inc RE Cost Est 50%		\$2,370,099
		Severance Dam Est 10%		\$1,422,000
		Total Estimate for D		\$6,162,258
		Total Estimate Rounded		\$6,200,000

Features	Reach E	Estate	Acres	Estimated Value
	Pleasant Grove Creek Canal East and West Side segments	Temporary Work Area Easement Construction	70.2	\$95,258
		Permanent Road Easement	6.54	
		Utility Easement	11.32	\$89,416
		Drainage Ditch Easement	.04	\$279
		Borrow Site Fee	1883.81	\$16,620,926
		Mitigation Site	100	\$790,000
		Subtotal		\$20,633,879
		Inc RE Cost Est 40%		\$8,265,552
		Severance Dam Est 10%		\$2,066,388
		Total Estimate for E		\$30,995,819
		Total Estimate Rounded		\$31,000,000

Features	Reach F	Estate	Acres	Estimated Value
Cutoff wall, adjacent levee or fix in place	Natomas East Main Drainage Canal North segments 10-14	Flood Protection Levee Easement	56.280	\$1,214,525
		Temporary Work Area Easement (Construction)	1.705	\$5,309
		Permanent Road Easement) O&M Corridor	29.77	\$897,245
		Utility Easement	11.909	\$359,554
		Drainage Ditch Easement	35.709	\$1,078,614
		Subtotal		\$5,5515,247
		Inc RE Cost Est 75%		\$4,136,435
		Severance Dam Est 10%		\$551,525
		Total Estimate for F		\$10,203,207
		Total Estimate Rounded		\$10,200,000

Features	Reaches G	Estate	Acres	Estimated Value
Cutoff wall, adjacent levee or fix in place	Natomas East Main Drainage Canal North segments 7A -9	Flood Protection Levee Easement	33.41	386,674
		Temporary Work Area Easement /Staging	3.53	\$1,081
		Permanent Road Easement) O&M Corridor	12.46	\$220,725
		Utility/Pipeline Easement	4.98	\$87,943
		Drainage Ditch Easement	14.95	\$256,912
		Borrow Site	148.40	\$6,429,494
		Subtotal		\$9,833,175
		Inc RE Cost Est 50%		\$4,916,587
		Severance Dam Est 10%		\$983,317
		Total Estimate for F		\$15,733,080
		Total Estimate Rounded		\$15,700,000

Features	Reach H	Estate	Acres	Estimated Value
Fix in place or adjacent levee, cutoff walls	Natomas East Main Drainage Canal South Segments 1 – 7A	Temporary Work Area Easement Construction	44.945	
		Mitigation Twin Rivers/Dry Creek	77.351	1,283,747
		Temporary Work Area Easement (Staging)	56.477	
		Utility Easement	10.816	
		Subtotal		\$13,344,296
		Inc RE Cost Est 30%		\$4,003,289
		Severance Dam Est 10%		\$2,668,859
		Total Estimate for H		\$20,016,44
		Total Estimate Rounded		\$21,000,000

Features	Reach I	Estate	Acres	Estimated Value
Cut off Walls and seepage remediation	American River Segments 1 – 4	Temporary Work Area Easement Staging Area	19.62	\$50,004
		Flood Protection Levee Easement	0	0
		Permanent Road Easement/O&M Corridor	3.459	\$504,155
		Subtotal		\$819,159
		Inc RE Cost Est 150%		\$1,228,738
		Severance Dam Est 20%		\$163,832
		Total Estimate for I		\$2,211,728
		Total Estimate Rounded		\$2,200,000

Proposed Borrow and Mitigation Sites for the Federally Supportable Plan

This table identifies the parcels to be used for borrow and those parcels to be used for mitigation and the Plate 1 is the map that accompanies this table. Actual credit may vary or not be applied should "value engineering" or any implementation changes find ways to reduce the costs or necessity of such borrow sites during the Planning, Engineering and Design Phase of the project.

APN	ADDRESS (Physical)	PARCEL AREA	TWAE	Mitigation	APN
		ACRES	Borrow	Fee	Sub Totals
			Acres	Acres	Acres
PG TRIANGLE	Reach E				
35-050-002	5003 PACIFIC AVE	32.3088	32.3088		32.3088
35-050-004	5007 PACIFIC AVE PLEASANT GROVE CA 95668 9719	13.3136	13.3136		13.3136
35-050-007		24.0059	24.0059		24.0059
35-050-009	PLEASANT GROVE RD	157.8976	157.8976		157.8976
35-050-010		73.4300	73.4300		73.4300
35-050-011		53.6322	53.6322		53.6322
35-050-013	5496 PACIFIC AVE PLEASANT GROVE CA 95668 9742	8.8895	8.8895		8.8895
35-050-015	HOWSLEY RD	43.9915	43.9915		43.9915
35-050-016	HOWSLEY RD	76.0491	76.0491		76.0491
35-050-018	5169 PACIFIC AVE PLEASANT GROVE CA 95668 9719	4.8246	4.8246		4.8246
35-050-020	5397 PACIFIC AVE PLEASANT GROVE CA 95668 9742	1.2026	1.2026		1.2026
35-050-022	PACIFIC AVE	1.3701	1.3701		1.3701
35-050-024	5481 PACIFIC AVE PLEASANT GROVE CA 95668 9742	1.2514	1.2514		1.2514
35-050-025	5421 PACIFIC AVE PLEASANT GROVE CA 95668 9742	2.7722	2.7722		2.7722
35-050-035	5191 PACIFIC AVE	11.2596	11.2596		11.2596
35-050-036		22.2179	22.2179		22.2179
35-050-037		25.6192	25.6192		25.6192
35-050-040	2728 HOWSLEY RD	177.3693	177.3693		177.3693

APN	ADDRESS (Physical)	PARCEL AREA	TWAE	Mitigation	APN
		ACRES	Borrow	Fee	Sub Totals
			Acres	Acres	Acres
PG TRIANGLE	Reach E				
Sutter County A		3.2883	3.2883		3.2883
35-080-007	HOWSLEY RD	106.3005	106.2901		106.2901
35-080-009		2.0828	2.0828		2.0828
35-080-010	2939 HOWSLEY RD	169.3327	169.3327		169.3327
35-080-011		8.4318	8.4318		8.4318
35-080-012		51.5195	51.5195		51.5195
35-080-014		7.6784	7.6766		7.6766
35-080-015	HOWSLEY RD	18.2750	18.2729		18.2729
35-080-016	FIFIELD RD	62.7076	62.7076		62.7076
35-080-027	FIFIELD RD	30.3196	30.3196		30.3196
35-080-028	2950 FIFIELD RD	10.3853	10.3853		10.3853
35-080-029	FIFIELD RD	94.7642	94.7642		94.7642
35-080-030	FIFIELD RD	4.4205	4.4205		4.4205
35-080-056	3145 KEYS RD PLEASANT GROVE CA 95668 9730	98.9000	94.3722		94.3722
35-110-004	KEYS RD	41.2478	41.2478		41.2478
35-110-007	KEYS RD	60.9185	60.9185		60.9185
35-110-054	3007 FIFIELD RD PLEASANT GROVE CA 95668 9702	3.3013	3.3013		3.3013
35-110-055	FIFIELD RD	79.5907	79.5907		79.5907
35-120-005		95.5179	95.5179		95.5179
35-120-009		32.4258	32.4258		32.4258
35-120-010	2951 FIFIELD RD	1.6370	1.6370		1.6370
35-120-011		40.9499	40.9499		40.9499
35-160-007	CANAL	10.2207	10.2207		10.2207
35-160-008	3202 SANKEY RD	49.6912	49.6912		49.6912
35-160-055	3145 KEYS RD PLEASANT GROVE CA 95668 9730	10.6453	10.6453		10.6453
Fifield Rd.		4.4233	4.4233		4.4233
Keys Rd.		2.3738	2.3738		2.3738
Sankey Rd		1.5495	1.3771		1.3771
Sutter County 1		3.0105	3.0077		3.0077
Sutter County 2		1.5319	1.5319		1.5319
Sutter County 3		10.1823	9.8109		9.8109

