B1 Alternatives Formulation and Screening Details
APPENDIX B1
ALTERNATIVES FORMULATION AND SCREENING DETAILS

This appendix contains more detailed information on the alternatives evaluation process that was summarized in Chapter 2, “Alternatives,” of this EIS/EIR.

1.1 INTRODUCTION

This appendix describes the alternatives related to the Natomas Levee Improvement Program (NLIP) Landside Improvements Project that were considered to provide additional flood risk reduction to the Natomas Basin consistent with the project objectives described in Chapter 1, “Introduction and Statement of Purpose and Need” of this EIS/EIR. The Phase 4b Project builds upon a program of improvements analyzed in previous environmental documents for achieving flood risk damage reduction for the 53,000-acre Natomas Basin, which is encircled by 42 miles of levees. Although they provide contrasting advantages and disadvantages, each of the action alternatives is considered feasible based on relevant economic, environmental, social, technological, and legal factors. Three alternatives are evaluated at an equal level of detail in this EIS/EIR:

- No-Action Alternative,
- Adjacent Levee Alternative (Proposed Action), and
- Fix-in-Place Alternative.

These alternatives represent a reasonable range of alternatives, consistent with the requirements of NEPA and CEQA and when considered in the context of prior alternatives analyses described in previous environmental documents and which are incorporated by reference in this EIS/EIR. The action alternatives under consideration have been formulated to feasibly accomplish the primary objectives of the project as discussed in Chapter 1, “Introduction and Statement of Purpose and Need,” of this EIS/EIR, which includes reducing the risk of flooding to the Natomas Basin. The action alternatives include components that could avoid or substantially lessen one or more of the project’s significant effects.

The NLIP design criteria in terms of maximum water surface elevation and maximum flow at key locations along the Natomas Basin perimeter levee system are identified in Table B1-1.

<table>
<thead>
<tr>
<th>Location</th>
<th>100-year (0.01 AEP) FEMA Criteria Flood 1</th>
<th>200-year (0.005 AEP) NLIP Design Criteria Flood 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maximum Water Surface Elevation (feet) NAVD88</td>
<td>Maximum Flow (cfs)</td>
</tr>
<tr>
<td>Sacramento River at Verona</td>
<td>43.40</td>
<td>117,000</td>
</tr>
<tr>
<td>Latitude of Verona</td>
<td>NA</td>
<td>528,000</td>
</tr>
<tr>
<td>NCC at PGCC</td>
<td>43.73</td>
<td>NA</td>
</tr>
<tr>
<td>NEMDC near Main Avenue</td>
<td>38.98</td>
<td>14,500</td>
</tr>
</tbody>
</table>

Notes: AEP = Annual Exceedance Probability; cfs = cubic feet per second; FEMA = Federal Emergency Management Agency; NAVD = North American Vertical Datum of 1988; NCC = Natomas Cross Canal; NEMDC = Natomas East Main Drainage Canal; NLIP = Natomas Levee Improvement Program; PGCC = Pleasant Grove Creek Canal

1 Levees overtop without failing; existing levees; existing Folsom Dam.
2 Levees overtop without failing; 200-year (0.005 AEP) urban levees; Folsom Joint Federal Project.
3 Maximum water surface elevation controlled by high tailwater in Sacramento River.

Source: SAFCA 2008
1.1.1 NEPA/CEQA REQUIREMENTS FOR EVALUATION OF ALTERNATIVES

1.1.1.1 NEPA REQUIREMENTS

The NEPA Council on Environmental Quality Regulations (40 Code of Federal Regulations Section 15012.14) for EIS requirements are briefly described in Chapter 1, “Introduction and Statement of Purpose and Need,” of this EIS/EIR.

1.1.1.2 CEQA REQUIREMENTS

The CEQA requirements for an EIR (as noted in the California Code of Regulations [CCR] Section 15126.6[a] of the State CEQA Guidelines) are briefly described in Chapter 1, “Introduction and Statement of Purpose and Need,” of this EIS/EIR.

2.1 ALTERNATIVES FORMULATION

USACE and SAFCA formulated the project and a reasonable range of alternatives that would achieve the specific project objectives through the following steps:

► identification of the deficiencies in the Natomas levee system that must be addressed to provide at least 100-year flood risk reduction (0.01 annual exceedance probability [AEP]) as quickly as possible;

► identification of the deficiencies in the Natomas levee system that must be addressed to provide 200-year flood risk reduction (0.005 AEP);

► identification of feasible remedial measures to address the deficiencies;

► determination of the likely environmental impacts of the remedial measures;

► development of a reasonable range of flood damage reduction alternatives for implementing the remedial measures; and

► identification of measures to ensure that each alternative would improve aviation safety, minimize impacts on significant cultural resource sites, and enhance habitat values.

Alternatives screening for the overall NLIP has been undertaken in a systematic manner through several environmental documents as described later in this appendix. A description of the flood risk reduction measures that SAFCA considered for developing alternatives is provided below.

2.1.1 TYPES OF FLOOD RISK REDUCTION MEASURES CONSIDERED

Designing effective flood risk reduction measures is an iterative process that involves identifying, evaluating, and comparing measures and preliminary alternatives to develop a reasonable range of final alternative plans for consideration by decision makers and the general public. For the NLIP Landside Improvements Project, engineering measures were developed and considered that alone or in various combinations would address the project objectives.

The engineering measures that were considered for the Phase 4b Project must meet several criteria. The design selected must adequately improve performance of the levee so that Federal Emergency Management Agency (FEMA) certification is possible. Generally, the requirements are to provide a sufficient height of levee raise so that the levee height is adequate, levee stability meets levee design criteria, and/or seepage through or beneath the levee is reduced to levels acceptable to USACE. Measures considered are described below.
2.1.1.1 LEVEE IMPROVEMENTS

USACE has divided the flood damage reduction improvements within the Natomas Basin 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. 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

Sacramento River East Levee (Reach A:16–20)

The existing levee in Sacramento River east levee Reach A:16–20 currently meets height requirements, and, therefore, no levee raise is necessary in this reach. However, the levee needs to be upgraded to meet USACE requirements regarding seepage through the levee and its foundation, slope stability, and free access for inspection, maintenance, and emergency flood fighting. Two engineering options were analyzed for the levee upgrade: the Fix-in-Place Method and the Adjacent Levee Method. Because these options have potentially different effects on the environment, they are analyzed as the two action alternatives in this EIS/EIR:

- **Fix-in-Place Method.** Most levee reaches in the Natomas Basin have a 2-to-1 horizontal-to-vertical (2H:1V) landside slope, which may not meet criteria for slope stability or access on the levee for maintenance and operation. This condition is found on Sacramento River east levee Reach A:16–20, which is a component of the Phase 4b Project. Using the Fix-in-Place method, the remedy would be to flatten the slope to a minimum 3-to-1 horizontal-to-vertical (3H:1V) landside slope by adding fill on top of the existing landside levee slope, thereby widening the base of the levee prism but not expanding the width of the levee crown (Plate 2-1, upper illustration). The Fix-in-Place method is compatible with the seepage remediation methods described under Section 2.1.3.2. By leaving the levee prism in the current alignment, this method requires vegetation clearance on the waterside of the levee to comply with USACE levee guidance that requires the removal of vegetation greater than 2 inches in diameter on the levee slopes and within 15 feet of the waterside and landside levee toes (USACE 2000). However, in reaches where the existing levee is already wide enough that the levee prism is considered clear of vegetation, such as in American River north levee Reach I:1–4, the Fix-in-Place method may be used to reduce the theoretical levee footprint to avoid encroachments on the landside.

While the levee footprint (its base) size may not be substantially altered, mitigation for loss of habitat would be required by various regulatory agencies. Where the widening results in filling waters of the United States, including wetlands, mitigation would be required, generally at a 1:1 replacement ratio. Where the widening occurs on the landside or waterside and trees that provide habitat or are otherwise protected exist, the mitigation requirement is to plant replacement woodlands and/or shaded riverine aquatic (SRA) habitat. In some instances, irrigation and drainage ditches and canals exist at the toe of the levee, and would require relocation to ensure USACE’s seepage and stability criteria are met. Widening of the existing levee may require the purchase of additional easements and/or rights-of-way, including areas for utilities and planting/replacement woodlands and other habitats. Proper construction of the widened levee may require excavation of a keyway trench in the foundation area at the toe of the levee.

- **Adjacent Levee Method.** This method combines slope flattening to 3H:1V with a widening of the existing levee crown by 15 to 20 feet on the landside. The concept of an adjacent levee is that the levee prism would
be shifted landward (as shown in Plate 2-1, lower illustration), such that much of the vegetation on the waterside of the existing levee would be less likely to need to be cleared for levee operation and maintenance (see Section 2.1.3.4, “Management of Levee Vegetation and Structural Encroachments,” below). This design potentially reduces the need to remove vegetation on the waterside to meet USACE vegetation guidance criteria. The irrigation and drainage ditches and canals that exist at the toe of the levee may require relocation farther to the landside. Construction of an adjacent levee may also require the purchase of additional easements and/or rights-of-way, including areas for utilities and planting of replacement woodlands and other habitats. Proper construction of the adjacent levee foundation often requires excavation of an inspection trench in the foundation soils. Because the Natomas Basin’s natural levees have been augmented by human efforts, it is possible to find buried prehistoric features at considerable depth in the landside footprint.

Raised adjacent levees have been constructed or are in the approval process for Sacramento River east levee Reach C:1 to part way through Reach B:13 (Phase 2, 3, and 4a Projects). From the remainder of Sacramento River east levee Reach B:12 to Reach A:20 (Phase 4a and 4b Projects), the existing levee has sufficient height, and the proposed adjacent levee would be at the same height as the existing levee. The Phase 2, 3, and 4a Projects are summarized in Section 4.18, “Summary of Environmental Impacts and Mitigation Measures from Previous Natomas Levee Improvement Program Phase 1–4a Landside Improvements Projects,” of this EIS/EIR.

Pleasant Grove Creek Canal and Natomas East Main Drainage Canal West Levee (North of Natomas East Main Drainage Canal Stormwater Pumping Station)

Two engineering options are also available for reaches where levee raising is required to meet the level of risk reduction required by the State for urbanized areas, such as the Natomas Basin. In the Phase 4b Project, these raises are proposed for the west levees of the Pleasant Grove Creek Canal (PGCC) (Reach E) and the Natomas East Main Drainage Canal (NEMDC) North (Reaches F–G). These options have similar environmental effects, and they are analyzed as part of both the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative:

► **Raise-in-Place Method.** Raising the levee in place would require the existing levee footprint to be widened at its base on one or both sides. This method may require replacement of public roadways that may be located on the crown of the levee. Although the levee footprint (its base) size may not be substantially altered, mitigation for loss of habitat would be required by various regulatory agencies. In some instances, irrigation and drainage ditches and canals exist at the toe of the levee, and would require relocation. Widening of the existing levee may require the purchase of additional easements and/or rights-of-way, including areas for utilities and planting/replacement woodlands and other habitats. Proper construction of the widened levee may require excavation of a keyway trench in the foundation area at the toe of the levee.

► **Adjacent Levee Raise Method.** In lieu of modifying the existing levee, a levee raise may also be achieved by constructing a new landside embankment adjoining the existing levee. This approach, which is similar to the adjacent levee method described above, allows sufficient levee height to be achieved without degrading the existing levee and rebuilding public roadways that may be located on top of the existing levee. However, it requires excavation of additional suitable material to build the adjacent structure. The irrigation and drainage ditches and canals that exist at the toe of the levee may require relocation farther to the landside. Construction of an adjacent levee may also require the purchase of additional easements and/or rights-of-way, including areas for utilities and planting of replacement woodlands and other habitats. Because the west levees of the PGCC and NEMDC, north of the NEMDC Stormwater Pumping Station, already substantially comply with levee vegetation guidance criteria, the adjacent levee is not needed as an option to avoid vegetation removal on the waterside (see 2.1.3.4, “Management of Levee Vegetation and Structural Encroachments,” in Chapter 2, “Alternatives,” in this EIS/EIR).
2.1.1.2 SEEPAGE REMEDIATION

Pre-NLIP existing seepage remediation in the Natomas Basin has primarily addressed seepage through the levee embankment (through-seepage). Through-seepage occurs when the waterside slope is loaded by high river stage for a sufficient time to develop a steady state condition in the levee embankment in which water is seeping on the levee landside slope, removing material from the levee embankment by internal erosion and leading to slope instability. Through-seepage is the movement of water through the levee itself, when high-flow conditions, and/or wind and wave action exist on the waterside of the levee. Through-seepage may be addressed by construction of cutoff walls through the levee prism or drained stability berms on the landside slope. The cutoff walls provide a low-permeability barrier to water flow through the levee. Drained stability berms prevent levee material from being removed, drains the seepage water away from the levee, and also increases the stability of the levee slope. Underseepage or seepage through the levee foundation occurs during prolonged high river stages and results in high gradients at the levee landside toe due to build-up of the water pore pressure in the levee foundation to a high limit which may lead to levee collapse due to piping (removal of material from the levee foundation through sand boils [Plate 1-4]) or slope instability due to high water pore pressures in the foundation soils. Excessive underseepage gradients can be addressed by cutoff walls, seepage berms, and relief wells, or using a combination of these measures, which are discussed below.

Cutoff Walls

Cutoff walls use specialized earthen materials (often bentonite clay) constructed in the levee embankment, which extend into the levee foundation to a sufficient depth to reduce the seepage gradient at the landside toe of the levee below an allowable limit. Specialized equipment allows the cutoff walls to reach deep into the subsurface, to depths of 120 feet (Plate 2-2). Often the levee crown is “degraded,” meaning that the levee embankment is excavated to create a wide working platform for the construction equipment to install the cutoff wall. A fully penetrating cutoff wall installed deep enough to reach a lower impervious layer in the foundation may reduce the seepage gradient to a very low limit. A partially penetrating wall, which does not reach the lower impervious strata in the foundation, may reduce the seepage gradient by increasing the seepage path, but sometimes the reduction is not sufficient to drop the gradient below the maximum allowable limit and an additional seepage berm or relief well is required. Fully penetrating cutoff walls are generally preferred, if it is constructible, because they are the least costly (particularly if a soil-bentonite [SB] mix is used and the depth of wall is less than 85 feet); are the most reliable under uncertain hydraulic and geotechnical conditions (e.g., water surface elevations above design and variations in foundation soil conditions); and, when combined with an adjacent levee, minimize construction disturbance outside the levee footprint.

If a fully penetrating wall is not feasible due to the foundation conditions (the lower impervious layer is non-existent or at a depth not possible to be reached with the existing equipment), then partially penetrating walls eventually supplemented with additional methods of seepage mitigation (such as seepage berms or relief well) may be used. Eventually, partially penetrating walls may be completely replaced by seepage berms or relief wells.

Seepage Berms

Seepage berms are wide, shallow features with relatively flat surface slopes graded to drain landward. They are typically constructed using material excavated from borrow sites. The berms may be constructed of any impervious material from the borrow sites or, to increase the berms efficiency and decrease the berm width, the random berm material may be placed on a free drainage layer 2–2.5 feet thick placed on a 6 inches of filter material to prevent removal of the fine foundation material by piping. Seepage berms may extend between a minimum of 80 feet to up to 500 feet landside of the toe of the levee or the adjacent levee (Plate 2-3). In areas of limited space, seepage berms are supplemented with relief wells at the landside toe of the seepage berms.

Constructing seepage berms rather than cutoff walls avoids the deep ground-disturbing work that may adversely affect cultural resources that may be present, while still achieving flood damage reduction objectives. It is
possible to construct a seepage berm using specialized equipment that minimizes vibration and pressure on the immediate subsurface environment. This construction method is often used where sensitive historical features may be expected near the ground surface, and relief wells are omitted. A seepage berm without relief wells extends the levee footprint farther landside and depending upon adjacent land use, may require relocation of permanent structures or take affected agricultural land out of production, as well as other environmental impacts.

**Relief Wells**

Relief wells are controlled artificial springs that relieve the confined water pressures to safe values. This reduces the potential for the removal of soil via piping or internal erosion caused by the uplift pressures beneath elements of the levee or beneath landward soil next to the levee. Relief wells are usually spaced about 50–150 feet apart to decrease the gradients at the levee toe below the maximum allowable gradient between two adjacent wells and allow water to flow without pumping during times of high water table. Piezometers are used as a tool to verify relief well performance by measuring the hydrostatic pressure between the wells. Because relief wells may only flow on an intermittent basis, sometimes several years apart, it is necessary to conduct regular maintenance of relief wells to ensure that they perform properly (Plate 2-4). Relief wells also require collection of water flowing through the wells during high river stages, which is then discharged back into the river through a pumping station. This may require excavation of a ditch along the landside toe of the levee or seepage berm or collecting the water through an underground piping system.

Pre-NLIP existing seepage remediation in the Natomas Basin has primarily addressed through-seepage. Through-seepage is the movement of water through the levee itself, when high-flow conditions, and/or wind and wave action exist on the waterside of the levee. Through-seepage may be addressed by construction of cutoff walls through the levee prism or a drained stability berm on the landside slope. The cutoff walls provide a low-permeability barrier to water flow through the levee. Underseepage occurs below the levee prism, and is caused by the buildup of water pressure in the subsurface foundation soils, when high river stages are present on the waterside of the levees. This pressure can be great enough to force water through the earthen foundation layers under the levee. The water finds a pathway of less resistance and exits at the landside ground surface. Excessive underseepage gradients can be corrected through the use of cutoff walls, seepage berms, and relief wells, which are discussed below. Current construction methods can correct underseepage and be compatible with the underseepage improvement methods employed for Phase 2 and 3 Project construction.

**2.1.1.3 BANK EROSION CONTROL**

Bank erosion poses either a high or moderate risk to the stability of the Sacramento River east levee at several locations upstream and downstream of Interstate 5 (I-5) where river flows and waves generated by boat wakes have weakened and undercut portions of the bank supporting the levee. The adjacent levee design would address the potential instability created by these bank erosion processes by enlarging the levee section and moving the levee foundation landward away from the eroding bank. These bank erosion processes could also be addressed by installing rock revetments or other engineered structures along the eroding banks so as to reduce further erosion and protect the foundation of the levee (as proposed for the NEMDC South; see Section 2.3.3.2, “Sacramento River East Levee,” under “Pleasant Grove Creek Canal and Natomas East Main Drainage Canal – South Waterside Improvements,” in Chapter 2, “Alternatives,” of this EIS/EIR).

**2.1.1.4 MANAGEMENT OF LEVEE VEGETATION AND STRUCTURAL ENCROACHMENTS**

USACE levee guidance requires the removal of vegetation greater than 2 inches in diameter on the levee slopes and within 15 feet of the waterside and landside levee toes (USACE 2000). USACE levee guidance also requires an assessment of encroachments on the levee slopes, including utilities, fences, structures, retaining walls, driveways, and other features that penetrate the levee prism (see Section 2.3.4.11, “Structural Encroachments,” in Chapter 2, “Alternatives,” of this EIS/EIR). Substantial encroachments are present on the Sacramento River east levee with a smaller number of encroachments on the other Natomas levees.
Vegetation Variance Request

SAFCA and the Central Valley Flood Protection Board (CVFPB), the non-Federal sponsors of the NLIP, are requesting a variance from the standard vegetation guidelines set forth in USACE’s Engineering Technical Letter 1110-2-571 (USACE 2009a). Under this variance, vegetation would be allowed to remain on all or a portion of the waterside slope and berm of several of the levee segments comprising the perimeter levee system protecting the Natomas Basin. The following sections describe the levee segments that would be covered by this variance. Sections 2.3, “Proposed Action,” and 2.4, “Fix-in-Place Alternative,” in Chapter 2, “Alternatives,” of this EIS/EIR describe the vegetation removal assumptions used by this EIS/EIR to provide environmental analysis to support consideration of this variance request.

Adjacent Levees

One of the objectives of constructing an adjacent levee along the Sacramento River east levee is to facilitate acceptable management of existing vegetation and structural encroachments along the waterside of this levee. By making the levee wider and effectively moving the “designated levee” section landward (Plate 2-1, lower illustration), the separation between waterside vegetation and the levee prism would be increased, thus reducing the conflicts between applicable USACE levee operation and maintenance requirements, and waterside vegetation and structural encroachments. Because this design would allow vegetation to remain on the waterside under the proposed variance, valuable riparian habitat would be preserved, benefiting several special-status species. This riparian habitat, which is shown on Plates 3-4c and 3-4d, also provides a migration corridor habitat for a variety of wildlife species that inhabit the Natomas Basin.

Section 2.3.4.10, “Vegetation Management,” in Chapter 2, “Alternatives,” of this EIS/EIR provides additional information on the relationship of the Adjacent Levee Alternative (Proposed Action) with management of levee vegetation. Construction of the adjacent levee would also involve removal of vegetation within 15 feet of the landside toe of the widened levee. The adjacent levee has been constructed and/or approved for Sacramento River east levee Reaches C:1–4B and B:5A–15 as part of the Phase 2 and 3 Projects.

Other segments of the Natomas Basin perimeter levee system may already be in compliance with levee vegetation guidance criteria or may qualify for a variance within the next several years because: (1) vegetation did not exist or has already been cleared within the 15-foot clearance zone; (2) these segments were previously overbuilt to the point where their levee prism could be considered clear of waterside or landside vegetation and would potentially qualify for a variance; or (3) planned improvements would ensure compliance through waterside slope flattening, shifting levee crowns in a landward direction, and removing any vegetation that would penetrate the levee prism. Levee segments falling into this category include most of the Natomas Cross Canal (NCC) south levee (Reach D:1–7), the PGCC west levee (Reach E), and the west levee of the NEMDC north of the NEMDC Stormwater Pumping Station (Reaches F–G).

Overbuilt Levees

An overbuilt levee is defined as a levee with land and waterside slopes of at least 3H:1V and a virtual levee crown (measured at the design water surface elevation) that is at least 35-feet wide (designated levee crown). Similar to the adjacent levee, the overbuilt levee allows for considering that the levee prism meets the criteria of having a 15-foot vegetation free zone from the projected waterside toe, such that much of the vegetation on the waterside of the existing levee is less likely to need to be cleared for levee operation and maintenance. Like the adjacent levee, to be in compliance, trees would not be allowed to remain within the area extending 15 feet landward from the toe of the overbuilt levee out to 15 feet from the toe of the projected waterside slope.

The American River north levee is an extension of the Sacramento River east levee that extends from I-5 to Northgate Boulevard, where it becomes the west levee of NEMDC South. This segment of the Natomas perimeter levee system is considered an overbuilt levee and may qualify for a variance from USACE levee vegetation guidance because it was widened beyond standard levee dimensions to support the Arden-Garden Connector.
transportation project. Also considered overbuilt and potentially eligible for a variance is the segment of the west levee of NEMDC South that extends from Northgate Boulevard to the Arden-Garden Connector. Although these levee segments are overbuilt to the extent that they may not need vegetation clearance on the waterside if a variance is granted, on the landside an extensive number of trees would be removed to accommodate the expanded levee footprint, including removal of vegetation within 15 feet of the new landside levee toe.

Non-Conforming Levees

The lower portion of the NEMDC west levee from the NEMDC Stormwater Pumping Station to Northgate Boulevard presents more challenging vegetation management options. This portion of the levee system was raised and strengthened by SAFCA in 1995–1996 as part of the American River Watershed Project authorized by Congress in the 1993 Defense Appropriations Act. The authorized project called for raising the levee to protect the Natomas Basin from the combined effects of high flows in the American River channel and high flows in Dry Creek and Arcade Creek, the tributary streams that drain foothill watersheds east of Natomas. SAFCA widened the existing levee section to the landside and raised the levee by two to three feet. Urban development along the landside of the levee constrained the space available for the project and the improved levee was designed and constructed with a 2:1 landside slope.

Project construction required landside tree removal to accommodate the widened footprint of the improved levee. However, with the concurrence of USACE and the State, to minimize the project’s environmental effects, trees were allowed to remain in the maintenance area along the landside toe of the improved levee and along the waterside slope of the levee and waterside berm. It was felt that these trees would not impair the performance of the improved levee because there was adequate visibility of and access to both sides of the levee to conduct routine maintenance and flood fighting activities. Nor was there any significant concern regarding the impact of the remaining trees on the safety or structural integrity of the improved levee. Although nearly overtopped and subjected to prolonged high flow during the flood of 1986, the old levee had performed well with few signs of stress. With its increased height, the new levee performed even better during the flood of 1997. However, this levee is no longer considered in compliance with USACE levee vegetation guidance, and avoidance of landside tree clearing in this maintenance area would require a variance from USACE.

The Phase 3 Project analyzed the installation of cutoff walls through portions of the NEMDC west levee where it crosses the old streambeds of Dry Creek, Arcade Creek and Magpie Creek. The Phase 4b Project proposes construction of cutoff walls along the entire length of the NEMDC and PGCC west levee. Installation of these cutoff walls would address the risk of destabilizing underseepage in these locations which occupy approximately one-half the length of the levee between the NEMDC Stormwater Pumping Station and Northgate Boulevard. This risk was not considered to be substantial when the improvements described above were designed and constructed. Insofar as vegetation on or near the improved levee has also now been identified as a risk factor, removal would be required for all non-native trees from within the vegetation-free zone; all native trees that have a diameter at breast height (dbh) of four inches or less; and all larger native trees that are located in the upper two-thirds of the waterside slope, the crown, or within 15 feet of the landside toe (or within the right-of-way, if less than 15 feet).

Life Cycle Management Program

The following five risk factors are associated with levee vegetation:

- access (trees could obstruct access for routine maintenance and flood fighting);
- visibility (trees could impair routine levee inspection and high water condition monitoring);
- slope stability (trees could contribute to slope instability);
- seepage (tree roots could create seepage pathways); and
- windthrow (overturned trees could create destabilizing slip planes).
For non-conforming levees that may be granted a variance, implementation of a Life Cycle Management (LCM) program would use GIS- and field-based evaluation tools to ensure that new trees would not become established in the vegetation-free zone, and trees allowed to remain in this zone would be carefully monitored, trimmed and, if necessary, removed if they become an unacceptable risk to the performance of the levee due to age or infirmity.

3.1 ALTERNATIVES CONSIDERED IN PREVIOUS ENVIRONMENTAL ANALYSES AND INCORPORATED BY REFERENCE

This section describes the alternatives analysis performed in previous documents from which this EIS/EIR is tiered. The alternatives analyses from the documents listed below are incorporated by reference, herein. This material is provided here to summarize the scope of analysis that has already been performed and thus to show which alternatives have been eliminated from further analysis or rejected by previous agency decisions.

The alternatives analyses incorporated herein by reference are from the following environmental documents:

► Environmental Impact Report on Local Funding Mechanisms for Comprehensive Flood Control Improvements for the Sacramento Area, State Clearinghouse No. 2006072098 (Local Funding EIR) (SAFCA 2007a);

► Environmental Impact Report on the Natomas Levee Improvement Program, Landside Improvements Project, State Clearinghouse No. 2007062016 (Phase 2 EIR) (SAFCA 2007b);

► Environmental Impact Statement for 408 Permission and 404 Permit to Sacramento Area Flood Control Agency for the Natomas Levee Improvement Project (Phase 2 EIS) (USACE 2008);

► Supplement to the Environmental Impact Report on the Natomas Levee Improvement Program, Landside Improvements Project—Phase 2 Project, State Clearinghouse No. 2007062016 (Phase 2 SEIR) (SAFCA 2009a);

► Addendum to the Environmental Impact Report on the Natomas Levee Improvement Program, Landside Improvements Project—Phase 2 Project, State Clearinghouse No. 2007062016 (Phase 2 EIR 1st Addendum) (SAFCA 2009c);

► 2nd Addendum to the Environmental Impact Report on the Natomas Levee Improvement Program, Landside Improvements Project—Phase 2 Project, State Clearinghouse No. 2007062016 (Phase 2 EIR 2nd Addendum) (SAFCA 2009d);

► Environmental Impact Statement and Environmental Impact Report on the Natomas Levee Improvement Program, Phase 3 Landside Improvements Project, State Clearinghouse No. 2008072060 (Phase 3 EIS and EIR) (USACE 2009b and SAFCA 2009b);

► Addendum to the Environmental Impact Report on the Natomas Levee Improvement Program, Phase 3 Landside Improvements Project, State Clearinghouse No. 2008072060 (Phase 3 EIR Addendum) (SAFCA 2009e); and


Relevant portions of these documents, where specifically noted, are summarized throughout this EIS/EIR. Printed copies of these documents are available to the public at USACE’s office at 1325 J Street, Sacramento, California and at SAFCA’s office at 1007 7th Street, 7th Floor, Sacramento, California, during normal business hours, and
3.1.1 ALTERNATIVES CONSIDERED IN THE LOCAL FUNDING EIR

In the Local Funding EIR (SAFCA 2007a), SAFCA analyzed the environmental effects associated with the creation of a new assessment district to fund necessary flood damage reduction measures in the Sacramento region. This funding supports projects including the NLIP, and thus analyzes, at a programmatic level, the environmental effects for a program of flood damage reduction projects in the region, including the NLIP. The project objective used to screen alternatives for the project was the identification and creation of a source of funding that would allow SAFCA to provide 100-year flood risk reduction (0.01 AEP) for developed areas within SAFCA’s jurisdiction, and to lay the groundwork for creation of 200-year flood risk reduction (0.005 AEP) over time (SAFCA 2007a: 7-2).

► Proposed Project. The proposed project alternative consisted of creation of an assessment district and a development fee program to fund improvements along the portions of Sacramento and American Rivers within SAFCA’s jurisdiction. This alternative was determined to provide sufficient funds for project objectives (SAFCA 2007a: 3-1).

► No Project (Alternative 1). In this alternative, SAFCA considered the impact of neither creating nor seeking new funding mechanisms for flood damage reduction. This would limit flood damage reduction projects to current efforts to provide 100-year flood risk reduction along the American River and the South Sacramento Streams Group and thus would not meet project objectives (SAFCA 2007a: 7-2).

► No New Public Funding; Private Levees in Natomas (Alternative 2). This alternative assumed the same conditions as the No-Project Alternative but looked at the probable effect of private levee construction for residential development projects (SAFCA 2007a: 7-2). This alternative was eliminated because it would increase projected flood damages without a commensurate reduction in flood risk (SAFCA 2007a: 7-7).

► Natomas 100-Year Protection (Alternative 3). SAFCA analyzed the impacts associated with creation of one new assessment district which would provide only 100-year flood risk reduction to the Natomas Basin, and would use funding raised through existing Capital Assessment District Number 3 to provide the local share of the cost of completing improvements to provide 100-year flood risk reduction to the lower American River and South Sacramento Streams Group areas (SAFCA 2007a: 7-2). This alternative was eliminated because it would fail to provide groundwork for the creation of 200-year protection over time (SAFCA 2007a: 7-8).

► Reduced Natomas Levee Perimeter (Alternative 4). Under this alternative, SAFCA considered construction of a new levee across the Natomas Basin in lieu of improving the south levee of the NCC and the upper reach of the east levee of the Sacramento River. This alternative would have reduced the project footprint and would have excluded the northern undeveloped portion of the Basin both from flood risk reduction and the assessment districts to be created (SAFCA 2007a: 7-2). This alternative was eliminated because it would have a much larger footprint than proposed improvements in the Natomas Basin (SAFCA 2007a: 7-11), and it would be subject to potential veto by Reclamation District (RD) 1000 (SAFCA 2007a: 7-12).

The Local Funding EIR analyzed the ability of these alternatives to meet the project objectives and determined that only the proposed project would meet project goals (SAFCA 2007a: 7-14). In addition, the Local Funding EIR analyzed the environmental effects of the various alternatives and concluded that Alternative 3 was the environmentally superior alternative. Alternative 3 would have eliminated or reduced a range of significant effects associated with creation of a new assessment district; however, it was not selected because it would not meet the important project objective of laying the groundwork for 200-year flood risk reduction (0.005 AEP). The proposed project alternative was selected because it would meet all of the project objectives.

are also available on USACE’s Web site, at http://www.spk.usace.army.mil and at SAFCA’s Web site, at http://www.safca.org/Programs_Natomas.html.
3.1.2 Alternatives Considered in the Phase 2 EIR and Phase 2 EIS

In the Phase 2 EIR (SAFCA 2007b) and Phase 2 EIS (USACE 2008), SAFCA and USACE, respectively, analyzed construction of flood damage reduction measures required to protect the Natomas Basin at a program level (Phase 3 and 4 Projects) and a project level (Phase 2 Project). The project objectives used to screen alternatives consisted of developing 100-year flood risk reduction (0.01 AEP) in the Natomas Basin as quickly as possible, developing 200-year flood risk reduction (0.005 AEP) over time, and ensuring that new development in Sacramento’s floodplains would not substantially increase the risk of flooding. Project-specific objectives included reducing hazards to aviation safety in the vicinity of the Sacramento International Airport, and enhancing habitat values in the Natomas Basin for giant garter snake, Swainson’s hawk, and other special-status species. (Note: below, page numbers are provided for the Phase 2 EIR only.)