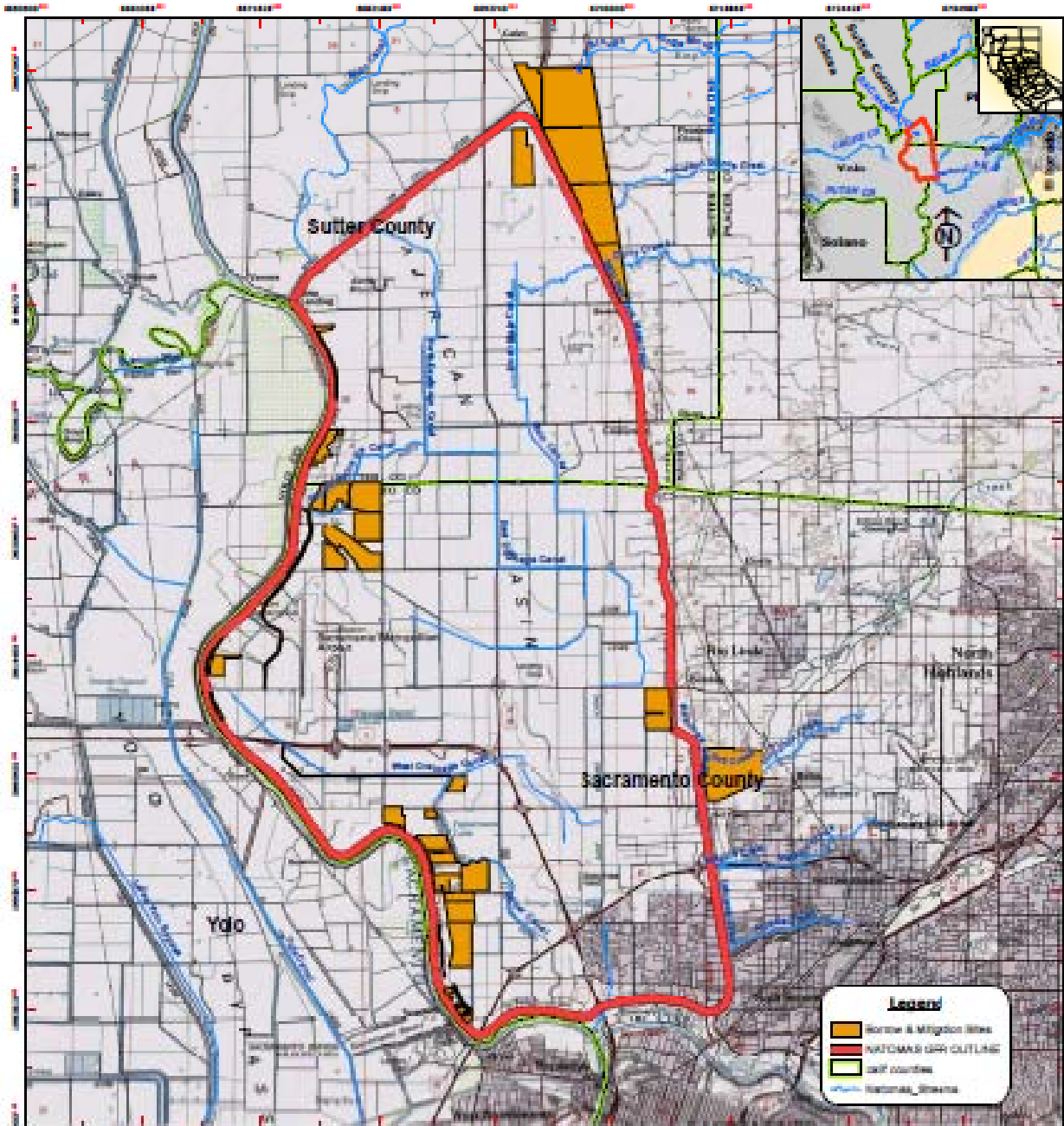
APN	ADDRESS (Physical)	PARCEL AREA	TWAE	Mitigation	APN
		ACRES	Borrow	Fee	Sub Totals
			Acres	Acres	Acres
PG TRIANGLE	Reach E				
Sutter County 4		17.7973	17.7891		17.7891
Sutter County 5		13.0478	13.0478		13.0478
Sutter County 6		8.9934	8.9889		8.9889

BROOKFIELD	Reach D	PARCEL AREA	TWAE Borrow	Mitigation Fee	Acres
35-080-021	HOWSLEY RD	202.95457		202.9546	202.9546
SOUTH SUTTER LCC	Reach B	PARCEL AREA	TWAE Borrow	Mitigation Fee	Acres
201-0250-015	6825 GARDEN HWY SACRAMENTO CA 95837 9308	31.47206		18.3532	18.3532
201-0270-002	6824 GARDEN HWY SACRAMENTO CA 95837 9308	22.1939		14.4439	14.4439
201-0270-037	6800 GARDEN HWY SACRAMENTO CA 95837 9309	44.12631		28.8881	28.8881
WESTLAKE	Reach B	PARCEL AREA	TWAE Borrow	Mitigation Fee	Acres
225-0030-061	DEL PASO RD CA 95834	42.73486		42.7349	42.7349
FISHERMAN'S LAKE NORTH	Reach B	PARCEL AREA	TWAE Borrow	Mitigation Fee	Acres
225-0090-014	GARDEN HWY CA 95834	34.0762		25.3576	25.3576
225-0090-036				31.5940	31.5940
225-0090-040	GARDEN HWY CA 95834	94.23879		66.5625	66.5625
225-0090-067	GARDEN HWY CA 95834	86.2579		68.2965	68.2965

FISHERMAN'S LAKE NORTH	Reach B	PARCEL AREA	TWAE Borrow	Mitigation Fee	Acres
225-0090-076	4390 DEL PASO RD SACRAMENTO CA 95834 9624	19.8783		16.3398	16.3398
225-0110-019	GARDEN HWY CA 95834	36.5163		29.1298	29.1298
225-0110-020	GARDEN HWY CA 95834	1.46964		1.1792	1.1792
225-0110-025	EL CENTRO RD CA 95834	39.0863	34.5534		34.5534
225-0110-026	EL CENTRO RD CA 95834	39.9269	39.1638		39.1638
225-0110-027	EL CENTRO RD CA 95834	39.0257	38.4480		38.4480
225-0110-028	EL CENTRO RD CA 95834	39.7758	37.6665		37.6665
225-0110-050	GARDEN HWY CA 95834	29.55606		29.5521	29.5521
225-0190-021	SAN JUAN RD CA 95833	49.909	43.9491		49.8015
FISHERMAN'S LAKE SOUTH	Reach A	PARCEL AREA	TWAE Borrow	Mitigation Fee	Acres
225-0190-014	EL CENTRO RD CA 95834	86.42449		86.4204	86.4204
225-0190-022	SAN JUAN RD CA 95833	105.07631	105.07631		105.0763
225-0210-016	GARDEN HWY CA 95833	27.64329	27.64329		27.6433
225-0210-017	GARDEN HWY CA 95833	26.91663	26.91663		26.9166
225-0210-040	SAN JUAN RD CA 95833	78.28823	78.28822		78.2882
225-0210-041	SAN JUAN RD CA 95833	30.02347	30.02347		30.0235
274-0010-043	GARDEN HWY CA 95833	42.92348		5.7120	5.7120
274-0010-050	GARDEN HWY CA 95833	31.12529		7.82306	7.8231
274-0250-005	GARDEN HWY CA 95833	1.00248		1.00248	1.0025
274-0250-012	GARDEN HWY CA 95833	3.14908		2.30758	2.3076
274-0250-014	GARDEN HWY CA 95833	1.8637		1.04543	1.0454
274-0250-015	GARDEN HWY CA 95833	3.75634		2.81984	2.8198

FISHERMAN'S LAKE SOUTH	Reach A	PARCEL AREA	TWAE Borrow	Mitigation Fee	Acres
274-0250-040	GARDEN HWY CA 95833	9.69129		7.02854	7.0285
274-0260-001	2350 GARDEN HWY SACRAMENTO CA 95833 9708	6.53775		5.05298	5.0530
274-0260-038	GARDEN HWY CA 95833	4.28202		3.09863	3.0986
274-0260-039	GARDEN HWY CA 95833	5.53781		4.29701	4.2970
274-0260-043	2306 GARDEN HWY SACRAMENTO CA 95833 9708	2.05069		5.7120	5.7120
274-0260-044	2300 GARDEN HWY SACRAMENTO CA 95833 9708	2.05069		2.05069	2.0507
274-0260-046	GARDEN HWY CA 95833	2.45842		1.53424	1.5342
AIRPORT NORTH	Reach B	PARCEL AREA	TWAE Borrow	Mitigation Fee	Acres
201-0010-008	GARDEN HWY CA 95837	41.09382	13.4344		13.4344
201-0010-010	GARDEN HWY CA 95837	32.71935	18.4611		18.4611
201-0010-011	GARDEN HWY CA 95837	37.07824	7.1500		7.1500
201-0010-015	POWER LINE RD CA 95837	199.78929	138.4184		138.4184
201-0010-016	CA 95837	5.27941	5.2794		5.2794
201-0010-017	CA 95837	31.40529	29.8702		29.8702
201-0010-018	CA 95837	2.82267	1.8986		1.8986
201-0010-019	CA 95837	34.18083	30.3966		30.3966
201-0010-020	CA 95837	6.85932	1.6288		1.6288
201-0010-021	CA 95837	12.32173	6.0205		6.0205
201-0010-022	CA 95837	21.3596	15.86645		15.8665
201-0020-018	POWER LINE RD CA 95837	100.75897	98.2881		98.2881
201-0130-032	POWER LINE RD CA 95837	176.45919	127.7420		127.7420
201-0140-067	CA 95837	310.97032	192.44105		192.4411

TWIN RIVERS/DRY CREEK	Reach G	PARCEL AREA	TWAE Borrow	Mitigation Fee	Acres
201-0320-018	5921 E LEVEE RD SACRAMENTO CA 95835 1112	33.91884	33.91884		33.9188
201-0320-019	E LEVEE RD CA 95835	34.75872	34.75872		34.7587
201-0320-025	6301 E LEVEE RD RIO LINDA CA 95673 2901	118.39662	118.39662		118.3966
226-0050-022	400 W ASCOT AVE CA 95838	56.94818	56.94819		56.9482
226-0061-026	130 ASCOT AVE CA 95838	20.40755	20.40756		20.4076
			3296.820	711.291	4013.963
	TOTAL IN ACRES =	4490.3949	3296.820		



NOTES:
 1. This map was prepared using data from the National River Basin (NRS) project. The NRS project is a multi-agency effort to restore the NRS to its natural state. The NRS project is a multi-agency effort to restore the NRS to its natural state. The NRS project is a multi-agency effort to restore the NRS to its natural state.

**NATIONAL RIVER BASIN
 GENERAL RESTORATION REPORT (GRR)
 BORROW & MITIGATION AREA
 LOCATIONS
 GENERAL PROJECT LOCATION
 SUTTER & SACRAMENTO COUNTY,
 California**



Map:
 National River Basin (NRS) Map (Rev. 01/11) for
 General Restoration Report (GRR)
 Project location (red line)
 CREATED on 03/2010 update 06/01/2010

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Mitigation Sites-Woodland Corridors for the Federally Supportable Plan

There are four additional Mitigation/Woodland Corridors identified. There is one woodland corridor in reach C and three in Reach B separated by Elkhorn Blvd.