► Construct an Adjacent Setback Levee along the Sacramento River East Levee. This alternative was analyzed as the proposed project, carried forward in the EIR as Alternative 1. This project consisted of constructing an adjacent setback levee on the Sacramento River east levee. Other improvements included levee raising and seepage remediation on the Sacramento River east levee, the NCC south levee, and the Pleasant Grove Creek Canal (PGCC) west levee. Other project components included improvements to major irrigation and drainage infrastructure, habitat creation and management, and right-of-way acquisition (SAFCA 2007b: 6-6, 6-7). This alternative was determined to meet project objectives (SAFCA 2007b: 6-7).

► Raise Levee in Place with a 1,000-Foot Levee Setback in the Upper 1.4 Miles along the Sacramento River East Levee. This alternative would have provided a location for a substantial amount of tree planting on the waterside of the levee, contributing to offsetting mitigation for the loss of trees that could have been removed along the existing levee to meet USACE criteria. This alternative was eliminated because it was unlikely that the new setback levee would provide 100-year flood risk reduction per USACE criteria (SAFCA 2007b: 6-11).

► Construct an Adjacent Setback Levee with a 500-Foot Levee Setback in the Upper 1.4 Miles along the Sacramento River East Levee. This alternative was evaluated because it would provide the opportunity for partially offsetting the loss of landside tree groves through the establishment of new riparian plantings in the levee setback area as well as woodland plantings on the landside of the adjacent setback levee. This alternative was eliminated because it would require substantially greater quantities of borrow material with greater impacts on important farmland and transportation and circulation (SAFCA 2007b: 6-19, 6-20).

► No-Project Alternative—No Flood Control Improvements in Natomas. Consideration of a no-project alternative is required under CEQA. Under this alternative, it was assumed that the Natomas Basin flood damage reduction system would not be improved. This alternative was eliminated because it would not meet project objectives (SAFCA 2007b: 6-14).

► No SAFCA Levee Improvements—Private Levees in Natomas. This alternative was analyzed assuming no SAFCA project providing flood risk reduction in the Basin, thus causing private developers to separately fund individual flood risk reduction in the form of private compartment levees that would protect new developments. This was eliminated because it would only partially meet the first objective of providing 100-year flood risk reduction and it would potentially lead to increased fragmentation of habitat for special-status species (SAFCA 2007b: 6-15).

The proposed project was identified as the environmentally superior alternative after all alternatives were compared relative to their foreseeable effects (SAFCA 2007b: 6-25). The proposed project was selected for implementation.

After the November 29, 2007 certification of the Phase 2 EIR, SAFCA made minor modifications to the design of the Phase 2 Project. The Phase 2 SEIR (SAFCA 2009a) was prepared by SAFCA to evaluate these modifications;
the SAFCA Board of Directors certified the SEIR on January 29, 2009, at which time the Board also approved the modifications to the Phase 2 Project. No new alternatives were identified in the Phase 2 SEIR. Subsequently, two addenda to the Phase 2 EIR were prepared by SAFCA to evaluate additional minor modifications to the Phase 2 Project; the 1st Addendum to the Phase 2 EIR (SAFCA 2009c) was certified by the SAFCA Board of Directors on June 8, 2009 and the 2nd Addendum to the Phase 2 EIR (SAFCA 2009d) was certified on August 20, 2009. No new alternatives were identified in these Phase 2 addenda.

### 3.1.3 Alternatives Considered in the Phase 3 EIS and EIR

In the Phase 3 EIS and EIR, USACE and SAFCA analyzed construction of flood damage reduction measures required to protect the Natomas Basin at a project level for the Phase 3 Project (USACE 2009 and SAFCA 2009b). The following alternatives were analyzed at an equal level of detail:

- **No-Action Alternative**—Under NEPA, the expected future without-project conditions; under CEQA, the existing condition at the time the notice of preparation was published (July 18, 2008), as well as what would be reasonably expected to occur in the foreseeable future (two scenarios) if the Phase 3 Project were not approved.

- **Proposed Action**—Construction of an adjacent setback levee along the Sacramento River east levee and improvements to the PGCC west levee and the NEMDC west levee from Elkhorn Boulevard to Northgate Boulevard.

- **Levee Raise-in-Place Alternative**—Raising of the Sacramento River east levee in place and improvements to the PGCC west levee and the NEMDC west levee from Elkhorn Boulevard to Northgate Boulevard.

The Proposed Action and one action alternative (the Levee Raise-in-Place Alternative) were developed for consideration for the Phase 3 Project with a focus on improvements to the Sacramento River east levee (Reach B:5A–9B). Phase 3 Project improvements to the PGCC west levee, the NEMDC west levee, and landscape and irrigation/drainage system modifications would be similar under the Proposed Action and the Levee Raise-in-Place Alternative.

Development of the Proposed Action and the Levee Raise-in-Place Alternative included substantial planning based on consideration of effects on wetlands and other waters of the United States, woodlands, giant garter snake habitat, and other habitats. Accordingly, levee improvements were designed to avoid or minimize such effects where practicable and feasible. However, several agricultural canals or portions of canals and small seasonal wetlands exist near the levee toe along the Sacramento River east levee, PGCC west levee, and NEMDC west levee. These would require filling under either the Proposed Action or the Levee Raise-in-Place Alternative because their proximity to the existing levees places them within the expanded landside levee footprint or adjacent maintenance access under the Proposed Action and the Levee Raise-in-Place Alternative. Similarly, portions of several woodland groves extend into the proposed footprint of the flood damage reduction features along the landside of the Sacramento River east levee under the Proposed Action and the Levee Raise-in-Place Alternative and would need to be removed and/or relocated. Consequently, effects on wetlands and other waters of the United States and on other habitats along the landside of the levees were very similar for the Proposed Action and the Levee Raise-in-Place Alternative, and the same compensation strategies were proposed for unavoidable effects.

The Levee Raise-in-Place Alternative differed from the Proposed Action in that it would result in the (1) removal of waterside trees along the Sacramento River east levee to conform with USACE guidance regarding levee encroachments, and (2) loss of waters of the United States due to the implementation of erosion control improvements along the waterside toe of Sacramento River east levee. These effects would require a different compensation strategy than for the Proposed Action because, under the Proposed Action, these actions would not occur on the waterside of the levee.
In terms of flood risk reduction system design, the Proposed Action and the Levee Raise-in-Place Alternative differed in terms of how they would achieve the required levee height increases along the Sacramento River east levee. Therefore, the differences between the Proposed Action and the Levee Raise-in-Place Alternative, including effects on habitats, were the result of these Sacramento River east levee design differences.

The Proposed Action was identified as the environmentally superior alternative after all alternatives were compared relative to their foreseeable effects. The Proposed Action was approved for implementation by the SAFCA Board of Directors on May 21, 2009.

Since certification of the Phase 3 EIR, SAFCA has made minor modifications to the design of the Phase 3 Project. An addendum to the Phase 3 EIR (SAFCA 2009e) was prepared by SAFCA to evaluate these modifications; the SAFCA Board of Directors certified the Addendum and approved the modifications to the Phase 3 Project on September 17, 2009. No new alternatives were identified in the Phase 3 addendum.

### 3.1.4 Alternatives Considered in the Phase 4a EIS and EIR

In the Phase 4a EIS and EIR, USACE and SAFCA analyzed construction of flood damage reduction measures required to protect the Natomas Basin at a project level for the Phase 4a Project (USACE 2010 and SAFCA 2009f). The following alternatives were analyzed at an equal level of detail:

- **No-Action Alternative**—Under NEPA, the expected future without-project conditions; under CEQA, the existing condition at the time the notice of preparation was published (March 27, 2009), as well as what would be reasonably expected to occur in the foreseeable future (two scenarios) if the Phase 4a Project were not approved.

- **Proposed Action**—An adjacent levee would be constructed along the Sacramento River east levee, raised in Reach B:10–11B and at the same height as the existing levee in Reach B:12–15; and, where required, cutoff walls, seepage berms, and relief wells would be installed for seepage remediation. A cutoff wall would be installed for additional seepage remediation in Reach 4B. In two locations, the NCC south levee would be raised, a cutoff wall would be installed, and existing pumps would be modified or replaced to reflect raising the discharge pipes above the 200-year design flood elevation (0.005 AEP). The Riverside Canal would be relocated and extended. Parcels within the Fisherman’s Lake Borrow Area would be used as the primary source of soil borrow for Phase 4a Project construction; those parcels excavated for borrow material would be reclaimed as agricultural land, grassland, or managed marsh depending on their location and existing land use. Wells would be constructed to provide a water supply for habitat features.

- **Raise and Strengthen Levee in Place (RSLIP) Alternative**—The Sacramento River east levee would be raised in place in Reach B:10–12 and strengthened in place in Reach B:12–15 and seepage remediation and erosion control measures would be implemented. The RSLIP Alternative would be the same as described for the Proposed Action except for the method of levee raising and rehabilitation, the extent of levee degrade to construct cutoff walls, and extent of encroachment removal along the Sacramento River east levee.

The Proposed Action and the RSLIP Alternative were developed for consideration for the Phase 4a Project with a focus on improvements to the Sacramento River east levee (Reach B:10–15). Phase 4a Project improvements to the NCC south levee, relocation and extension of the Riverside Canal, and modifications to the landscape and irrigation/drainage system would be similar under the Proposed Action and the RSLIP Alternative.

As noted above, the Proposed Action and the RSLIP Alternative would use differing methods to achieve the required levee height increases along the Sacramento River east levee for flood damage reduction. Therefore, the differences between the Proposed Action and the RSLIP Alternative, including effects on habitats, are the result of these differences in design of the Sacramento River east levee.
The Proposed Action was identified as the environmentally superior alternative after all alternatives were compared relative to their foreseeable effects. The Proposed Action was approved for implementation by the SAFCA Board of Directors on November 13, 2009.

3.2 ALTERNATIVES CONSIDERED, BUT ELIMINATED FROM FURTHER CONSIDERATION IN PREVIOUS ENVIRONMENTAL ANALYSES AND INCORPORATED BY REFERENCE

Numerous alternatives have been considered by USACE and SAFCA to reduce flood risk in the Natomas Basin. These alternatives were evaluated and eliminated from further consideration during completion of previous environmental documents.

The following alternatives were reviewed and eliminated from further consideration as described below:

► **Yolo Bypass Improvements.** This measure would involve lengthening the Fremont Weir and widening the Yolo Bypass to increase the amount of flood water conveyed through the bypass and reduce the amount of flood water conveyed through the Sacramento River channel downstream of the weir. This alternative was eliminated because: (1) it would be too costly for SAFCA to implement; (2) levee height increases and substantial seepage and slope stability remediation would still be required for the Natomas perimeter levee system, adding to costs; (3) these improvements lie outside of SAFCA’s jurisdiction and would require Federal, State, and local cooperation and funding; and (4) the project objective of restoring 100-year (0.01 AEP) design flood levels to the Natomas Basin could not be achieved as quickly as possible. (Considered and eliminated in Phase 2 EIS.)

► **Reduced Natomas Urban Levee Perimeter.** This measure would involve construction of a cross levee running east to west across the Natomas Basin along an alignment north of Elkhorn Boulevard to protect existing developed areas in the City and County of Sacramento. This alternative was eliminated because: (1) it is inconsistent with current Federal and State authorizations and would strand Federal, State, and local investments already made in improving the NCC south levee and Sacramento River east levee pursuant to past Congressional authorization; (2) it would result in the need to raise State Route (SR) 99 or otherwise protect SR 99 from flooding; (3) it would divide Reclamation District (RD) 1000 and disrupt several portions of the Natomas Basin irrigation and drainage system and require reconfiguration of these systems; (4) it would present significant barriers to achieving the goals of the Natomas Basin Habitat Conservation Plan (NBHCP); (5) it would have substantially greater costs than other alternatives without achieving any additional flood damage reduction benefit; and (6) it would leave a portion of the Basin currently planned for development by Sutter County (i.e., Sutter Pointe Specific Plan mixed-use development project) outside the urban levee perimeter and likely cause Sutter County to exercise its rights under SAFCA’s joint exercise of powers agreement to prevent the expenditure of Consolidated Capital Assessment District funds on this measure. (Considered and eliminated in Local Funding EIR and Phase 2 EIS.)

► **Construction of a New Setback Levee.** This alternative would involve construction of a 5-mile-long levee along the northern reaches of the Sacramento River east levee parallel to the existing levee alignment but set back from the existing alignment by 500–1,000 feet. This alternative was eliminated because it is infeasible due to: (1) the presence of waterside residences along the existing levee from the southern end of Sacramento River east levee Reach C:2 to the American River north levee, and the need to maintain access to these residences from Garden Highway; (2) the proximity of the Sacramento River east levee to the Airport, and the need to prevent project features from increasing potential hazards to aviation safety; and (3) the possibility that utility relocations (power poles) and flood damage reduction measures could encroach into surface slopes of runway approach zones. (Considered and eliminated in Phase 2 EIR and Phase 2 EIS.)
Two additional alternatives were considered for the Phase 3 EIS and EIR but were eliminated from further consideration. These alternatives, as well as the rationale for eliminating them from further consideration, are described in the following subsections.

3.1.1 No-Action Alternative—Airport Compartment Levee

The Phase 2 EIS evaluated and eliminated from further consideration the No-Action Alternative—Airport Compartment Levee Alternative. The prior discussion of this alternative, which is hereby incorporated by reference, is summarized as follows.

With no authorization for the subsequent project phases (Phase 3, 4a, and 4b Projects), which are part of the overall NLIP, SAFCA would not meet timing objectives for providing the Natomas Basin with at least a 100-year level of flood risk reduction and achieving a 200-year level of protection. Federal and state floodplain regulations would effectively prevent new development in most of the Natomas Basin. The Airport would either be compelled to operate within its existing footprint, abandoning its current plans for expansion and modernization, or, alternatively, the Airport may construct its own limited flood damage reduction structure (i.e., a ring levee) to protect existing facilities and its expansion area. As of December 31, 2007, the leases for rice production on fields north of the Airport expired and were not renewed; hence, rice production has been discontinued on these fields to reduce wildlife hazards to aviation safety. These leases will not be renewed.

Table B1-2 summarizes the impacts identified in the Phase 2 EIS associated with implementation of the Airport Compartment Levee. The Phase 2 EIS concluded that significant impacts could occur. However, because there were no detailed design plans for this alternative, it was not possible to accurately determine exactly what environmental impacts could occur; therefore, one could also have concluded that the potential impacts were too speculative for meaningful consideration.

For the reasons provided in the Phase 2 EIS (listed below), this alternative was not carried forward for further evaluation in the Phase 3 EIS and EIR or Phase 4a EIS and EIR, nor is it carried forward for further evaluation in this EIS/EIR:

► construction of a separate levee around the Airport would be under the responsibility and jurisdiction of another agency (Sacramento County Airport System [SCAS]), over which SAFCA would have no jurisdiction, and would require a lengthy process that is completely separate from the Proposed Action;

► the timeline for that process is unknown and there are no design plans that would enable an accurate evaluation of potential environmental impacts; and

► the action would require SCAS to prepare a separate CEQA and potentially NEPA)environmental document.

In addition to those reasons provided in the Phase 2 EIS, design plans are not available for this alternative, thus preventing USACE and SAFCA from accurately evaluating its potential impacts; implementation of the Airport Compartment Levee would not meet any of the goals and objectives of the project; the residents, residences, and businesses within the Natomas Basin would not receive flood risk reduction; implementation of the Airport Compartment Levee would only protect the Airport; and SCAS has not proposed such a project and, therefore, this alternative is not considered a reasonable alternative.

3.1.2 Cultural Resources Impact Reduction Alternative

The Phase 3 Project’s Proposed Action included construction primarily of deep cutoff walls in the Sacramento River east levee Reach B:5A–9B, which would require excavation and placement of slurry at great depths along these reaches. The Sacramento River east levee has the potential to contain buried and undiscovered cultural
### Table B1-2
**Summary of Impacts: No-Action Alternative—Airport Compartment Levee**

<table>
<thead>
<tr>
<th>Issue Area</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Resources</td>
<td>A substantial conversion of Important Farmland to nonagricultural uses would likely occur in the footprint of the flood risk reduction features, given that the Airport is surrounded by agricultural land, much of which is Important Farmland. However, the amount of such conversion is uncertain because no concept plan for an Airport flood damage reduction system has been developed, and the footprint size and location are unknown. This impact could be significant.</td>
</tr>
<tr>
<td>Topography, Geology, and Soils</td>
<td>Construction-related activities would result in localized soil erosion effects. This impact would be significant.</td>
</tr>
<tr>
<td>Hydrology and Hydraulics</td>
<td>The Basin’s existing residential, commercial, and industrial structures and their contents would continue to remain subject to a relatively high risk of flooding. Substantial alteration of local drainage systems around the Airport and of drainage patterns would result. This impact would be significant unless a substantial redesign of local drainage systems were included in the design of the Airport flood risk reduction system.</td>
</tr>
<tr>
<td>Water Quality</td>
<td>Construction-related activities would result in adverse effects to water quality. Construction activity would involve ground disturbance and the potential for contaminants to enter local waterways either from direct spills, or from stormwater runoff. These impacts could be significant.</td>
</tr>
<tr>
<td>Fisheries</td>
<td>Construction-related activities would result in adverse effects on water quality in agricultural canals. These effects could, in turn, result in localized water quality degradation in receiving water bodies (e.g., the Sacramento River) and affect habitats and the physical health of individual fish and species populations in those water bodies. This impact could be significant.</td>
</tr>
<tr>
<td>Sensitive Aquatic Habitats</td>
<td>Construction of a compartment levee would require the fill of portions of several agricultural canals in the Airport vicinity, which may be jurisdictional waters of the United States. This impact would be significant. Because there is no conceptual design for a compartment levee, the amount of fill of potentially jurisdictional waters cannot be estimated.</td>
</tr>
<tr>
<td>Vegetation and Wildlife</td>
<td>Numerous elements of the irrigation and drainage system in the west-central portion of the Natomas Basin would likely be severed and would need to be rerouted with construction of a compartment levee. Ditches and canals in the basin serve as critical corridors for movement of aquatic species, and this movement could be significantly disrupted by construction of an Airport flood risk reduction system.</td>
</tr>
<tr>
<td>Special Status Terrestrial Species</td>
<td>The compartment levee, as well as construction-related activities would likely affect habitat for some special-status plants in ditches and canals. A concept plan for such a flood risk reduction system has not been developed, therefore, the likelihood and extent of such an impact is not predictable and cannot be estimated. The construction footprint might include areas where elderberry shrubs are present and would have to be relocated. The compartment levee would likely cross several irrigation and/or drainage canals in the west-central portion of the Natomas Basin that may provide habitat for giant garter snake, adversely affecting the habitat and potentially resulting in take of individual snakes. This impact would be significant.</td>
</tr>
<tr>
<td>Cultural Resources</td>
<td>The compartment levee would significantly alter elements of RD 1000. It is possible that historic-era resources of significance could be encountered during construction. Known prehistoric site CA-Sac-16/H south of the Airport would likely be adversely affected. Construction-related activities could encounter previously undiscovered cultural resources and potentially encounter human remains. These impacts would be significant.</td>
</tr>
<tr>
<td>Paleontological Resources</td>
<td>Construction-related activities could damage unique paleontological resources. This impact could be significant.</td>
</tr>
<tr>
<td>Transportation and Circulation</td>
<td>Construction-related activities could cause temporary traffic delays, temporarily increase emergency service response times, and interfere with emergency service access. These impacts would be significant.</td>
</tr>
</tbody>
</table>
### Summary of Impacts: No-Action Alternative—Airport Compartment Levee

<table>
<thead>
<tr>
<th>Issue Area</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Air Quality</strong></td>
<td>Construction-related activities would result in the temporary and short-term generation of ROG, NOX, and PM&lt;sub&gt;10&lt;/sub&gt; emissions. Construction-related activities would likely result in the temporary, short-term generation of diesel exhaust emissions. These impacts would be significant.</td>
</tr>
<tr>
<td><strong>Noise</strong></td>
<td>Construction-related activities would generate temporary and intermittent noise that could be near individual noise-sensitive locations. This potential impact could be significant; however, because concept design for such a levee has not been developed, it is not possible to estimate the potential magnitude or location of an impact.</td>
</tr>
<tr>
<td><strong>Recreation</strong></td>
<td>It is unlikely that any recreational uses would be affected, because there are no recreational facilities in the vicinity of the Airport. There would be no impact.</td>
</tr>
<tr>
<td><strong>Visual Resources</strong></td>
<td>The presence and movement of heavy construction equipment, construction-generated dust, and the presence of the compartment levee in the landscape would likely temporarily and permanently degrade the existing visual character and/or quality of the Natomas landscape. This impact would be significant.</td>
</tr>
<tr>
<td><strong>Utilities and Service Systems</strong></td>
<td>Significant temporary interruptions of irrigation supply could occur if construction activities result in damage to irrigation infrastructure or otherwise render the infrastructure inoperable at a time when it is needed (e.g., reconnections to water supply sources are not completed by the time crop irrigation must begin). This impact would be significant.</td>
</tr>
<tr>
<td><strong>Hazards and Hazardous Materials</strong></td>
<td>It is assumed that construction would not cause any significant hazards associated with the transport and handling of hazardous materials because the applicable regulations would be followed. Previously unknown or undocumented hazardous materials could be present in construction areas (including borrow sites). Excavation at or near areas of currently unrecorded soil and/or groundwater contamination could result in the exposure of construction workers, the general public, and the environment to hazardous materials. This impact could be significant.</td>
</tr>
<tr>
<td><strong>Wildfire Hazards</strong></td>
<td>Physical and weather conditions could combine to lead to a high risk of fire hazard, and construction equipment or construction practices could ignite fires that may result in wildland fires and expose people or structures to a significant risk of loss, injury, or death under some circumstances. This potential impact would be significant.</td>
</tr>
</tbody>
</table>

Notes: RD = Reclamation District; ROG = Reactive Organic Gases; NOX = oxides of nitrogen; PM<sub>10</sub> = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
Source: USACE 2008; data compiled by EDAW (now AECOM) in 2008

resources that are difficult to detect by inspecting the ground surface. The Proposed Action under the Phase 3 Project, therefore, has the potential to result in significant and unavoidable impacts to known prehistoric resources, previously unidentified cultural resources, and interred human remains. Unlike other resources, the magnitude of potential impacts on previously undiscovered cultural resources and interred human remains is harder to discern because there are few feasible ways to investigate the presence of these resources within the footprint of deep cutoff walls proposed for construction along the Sacramento River east levee. Deep cutoff walls require excavation into strata that are currently beneath existing levees. Because of the potential magnitude of these impacts, the Phase 3 EIS and EIR analyzed an alternative means of remediating seepage along the Sacramento River east levee to determine if it would be possible to reduce impacts on cultural resources. This alternative consisted of construction of a 500-foot-wide seepage berm on the landside of the levee instead of construction of deep cut-off walls. The analysis of this alternative concluded that while a berm may reduce impacts on any resources identified adjacent to the Sacramento River east levee, it would dramatically increase the potential for impacts on undiscovered cultural deposits as well as other resources, and thus was eliminated.
Construction of a 500-foot-wide seepage berm rather than primarily deep cutoff walls in these reaches would avoid the deep ground disturbing work associated with cultural resource impacts while still achieving flood damage reduction objectives. Construction of a 500-foot-wide seepage berm would have more than doubled the borrow material requirement for the Sacramento River east levee Reach B:5A–9B component of the Phase 3 Project’s Proposed Action from approximately 1.8 million cubic yards (cy) to 3.8 million cy.

Table B1-3 compares impacts for the Proposed Action under the Phase 3 Project and the Cultural Resources Impact Reduction Alternative. Impacts to cultural resources and aviation safety hazards would be reduced by the construction of a 500-foot-wide berm. Of the 16 issue areas analyzed, impacts on ten of the issue areas were considered to be more severe with the Cultural Resources Impact Reduction Alternative. Approximately four impacts were determined to be generally similar. One impact was reduced (“24/7” noise associated with construction of deep cut-off walls) and one impact potentially less impacted by construction of a seepage berm.

Because the Cultural Resources Impact Reduction Alternative would have resulted in a net increase in the number, intensity, and severity of environmental impacts compared to the Phase 3 Project Proposed Action, and because implementation of the 500-foot-wide seepage berm would have resulted in the permanent displacement of residences and temporary closure, disruption, and redesign of portions or all of the Teal Bend Golf Club, it was eliminated from further consideration, and thus was not carried forward for detailed analysis in the Phase 3 EIS and EIR.

Although this alternative was eliminated for the Phase 3 Project due to the reasons cited above, 500-foot-wide seepage berms was analyzed in the Phase 4a EIS and EIR as part of the Phase 4a Project Proposed Action to represent the worst-case scenario because it is anticipated that at least one very large cultural site may require avoidance (CA-Sac-16/H), and additional previously undiscovered cultural resource sites may be present.

The locations and widths of the seepage berms would be determined during final engineering design. The use of seepage berms would take into the consideration overall impacts to resources and whether residences, heritage oak trees, or other sensitive resources would be affected. SAFCA would employ measures to minimize the project footprint to avoid these resources to the extent feasible, under levee design and seepage remediation performance requirements.

3.3 ADDITIONAL ALTERNATIVE CONSIDERED, BUT ELIMINATED FROM FURTHER CONSIDERATION—UPSTREAM TRANSITORY STORAGE

3.1.3.1 ROBBINS BASIN (RECLAMATION DISTRICT 1500) TRANSITORY STORAGE

This alternative would utilize the RD 1500 basin as an upstream transitory storage site (or off-stream storage). Flood waters would be diverted into the basin via an un-gated or gated weir. The preliminary design locates the weir at River Mile (RM) 69.50 on the Sutter Bypass and is 5280 feet long. For this alternative to successfully perform, it is necessary for the basin to be empty at the start of weir flow. To assure this, it was assumed that all levees surrounding the basin are improved.

The target stage for diverting water into the basin is 40.4 feet (National Geodetic Vertical Datum of 1929 [NGVD29]). This is equal to the minimum elevation of the surrounding existing condition levees. The stage of 40.38 corresponds to a storage space of 987,862 acre-feet. Exit gates and/or weirs would also be needed to drain the water from the basin after the flood peak. They would be located at the lowest spot in basin, in the left levee of the Sacramento River at about RM 85.00, about one mile upstream of the Fremont Weir.
<table>
<thead>
<tr>
<th>Issue Area</th>
<th>Proposed Action</th>
<th>Cultural Resources Impact Reduction Alternative (500-Foot-Wide Seepage Berm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrology and Hydraulics</td>
<td>Significant</td>
<td>Greater impacts to local drainage infrastructure</td>
</tr>
<tr>
<td>Water Quality</td>
<td>Significant</td>
<td>Similar</td>
</tr>
<tr>
<td>Fisheries</td>
<td>Significant</td>
<td>Similar</td>
</tr>
<tr>
<td>Sensitive Aquatic Habitats</td>
<td>Significant</td>
<td>Greater impacts to potentially jurisdictional features (loss of an additional 17.13 acres of riparian habitat, 7.58 acres of seasonal wetlands, and 0.88 acre of freshwater marsh)</td>
</tr>
<tr>
<td>Vegetation and Wildlife</td>
<td>Significant</td>
<td>Greater impacts to woodlands (additional loss of 14 acres of woodland habitat)</td>
</tr>
<tr>
<td>Special-Status Terrestrial Species</td>
<td>Significant</td>
<td>Greater impacts to Swainson’s hawk foraging and nesting habitat (loss of an additional 185 acres of Swainson’s hawk foraging habitat [47 acres of high quality foraging alfalfa crop habitat and 14 acres of Swainson’s hawk nesting habitat—woodlands])</td>
</tr>
<tr>
<td>Cultural Resources</td>
<td>Significant and unavoidable</td>
<td>Potentially greater impacts to undiscovered cultural resources and interred human remains resulting from increased borrow materials usage (from 1.8 million cy to 3.8 million cy) for 500-foot-wide seepage berm</td>
</tr>
<tr>
<td>Paleontological Resources</td>
<td>Significant</td>
<td>Potentially greater impacts associated with greater borrow material excavation (from 1.8 million cy to 3.8 million cy)</td>
</tr>
<tr>
<td>Transportation and Circulation</td>
<td>Significant and unavoidable</td>
<td>Potentially greater impacts to traffic. Increase borrow use would more than double haul route usage and potentially significantly increase truck traffic on Elkhorn Boulevard</td>
</tr>
<tr>
<td>Air Quality</td>
<td>Significant and unavoidable</td>
<td>Greater severity of significant and unavoidable impacts with greater borrow material excavation (from 1.8 million cy to 3.8 million cy)</td>
</tr>
<tr>
<td>Noise</td>
<td>Significant and unavoidable</td>
<td>Similar, with exception of 24/7 construction associated with cut-off wall construction (lesser)</td>
</tr>
<tr>
<td>Recreation</td>
<td>Significant</td>
<td>Greater due to temporary closure and disruption of the Teal Bend Golf Club and likely need to redesign all or portions of the golf course. Since it is likely infeasible to construct a seepage berm within the golf course, requiring the proposal for cut-off walls in this area to remain unaffected, the impact would remain similar within the golf course.</td>
</tr>
<tr>
<td>Visual Resources</td>
<td>Significant and unavoidable</td>
<td>Greater impacts to oak woodlands and existing views from removal of trees from the loss of 14 acres of woodland habitat</td>
</tr>
<tr>
<td>Utilities and Service Systems</td>
<td>Significant</td>
<td>Greater temporary impacts and relocations of existing irrigation infrastructure and utilities. Greater impacts resulting from permanent relocation of residences within the footprint of the 500-foot-wide berm</td>
</tr>
<tr>
<td>Hazards and Hazardous Materials</td>
<td>Significant</td>
<td>Potentially less impacts from fewer requirements for night lighting, potentially resulting in less aviation hazard</td>
</tr>
<tr>
<td>Wildfire Hazards</td>
<td>Significant</td>
<td>Similar</td>
</tr>
</tbody>
</table>

Source: Compiled by EDAW (now AECOM) in 2008
The stage in the Sacramento River at RM 69.9983 (about halfway between the Cross Canal and American River confluences) would be reduced by up to 2.3 feet for the 200-year (0.005 AEP) event under this alternative. This reduction in water surface elevation is not significant enough to preclude the need for levee modification.

3.1.3.2 Nicolaus Basin (Reclamation District 1500) Transitory Storage

This alternative would utilize the RD1001 basin as an upstream transitory storage site (or off-stream storage). Flood waters would be diverted into the basin via a gated weir approximately 500 feet long. The preliminary design locates the weir at RM8.501 on the Feather River. For this alternative to successfully perform, it is necessary for the basin to be empty at the start of weir flow. To assure this, it was assumed that all levees surrounding the basin are improved.

The target stage for diverting water into the basin is 42.0 feet (NGVD29). This is equal to the minimum elevation of the surrounding existing condition levees. The stage of 42.0 corresponds to a storage space of 25,000 acre-feet. Exit gates and/or weirs would also be needed to drain the water from the basin after the flood peak. They would be located at the lowest spot in the basin, along the left levee of the Sacramento River.

The stage in the Sacramento River at RM 69.9983 (about halfway between the Cross Canal and American River confluences) would be reduced by up to 1.8 feet for the 200-year (0.005 AEP) event under this alternative. This reduction in water surface elevation is not significant enough to preclude the need for levee modification.