SREL Phase1 Reach C	
WOODLAND CORRIDOR	
APN_2	Acreage
35-020-011	16.0874
35-020-017	0.8835
35-020-018	0.4966
35-020-019	2.8784
35-020-020	4.6086
35-030-002	1.5366
35-030-008	3.0966
35-030-013	3.33
35-240-025	0.0188
35-330-013	21.5186
35-330-014	27.5944
35-330-015	3.2505
Total Acreage =	86.3825

SREL Phase 2 Mitigation Reach B	
WOODLAND CORRIDOR	
	Fee
APN_2	Acreage
201-0250-011	0.611
201-0250-012	0.9908
201-0250-013	2.7679
201-0250-015	1.9736
201-0270-002	2.1375
201-0270-020	3.1694
201-0270-037	3.1321
201-0270-054	4.8396
201-0280-013	6.2755
Total Acreage =	25.8975

SREL PHASE 3 Reach B	
WOODLAND CORRIDOR	
APN	Acreage
225-0090-014	1.5826
225-0090-036	3.04
225-0110-018	1.4306
225-0110-019	1.4799
225-0110-020	0.0598
225-0110-050	1.3332
225-0110-051	1.1488
Total Acreage=	10.075

Real Estate Requirements for Federally Supportable Plan

3. Baseline Cost Estimate for the Federally Supportable Plan

The baseline cost estimate is the total cost of the lands combined with cost of support activities required to acquire those lands.

Support Costs:

The scope of Support Costs for this project includes work for acquiring 5,846.25 acres from separate 319 owners of 648 parcels. Listed below are the services to be undertaken:

- Right of Way Planning and Management
- Securing Rights of Entry for Engineering and Environmental Studies
- Surveying existing roadways for Plats and Legals
- Right of Way field Staking
- Appraisal Services
- Independent Appraisal Review
- Acquisition Services
- Relocation Assistance Program
- Title and Escrow support
- Condemnation support

Federal Supportable Plan

Reach	Non Federal Admin Support Costs	Federal Baseline Admin Support Costs	Total Lands, Easements, Rights-of-Way, Relocations, and Disposal Sites (LERRD's)	Total LERRD's combined with cost of Fed and Non-fed support activities required to acquire those lands.
Reach A	\$430,322	\$764,000	\$24,843,078	\$32,38,000
Reach B1/B2	\$7,937,562	\$944,600	\$52,909,538	\$61,791,700
Reach C	\$2,534,682	\$294,700	\$13,632,918	\$16,462,300
Reach D	\$1,041,518	\$97,500	\$6,638,882	\$7,777,900
Reach E	\$3,411,791	\$397,000	\$30,995,809	\$34,804,600
Reach F	\$2,688,893	\$320,800	\$11,078,207	\$14,087,900
Reach G	\$1,981,721	\$240,800	\$16,358,079	\$18,580,600
Reach H	\$7,912,256	\$901,700	\$25,666,444	\$34,480,400
Reach I	\$1,381,471	\$163,200	\$2,211,729	\$3,756,400
Total	\$35,320,216	\$4,124,900	\$184,334,684	\$223,779,800

4. PL 91-646 Relocation Assistance Benefits for the Federally Supportable Plan

Proposed Relocations for Federally Supportable Plan

Reach	Relocations	Relocation Assistance Payments	Federal Costs Relocation Specialist to Review Relocation Plan /Crediting	Total plus 25% contingency
A	7 properties	\$700,000	\$10,000	\$887,500
B	5 properties	\$500,000	\$10,000	\$635,000
C (Bender-Rosenthal Report)	3 property owners/1 tenant	\$408,500	\$10,000	\$510,625
D (Bender	3 property owners	\$381,300	\$10,000	\$489,050

Rosenthal Report)				
E	N/A			
F	7 property owners	\$700,000	\$10,000	\$887,500.00
G	5 property owners	\$500,000	\$10,000	\$635,000.00
H	27 businesses/residences 20 mobile homes	\$4,700,000	\$20,000	\$4,750,000
I	N/A			

5. Mineral Interests

No loss of any known mineral resources that would be of value to the region and the residents of the state are discussed in the EIS/EIR. The Department of Conservation, Office of Mine Reclamation (OMR) has received an inquiry from the non Federal regarding the application of California's Surface Mining and Reclamation Act. (SMARA) permit to extract soil material for various borrow sites within the Natomas Basin and it has been determined that the Natomas Levee Improvement Project is exempt from the application of SMARA under PRC 2714(b) and neither a reclamation plan or financial assurance is required.

6. Facility/Utility Relocations for the Federally Supportable Plan

On July 14, 1998, the Assistant Secretary of the Army issued a letter directive relating to the American River Common Elements Project which provided, in relevant part, that the removal and replacement of a utility, or other public facility, owned by the State of California, or a political subdivision thereof, (including the Sacramento Area Flood Control Agency (SAFCA) and its constituent members) and which delivers public services, should be treated as a relocation where such work is required as a direct result of the construction of the project. Such relocations, provided they met the required criteria, were to be included as a shared total project cost with credit issued to the non-federal sponsors for relocating the affected utilities/facilities.

Due to the passage of time and the current scope of the project—now known as the Common Features project—the Army Corps of Engineers (COE) RIT Vertical Team agreed that ongoing reliance upon the scope of the ASA 's 1998 letter and its application to the current project must be coordinated with the current ASA-CW. Provided agreement is reached and assuming consistency with the preliminary findings set forth in the Relocation Inventory Tables, below, costs incurred in relocating eligible utilities/facilities that are owned by the following entities will be included as total project costs with credit given to the non-federal sponsors: the State, SAFCA and its constituent members (which include the City of Sacramento, the Counties of Sacramento and Sutter, Reclamation District 1000, the American River Flood Control District, the Sacramento County Water Agency and the Sutter County Water Agency) and the Sacramento Municipal Utility District (SMUD).

The Army Corps of Engineers has drafted modifications to the Project Partnership Agreement for the Common Elements Project implementing this determination. These modifications and implementation guidance have been provided to the Sacramento District for coordination with the State of California and SAFCA.

A Preliminary Attorney's Opinion of Compensability was prepared regarding proposed utility/facility relocations based upon information and data submitted to the Sacramento District Office of Counsel for review as of August 4, 2010. Various utilities/facilities are located within the project boundaries and must be relocated to facilitate project construction. The utilities/facilities consist of electrical distribution and service facilities, telephone communication lines, irrigation facilities, roadways, water delivery facilities and natural gas pipelines. A summary of their compensability analysis, referencing the data set forth in the Relocation Inventory Tables that follow, is as follows:

- (a) The following utilities/facilities are compensable relocations under the 1998 ASA letter and/or California law and have a demonstrated need for the provision of “substitute facilities:”

Table A-1: Item Nos. 13, 22, 39-41, 49-53, 58-61 and 63-64.

Items Nos. 10-21, 23-38, 42-43, and 45-46
(portion relating to SMUD distribution/service only)

Table A-2: Item Nos. 1-7, 9, 11-12, 16, 18 (portion of gas line outside of CVFPB permit), 19-22, 24, 26-33, 35, 37, 39, 41-45

- (b) The following utilities/facilities have no interest in real property and, accordingly, are not compensable relocations:

Table A-1: Item Nos. 1-9, 44, 47-48, 54-57, 62, and 65-66.
Items Nos. 10-21, 23-38, 42-43, and 45-46 (portion relating to PacBell telephone line only)

Table A-2: Item Nos. 8

- (c) The following utilities/facilities have interests in real property, yet are non-compensable relocations under California law due to the priority of operative RD 1000 1913/1917 flood control easements:

Table A-2: Item Nos. 10, 17, 23, 25, 34, 36, 38 and 40

- (d) The following utilities/facilities have compensable interests in real property; however, there is insufficient information at this time to make a preliminary determination as to whether the utilities/facilities are compensable relocations under the “substitute facilities” doctrine. The submission of additional data and further analysis is required.

Table A-2: Item Nos. 13-15

“Any conclusion or categorization contained in this report that an item is a utility or facility relocation to be performed by the Non-Federal Sponsor as part of the Lands, Easement, Rights of Way, Relocations and Disposal (“LERRD”) responsibilities is preliminary only. The Government will make a final determination of the relocations necessary for the construction, operation or maintenance of the Project after further analysis and completion and approval of final attorney’s opinions of compensability for each of the impacted utilities and facilities.”

EXHIBIT A

RELOCATION INVENTORY
 AMERICAN RIVER WATERSHED COMMON FEATURES PROJECT -
 NATOMAS SEPARABLE ELEMENT

Table A-1 Facilities Supported by a Revocable CVFPB Permit

#	Location		Affected Facility	Permit #	Owner	Proposed Modification /Relocation	Currently serves Public or Quasi-Public Purpose (Yes/No)	Estimated Cost*	Other Site Specific Issues of Note
	Reach	Station							
1	C	SREL 88+60	Overhead electric & telephone utilities	14840	PG&E	Relocate	Yes	10,000	PG&E service pole feeding overhead lines across the levee.
2	C	96+70	Overhead electric & telephone utilities	4546	PG&E	Relocate	Yes	10,000	PG&E service pole feeding overhead lines across the levee.
3	C	109+70	Overhead electric & telephone utilities	10931	PG&E	Relocate	Yes	10,000	PG&E service pole feeding overhead lines across the levee.
4	C	109+70	Underground electric and telephone utilities	15445	PG&E	Relocate	Yes	10,000	PG&E service pole feeding overhead lines to conduits through the levee.
5	C	113+20	Overhead and underground electric & telephone utilities	10931	PG&E	Relocate	Yes	10,000	PG&E service pole feeding overhead lines across the levee and conduits through the levee.
6	C	116+45	Overhead and underground	10931	PG&E	Relocate	Yes	10,000	PG&E service pole feeding overhead

* Cost estimates provided by Mead & Hunt, Inc., consulting engineers for the Sacramento Area Flood Control Agency.

7	C	119+30	electric & telephone utilities	10931, 12674	PG&E	Relocate	Yes	10,000	PG&E service pole feeding overhead lines across the levee and conduits through the levee.
8	C	121+90	Overhead and underground electric & telephone utilities	10931, 12673	PG&E	Relocate	Yes	10,000	PG&E service pole feeding overhead lines across the levee and conduits through the levee.
9	C	124+65	Overhead electric & telephone utilities	4447	PG&E	Relocate	Yes	10,000	PG&E service pole feeding overhead lines across the levee.
10	C	198+45	Overhead and underground electric & telephone utilities	14636	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across the levee and conduits through the levee.
11	B	276+70	Overhead electric & telephone utilities	2572	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.
12	B	300+00	Overhead electric & telephone utilities	2875	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.
13	B	304+30	Overhead electric utility	1687	SMUD	Relocate		10,000	SMUD service pole feeding overhead lines across levee.
14	B	311+50	Overhead electric & telephone utilities	6691	SMUD/Pac Bell	Relocate		10,000	SMUD service pole feeding overhead lines across levee.
15	B	311+68	Overhead electric & telephone	16317, 16756	SMUD/Pac Bell	Relocate		10,000	SMUD service pole feeding overhead

16	B	315+85	utilities	12820	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.
17	B	321+19	Overhead electric & telephone utilities	12490, 12513	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.
18	B	327+20	Overhead electric & telephone utilities	2374, 15226	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.
19	B	333+30	Overhead electric & telephone utilities	1741	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.
20	B	335+60	Overhead electric & telephone utilities	4379	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.
21	B	344+00	Overhead electric & telephone utilities	4431	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.

16	B	315+85	utilities	12820	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.
17	B	321+19	Overhead electric & telephone utilities	12490, 12513	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.
18	B	327+20	Overhead electric & telephone utilities	2374, 15226	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.
19	B	333+30	Overhead electric & telephone utilities	1741	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.
20	B	335+60	Overhead electric & telephone utilities	4379	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.
21	B	344+00	Overhead electric & telephone utilities	4431	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.

22	B	344+00	Underground electric utilities	7240	SMUD	Relocate	Yes		Conduit through levee.
23	B	354+17	Overhead electric & telephone utilities	4106	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.
24	B	357+80 & 360+30	Overhead electric & telephone utilities	12525	SMUD/Pac Bell	Relocate	Yes	20,000	2 SMUD poles feeding overhead lines across levee.
25	B	360+30	Underground electric & telephone utilities	14750	SMUD/Pac Bell	Relocate	Yes	10,000	Conduit through levee.
26	B	363+00	Overhead electric & telephone utilities	2877	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.
27	B	367+80	Underground electric & telephone utilities	12565, 12604	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines to conduits through the levee.
28	B	371+10	Overhead electric & telephone utilities	2357	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.
29	B	371+30	Overhead electric & telephone utilities	2311	SMUD/Pac Bell	Relocate	Yes	30,000	Multiple SMUD service poles feeding overhead lines across levee.
30	B	372+40	Overhead electric &	12861	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead

			telephone utilities							lines across levee.
31	B	384+75	Overhead electric & telephone utilities	15150, 9838, 9834	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.	
32	B	387+35	Overhead electric & telephone utilities	15160	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.	
33	B	389+80	Underground electric & telephone utilities	1933	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines to conduits through the levee.	
34	B	389+80	Overhead electric & telephone utilities	2194, 12779	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.	
35	B	397+30	Overhead electric & telephone utilities	1946, 12564, 12512	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.	
36	B	433+40	Underground electric and telephone utilities	13673	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines to conduits through the levee.	
37	B	440+35	Underground electric and telephone utilities	7856, 7978	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines to conduits through the levee.	

38	B	446+25	Underground electric & telephone utilities	7627	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines to conduits through the levee.
39	B	541+20	Irrigation Pipe	201	Sacramento Co	Raise and relocate	Yes	100,000	16 inch irrigation pipe through levee provides irrigation to Airport bufferlands.
40	B	568+12	Irrigation pipe	15141	Sacramento Co	Raise and relocate	Yes	100,000	14 inch irrigation pipe through levee provides irrigation to Airport bufferlands.
41	B	624+14	Irrigation pipe	201	Sacramento Co	Raise and relocate	Yes	100,000	Irrigation pipe through levee provides irrigation to Airport bufferlands.
42	A	752+80	Overhead electric & telephone utilities	3624	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.
43	A	755+04	Underground electric & telephone utilities	12235, 12153	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.
44	A	759+79	Underground telephone lines	12616, 12701	PTT	Relocate	Yes	10,000	Conduits through levee.
45	A	760+85	Underground electric & telephone utilities	4190, 12616, 12701	SMUD/Pacific Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines to conduits through the levee.
46	A	765+07	Overhead electric and telephone utilities	3624	SMUD/Pac Bell	Relocate	Yes	10,000	SMUD service pole feeding overhead lines across levee.
47	A	861+70	Natural gas lines	1437	PG&E	Raise	Yes	See Item 18 in Table A-2	10-5/8" and 12 3/4" gas lines through

48	A	& 862+22	Natural gas line	2348	PG&E	Remove	No	10,000	the levee, 4 feet below the crown.
49	A	863+28	Natural gas line	2348	PG&E	Remove	No	10,000	Abandoned 12-inch gas line through the levee, 2 feet below the crown.
50	I	972+05 - 982+08	Water main	13125	City of Sacramento	Raise and Relocate	Yes	See Item 20 and 25 in Table A-2	12-inch-pipe (water main), 3 feet below surface.
51	I	ARNL 0 to 9+50	Water main	13125	City of Sacramento	Raise and relocate	Yes	See Item 20 and 25 in Table A-2	12" water main through levee.
52	H	1+06	Water main	13114	City of Sacramento	Raise and relocate	Yes	See Item 20 and 25 in Table A-2	24" water main through levee.
53	H	NEMDC 0+97	Water Main	15949	Sacramento Co.	Raise and relocate	Yes	See Item 28 in Table A-2	Water main through levee.
54	H	18+23	Underground conduit	16495	City of Sacramento	Remove and replace	Yes	2,600	2" conduit through levee.
55	H	53+08	Natural gas pipeline	2333	PG&E	Raise and relocate	Yes	18,900	6" natural gas pipeline through levee.
56	H	53+19	Natural gas pipeline	2347	PG&E	Raise and relocate	Yes	26,000	12" natural gas pipeline through levee.
57	H	63+95	Underground utility	2397, 2069	PTT	Replace	Yes	19,500	Fiber optics cable through levee.
58	H	130+53	Underground utility	14278 GM	Sacramento Cable Television	Raise and relocate	Yes	400,000	Cable in conduit through levee.
58	H	131+95	Overhead	2648	SMUD	Relocate	Yes	10,000	SMUD service pole feeding overhead

59	H	137+64	electric utility	7606, 15949	Sacramento Co.	Raise and relocate	Yes	60,000	line across levee.
60	G	318+46	Water main	9862, 5517	Sacramento Co.	Raise	Yes	See Item 35 in Table A-2	County water main through levee. Elkhorn Blvd bridge crossing.
61	G	319+00	Overhead electric utility	2492	SMUD	Relocate	Yes	10,000	SMUD service pole.
62	G	361+15	Underground telephone utility	5057	PTT	Relocate	Yes	10,000	PTT service pole feeding cable to conduit through levee.
63	F	427+00	Overhead electric utility	2380	SMUD	Relocate	Yes	10,000	Power line crossing the levee at Elverta Rd.
64	F	469+63	Overhead electric utility	2395	SMUD	Relocate	Yes	10,000	Power line crossing levee and canal.
65	D	142+92 to 178+12	Irrigation pipes	1840	NCMWC	Remove	No	75,000	30" and 42" pipe connecting NCMWC Bennett Pumping Plant to irrigation system.
66	D	NCC 114+76	Irrigation pipes	9779 & 5490	NCMWC	Remove	No	125,000	Pipes connecting NCMWC Northern Pumping Plant to irrigation system.

Table A-2 Facilities Supported In Whole or In Part by a Real Property Interest

#	Location		Affected Facility	Owner	Real Property Interest	Proposed Modification/Relocation	Estimated Cost*	Currently serves Public or Quasi-Public Purpose (yes/no)	Other Site Specific Issues of Note
	Reach	Station							
1	C	SREL 0+00 To 177+00	Electrical distribution facilities	PG&E	Multipurpose flood control easements (Sac Urban Project)	Relocate poles to new utility corridor	595,000	Yes	Approximately 61 PG&E distribution poles to be relocated.
2	C	SREL 44+00 to 82+00	Telephone lines	Pac Bell	Multipurpose flood control easements (Sac Urban Project)	Relocate lines to PG&E poles in new utility corridor	15,000	Yes	15 of the 61 PG&E distribution poles referenced as item 1 have Pac Bell lines attached.
3	C	SREL 4+50	Sankey Road	Sutter County	Public Road Right-of-Way	Reconstruction of portion of road that intersects the SREL	1,300,000	Yes	
4	C	SREL 124+50	Riego Road	Sutter County	Public Road Right-of-Way	Reconstruction of portion of road that intersects the SREL	1,300,000	Yes	
5	B	SREL 177+00 to 634+50	Electrical distribution facilities	SMUD	Multipurpose flood control easements (Sac Urban Project)	Relocate poles to new utility corridor	1,575,000	Yes	Approximately 175 SMUD distribution poles to be relocated.