3.1.3.3 Elkhorn Basin (Reclamation Districts 537, 827, 785, 1600) Transitory Storage

This alternative would utilize the Elkhorn basin as a transitory storage site (or off-stream storage). Flood waters are diverted into the basin via an un-gated weir. The preliminary design locates the weir at RM 69.00 on the Sacramento River, and it is 10,560 feet long. For this alternative to successfully perform, it is necessary for the basin to be empty at the start of weir flow. To assure this, it was assumed that all levees surrounding the basin are improved.

The target stage for diverting water into is 30.27 feet (NGVD29). This is equal to the minimum elevation of the surrounding existing condition levees. The stage of 30.27 corresponds to a storage space of 225,000 acre-feet. Exit gates/weirs would also be needed to drain the water from Elkhorn Basin after the flood peak.

The stage in the Sacramento River at RM 69.9983 (about halfway between the Cross Canal and American River confluences) would be reduced by up to 0.9 feet for the 200-year (0.005 AEP) event under this alternative. This reduction in water surface elevation is not significant enough to preclude the need for levee modification.

<table>
<thead>
<tr>
<th>Basin</th>
<th>Maintaining Agencies</th>
<th>Acres</th>
<th>Miles of Levee</th>
<th>Land Use</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robbins</td>
<td>RD 1500</td>
<td>65,692</td>
<td>59.4</td>
<td>Rural</td>
<td>900</td>
</tr>
<tr>
<td>Nicolaus</td>
<td>RD 1001</td>
<td>37,393</td>
<td>30.2</td>
<td>Rural</td>
<td>1,311</td>
</tr>
<tr>
<td>Elkhorn</td>
<td>RD 1600, RD 827, RD 785, RD 537</td>
<td>12,323</td>
<td>31.8</td>
<td>Rural</td>
<td>172</td>
</tr>
</tbody>
</table>

Source: Information provided by USACE in 2010
### Table B1-5
Preliminary Cost Estimates for Transitory Storage Alternatives

<table>
<thead>
<tr>
<th>Action</th>
<th>Cost</th>
<th>Sub-total/Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robbins Basin (Reclamation District 1500) Transitory Storage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost to Improve Levees</td>
<td>331,632 levee feet @ $2,000/levee foot</td>
<td>$663,264,000</td>
</tr>
<tr>
<td>Cost of Land for Storage</td>
<td>65,692 acres @ $5,000/acre</td>
<td>$328,460,000</td>
</tr>
<tr>
<td>Cost to Construct Weirs (inlet/outlet)</td>
<td>2 weirs @ $2,000,000 each</td>
<td>$4,000,000</td>
</tr>
<tr>
<td>Construct Ring Levee around Robbins</td>
<td>10,000 lf @ $7,000/levee foot</td>
<td>$70,000,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$1,065,724,000</strong></td>
</tr>
<tr>
<td>Nicolaus Basin (RD 1001) Transitory Storage1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost to Improve Levees</td>
<td>159,456 levee feet @ $2,000/levee foot</td>
<td>$318,912,000</td>
</tr>
<tr>
<td>Cost of Land for Storage</td>
<td>37,393 acres @ $5,000/acre</td>
<td>$186,965,000</td>
</tr>
<tr>
<td>Cost to Construct Weirs (inlet/outlet)</td>
<td>2 weirs @ $2,000,000 each</td>
<td>$4,000,000</td>
</tr>
<tr>
<td>Construct Ring Levee around Nicolaus</td>
<td>5,000 lf @ $7,000/levee foot</td>
<td>$35,000,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$544,877,000</strong></td>
</tr>
<tr>
<td>Elkhorn Basin (RD 537, 827, 785, 1600) Transitory Storage2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost to Improve Levees</td>
<td>167,904 levee feet @ $2,000/levee foot</td>
<td>$335,808,000</td>
</tr>
<tr>
<td>Cost of Land for Storage</td>
<td>12,323 acres @ $5,000/acre</td>
<td>$61,615,000</td>
</tr>
<tr>
<td>Cost to Construct Weirs (inlet/outlet)</td>
<td>2 weirs @ $2,000,000 each</td>
<td>$4,000,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$ 401,423,000</strong></td>
</tr>
</tbody>
</table>

1 Connecting to existing levee along Feather River.  
2 These estimates do not include costs to purchase or raise structures. 

Source: Information provided by USACE in 2010

As discussed above, various upstream detention measures were evaluated as part of this EIS/EIR. Initial evaluation indicates that these measures would not be cost-effective. The water levels in Natomas would not be reduced to a significant degree to justify the costs associated with implementing the alternative. These costs include: construction of intake and outtake structures for water to enter and leave the detention basins, improvement of the perimeter levees around the detention basin(s) to current standards, and acquisition of real estate easements for water storage and to purchase and/or relocate existing properties in the basins. Transitory storage would not alleviate the need to implement other measures to address the seepage, stability, erosion, and vegetation and encroachment issues facing the existing Natomas Basin perimeter levees.

Because of the extent and likely cost of these improvements, this alternative would require an unprecedented degree of State, Federal, and local cooperation and funding. For this reason, this alternative was not pursued as a component of the Phase 4b Project, but is considered worthy of further evaluation as part of the State’s pending update of the State plan of flood protection for the Central Valley.

### 4.1 ALTERNATIVES CARRIED FORWARD FOR EVALUATION IN THIS EIS/EIR

The following alternatives are carried forward for detailed analysis in this EIS/EIR and are described in detail in Chapter 2, “Alternatives”:

- **No-Action Alternative**—Under NEPA, the expected future without-project conditions; under CEQA, the existing condition at the time the notice of preparation was published (November 5, 2009) as modified by
what would be reasonably expected to occur in the foreseeable future if the Phase 4b Project were not approved (two scenarios are proposed).

► **Adjacent Levee Alternative (Proposed Action)**—An adjacent levee would be constructed along the Sacramento River east levee Reach A:16–20; and, where required for this levee, cutoff walls, seepage berms, and relief wells would be installed for seepage remediation. A cutoff wall would be installed in the American River north levee east of Gateway Oaks Drive to Northgate Boulevard, and the landside slope would be flattened. The NEMDC west levee would be raised in place or widened from just south of Elkhorn Boulevard to Sankey Road, and the landside slope would be flattened and seepage remediation would be constructed as necessary. Waterside erosion protection would be constructed in locations along the PGCC and NEMDC (south of Elkhorn Boulevard). Culverts located beneath the PGCC would be upgraded or removed, and replacement flood storage would be provided as needed. At the SR 99 crossing of the NCC, seepage remediation would be installed and a moveable barrier system would be constructed to prevent overflow from reaching the landside of the NCC south levee. The western portion of the West Drainage Canal would be realigned to the south, and the remaining portion of the existing canal would be improved to reduce bank erosion and sloughing, decrease aquatic weed infiltration, improve RD 1000 maintenance access, and enhance giant garter snake habitat connectivity. Irrigation canals and ditches would be relocated either to make room for expanded levee sections or to reduce undercutting potential. Discharge pipes for RD 1000 pumping plants and City of Sacramento sump pumps would be raised to cross the levee above design flood water surface elevation. Parcels in the South Fisherman’s Lake and Triangle Properties Borrow Areas and at the West Lakeside School Site would be excavated and reclaimed as agricultural land. Woodland groves would be established to compensate for impacts along the Sacramento River east levee Reach A:16–20, American River north levee Reach I:1-4, and NEMDC.

► **Fix-in-Place Alternative**—The Sacramento River east levee would be improved in place in Sacramento River east levee Reach A:16–20 and seepage remediation would be implemented. The Fix-in-Place Alternative would be the same as described for the Adjacent Levee Alternative (Proposed Action) except that the crown of the Sacramento River east levee would not be widened. This type of levee improvement would narrow the overall landside footprint by 15 feet but would require a greater extent of levee degrade to construct cutoff walls and a greater extent of encroachment removal along the Sacramento River east levee compared to the Adjacent Levee Alternative (Proposed Action).

The above three alternatives are described in detail in Chapter 2, “Alternatives,” of this EIS/EIR. The Adjacent Levee Alternative (Proposed Action) and the Fix-in-Place Alternative were developed for consideration with a focus on improvements to the Sacramento River east levee Reach A:16–20. Phase 4b Project improvements to the American River east levee Reach I:1-4, NEMDC west levee, PGCC west levee, NCC south levee, West Drainage Canal, and modifications to the landscape and irrigation/drainage system would be similar under the Adjacent Levee Alternative (Proposed Action) and the Fix-in-Place Alternative.

As noted above, the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative would use differing methods to achieve flood damage reduction objectives for the Sacramento River east levee Reach A:16–20. Therefore, the differences between the Adjacent Levee Alternative (Proposed Action) and Fix-in-Place Alternative, including effects on habitats, are the result of these differences in design of the Sacramento River east levee. These effects are more fully described in Chapter 4, “Environmental Consequences and Mitigation Measures,” of this EIS/EIR.
REFERENCES


SAFCA. See Sacramento Area Flood Control Agency.

USACE. See U.S. Army Corps of Engineers.


B2  NEPA and/or CEQA Standards and Checklist
Applicable to Borrow Areas Used by the Phase 4b Project
APPENDIX B2
NEPA AND/OR CEQA STANDARDS AND CHECKLIST APPLICABLE TO BORROW AREAS USED BY THE PHASE 4b PROJECT

This appendix reviews the standards that apply to preparation of NEPA and/or CEQA documents, and provides USACE and SAFCA with a tool for determining whether subsequent project-related activities within borrow areas used by the Phase 4b Project (described in Chapter 2, “Alternatives,” of this EIS/EIR) will require further environmental documentation under either NEPA or CEQA. An environmental checklist is provided to identify the appropriate level of documentation for satisfying NEPA and/or CEQA.

This checklist concept has been developed as a tool to maximize flexibility for screening and selecting specific borrow sites within the proposed borrow areas for the Phase 4b Project. While several properties have been identified within the proposed borrow areas from which borrow may be removed, ongoing investigations will be required to determine the most suitable location(s) for excavating borrow. Therefore, there is insufficient information for some of the proposed borrow sites to make a final selection of specific properties in this EIS/EIR. Accordingly, this checklist will be used to inform USACE and/or SAFCA to determine if specific borrow sites proposed within this EIS/EIR have been analyzed at a sufficient level of detail, under NEPA and/or CEQA, or if further environmental review is required. If further environmental review and analysis is required, this checklist will help guide USACE and SAFCA in determining the appropriate level of NEPA and/or CEQA compliance.

Under NEPA, a supplemental environmental impact statement (supplemental EIS) is required when changes in the proposed action are “relevant to environmental concerns,” (40 Code of Federal Regulations [CFR] Section 1502.9[1][i]), or when there are “significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts” (40 CFR Section 1502.9[1][ii]). In general, this means that a supplemental EIS is required if new and potentially significant impacts that were not previously disclosed or identified in a public NEPA document are identified in association with a subsequent activity. Courts have further interpreted this requirement to indicate that when new mitigation measure(s) are identified that would reduce some of the impacts of a Federal action subject to NEPA, an SEIS is required if that measure itself would result in new significant impacts that were not previously disclosed in the EIS (National Wildlife Federation v. Marsh 721 F.2d 767, [11th Cir.] 1983).

USACE NEPA regulations incorporate the Council on Environmental Quality standard to determine when a supplemental EIS is required (33 CFR Section 230.13):

Environmental Impact Statement (EIS). (b) Supplements. A supplement to the draft or final EIS should be prepared whenever required as discussed in 40 CFR Section 1502.09(c).

The USACE NEPA regulations, however, provide that “District commanders may also publish periodic factsheets and/or other supplemental information documents on long-term or complex EISs to keep the public informed on the status of the proposed action” (33 CFR Section 230.13[d]). USACE will use this standard to screen subsequent activities, if they are subject to NEPA.

1. TIERING FROM PROGRAM-LEVEL ANALYSIS UNDER CEQA

The following rules from CEQA and the State CEQA Guidelines provide for screening subsequent project activities in a program through the use of a checklist to determine if the project activities have received sufficient CEQA review, or if another CEQA compliance document is required. CEQA and the State CEQA Guidelines
specify the criteria for determining whether additional environmental review is required and, if so, what form of additional environmental document is appropriate.

► Where a program EIR has been prepared for a series of related actions and activities (in this case, the previous environmental documents completed for the NLIP), the lead agency may use a checklist to determine whether subsequent site-specific activities, such as the use of a specific property as a borrow site, were covered in the prior EIR(s) (State CEQA Guidelines California Code of Regulations [CCR] Section 15168[c][4]; see also CCR Sections 15152[d] and [f]).

► If the lead agency determines that none of the conditions specified in State CEQA Guidelines CCR Section 15162, discussed below, that trigger the need for a subsequent EIR or negative declaration have occurred and no new effects could occur or no new mitigation is required, the lead agency may approve the activity. No additional environmental document is required. (State CEQA Guidelines CCR Section 15168[c][2]).

► Pursuant to State CEQA Guidelines CCR Section 15162, if the lead agency determines that any of the following conditions have occurred, either a supplemental or subsequent EIR shall be prepared:

  • Substantial changes to the project, substantial changes in circumstances, or new information show either new significant effects or a substantial increase in the severity of previously identified significant effects; or
  • New information shows that mitigation measures or alternatives which were previously identified as infeasible, and would substantially reduce the severity of one or more significant effects, are now found to be feasible, but the project proponent declines to adopt them; or
  • New information shows that considerably different mitigation measures or alternatives from those analyzed in the prior EIR(s) would substantially reduce the severity of one or more significant effects, are now found to be feasible, but the project proponent declines to adopt them.

► If any of the State CEQA Guidelines CCR Section 15162 conditions described above are present, but only minor changes or revisions to a previous EIR are required, the lead agency may prepare a supplement to the EIR. The supplemental EIR shall focus only on those changes or revisions that are necessary to make the previous study adequate and shall be circulated as a draft and final supplemental EIR (State CEQA Guidelines CCR Section 15163).

► If the lead agency determines that a subsequent activity requires some minor technical changes or revisions to a previously completed EIR or negative declaration, but none of the conditions described below require either a supplemental or a subsequent EIR, the lead agency may prepare an addendum to the EIR or negative declaration and attach the addendum to the final EIR or adopted negative declaration. No public circulation is required (State CEQA Guidelines CCR Section 15164).

► In some circumstances, a subsequent negative declaration may be warranted (see State CEQA Guidelines CCR Section 15152[g]).

2. **CEQA CHECKLIST FOR SCREENING SUBSEQUENT SELECTION OF BORROW SITES**

This checklist will be used to review impacts applicable to specific properties within the identified borrow areas that would be used by the Phase 4b Project, once they are proposed for use, for the purpose of determining whether and what additional CEQA environmental review is required. The checklist involves a three-step process for determining whether a specific borrow site has been sufficiently analyzed, or if the use of the borrow site
would require preparation of a new CEQA compliance document. The checklist also can provide guidance to USACE for determining the appropriate NEPA compliance document, if needed.

First, the project proponent(s) will review the impacts that were identified as “less than significant” in the checklist below and fill out the checklist accordingly. If the use of the borrow site would contribute to these impacts, the project proponent(s) will determine whether the contribution of borrow site operations would result in a significant impact. If a new significant impact would result, a supplemental or subsequent EIR will be required and prepared.

Next, for impacts that the checklist shows previously analyzed and disclosed as “significant,” and for which the project proponent(s) identified and adopted mitigation measures that would reduce those impacts to less-than-significant levels, the project proponent(s) will determine whether the borrow site operations would contribute to those impacts. If the borrow site operations contribute to those impacts, but implementation of the mitigation measures and environmental commitments identified in the previous environmental documents completed for the NLIP, which were previously adopted and incorporated into the project, would mitigate that contribution to a less-than-significant level, the borrow site’s contribution to those impacts will not trigger the need to prepare a new CEQA compliance document. If the use of the borrow site would cause these impacts to become significant impacts even after implementation of identified mitigation, SAFCA will prepare the appropriate CEQA compliance document, as described above.

The project proponent(s) will also use the checklist to determine if the borrow site operations would contribute to identified significant and unavoidable impacts. If the borrow site operations cause or contribute to any of the previously analyzed and disclosed significant or potentially significant and unavoidable impacts, SAFCA will determine if the borrow site’s contribution was included when calculating the severity of the impact. If the borrow site’s contribution to that impact was included in the impacts previously analyzed in the previous environmental documents completed for the NLIP and/or this EIS/EIR, no new CEQA compliance document will be required. If the borrow site’s contribution was not included in the impacts analyzed in the aforementioned documents, a new EIR, EIR addendum, or potentially a mitigated negative declaration would be required and prepared.