* Cost estimates provided by Mead & Hunt, Inc., consulting engineers for the Sacramento Area Flood Control Agency.

Table A-2 Facilities Supported In Whole or In Part by a Real Property Interest

#	Location		Affected Facility	Owner	Real Property Interest	Proposed Modification/Relocation	Estimated Cost*	Currently serves Public or Quasi-Public Purpose (yes/no)	Other Site Specific Issues of Note
	Reach	Station							
1	C	SREL 0+00 To 177+00	Electrical distribution facilities	PG&E	Multipurpose flood control easements (Sac Urban Project)	Relocate poles to new utility corridor	595,000	Yes	Approximately 61 PG&E distribution poles to be relocated.
2	C	SREL 44+00 to 82+00	Telephone lines	Pac Bell	Multipurpose flood control easements (Sac Urban Project)	Relocate lines to PG&E poles in new utility corridor	15,000	Yes	15 of the 61 PG&E distribution poles referenced as item 1 have Pac Bell lines attached.
3	C	SREL 4+50	Sankey Road	Sutter County	Public Road Right-of-Way	Reconstruction of portion of road that intersects the SREL	1,300,000	Yes	
4	C	SREL 124+50	Riego Road	Sutter County	Public Road Right-of-Way	Reconstruction of portion of road that intersects the SREL	1,300,000	Yes	
5	B	SREL 177+00 to 634+50	Electrical distribution facilities	SMUD	Multipurpose flood control easements (Sac Urban Project)	Relocate poles to new utility corridor	1,575,000	Yes	Approximately 175 SMUD distribution poles to be relocated.

* Cost estimates provided by Mead & Hunt, Inc., consulting engineers for the Sacramento Area Flood Control Agency.

6	B	SREL 177+00 to 634+50	Telephone lines	Pac Bell	Multipurpose flood control project easements (Sac Urban Project)	Relocate lines to SMUD poles in new utility corridor	171,000	Yes	171 of the 175 SMUD poles referenced in item 5 have Pac Bell telephone lines attached.
7	B	SREL 416+50 To 540+50	Electrical distribution facilities	SMUD	Sacramento County Road & Utility Right- of-Way per Book 101, Page 79, Official Records.	Relocate poles to new utility corridor	306,000	Yes	34 SMUD distribution poles that were moved to the top of levee as part of the Sac Urban project.
8	B	SREL 416+50 To 540+50	Telephone lines	Pac Bell	Sacramento County Road & Utility Right- of-Way per Book 101, Page 79, Official Records.	Relocate poles to new utility corridor	34,000	Yes	34 SMUD poles referenced in item 7 have Pac Bell telephone lines attached.
9	B	SREL 634+50 to 743+00	Electrical distribution facilities	SMUD	1918 easement in favor of Great Western Power. SMUD to verify property interest	Relocate poles from landside slope of levee to new utility corridor	605,000	Yes	Approximately 62 SMUD poles to be relocated appear to be within RD 1000 1913/17 flood control easement area.
10	B	SREL 634+50 To 734+00	Telephone lines	Pac Bell	1940s easements in favor of PT&T. Pac Bell to verify property interest	Relocate lines to SMUD poles in new utility corridor	15,000	Yes	15 of the 62 SMUD poles referenced as item 9 have Pac Bell telephone lines attached.
11	B	SREL 258+50	Elverta Road	Sacramento County	Public Road Right-of- Way	Reconstruction of portion of road that intersects the SREL	1,300,000	Yes	
12	B	SREL 635+00	Power Line Road	Sacramento County	Public Road Right-of- Way	Reconstruction of portion of road that intersects the SREL	1,300,000	Yes	

13	B	SREL 197+00	Pritchard Pumping Plant	Natomas Central Mutual Water Co	Easement granted to NCMWC	Raise pipes and relocate facilities to accommodate new project footprint and design WSE	3,500,000		
14	B	SREL 304+00	Elkhorn Pumping Plant	Natomas Central Mutual Water Co.	Fee Ownership vested in NCMWC	Raise pipes and relocate facilities to accommodate new project footprint and design WSE	2,600,000		
15	B	SREL 715+00	Riverside Pumping Plant	Natomas Riverside Mutual Water Co.	Fee ownership vested in NCMWC	Raise pipes and relocate facilities to accommodate new project footprint and design WSE	500,000		
16	A	SREL 743+00 To ARNL 21+00	Electrical distribution facilities	SMUD	Easements for pole line granted by underlying fee owners. SMUD to verify property interest	Relocate poles to new utility corridor	116,000	Yes	Approximately 116 SMUD poles to be relocated appear to be within RD 1000 1913/17 flood control easement.
17	A	SREL 743+00 To ARNL 21+00	Telephone lines	Pac Bell	1940s easements in favor of PT&T. Pac Bell to verify property interest	Relocate lines to SMUD poles in new utility corridor	340,000	Yes	90 of the 116 SMUD poles referenced as item 18, as well as 25 separate poles contain Pac Bell telephone lines.
18	A	SREL 847+00 To 848+00	Gas Lines	PG&E	Fee ownership vested in PG&E	Raise lines	30,000	Yes	
19	A	SREL 742+50	San Juan Road	Sacramento County	Public Road Right-of- Way	Reconstruction of portion of road that intersects the SREL	1,300,000	Yes	

20	A	SREL 947+00 To ARNL 1+00	Water Main	City of Sacramento	To be verified	Raise pipes and relocate facilities to accommodate new project footprint and design WSE	150,000	Yes	
21	A	SREL 947+50	Water Main	City of Sacramento	To be verified	Raise pipes and relocate facilities to accommodate new project footprint and design WSE	150,000	Yes	
22	I	ARNL 21+00 To ARNL 115+71	Electrical distribution facilities	SMUD	SMUD to verify property interest	Relocate poles to new utility corridor	420,000	Yes	Approximately 42 SMUD poles to be relocated appear to be within RD 1000 1916 flood control easement.
23	I	ARNL 21+00 To ARNL 115+71	Telephone lines	Pac Bell	Pac Bell to verify property interest	Relocate lines to SMUD poles in new utility corridor		Yes	The 42 SMUD poles referenced as item 26 may contain Pac Bell telephone lines.

24	H	NEMDC 0+00 To NEMDC 318+50	Electrical distribution facilities	SMUD	SMUD to verify property interest	Relocate poles to new utility corridor	250,000	Yes	Approximately 25 SMUD poles to be relocated appear to be within the lands of RD 1000.
25	H	NEMDC 0+00 To NEMDC 318+50	Telephone lines	Pac Bell	Pac Bell to verify property interest	Relocate lines to SMUD poles in new utility corridor	25,000	Yes	The 25 SMUD poles listed in item 29 may contain Pac Bell telephone lines.
26	H	NEMDC 0+00 To NEMDC 318+50	Electrical distribution facilities	SMUD	Public Utility Easements within subdivisions adjacent to levee. SMUD to verify	Relocate poles to new utility corridor	340,000	Yes	Approximately 34 SMUD poles to be relocated appear to be outside of the lands of RD 1000.
27	H	NEMDC 0+00 To NEMDC 318+50	Telephone lines	Pac Bell	Pac Bell to verify property interest	Relocate lines to SMUD poles in new utility corridor	34,000	Yes	The 34 SMUD poles listed in item 31 may contain Pac Bell telephone lines.
28	H	0+97	Water main	Sacramento County	County to verify property interests	Raise and relocate pipe to accommodate new project footprint and design WSE	60,000	Yes	Water main. Covered by Permit #15949 in Table A-1.
29	H	0+08 To 15+94	Traffic Light poles	City of Sacramento	City to verify property interests	Relocate poles to accommodate project footprint	74,000	Yes	19 poles.

30	H	NEMDC 36+50	West El Camino Ave.	Sacramento County	Public Road Right-of- Way	Raise and reconstruct portion of road that intersects the levee	6,870,000	Yes	
31	H	NEMDC 104+50	San Juan Road	Sacramento County	Public Road Right-of- Way	Reconstruction of portion of road that intersects the levee	500,000	Yes	
32	H	NEMDC 198+50	Del Paso Road	Sacramento County	Public Road Right-of- Way	Reconstruction of portion of road that intersects the levee	500,000	Yes	
33	G	NEMDC 318+50 To NEMDC 426+50	Electrical distribution facilities	SMUD	SMUD to verify property interest	Relocate poles to new utility corridor	340,000	Yes	Approximately 34 SMUD poles to be relocated appear to be within lands of RD 1000.
34	G	NEMDC 318+50 To NEMDC 426+50	Telephone lines	Pac Bell	Pac Bell to verify property interest	Relocate lines to SMUD poles in new utility corridor		Yes	The 34 SMUD poles referenced in item 40 may contain Pac Bell telephone lines.
35	G	NEMDC 426+50	Elverta Road	Sacramento County	Public Road Right-of- Way	Raise and Reconstruct portion of road that intersects the levee	1,500,000	Yes	
36	F	NEMDC 511+00 To NEMDC 675+00	Electrical distribution poles	PG&E	PG&E to verify property interest	Relocate poles to new utility corridor	390,000	Yes	Approximately 39 PG&E poles to be relocated appear to be within the lands of RD 1000.

37	F	NEMDC 426+50 To NEMDC 511+00	Electrical distribution facilities	SMUD	SMUD to verify property interest	Relocate poles to new utility corridor	110,000	Yes	Approximately 11 SMUD poles to be relocated appear to be within the lands of RD 1000.
38	F	NEMDC 426+50 To NEMDC 675+00	Telephone lines	Pac Bell	Pac Bell to verify property interest	Relocate lines to PG&E/SMUD poles in new utility corridor		Yes	The 39 PG&E poles and 11 SMUD poles referenced as items 44 & 45 may contain Pac Bell telephone lines.
39	F	NEMDC 567+00	Riego Road	Sacramento County	Public Road Right-of- Way	Reconstruction of portion of road that intersects the levee	1,200,000	Yes	
40	E	PGCC 287+50 To PGCC 461+00	Electrical distribution facilities	PG&E	PG&E to verify property interest	Relocate poles to new utility corridor	100,000	Yes	Approximately 10 PG&E poles to be relocated appear to be within area covered by RD 1000 1913/17 flood control easements.
41	E	PGCC 287+50 To PGCC 461+00	Electrical distribution facilities	PG&E	1917-1919 easements in favor of Great Western Power. PG&E to verify property interest	Relocate poles to new utility corridor	150,000	Yes	Approximately 15 PG&E poles to be relocated, appear to be outside of the area covered by RD 1000 1913/17 flood control easements.
42	E	PGCC 287+50 To PGCC 461+00	Telephone lines	Pac Bell	Pac Bell to verify property interest	Relocate lines to PG&E poles in new utility corridor	10,000	Yes	10 PG&E poles referenced in item 49 may contain Pac Bell telephone lines.

43	E	PGCC 287+50 To PGCC 461+00	Telephone lines	Pac Bell	Pac Bell to verify property interest	Relocate lines to PG&E poles in new utility corridor	15,000	Yes	15 PG&E poles referenced in item 50 may contain Pac Bell telephone lines.
44	E	NCC 287+50	Howsley Road	Sutter County	Public Road Right-of- Way	Reconstruction of portion of road that intersects the levee	1,500,000	Yes	
45	D	NCC 99+00 To NCC 121+00	Electrical distribution facilities	PG&E	Multipurpose flood control project easement recorded in Book 1491, Official Records Page 209, Sutter County Records	Relocate poles to new location within existing multipurpose easement	80,000	Yes	8 poles have been relocated.

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7. HTRW sites for the Early Implementation Plan and Federally Supportable Plans

USACE prepared a draft Phase 1 environmental assessment (Phase 1 ESA) for the proposed Natomas General Re-evaluation Report project, which includes the entire Natomas Basin. The Phase 1 environmental assessment, performed in accordance with NEPA, CEQA, and USACE regulations was designed to identify hazardous, toxic, or radioactive waste, (HTRW).

Site reconnaissance consisted of inspections at approximately 2 mile intervals along the land side and water side of the levee system surrounding Natomas Basin. Recorded sites of potential contamination found in NLIP Phase 3 EIS within Reach B (Sacramento River East Levee 5A-9B), Reach E Pleasant Grove Creek Canal (PGCC), and Reach H NEMDC South are summarized below:

- Petroleum stains on soil, pavement, and directly into a waterway
- Illegal dumping of trash, including major appliances
- Recent evidence of burning
- Contamination from maintenance of agricultural equipment and facilities
- High-voltage lines that cross the levee; and
- Transformers that do not display labels ensuring they are not a source of polychlorinated biphenyls

Kleinfelder evaluated properties along Reach D (Natomas Cross Canal) and Reach C and portions of Reach B (Sacramento River East Levee 1 – 6A). Site assessments were conducted on parcels that were found to have potential recognized environmental conditions (REC). According to ASTM Standard E1527-05, a REC is defined as the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The following sites were found to contain REC's.

APN	Hazardous substance or petroleum products found
201-0150-033 Yuki Pear Farm	3 wells monitoring known 2000 gallon gasoline spill in 1997, subsurface septic tanks, cistern and heating oil structure may represent hazards underground. Testing in 1999 of soil and ground water analysis show contamination of petroleum hydrocarbons and organochlorine pesticides. Testing in 2000 found the same contamination in lower concentrations. Recommendations for follow up were included in the NLIP Phase 3 Land Improvements Project EIS.
201-0280-037	Application for an underground storage tank was found but property owner and Kleinfelder were not able to locate it
201-270-048	Damaged automotive battery on site – contamination

	unknown
201-0270-028	Heavy equipment leaking engine oil and hydraulic fluid in numerous locations with discolored soil found, paperwork for underground storage tank found property owner is not aware of any underground storage tanks, multiple above ground storage tanks containing lead based petroleum products found. Automobile batteries, electrical equipment and tree waste found on site.

No REC's were found on remaining sites. The sites listed below may contain pesticide and herbicide residue from agricultural use. Kleinfelder considers risk of exposure to the residues to be low, but the concentrations are unknown.

APN	Hazardous substance found
210-0210-031 Dunmore Borrow Site	Records search found an abandoned gas well within the site- Could not find evidence of well to know if it was properly abandoned
35-080-021 Brookfield Borrow Site	Two above ground storage tanks containing diesel fuel were found on site and two 5 gallon buckets containing oil were not properly stored – recommended proper disposal
201-0150-040,201-0150-041,201-0150-042	Records from California Dept of Oil, Gas , and Geothermal Resources (DOGGR) indicate that Shell Oil company has a plugged and abandoned dry hole. Recommendation to SAFCA was to contact Shell to see if an underground pipeline exists.
201-0150-055,201-0140-059	Domestic wells and septic tanks may be underground based on former farm buildings on site. An idle gas well is located east of the western irrigation canal and south of the former building on 201-0150-055. Recommendation is to consult with DOGGR and abandon the well in accordance with local and state requirements if construction activities disturb the site.
201-280-044	I-5 and Bayou Way underground irrigation pipelines that contain asbestos may exist on site due to past agricultural use
5870 Garden Highway Sacramento	An underground storage tank containing diesel fuel

Kleinfelder also conducted a Phase 1 Environmental Site Assessment on parcels in Reach B (Sacramento River East Levee 10 – 15). The following information is a summary of conditions that may affect parcels in Reach B.

APN	Hazardous Substance or Petroleum products found
201-0330-019 SREL Reach 10	Residence used mostly for row crops. Water wells, septic systems, pole-mounted transformers, maintenance shop, and abandoned dry hole found. Pesticides and herbicides, asbestos-containing building materials, underground irrigation pipelines could be located on site. Several containers were rusted and leaking, resulting in stains on soil, gravel, and concrete within the parcel.
225-0010-038, 225-0010,041,225-0010-043 Reach 11A	Sept 2008 site visit located stained soil near a vehicle, two of 9 AST's, a burn pile, 2 burn pits, a large stockpile of horse manure, pole-mounted transformers that may contain PCB's, an pipe dripping unknown substance from a barn. 6 well permits have been submitted to the county. At least one remains on site, and 3 have been abandoned. This suggests that there could be others in unknown locations on site. 3 underground storage tanks are known to have been installed on site and only 2 have been recorded as removed. The location of the third is unknown.
225-0090-014. 225-0110-050 Reach 13	Been used for agricultural purposes for decades. Potential presence of pesticide residues and asbestos-containing subsurface irrigation piping.
225-0090-040 Reach 12A	Rural residence -potential presence of pesticide residues and asbestos-containing subsurface irrigation piping. Above ground storage tanks (ASTs) and drums containing fuel, oil, grease, solvents, car batteries, burned debris piles, and water wells. A Phase II ESA was conducted to evaluate the pesticide residues.
225-0101-003,225-0101-004,225-0101-005,225-0101-006 Reach 11B	Potential presence of pesticide residues and asbestos-containing irrigation pipes, building related utilities (septic tanks, cistern and heating oil structure) may remain on site from previous land uses. Records suggest that there is a under ground storage tank on site.
APN 225-0090-069 Reach 12 B	1 residence and 3 barn structures are primarily used for agricultural purposes. Potential presence of pesticide residues and asbestos-containing subsurface irrigation piping.

	Buildings found on site may contain lead paint and asbestos.
APN 225-0101-007 Reach 11B	Predominantly agricultural fields. Utilities associated with historic structures may still be present on site (septic tanks, cisterns, heating oil tanks, wells). A jet fuel pipeline runs through the property in a north-south direction. In addition, there may be residual pesticides in the soil and asbestos-containing underground irrigation piping.
APN 225-0101-057, 225-0101-058 Reach 11B	Due to historical agricultural and rural residences the utilities associated with historic structures may still be present on site (septic tanks, cisterns, heating oil tanks, wells) Residual pesticides, and underground irrigation pipelines that may contain asbestos may exist. The plugged dry oil well located on 225-0101-58 is located outside the project footprint, approximately 700 feet from the existing levee.
APN 225-0101-061 Reaches 11A and 11B	Parcel was used for agricultural purposes prior to 1973. Currently the property is a private residence and uses this site to board horses. Site visit found domestic water well, 3 septic tanks with leach fields, a wood debris pile, and empty AST, a pole-mounting transformer without PCB content labeling, and household quantities of hazardous chemicals including paint and cleaning agents were located in a locked shed.
APN 225-0110-018 and 225-0110-051 Reach 13	Belongs to TNBC and is being used as a habitat mitigation site. Historically the parcels were used for agriculture so there is a potential for residual pesticides and subsurface utilities, some of which may contain asbestos.
APN 225-0210-026 Reach 15	Currently and historically used for agricultural purposes. Site visit revealed 7 above ground storage tanks (AST's), 5 trailer mounted ASTs, a tractor containing double-mounted polyethylene tanks, and several locations of petroleum stains on surface soil (6-24 inch dia, and several inches deep) There is a potential for residual pesticides and subsurface utilities, some of which may contain asbestos.
APN 201-0250-015, 201-270-002, and 201-0270-037 Reach 8	201-0270-037 is the southern most parcel of the South Sutter borrow site. This parcel has historically been used for agricultural purposes

	<p>and may contain residual pesticides. Collapsed structures were located on site that could contain asbestos or lead-based materials. Hazardous material were found on 201-0250-015 and 201-0270-002, including a partially buried storage tank that may have been used for water storage, a 750 gallon diesel trailer mounted AST, 2 car batteries, unlabeled drums with unidentified contents, various smaller drums, buckets, cans of unknown content and various debris. Water wells are known to exist on site, and several structures may contain asbestos-containing or lead-based building materials. There is a potential for residual pesticides and subsurface utilities, some of which may contain asbestos. A Phase 2 ESA was conducted by Kleinfelder.</p>
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The Phase 4b Project location primarily includes Reach A (Sacramento River East Levee 16-20B) American River Reach I:1-4 , NEMDC west levee (Reach F and G), (Reach E PGCC west levee), West Drainage Canal, Riego Road Canal., (Reach D NCC south levee,) and various borrow sites within the Natomas Basin (primarily the Fisherman’s Lake Borrow Area. West Lakeside School site, and Triangle Properties Borrow Area).