Finally, the project proponent(s) will use the checklist to determine if the use of the proposed borrow sites would result in new impacts that were not previously disclosed in the aforementioned documents or would affect resources that were not identified when analyzing previously disclosed impacts. If so, SAFCA would prepare the appropriate CEQA compliance document, as described above.

### Borrow Area Checklist

<table>
<thead>
<tr>
<th>ENVIRONMENTAL SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designated borrow site APN(s):______________________________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Land use types within designated borrow site</th>
<th>Information from surveys:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the site include:</td>
<td>Does the site include:</td>
</tr>
<tr>
<td>☐ Developed land</td>
<td>☐ Cultural Resources</td>
</tr>
<tr>
<td>☐ Agricultural land</td>
<td>☐ Wetlands</td>
</tr>
<tr>
<td>☐ Orchards</td>
<td>☐ Special-Status Species</td>
</tr>
<tr>
<td>☐ Grassland</td>
<td>☐ Suitable Habitat for Special-Status Species</td>
</tr>
<tr>
<td>☐ Non-Riparian Woodlands</td>
<td>☐ Recognized Environmental Conditions</td>
</tr>
<tr>
<td>☐ Riparian Woodland/Scrub</td>
<td></td>
</tr>
<tr>
<td>☐ Williamson Act Land (in a preserve or under contract)</td>
<td></td>
</tr>
<tr>
<td>Issue Area</td>
<td>Impact</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Land Use, Socioeconomics, and Population and Housing</td>
<td>Impact 4.3-e: Displacement of Residences and Businesses</td>
</tr>
<tr>
<td>Geology, Soils, and Mineral Resources</td>
<td>Impact 4.4-b: Potential Soil Erosion During Project Operations</td>
</tr>
<tr>
<td></td>
<td>Impact 4.4-c: Potential Loss of Mineral Resources</td>
</tr>
<tr>
<td>Hydrology and Hydraulics</td>
<td>Impact 4.5-a: Hydraulic Impacts on Other Areas and Exposure to Flood Risk</td>
</tr>
<tr>
<td></td>
<td>Impact 4.5-c: Effects on Groundwater</td>
</tr>
<tr>
<td>Biological Resources</td>
<td>Impact 4.7-k: Impacts to Fish Species Associated with Operation of Pumping Plants and Surface Drains</td>
</tr>
<tr>
<td>Air Quality</td>
<td>Impact 4.11-b: General Conformity with the Applicable Air Quality Plan</td>
</tr>
<tr>
<td></td>
<td>Impact 4.11-c: Long-Term Changes in Emissions of ROG, NOX, and PM10 Associated with Project Implementation</td>
</tr>
<tr>
<td></td>
<td>Impact 4.11-d: Exposure of Sensitive Receptors to Toxic Air Emissions</td>
</tr>
<tr>
<td>Noise</td>
<td>Impact 4.12-d: Long-Term Increases in Project-Generated Noise</td>
</tr>
<tr>
<td></td>
<td>Impact 4.12-e: Temporary and Short-Term Exposure of People Working in the Project Area to Excessive Airport Noise Levels</td>
</tr>
<tr>
<td>Recreation</td>
<td>Impact 4.13-a: Effects Related to the Proposed Natomas Levee Class 1 Bike Trail Project</td>
</tr>
<tr>
<td></td>
<td>Impact 4.13-c: Temporary Changes in Recreational Opportunities during Project Construction Activities</td>
</tr>
<tr>
<td>Utilities and Service Systems</td>
<td>Impact 4.15-c: Increases in Solid Waste Generation</td>
</tr>
<tr>
<td>Hazards and Hazardous Materials</td>
<td>Impact 4.15-a: Accidental Spills of Hazardous Materials</td>
</tr>
<tr>
<td></td>
<td>Impact 4.15-g: Potential for Higher Frequency of Collisions between Aircraft and Wildlife at Sacramento International Airport</td>
</tr>
</tbody>
</table>
## Impacts Identified as “Less than Significant” after Mitigation Implementation

<table>
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<tr>
<th>Issue Area</th>
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<tr>
<td><strong>Land Use, Socioeconomics, and Population and Housing</strong></td>
<td>Impact 4.3-b: Inconsistency with the Natomas Basin Habitat Conservation Plan</td>
<td>Mitigation Measure 4.3-b: Implement Mitigation Measure 4.7-l, “Ensure that Project Encroachment Does Not Jeopardize Successful Implementation of the NBHCP and Implement Mitigation Measures 4.7-a and 4.7-c through 4.7-h”</td>
<td>Not Applicable  No  Yes</td>
</tr>
<tr>
<td><strong>Geology, Soils, and Mineral Resources</strong></td>
<td>Impact 4.4-a: Potential Temporary Localized Soil Erosion during Construction</td>
<td>Mitigation Measure 4.4-a(1): Implement Mitigation Measure 4.6-a, “Implement Standard Best Management Practices, Prepare and Implement a Stormwater Pollution Prevention Plan, and Comply with National Pollutant Discharge Elimination System Permit Conditions” Mitigation Measure 4.4-a(2): Secure and Implement the Conditions of the California Surface Mining and Reclamation Act Permit or Exemption</td>
<td>Not Applicable  No  Yes</td>
</tr>
<tr>
<td><strong>Hydrology and Hydraulics</strong></td>
<td>Impact 4.5-b: Alteration of Local Drainage</td>
<td>Mitigation Measure 4.5-b(1): Coordinate with Landowners and Drainage Infrastructure Operators, Prepare Final Drainage Studies as Needed, and Implement Proper Project Design Mitigation Measure 4.5-b(2): Prepare Hydraulic Study, and Design and Implement Lower Dry Creek Woodland Planting Areas to Avoid Adverse Hydraulic Effects</td>
<td>Not Applicable  No  Yes</td>
</tr>
<tr>
<td><strong>Water Quality</strong></td>
<td>Impact 4.6-a: Temporary Impacts on Water Quality from Stormwater Runoff, Erosion, or Spills</td>
<td>Mitigation Measure 4.6-a: Implement Standard Best Management Practices, Prepare and Implement a Stormwater Pollution Prevention Plan, and Comply with National Pollutant Discharge Elimination System Permit Conditions</td>
<td>Not Applicable  No  Yes</td>
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<td><strong>Impact 4.6-b: Impacts to Sacramento River Water Quality from Pleasant Grove Creek Canal Detention Basin Discharges</strong></td>
<td>Mitigation Measure 4.6-b: Implement Best Management Practices and Comply with NPDES Permit Conditions for a Point-Source Discharge</td>
<td>Not Applicable ☐ Yes ☐ No ☐</td>
<td></td>
</tr>
<tr>
<td><strong>Impact 4.6-c: Effects on Water Quality from Groundwater Discharged by Relief Wells</strong></td>
<td>Mitigation Measure 4.6-c: Conduct Groundwater Quality Tests, Notify the Central Valley RWQCB, and Comply with the Central Valley RWQCB’s Waste Discharge Requirements and NPDES Permit</td>
<td>Not Applicable ☐ Yes ☐ No ☐</td>
<td></td>
</tr>
<tr>
<td><strong>4.7-c: Direct and Indirect Impacts to Jurisdictional Waters of the United States</strong></td>
<td>Mitigation Measure 4.7-c: Minimize Effects on Jurisdictional Waters of the United States; Complete Detailed Design of Habitat Creation Components and Secure Management Agreements to Ensure Compensation of Waters Filled or Dewatered; and Comply with Section 404, Section 401, Section 10, and Section 1602 Permit Processes</td>
<td>Not Applicable ☐ Yes ☐ No ☐</td>
<td></td>
</tr>
<tr>
<td><strong>4.7-d: Potential Loss of or Disturbance to Special-Status Plant Species and Their Habitats</strong></td>
<td>Mitigation Measure 4.7-d: Minimize Impacts on Special-Status Plant Species</td>
<td>Not Applicable ☐ Yes ☐ No ☐</td>
<td></td>
</tr>
<tr>
<td><strong>Biological Resources</strong></td>
<td><strong>4.7-e: Giant Garter Snake Mortality, Injury, and/or Disturbance to Habitat</strong></td>
<td>Mitigation Measure 4.7-e: Minimize the Potential for Direct Loss of Giant Garter Snake Individuals, Implement All Upland and Aquatic Habitat Improvements and Management Agreements to Ensure Adequate Compensation for Loss of Habitat, and Obtain Incidental Take Authorization</td>
<td>Not Applicable ☐ Yes ☐ No ☐</td>
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<td></td>
<td><strong>4.7-g: Potential Loss and/or Direct Impact of Elderberry Shrubs and/or Potential Loss of Valley Elderberry Longhorn Beetle</strong></td>
<td>Mitigation Measure 4.7-g: Conduct Focused Surveys for Elderberry Shrubs as Needed, Implement All Woodland Habitat Improvements and All Management Agreements, Ensure Adequate Compensation for Loss of Shrubs, and Obtain Incidental Take Authorization</td>
<td>Not Applicable ☐ Yes ☐ No ☐</td>
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<tr>
<td>4.7-h: Impacts on Northwestern Pond Turtle and Burrowing Owl</td>
<td>Mitigation Measure 4.7-h: Conduct Focused Surveys for Northwestern Pond Turtles, Relocate Turtles, Minimize Potential Impacts on Burrowing Owls, and Relocate Owls as Needed</td>
<td>Not Applicable □ Yes □ No □</td>
<td></td>
</tr>
<tr>
<td>4.7-i: Disturbance to Special-Status Vernal Pool Crustaceans</td>
<td>Mitigation Measure 4.7-i: Survey for Presence or Absence of Vernal Pool Invertebrates, Avoid Disrupting Vernal Pool Habitat, and Implement Measures to Mitigate Loss of Habitat</td>
<td>Not Applicable □ Yes □ No □</td>
<td></td>
</tr>
<tr>
<td>4.7-j: Temporary Construction-related Impacts to Fish and Aquatic Habitats</td>
<td>Mitigation Measure 4.7-j: Implement Mitigation Measure 4.6-a, “Implement Standard Best Management Practices, Prepare and Implement a Stormwater Pollution Prevention Plan, Prepare and Implement a Spill Containment Plan, and Comply with National Pollutant Discharge Elimination System Permit Conditions;” Implement a Feasible Construction Work Window that Minimizes Impacts to Special-Status Fish Species for Any In-Water Activities; and Implement Operational Controls and a Fish Rescue Plan that Minimizes Impacts to Fish Associated with Cofferdam Construction and Dewatering</td>
<td>Not Applicable □ Yes □ No □</td>
<td></td>
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<tr>
<td>4.7-l: Impacts on Successful Implementation of Habitat Conservation Plans</td>
<td>Mitigation Measure 4.7-l: Ensure that Project Encroachment Does Not Jeopardize Successful Implementation of the NBHCP and Implement Mitigation Measures 4.7-a and 4.7-c through 4.7-h</td>
<td>Not Applicable □ Yes □ No □</td>
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<td>Cultural Resources</td>
<td>Impact 4.8-a: Potential Changes to Elements of Reclamation District 1000 and the Rural Landscape District</td>
<td>Mitigation Measure 4.8-a: Incorporate Mitigation Measures to Documents Regarding Any Elements Contributing to RD 1000 and Rural Landscape District and Distribute the Information to the Appropriate Repositories</td>
<td>Not Applicable □ Yes □ No □</td>
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<td>Paleontological Resources</td>
<td>Impact 4.9-a: Disturbance of Unknown Unique Paleontological Resources during Earthmoving Activities</td>
<td>Mitigation Measure 4.9-a: Conduct Construction Personnel Training and, if Paleontological Resources are Found, Stop Work Near the Find and Implement Mitigation in Coordination with a Professional Paleontologist</td>
<td>Not Applicable ☐ Yes ☐ No ☐</td>
</tr>
<tr>
<td>Impact 4.10-d: Conflict with Adopted Policies, Plans, or Programs Supporting Alternative Transportation</td>
<td>Mitigation Measure 4.10-d: Prepare and Implement a Bicycle Detour Plan for Project Area Roadways and Bike Trails, Including Garden Highway and the NEMDC Levees</td>
<td>Not Applicable ☐ Yes ☐ No ☐</td>
<td></td>
</tr>
<tr>
<td>Impact 4.13-c: Temporary Changes in Recreational Opportunities during Project Construction Activities</td>
<td>Mitigation Measure 4.13-c(1): Prepare and Implement a Bicycle Detour Plan for All Bicycle Trails and On-Street Bicycle Routes, Provide Detours for Bicycle Facilities, and Coordinate with City and/or County Departments of Parks and Recreation to Repair of Damage to Recreational Facilities Mitigation Measure 4.13-c(2): Provide Construction Period Information on Recreational Facility Closures and Detours and Provide Detours for Alternate Routes to Marinas</td>
<td>Not Applicable ☐ Yes ☐ No ☐</td>
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<td><strong>Utilities and Service Systems</strong></td>
<td>Impact 4.15-a: Potential Temporary Disruption of Irrigation Water Supply</td>
<td>Mitigation Measure 4.15-a: Coordinate with Irrigation Water Supply Users Before and During All Irrigation Infrastructure Modifications and Implement Measures to Minimize Interruptions of Supply</td>
<td>Not Applicable □ Yes □ No □</td>
</tr>
<tr>
<td></td>
<td>Impact 4.14-b: Potential Disruption of Utility Service</td>
<td>Mitigation Measure 4.15-b: Verify Utility Locations, Coordinate with Utility Providers, Prepare and Implement a Response Plan, and Conduct Worker Training with Respect to Accidental Utility Damage</td>
<td>Not Applicable □ Yes □ No □</td>
</tr>
<tr>
<td><strong>Hazards and Hazardous Materials</strong></td>
<td>Impact 4.16-b: Potential Land Use Constraints Due to Contamination within the Pumping Plant No. 8 Footprint and Potential Exposure of Construction Workers and the General Public to Contaminated Groundwater</td>
<td>Mitigation Measure 4.16-b: Cooperate with Olympian Oil and Regulatory Agencies to Preserve, Modify, or Close Existing Groundwater Monitoring Wells at the Olympian Oil Site</td>
<td>Not Applicable □ Yes □ No □</td>
</tr>
<tr>
<td></td>
<td>Impact 4.16-c: Potential Exposure of Construction Workers and the General Public to Hazardous Materials Encountered at Project Sites</td>
<td>Mitigation Measure 4.16-c(1): Complete Recommendations Included in Phase I and/or II ESAs and Implement Required Measures Mitigation Measure 4.16-c(2): Complete Phase I and/or II ESAs, Soil, and/or Groundwater Investigations in Phase 4b Project Footprint Areas Not Covered by the Existing Phase I and/or II ESAs, and Implement Required Measures (e.g., Site Management and/or Other Contingency Plans)</td>
<td>Not Applicable □ Yes □ No □</td>
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<td></td>
<td></td>
<td>Emergency Access or Coordinate Detours with Providers”</td>
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<td>Impact 4.16-e: Possible Hazardous Emissions or Handling of Hazardous or Acutely Hazardous Materials, Substances, or Waste within One-Quarter Mile of an Existing or Proposed School</td>
<td>Mitigation Measure 4.16-e: Notify the Natomas Unified School District and Affected Schools within One-Quarter Mile of Project Construction Activities</td>
<td>Not Applicable □ Yes □ No</td>
</tr>
<tr>
<td>Environmental Justice</td>
<td>Impact 4.16-h: Potential Exposure to Wildland Fires</td>
<td>Mitigation Measure 4.16-h: Prepare and Implement a Fire Management Plan to Minimize Potential for Wildland Fires</td>
<td>Not Applicable □ Yes □ No</td>
</tr>
<tr>
<td>Impact 4.17-a: Potential to Have a Disproportionate High and Adverse Environmental Impact on any Minority or Low-Income Populations</td>
<td>Mitigation Measure 4.17-a: Increase the Direct Benefits of the Project for the Ancestors of the Native American Tribes</td>
<td>Not Applicable □ Yes □ No</td>
<td></td>
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<td>Agricultural Resources</td>
<td>Impact 4.2-a: Conversion of Important Farmland to Non-agricultural Uses</td>
<td>Mitigation Measure 4.2-a: Minimize Important Farmland Conversion to the Extent Practicable and Feasible</td>
<td>Not Applicable □ Yes □ No</td>
</tr>
<tr>
<td>Impact 4.2-b: Conflict with Lands under Williamson Act Contracts</td>
<td>Mitigation Measure 4.2-b: Minimize Impacts on Agricultural Preserve Land and Williamson Act–Contracted Land; Comply with California Government Code Sections 51290–51293; and Coordinate with Landowners and Agricultural Operators</td>
<td>Not Applicable □ Yes □ No</td>
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<td>Impact 4.3-a: Inconsistency with Airport Master Plan, Airport Comprehensive Land Use Plan, and Airport Wildlife Hazard Management Plans</td>
<td>Mitigation Measure 4.3-a: Implement Mitigation Measure 4.16-g, “Consult with SCAS and the FAA during Design of the Proposed Natomas Levee Class I Bike Trail to Implement Appropriate Airport Safety Precautions”</td>
<td>Not Applicable □ Yes □ No □</td>
</tr>
<tr>
<td>Land Use, Socioeconomics, and Population and Housing</td>
<td>Impact 4.3-c: Inconsistency with the American River Parkway Plan and Wild and Scenic Rivers Act</td>
<td>No mitigation is available</td>
<td>Not Applicable □ Yes □ No □</td>
</tr>
<tr>
<td></td>
<td>Impact 4.3-d: Potential to Physically Divide or Disrupt an Established Community</td>
<td>Mitigation Measure 4.3-d: Notify Residents and Businesses of Project Construction and Road Closure Schedules; and Implement Mitigation Measures 4.10-a, “Prepare and Implement a Traffic Safety and Control Plan for Construction-Related Truck Trips,” and 4.10-c, “Notify Emergency Service Providers about Project Construction and Maintain Emergency Access or Coordinate Detours with Providers”</td>
<td>Not Applicable □ Yes □ No □</td>
</tr>
<tr>
<td>Biological Resources</td>
<td>Impact 4.7-a: Loss of Landside and Waterside Woodland and Shaded Riverine Aquatic Habitats</td>
<td>Mitigation Measure 4.7-a: Minimize Effects on Woodland Habitat; Implement Woodland Habitat Improvements and Management Agreements; Compensate for Loss of Habitat; and Comply with Section 7 of the Federal Endangered Species Act, Section 2081 of the California Endangered Species Act, and Section 1602 of the California Fish and Game Code</td>
<td>Not Applicable □ Yes □ No □</td>
</tr>
<tr>
<td></td>
<td>Impact 4.7-b: Disruption to and Loss of Existing Wildlife Corridors</td>
<td>Mitigation Measure 4.7-b: Implement Mitigation Measures 4.7-a, “Minimize Effects on Woodland Habitat; Implement Woodland Habitat Improvements and Management Agreements; Compensate for</td>
<td>Not Applicable □ Yes □ No □</td>
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<td>Loss of Habitat; and Comply with Section 7 of the Federal Endangered Species Act, Section 2081 of the California Endangered Species Act, and Section 1602 of the California Fish and Game Code,” and 4.7-e, “Minimize the Potential for Direct Loss of Giant Garter Snake Individuals, Implement All Upland and Aquatic Habitat Improvements and Management Agreements to Ensure Adequate Compensation for Loss of Habitat, and Obtain Incidental Take Authorization”</td>
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<td>Mitigation Measure 4.7-f: Minimize Potential Impacts on Swainson’s Hawk and Other Special-Status Birds Foraging and Nesting Habitat, Monitor Active Nests during Construction, Implement All Upland and Agricultural Habitat Improvements and Management Agreements to Compensate for Loss of Quantity and Quality of Foraging Habitat, Obtain Incidental Take Authorization; and Implement Mitigation Measure 4.7-a, “Minimize Effects on Woodland Habitat, Implement all Woodland Habitat Improvements and Management Agreements, Compensate for Loss of Habitat, and Comply with Section 7 of the Federal Endangered Species Act, Section 2081 of the California Endangered Species Act, and Section 1602 of the California Fish and Game Code”</td>
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<td></td>
<td></td>
<td>Mitigation Measure 4.8-b: Avoid Ground Disturbance Near Eligible and Listed Resources to the Extent Feasible, Prepare a Not Applicable □ Yes □ No □</td>
<td></td>
</tr>
</tbody>
</table>

4.7-f: Impacts on Swainson’s Hawk and Other Special Status Birds

Impact 4.8-b: Potential Damage or Disturbance to Known Archaeological or Architectural Resources

Cultural Resources
## Impacts Identified as “Significant and Unavoidable”

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<td>from Ground-Disturbance or Other Construction-Related Activities</td>
<td>Finding of Effect, and Resolve Any Adverse Effects through Preparation of an HPTP</td>
<td>Not Applicable  □  Yes  □  No □</td>
</tr>
<tr>
<td></td>
<td>Impact 4.8-c: Potential Damage to or Destruction of Previously Unidentified or Undiscovered Cultural Resources from Ground-Disturbance or Other Construction-Related Activities</td>
<td>Mitigation Measure 4.8-c: Train Construction Workers before Construction, Monitor Construction Activities, Stop Potentially Damaging Activities, Evaluate Any Discoveries, and Resolve Adverse Effects on Eligible Resources, if Encountered</td>
<td>Not Applicable □ Yes □ No □</td>
</tr>
<tr>
<td></td>
<td>Impact 4.8-d: Potential Discovery of Human Remains during Construction</td>
<td>Mitigation Measure 4.8-d: Stop Work Within An Appropriate Radius Around the Find, Notify the Applicable County Coroner and Most Likely Descendant, and Treat Remains in Accordance with State Law and Measures Stipulated in an HPTP Developed in Consultation between the Project Proponent(s) and the SHPO</td>
<td>Not Applicable □ Yes □ No □</td>
</tr>
<tr>
<td>Transportation and Circulation</td>
<td>Impact 4.10-a: Temporary and Short-Term Increases in Traffic on Local Roadways</td>
<td>Mitigation Measure 4.10-a: Prepare and Implement a Traffic Safety and Control Plan for Construction-Related Truck Trips</td>
<td>Not Applicable □ Yes □ No □</td>
</tr>
<tr>
<td></td>
<td>Impact 4.10-b: Temporary and Short-Term Increases in Traffic Hazards on Local Roadways</td>
<td>Mitigation Measure 4.10-b: Implement Mitigation Measure 4.10-a, “Prepare and Implement a Traffic Safety and Control Plan for Construction-Related Truck Trips”</td>
<td>Not Applicable □ Yes □ No □</td>
</tr>
<tr>
<td>Air Quality</td>
<td>Impact 4.11-a: Temporary and Short-Term Emissions of ROG, NOX, and PM$_{10}$ during Construction</td>
<td>Mitigation Measure 4.11-a: Implement Applicable District-Recommended Control Measures to Minimize Temporary Emissions of ROG, NOX, and PM$_{10}$ during Construction</td>
<td>Not Applicable □ Yes □ No □</td>
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<td>Impact 4.12-c: Temporary and Short-term Exposure of Residents to Increased Traffic Noise Levels from Truck Hauling Associated With Borrow Activity</td>
<td>Mitigation Measure 4.12-c: Implement Noise-Reduction Measures to Reduce the Impacts of Haul Truck Traffic Noise</td>
<td>Not Applicable ☐ Yes ☐ No ☐</td>
</tr>
<tr>
<td><strong>Recreation</strong></td>
<td>Impact 4.13-a: Effects Related to the Proposed Natomas Levee Class 1 Bike Trail Project</td>
<td>No feasible mitigation is available</td>
<td>Not Applicable ☐ Yes ☐ No ☐</td>
</tr>
<tr>
<td></td>
<td>Impact 4.13-b: Permanent Disruption of Recreational Activities and Facilities</td>
<td>Mitigation Measure 4.13-b: Compensate City of Sacramento Department of Parks and Recreation for Loss of Parkland and Park Amenities</td>
<td>Not Applicable ☐ Yes ☐ No ☐</td>
</tr>
<tr>
<td><strong>Visual Resources</strong></td>
<td>Impact 4.14-a: Alteration of Scenic Vistas, Scenic Resources, and Existing Visual Character of the Project Area</td>
<td>Mitigation Measure 4.14-a: Implement Mitigation Measures 4.7-a, “Minimize Effects on Woodland Habitat; Implement all Woodland Habitat Improvements and Management Agreements; Compensate for Loss of Habitat; and Comply with Section 7 of the Federal Endangered Species Act, Section 1602 of the California Fish and Game Code, and Section 2081 of the California Endangered Species Act Permit Conditions,” and 4.13-b, “Compensate City of Sacramento Department of Parks and Recreation for Loss of Parkland and Park Amenities”</td>
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<td>Impact 4.14-b: New Sources of Light and Glare that Adversely Affect Views</td>
<td>Mitigation Measure 4.14-b: Direct Lighting Away from Adjacent Properties</td>
<td>Not Applicable □ Yes □ No □</td>
</tr>
<tr>
<td>Hazards and Hazardous Materials</td>
<td>Impact 4.16-g: Aircraft Safety Hazards Resulting from Project Implementation</td>
<td>Mitigation Measure 4.16-g: Consult with SCAS and the FAA during Design of the Proposed Natomas Levee Class I Bike Trail to Implement Appropriate Airport Safety Precautions</td>
<td>Not Applicable □ Yes □ No □</td>
</tr>
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### CHECKLIST SUMMARY

Are there new significant impacts in addition to those discussed above? If yes, describe using an attachment to this checklist.  
Yes □ No □

Are there significant impacts discussed above that are substantially more severe than discussed in this EIS/EIR? If yes, explain on an attachment to this checklist.  
Yes □ No □

Are there significant impacts discussed in the Phase 2 EIR (program level) that are substantially more severe than previously disclosed? If yes, explain on an attachment to this checklist.  
Yes □ No □

Are additional mitigation measures or alternatives? Are they feasible or considerably different from the previously adopted mitigation measures? If yes, explain on an attachment to this checklist.  
Yes □ No □

Is additional environmental documentation required? If yes, specify type of environmental compliance document required:

- EIR Addendum  
  Yes □ No □
- Mitigation Negative Declaration  
  Yes □ No □
- Supplemental EIR  
  Yes □ No □
- Subsequent EIR  
  Yes □ No □
- Supplemental EIS  
  Yes □ No □
B3 Documents Incorporated By Reference (Cover and Title Pages Only)
Draft Environmental Impact Report on
Local Funding Mechanisms for Comprehensive Flood Control Improvements for the Sacramento Area

Volume I: Programmatic Evaluation of the Proposed Funding Mechanisms
Volume II: Project-Level Evaluation of Natomas Cross Canal South Levee Phase 1 Improvements

State Clearinghouse # 2006072098

Prepared for:

Sacramento Area Flood Control Agency

November 2006
Draft Environmental Impact Report on

Local Funding Mechanisms for Comprehensive Flood Control Improvements for the Sacramento Area

Volume I: Programmatic Evaluation of the Proposed Funding Mechanisms

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State Clearinghouse # 2006072098

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Contact:
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November 2006

EDAW | AECOM
Final Environmental Impact Report on
Local Funding Mechanisms for Comprehensive Flood Control Improvements for the Sacramento Area
Responses to Comments and Revisions to the Draft EIR

Programmatic Evaluation of the Proposed Funding Mechanisms
Project-Level Evaluation of Natomas Cross Canal South Levee Phase 1 Improvements

State Clearinghouse # 2006072098

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February 2007
Draft Environmental Impact Report on the Natomas Levee Improvement Program Landside Improvements Project

State Clearinghouse # 2007062016

Prepared for:

Sacramento Area Flood Control Agency

September 2007
Draft Environmental Impact Report on the
Natomas Levee Improvement Program
Landside Improvements Project

State Clearinghouse # 2007062016

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November 2007

State Clearinghouse # 2007062016
Draft Environmental Impact Statement

408 Permission and 404 Permit to Sacramento Area Flood Control Agency for the Natomas Levee Improvement Project, Sacramento, CA

US Army Corps of Engineers®
Sacramento District

June 2008
Draft Environmental Impact Statement

408 Permission and 404 Permit to Sacramento Area Flood Control Agency for the Natomas Levee Improvement Project, Sacramento, CA

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June 2008
Final Environmental Impact Statement

408 Permission and 404 Permit to Sacramento Area Flood Control Agency for the Natomas Levee Improvement Project, Sacramento, CA

US Army Corps of Engineers®
Sacramento District

November 2008
408 Permission and 404 Permit to Sacramento Area Flood Control Agency for the Natomas Levee Improvement Project, Sacramento, CA
Draft

Supplement to the Environmental Impact Report on the
Natomas Levee Improvement Program
Landside Improvements Project—Phase 2 Project

State Clearinghouse # 2007062016

Prepared for:

Sacramento Area Flood Control Agency

November 2008

EDAW | AECOM
Draft
Supplement to the Environmental Impact Report on the
Natomas Levee Improvement Program
Landside Improvements Project—Phase 2 Project

State Clearinghouse # 2007062016

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Final
Supplement to the Environmental Impact Report on the
Natomas Levee Improvement Program
Landside Improvements Project—Phase 2 Project

State Clearinghouse # 2007062016

Prepared for:

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January 2009
Final
Supplement to the Environmental Impact Report on the
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Landside Improvements Project—Phase 2 Project

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January 2009
Addendum to the Environmental Impact Report on the Natomas Levee Improvement Program Landside Improvements Project—Phase 2 Project

State Clearinghouse # 2007062016

Prepared for:

Sacramento Area Flood Control Agency

June 2009
Addendum to the Environmental Impact Report on the
Natomas Levee Improvement Program
Landside Improvements Project—Phase 2 Project

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June 2009
2nd Addendum to the Environmental Impact Report on the Natomas Levee Improvement Program Landside Improvements Project—Phase 2 Project

State Clearinghouse # 2007062016

Prepared for:

SAFCA
Sacramento Area Flood Control Agency

August 2009
2nd Addendum to the Environmental Impact Report on the
Natomas Levee Improvement Program
Landside Improvements Project—Phase 2 Project

State Clearinghouse # 2007062016

Prepared for:
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August 2009
Draft Environmental Impact Statement/Draft Environmental Impact Report on the
Natomas Levee Improvement Program
Phase 3 Landside Improvements Project

State Clearinghouse No. 2008072060

Prepared for:

US Army Corps of Engineers ®
Sacramento District

SAFCA
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February 2009
Draft Environmental Impact Statement/Draft Environmental Impact Report on the
Natomas Levee Improvement Program
Phase 3 Landside Improvements Project

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February 2009
Final Environmental Impact Report on the
Natomas Levee Improvement Program
Phase 3 Landside Improvements Project

State Clearinghouse No. 2008072060

Prepared for:

Sacramento Area Flood Control Agency

May 11, 2009
Final Environmental Impact Report on the
Natomas Levee Improvement Program
Phase 3 Landside Improvements Project

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May 11, 2009
Final Environmental Impact Statement on the Natomas Levee Improvement Program Phase 3 Landside Improvements Project

Prepared for:

US Army Corps of Engineers ®
Sacramento District

August 21, 2009
Final Environmental Impact Statement on the
Natomas Levee Improvement Program
Phase 3 Landside Improvements Project

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Addendum to the Environmental Impact Report on the
Natomas Levee Improvement Program
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Addendum to the Environmental Impact Report on the
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Phase 3 Landside Improvements Project

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September 2009
Draft Environmental Impact Statement/Draft Environmental Impact Report on the
Natomas Levee Improvement Program
Phase 4a Landside Improvements Project

State Clearinghouse No. 2009032097

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Final Environmental Impact Report on the
Natomas Levee Improvement Program
Phase 4a Landside Improvements Project

State Clearinghouse No. 2009032097

Prepared for:

November 3, 2009
Final Environmental Impact Report on the
Natomas Levee Improvement Program
Phase 4a Landside Improvements Project

Prepared for:
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State Clearinghouse No. 2009032097

November 3, 2009
B4 Summary of the Mitigation Measures Adopted for the NLIP Phase 1–4a Projects
APPENDIX B4
SUMMARY OF MITIGATION MEASURES ADOPTED IN CONNECTION WITH THE NATOMAS LEVEE IMPROVEMENT PROGRAM, PHASE 1–4a LANDSIDE IMPROVEMENTS PROJECTS

The U.S. Army Corps of Engineers (USACE), Sacramento District and the Sacramento Area Flood Control Agency (SAFCA) have prepared and certified/approved various environmental documents for the Natomas Levee Improvement Program (NLIP) Phase 1–4a Landside Improvements Projects (Phase 1–4a Projects). This appendix contains a summary (in tabular form) of the mitigation measures contained in those certified/approved environmental documents and adopted in connection with the Phase 1–4a Projects.