Phase I ESAs have been completed for a small portion of the Phase 4b Project footprint, and are limited to six parcels located along the PGCC west levee. The Phase I ESAs disclose the potential presence of potentially hazardous materials, including possible asbestos, aboveground storage tanks (ASTs), oil and gas wells; PCBs in pole-mounted transformers, and pesticide-impacted soils from historic agricultural use (Kleinfelder 2009a). The remainder of the Phase 4b Project footprint has not been evaluated for the potential presence of hazardous materials.

It is possible that former land uses, particularly agricultural use, may have resulted in a release of hazardous materials onto the Phase 4b Project site. In addition, as previously described, soil testing conducted for the Phase 4a Project indicated the presence of elevated concentrations of some pesticides used historically in the Basin. Project demolition and relocation activities may create a potential for construction workers or other people to be exposed to hazardous materials associated with existing and former agricultural and rural residential structures. These materials may include asbestos in underground pipelines, asbestos and lead-based paint in building materials, and/or PCBs in pole-mounted transformers. Some contaminants could be found within the project footprint that exceeds pertinent ecological risk levels. Similarly, concentrations of particulates of concern in the air at the project fence line and adjacent to residential property during construction activities could occur.

Before the start of any construction activities in Reach E PGCC levee, the project proponent(s) shall ensure that all recommendations from the Phase I ESAs, listed below, are implemented by

the applicable property owner(s) in coordination with all Federal, state, and local regulatory agencies and in compliance with all Federal, state, and local laws and regulations :

APN 35-080-022: Conduct a Phase II ESA to evaluate stained soil found on the site and the contents of unlabeled containers located on the site if these areas will be used for the Phase 4b Project. In addition, the project proponent(s) shall work with PG&E to determine if onsite transformers contain PCBs.

APN 35-120-007: Conduct a Phase II ESA to evaluate stained soil and the presence of pesticides and herbicides on the site and the contents of unlabeled containers located on the site if these areas will be used for the Phase 4b Project. If piping is found during excavation, it shall be removed in accordance with applicable Federal, state, and local laws and regulations. In addition, the project proponent(s) shall work with PG&E to determine if onsite transformers contain PCBs.

APN 35-150-005: Conduct a Phase II ESA if stained soil is discovered during earthmoving activities to evaluate stained soil and the presence of pesticides and herbicides on the site. If piping is found during excavation, it shall be removed in accordance with applicable Federal, state, and local laws and regulations. In addition, the project proponent(s) shall work with PG&E to determine if on-site transformers contain PCBs.

APN 35-170-080: the project proponent(s) shall, as necessary, remove the existing septic system and discovered underground pipelines, in accordance with applicable Federal, state, and local laws and regulations.

APN 35-271-021: Conduct a Phase II ESA, if stained soil or strange odors are discovered during earthmoving activities, to evaluate stained soil and the presence of hazardous materials on the site. If piping is found during excavation, it shall be removed in accordance with applicable Federal, state, and local laws and regulations. In addition, the project proponent(s) shall work with PG&E to determine if on-site transformers contain PCBs.

APN 35-271-015: Conduct a Phase II ESA, if stained soil or strange odors are discovered during earthmoving activities, to evaluate stained soil and the presence of hazardous materials on the site. If piping is found during excavation, it shall be removed in accordance with applicable Federal, state, and local laws and regulations. In addition, the project proponent(s) shall work with PG&E to determine if on-site transformers contain PCBs.

Before the start of construction and earthmoving activities for the remaining Reaches in Phase 4b, on parcels where project-related earthmoving activities would occur (including borrow activities), the project proponent(s) shall conduct Phase I ESAs (if not previously conducted), Phase II ESAs (if necessary), and/or other appropriate testing, including, as necessary, analysis of soil and/or groundwater samples for the potential contamination sites that have been previously investigated.

All "Phase 2" type testing and characterization so as to define remediation and clean up response measures and all clean up and response measures are NOT a project costs and are NOT a sponsor contribution , sponsor credit or cost share item. Ideally, the sponsor is to provide the Project with

"clean lands" to commence and perform construction. If clean up and removal is accomplished in construction, separate bid items for these discrete elements of clean up and remediation work and payment by the NFS is recommended, as is done for NFS betterments or other separate "non-Project" cost items.

A more detailed explanation of the HTRW mitigation measures is found in chapter 4.16 Hazards and Hazardous Materials of the Common Features/Natomas PACR/Phase 4b Project DEIS/DEIR USACE and SAFCA report.

8. Land Owners for the Federally Supportable Plan

Privately Owned Lands In Reach A there are estimated 81 privately owned parcels. In Reach B -122 privately owned parcels, Reach C – 12 privately owned parcels, Reach D – 8 privately owned parcels, Reach E – 59 privately owned parcels, Reach F - 44 privately owned parcels, Reach G – 31 privately owned parcels, Reach H – 79 privately owned parcels, and 21 privately owned parcels in Reach I.

Federal Lands There are no federal lands being acquired for this project.

Publicly Owned Lands The below inventory of publically owned lands includes temporary work easements and flood protection levee easements, permanent road easements and utility easements.

Reach A	Publicly Owned Lands
I-80/Public ROW	CA State –CATRANS
Garden Hwy/Public ROW	CITY OF SACRAMENTO
274-0220-047	CITY OF SACRAMENTO
Wheelhouse Rd./ROW	CITY OF SACRAMENTO
274-0480-058	CITY OF SACRAMENTO
274-0480-071	CITY OF SACRAMENTO
274-0610-066	CITY OF SACRAMENTO
Avocet Ct/Public ROW	CITY OF SACRAMENTO
Marina Glen Way Public ROW	CITY OF SACRAMENTO
Shearwater/Public ROW	CITY OF SACRAMENTO
Swainson/ Public ROW	CITY OF SACRAMENTO
274-0560-025	CITY OF SACRAMENTO
274-0560-027	CITY OF SACRAMENTO
274-0560-042	CITY OF SACRAMENTO
274-0560-043	CITY OF SACRAMENTO
274-0430-108	CITY OF SACRAMENTO
Orchard Rd/Public ROW	CITY OF SACRAMENTO
Durazno	CITY OF SACRAMENTO
La Lima Way	CITY OF SACRAMENTO
274-0050-033	CITY OF SACRAMENTO
274-0320-023	CITY OF SACRAMENTO

Reach A	Publically Owned Lands
274-0320-070	CITY OF SACRAMENTO
Gateway Oaks	CITY OF SACRAMENTO
274-0260-030	COUNTY OF SACRAMENTO
274-0050-028	COUNTY OF SACRAMENTO
274-0050-029	COUNTY OF SACRAMENTO
274-0050-030	COUNTY OF SACRAMENTO
Garden Hwy	COUNTY OF SACRAMENTO
Gateway Oaks	COUNTY OF SACRAMENTO
Jibbom St.	COUNTY OF SACRAMENTO
Garden Hwy	COUNTY OF SACRAMENTO
Sacr River	COUNTY OF SACRAMENTO

Reach B	Publically Owned Land
201-0330-011	COUNTY OF SACRAMENTO
225-0101-003	COUNTY OF SACRAMENTO
225-0101-057	COUNTY OF SACRAMENTO
225-0101-058	COUNTY OF SACRAMENTO
225-0102-007	COUNTY OF SACRAMENTO
225-0102-008	COUNTY OF SACRAMENTO
225-0090-036	COUNTY OF SACRAMENTO
225-0101-004	COUNTY OF SACRAMENTO
225-0101-005	COUNTY OF SACRAMENTO
225-0101-006	COUNTY OF SACRAMENTO
225-0101-007	COUNTY OF SACRAMENTO
225-0102-043	COUNTY OF SACRAMENTO
Power Line Rd/Public ROW	COUNTY OF SACRAMENTO
SAC River/Public ROW	COUNTY OF SACRAMENTO
201-0260-034	COUNTY OF SACRAMENTO
201-0260-032	COUNTY OF SACRAMENTO
Eikhorn/Public ROW	COUNTY OF SACRAMENTO
Garden Hwy/Public ROW	COUNTY OF SACRAMENTO
201-0280-057	STATE OF CALIFORNIA
I-5/Public ROW	CA Dept of Transportation
N. Bayou/Public ROW	COUNTY OF SACRAMENTO
Reservoir Rd./ Public ROW	COUNTY OF SACRAMENTO

Reach C	Publically Owned Land
GARDEN HIGHWY/Public ROW	COUNTY OF SACRAMENTO
35-330-006	SUTTER COUNTY OF
35-330-014	SACRAMENTO COUNTY OF
35-330-017	SACRAMENTO COUNTY OF
RIEGO RD./ROW	SUTTER COUNTY OF
201-0010-014	COUNTY OF SACRAMENTO
35-330-004	SACRAMENTO COUNTY OF
35-330-015	SACRAMENTO COUNTY OF
35-330-019	SACRAMENTO COUNTY OF
201-0010-008	COUNTY OF SACRAMENTO

Reach C	Publically Owned Land
201-0010-010	COUNTY OF SACRAMENTO
201-0010-011	COUNTY OF SACRAMENTO
201-0010-023	COUNTY OF SACRAMENTO
201-0010-024	COUNTY OF SACRAMENTO
201-0010-025	COUNTY OF SACRAMENTO
201-0010-026	COUNTY OF SACRAMENTO
201-0010-041	COUNTY OF SACRAMENTO
201-0140-063	COUNTY OF SACRAMENTO
201-0140-064	COUNTY OF SACRAMENTO
201-0140-044	COUNTY OF SACRAMENTO
201-0140-059	COUNTY OF SACRAMENTO
201-0140-065	COUNTY OF SACRAMENTO
201-0140-066	COUNTY OF SACRAMENTO
201-0140-067	COUNTY OF SACRAMENTO
201-0140-059	COUNTY OF SACRAMENTO
201-0140-067	COUNTY OF SACRAMENTO
201-0150-055	COUNTY OF SACRAMENTO
Elverta Rd./ROW	COUNTY OF SACRAMENTO

Reach D	Publically Owned Land
NCC	Sutter County
EL CENTRO/Public ROW	Sutter County
Howsley Road/Public ROW	Sutter County

Reach E	Publically owned Land
HOWSLEY/Public ROW	Sutter County
PGCC-Channel	Sutter County
NATOMAS RD/Public ROW	Sutter County
SANKEY/Public ROW	Sutter County

Reach F	Publically Owned Land
Elverta Rd/Public ROW	City of Sacramento
Elkhorn blvd/Public ROW	City of Sacramento

Reach G	Publically Owned Land
Elkhorn Blvd/Public ROW	COUNTY OF SACRAMENTO
Levee Rd/Public ROW	COUNTY OF SACRAMENTO
Sorento Rd/ Public ROW	COUNTY OF SACRAMENTO

Reach H	Publically Owned Land
226-0044-003	Cal Trans
226-0044-006	CITY OF SACRAMENTO
226-0044-008	CITY OF SACRAMENTO
226-0044-010	CITY OF SACRAMENTO
226-0044-011	CITY OF SACRAMENTO
226-0044-012	CITY OF SACRAMENTO
226-0044-013	CITY OF SACRAMENTO
237-0012-012	CITY OF SACRAMENTO
237-0012-013	CITY OF SACRAMENTO
237-0021-002	CITY OF SACRAMENTO
237-0021-003	CITY OF SACRAMENTO
237-0031-001	CITY OF SACRAMENTO
237-0031-002	CITY OF SACRAMENTO
237-0031-038	CITY OF SACRAMENTO
237-0031-039	CITY OF SACRAMENTO
237-0031-042	CITY OF SACRAMENTO
237-0031-050	CITY OF SACRAMENTO
237-0031-051	CITY OF SACRAMENTO
237-0031-052	CITY OF SACRAMENTO
237-0600-007	CITY OF SACRAMENTO
237-0600-008	CITY OF SACRAMENTO
250-0121-009	CITY OF SACRAMENTO
250-0360-001	CITY OF SACRAMENTO
250-0360-011	CITY OF SACRAMENTO
250-0360-014	CITY OF SACRAMENTO
250-0360-015	CITY OF SACRAMENTO
250-0360-017	CITY OF SACRAMENTO
250-0360-018	CITY OF SACRAMENTO
250-0360-026	CITY OF SACRAMENTO
250-0360-027	CITY OF SACRAMENTO
250-0360-028	CITY OF SACRAMENTO
250-0360-029	CITY OF SACRAMENTO
Del Paso Rd	CITY OF SACRAMENTO
I-80	CITY OF SACRAMENTO
250-0160-039	COUNTY OF SACRAMENTO
250-0370-009	COUNTY OF SACRAMENTO
East Levee Rd 1	COUNTY OF SACRAMENTO
Patio Rd	COUNTY OF SACRAMENTO
250-0160-040	COUNTY OF SACRAMENTO
250-0160-041	COUNTY OF SACRAMENTO

9. Navigational Servitude

There are no lands within the project area that are subject to the applications of navigational servitude.

10. Land Owners

All lands acquired in the Natomas Basin have required some form of court action due to mainly valuation issues. The opposition is due to the fact that fair market value has dropped due to the recession. Concerns have been expressed over loss of recreational facilities including the Teal Golf Course that our proposed designs will downsize the golf course and remove one of the holes. Concerns by the public have been expressed over downsizing large agricultural operations by several hundred acres and temporary use of borrow areas which will prevent agricultural use and function during construction of the project. Concerns have also been expressed by the landowners living along Pleasant Grove Creek Canal that repairing the levees and preventing seepage will dry up their wells. Studies and analysis have been conducted by SAFCA and it is not believed that the wells would go dry due to the levee repair. There is a concern over the loss of water supply to specific parcels that are receiving water currently. Property owners are concerned that when water supply is removed and replaced it will be in a different location which is a big concern for agricultural operations. The current proposed utility corridor in Reach H would require several businesses and homes to be relocated and that is a public concern as well.

11. Non-Federal Sponsors

The State of California Central Valley Flood Protection Board and SAFCA have partnered with the Corps on several prior projects and have a full Real Estate staff capable of fulfilling their responsibilities as the non-Federal sponsors.

REAL ESTATE ACQUISITION SCHEDULE				
Project Name: Natomas GRR/PACR	COE Start	COE Finish	NFS Start	NFS Finish
Receipt of preliminary drawings from Engineering	07/2009	4/2010	-----	-----
Receipt of final drawings from Engineering	07/2010	12/2010		
Execution of the PPA	2/2011			
Formal transmittal of final drawings & instruction to DWR to acquire the LERRD's	2011	2014		
Conduct landowner meeting			2008	2014
Prepare/review mapping and legal descriptions			2008	2014
Obtain review title evidence	2011	2014	2008	2014
Obtain/review tract appraisal	2011	2014	2008	2014
Conduct negotiations	2011	2014	2008	2014
Perform Closing			2008	2014
Prepare/review condemnations			2008	2014
Perform condemnations			2008	2014
Obtain fee simple title			2008	2014
Complete PL 91-646 benefit assistance	2011	2014	2008	2014
Conduct/review facility and utility relocations	2010	2014	2008	2014
Certify all necessary LERRDS are available for construction	2011	2014	2011	2014
Prepare and submit credit requests			2011	2014
Review/approve or deny credit requests, Input F&A System	2011	2014		

NFS – Non Federal Sponsor, COE – Corps of Engineers

The non-Federal Sponsor has been acquiring lands in advance of the PPA for their Early Implementation Project in which they will be seeking credit.

ASSESSMENT OF NON-FEDERAL SPONSOR'S
REAL ESTATE ACQUISITION CAPABILITY

NATOMAS BASIN GENERAL RE-EVALUATION STUDY

SPONSOR: **State of California Central Valley Flood Protection Board**

I. Legal Authority:

- a. Does the sponsor have legal authority to acquire and hold title to real property for project purposes? **Yes**
- b. Does the sponsor have the power of eminent domain for this project? **Yes**
- c. Does the sponsor have "quick-take" authority for this project? **Yes**
- d. Are any of the lands/interests in land required for the project located outside the sponsor's political boundary? **No**
- e. Are any of the lands/interests in land required for the project owned by an entity whose property the sponsor cannot condemn? **No**

II. Human Resource Requirements:

- a. Will the sponsor's in-house staff require training to become familiar with the real estate requirements of Federal projects including P.L. 91-646, as amended? **No**
- b. If the answer to II.a. is "yes," has a reasonable plan been developed to provide such training? **Yes**
- c. Does the sponsor's in-house staff have sufficient real estate acquisition experience to meet its responsibilities for the project? **Yes**
- d. Is the sponsor's project in-house staffing level sufficient considering its other workload, if any, and the project schedule? **Yes**
- e. Can the sponsor obtain contractor support, if required, in a timely fashion? **Yes**

Will the sponsor likely request USACE assistance in acquiring real estate? **No**

II. Other Project Variables:

- a. Will the sponsor's staff be located within reasonable proximity to the project site?
Yes

a. Will the sponsor's staff be located within reasonable proximity to the project site?
Yes

b. Has the sponsor approved the project real estate schedule/milestones? **Yes**

IV. Overall Assessment:

a. Has the sponsor performed satisfactorily on other USACE projects? **Yes**

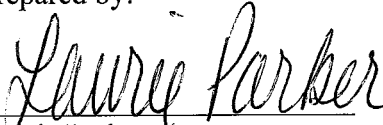
b. With regard to this project, the sponsor is anticipated to be: **State of California
Central Valley Flood Protection Board**

V. Coordination:

a. Has this assessment been coordinated with the sponsor? **Yes**

b. Does the sponsor concur with this assessment? **Yes**

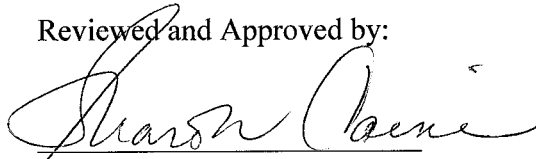
Prepared by:



Laurie Parker
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Acquisition Branch

Date Aug 10, 2010

Reviewed and Approved by:



Sharon Caine
Chief, Real Estate Division

Date 10 August 2010