The table columns contain the following information:

Mitigation Number: Lists the mitigation measures by number, as designated in each of the previous NLIP environmental documents, by issue area. For example, the project phase is followed by the mitigation measure number that corresponds to the certified/approved environmental document for that phase (i.e., Phase 1: 3.3-a, Phase 2: 3.2-b, Phase 3: 4.1-a, Phase 4a: 4.2-a).

Mitigation Measure: Provides the text of the mitigation measures (by issue area), as presented in the Phase 4a EIS and EIR, each of which has been adopted and incorporated into the project. The Phase 4a EIS and EIR are referenced because these environmental documents contain the most up-to-date mitigation commitments. It is important to note that although the mitigation commitments may apply to more than just the Phase 4a Project, the mitigation language has evolved with each certified and approved document, as new information becomes available, as more refined engineering and design details are available for each project phase, from lessons learned in the field (primarily from Phase 2 Project construction) on the most effective techniques, and from ongoing coordination and consultation with regulatory agencies. Although the mitigation language has been modified in some of the mitigation measures, the essence of the mitigation commitment has remained the same, but has been enhanced and/or refined.

Project Phase: Distinguishes what mitigation measures apply to what project phases.
## Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

<table>
<thead>
<tr>
<th>Project Phase and Mitigation Measure No.</th>
<th>Mitigation Measure</th>
<th>Phase 1 Project</th>
<th>Phase 2 Project</th>
<th>Phase 3 Project</th>
<th>Phase 4a Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 2: 3.2-b</td>
<td>Minimize Important Farmland Conversion to the Extent Practicable and Feasible</td>
<td></td>
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<tr>
<td>Phase 3: 4.1-a</td>
<td>(a) Borrow sites shall be configured to minimize the fragmentation of lands that</td>
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<td>Phase 4a: 4.2-a</td>
<td>are to remain in agricultural use. Contiguous parcels of agricultural land of</td>
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<td>sufficient size to support their efficient use for continued agricultural</td>
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<td>production shall be retained to the extent practicable and feasible.</td>
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<td></td>
<td>(b) To the extent practicable and feasible, when expanding the footprint of a</td>
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<td></td>
<td>flood damage reduction facility (e.g., levee or berm) onto agricultural land,</td>
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<td>the most productive topsoil from the construction footprint shall be salvaged</td>
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<td></td>
<td>and redistributed to less-productive agricultural lands in the vicinity of the</td>
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<td>construction area that could benefit from the introduction of good-quality soil.</td>
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<td></td>
<td>By agreement between the implementing agencies or landowners of affected properties</td>
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<td></td>
<td>and the recipient(s) of the topsoil, the recipient(s) shall be required to use</td>
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<td>the topsoil for agricultural purposes. SAFCA shall implement all terms and</td>
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<td>conditions of agreements.</td>
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<td></td>
<td>(c) During project construction, use of utilities that are needed for agricultural</td>
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<td>purposes (including wells, pipelines, and power lines) and of agricultural</td>
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<td></td>
<td>drainage systems shall be minimized so that agricultural uses are not</td>
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<td></td>
<td>substantially disrupted.</td>
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<tr>
<td></td>
<td>(d) Disturbance of agricultural land and agricultural operations during</td>
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<td></td>
<td>construction shall be minimized by locating construction staging areas on sites</td>
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<td>that are fallow, that are already developed or disturbed, or that are to be</td>
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<tr>
<td></td>
<td>discontinued for use as agricultural land, and by using existing roads to access</td>
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<td></td>
<td>construction areas to the extent possible.</td>
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<td></td>
<td>(e) To the extent feasible, lands acquired for flood damage reduction purposes</td>
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<td></td>
<td>shall also be used as mitigation land for Natomas Basin Habitat Conservation</td>
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<td></td>
<td>Plan (NBHCP) programs so that agricultural land conversion is minimized.</td>
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</tr>
</tbody>
</table>

√√
### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program,
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<tbody>
<tr>
<td>Phase 2: 3.2-b</td>
<td>(f) Agricultural conservation easements shall be acquired at a 1:1 ratio (i.e., 1 acre on which easements are acquired to 1 acre of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance removed from agricultural use), and the lands on which the easements are acquired shall be maintained in agricultural use.</td>
<td></td>
<td>√</td>
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</tr>
<tr>
<td>Phase 3: 4.1-b</td>
<td>Minimize Impacts on Agricultural Preserve Land and Williamson Act–Contracted Land; Comply with Government Code Sections 51290–51293; and Coordinate with Landowners and Agricultural Operators</td>
<td></td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Phase 4a: 4.2-b</td>
<td>(a) SAFCA shall comply with California Government Code Sections 51290–51295 with regard to acquisition of Williamson Act contracted lands as follows:</td>
<td></td>
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<tr>
<td></td>
<td>▶ The policy of the state, consistent with the purpose of the Williamson Act to preserve and protect agricultural land, is to avoid, whenever practicable, locating public improvements and any public utilities improvements in agricultural preserves. If it is necessary to locate within a preserve, it shall be on land that is not under contract (Government Code Section 51290[a][b]). More specifically, the basic requirements are:</td>
<td></td>
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<tr>
<td></td>
<td>▶ Whenever it appears that land within a preserve or under contract may be required for a public improvement, the public agency or person shall notify the California Department of Conservation (DOC) and the city or county responsible for administering the preserve (Government Code Section 51291[b]).</td>
<td></td>
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<tr>
<td></td>
<td>▶ Within 30 days of being notified, DOC and the city or county shall forward comments, which shall be considered by the public agency or person (Section 51291[b]).</td>
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<tr>
<td></td>
<td>▶ The contract shall be terminated when land is acquired by eminent domain or in lieu of eminent domain (Government Code Section 51295).</td>
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<tr>
<td></td>
<td>▶ DOC and the city or county shall be notified before project completion of any proposed substantial changes to the public improvement (Government Code Section 51291[d]).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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</tr>
<tr>
<td>Phase 1 Project</td>
<td>DOC shall be notified within 10 working days upon completion of the acquisition (Section 51291[c]).</td>
<td></td>
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</tr>
<tr>
<td>Phase 2 Project</td>
<td>If, after acquisition, the acquiring public agency determines that the property will not be used for the proposed public improvement, before returning the land to private ownership, DOC and the city or county administering the involved preserve shall be notified. The land shall be reenrolled in a new contract or encumbered by an enforceable restriction at least as restrictive as that provided by the Williamson Act (Government Code Section 51295).</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Phase 3 Project</td>
<td>SAFCA shall coordinate with landowners and agricultural operators to sustain existing agricultural operations, at the landowners’ discretion, within the project area until the individual agricultural parcels are needed for project construction.</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Phase 4a Project</td>
<td>Properties that were under Williamson Act contract prior to conversion for borrow use and that are owned by SAFCA or are acquired by SAFCA shall be reenrolled under Williamson Act contract upon reclamation to agricultural use if those properties can be covered by the Williamson Act.</td>
<td></td>
<td></td>
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<td>✓</td>
</tr>
</tbody>
</table>

**Land Use, Socioeconomics, and Population and Housing**

**Phase 3: 4.2-c**

**Phase 4a: 4.3-c**

*Notify Residents and Businesses of Project Construction and Road Closure Schedules; Comply with the Garden Highway Settlement Agreement*

a) SAFCA shall provide residents and business owners located adjacent to the construction areas with information regarding construction activities including contact information and complaint procedures and with a construction timeline and shall post its construction schedule on the SAFCA Web site. Information shall include road closures and detour information. The schedule shall be updated on a regular basis.
### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<td>b) SAFCA shall apply the following measures to power line relocations: To the extent that the main electrical power transmission lines and poles serving the Garden Highway must be relocated or replaced to accommodate the project, the relocation or replacement shall occur east of the new adjacent levee and in a manner that appropriately accommodates private landside improvements and properties. Existing main electrical power transmission lines and poles on the waterside of the existing Garden Highway levee that do not need to be relocated or replaced to accommodate the project may be left in place. No new main electrical power transmission lines and poles shall be installed on the waterside of the Garden Highway levee. Consistent with sound engineering practices that prioritize the following, individual services shall: (1) use existing configurations and facilities, and (2) any new poles shall be placed on the landside of Garden Highway, subject to the approval of U.S. Army Corps of Engineers (USACE), the Central Valley Flood Protection Board (CVFPB), and any other regulatory public agencies and utility companies. If the affected property owner and SAFCA cannot agree on a location of an individual service line pole from among locations that are otherwise acceptable to USACE, CVFPB, other regulatory agencies, and the utility provider, SAFCA shall pay the cost of a referee, who is a qualified registered civil engineer and agreeable to both the affected property owner and SAFCA, to decide the dispute over the location of the individual service line pole.</td>
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<td>c) SAFCA shall apply the following measure to encroachments: Once SAFCA determines that the Sacramento River east levee is certifiable for the Federal Emergency Management Agency’s (FEMA’s) flood protection purposes, SAFCA shall make its best efforts to get written agreement from USACE, CVFPB, and RD 1000 that no additional encroachments on the waterside of the Garden Highway levee need to be removed.</td>
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</table>
### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<tr>
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<tr>
<td>d) SAFCA shall implement the following measures before and during construction:</td>
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<td>(i) SAFCA shall give property owners within the project area an informational package advising the property owners that pre-project inspections of their properties are important and that SAFCA will conduct a free preconstruction inspection of the property, but only if requested by the affected property owner. The scope of the inspection and documentation shall be determined by SAFCA in consultation with the property owner. For property owners who request prior inspections/documentation, the inspection/documentation must be scheduled prior to the start of construction within the specified reach of the Sacramento River east levee where project construction will commence.</td>
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<td>(ii) If requested by a property owner within the project area, SAFCA shall test the owner’s domestic well water before and after project construction for the presence of bentonite, concrete, and cement.</td>
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<td>(iii) SAFCA shall cooperate with a construction monitoring committee established by local residents and businesses to resolve reasonable complaints regarding SAFCA or its contractors’ construction activities for the projects improvements in accordance with this provision. A complaint procedure and hierarchy shall be developed by the committee and SAFCA’s Ombudsperson in time to be included in the informational packet referenced in subsection (i), above. In addition, the information packet shall include SAFCA’s instructions to its contractors regarding appropriate use of the Garden Highway. SAFCA agrees to resolve all complaints pertaining to dangerous activities immediately and to resolve all other reasonable complaints in an expeditious manner.</td>
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<td>(iv) SAFCA shall prohibit the use of earth-moving equipment or haul trucks on the Garden Highway in conjunction with project construction.</td>
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<td>(v)</td>
<td>SAFCA shall provide local residents and businesses with a timeline for the phased completion of the project that indicates the role of the various agencies involved in implementing or permitting the project. SAFCA shall post its construction schedule for the project on the SAFCA Web site. The schedule shall be updated on a monthly basis. In addition, SAFCA shall post a “60-day notice” of Planned Construction on the SAFCA Web site. “Planned Construction” shall not include construction in the event of an emergency or construction necessary to remedy a condition discovered after completion of the project. However, SAFCA shall provide whatever notice is possible under the circumstances to affected, adjacent landowners prior to any emergency or remedial work.</td>
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<td>e)</td>
<td>SAFCA shall apply the following measures to drainage line location and relocation: No roadside swales shall be included in the design of the new adjacent levee downstream of Powerline Road. Consistent with sound engineering practices, and subject to the approval of USACE, CVFPB, and the Regional Water Quality Control Board (RWQCB), any new drainage outfall lines required by the project shall be buried pipes, located along property lines, and drain to the river. If a property owner does not want a new drain line located along the property line, he or she may request that the drain line be placed elsewhere on his or her property. If the property owner and SAFCA cannot agree on a location for a new drain line from among locations that are otherwise acceptable to USACE, CVFPB, and Central Valley RWQCB, SAFCA shall pay the cost of a referee, who is a qualified registered civil engineer and agreeable to both parties, to decide the dispute over the location of the drain line.</td>
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<td>f)</td>
<td>Where a property owner occupies a residence on property to be acquired for the project, SAFCA shall allow up to 12 months, rather that the statutory allowance of 3 months, for the owner to relocate off the property. The 12-month period shall be counted from the first written offer.</td>
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<td>g)</td>
<td>SAFCA shall provide notice as feasible for emergency construction or remedial construction.</td>
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<td>Phase 3: 4.2-c</td>
<td>b) SAFCA shall comply with the provisions of the Garden Highway Settlement Agreement including provisions regarding complaint procedures, power pole plans, encroachment removal plans, and construction schedule.</td>
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<tr>
<td>Geology, Soils, and Mineral Resources</td>
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<td>Phase 3: 4.3-a(2)</td>
<td>Secure and Implement the Conditions of the California Surface Mining and Reclamation Act Permit or Exemption</td>
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<td>Phase 4a: 4.4-a(2)</td>
<td>In the event that any borrow site activity is determined to be subject to the California Surface Mining and Reclamation Act (SMARA), SAFCA shall secure and implement the conditions contained in the SMARA permit or exemption as administered and issued by the local agency (applicable county).</td>
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<td>Phase 4a: 4.4-b</td>
<td>Conduct Soil Core Sampling in Areas of the Phase 4a Project Footprint Designated as MRZ-3</td>
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<td>SAFCA shall retain a qualified geologist to analyze soil core samples extracted from proposed borrow sites, to depth of at least 3 feet, in areas that are designated as MRZ-3. In the event that a clean layer of economically viable aggregate is discovered, the county, DOC, and other appropriate agencies shall be notified. In addition, the horizontal extent of available aggregate shall be delineated by a qualified geologist.</td>
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<tr>
<td>Hydrology and Hydraulics</td>
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<td>Phase 2: 3.4-b</td>
<td>Coordinate with Landowners and Drainage Infrastructure Operators, Prepare Final Drainage Studies as Needed, and Implement Proper Project Design</td>
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<td>Phase 3: 4.4-b</td>
<td>During project design, SAFCA’s project engineers shall coordinate with owners and operators of local drainage systems and landowners served by the systems. This coordination shall enable the project engineers to evaluate the pre-project and postproject drainage needs and the design features to consider in project design any project-related substantial drainage disruption or alteration in runoff that would increase the potential for local flooding.</td>
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<tr>
<td>Phase 3: 4.4-c</td>
<td>Monitor Landside Production Wells along the Natomas East Main Drainage Canal (NEMDC) for Effects on Yield, and Remediate Effects if Necessary</td>
<td>SAFCA shall implement a program to monitor groundwater elevations within 500 feet of the NEMDC west levee to determine what effects, if any, occur on the yield of shallow domestic wells following installation of cutoff walls in this area of the NLIP. In the event that the yield of any of these wells is measurably reduced, SAFCA shall arrange with the owners of affected wells to retrofit or replace these wells to provide pre-construction yields.</td>
<td>✓</td>
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If substantial alteration of runoff patterns or disruption of a local drainage system could result from a project feature, a final drainage study shall be prepared and implemented as part of project design.

The study shall consider the design flows of any existing facilities that would be crossed by project features and shall develop appropriate plans for relocation or other modification of these facilities and construction of new facilities, as needed, to ensure that the altered systems provide drainage services during and after construction that are equivalent to the drainage services that were provided prior to construction. If no drainage facilities (e.g., ditches, canals) would be affected, but project features would have a substantial adverse impact on runoff amounts and/or patterns, then new drainage systems shall be included in the design of project improvements to ensure that the project would not result in new or increased local flooding.

Any necessary features to remediate project-induced drainage problems shall be constructed before the project is completed or as part of the project, depending on site-specific conditions. Any additional coordination with landowners and drainage infrastructure operators related to future selection of borrow sites in the Fisherman’s Lake Area shall be completed by SAFCA before commencement of any earth-moving activities.

Phase 3: 4.4-c Monitor Landside Production Wells along the Natomas East Main Drainage Canal (NEMDC) for Effects on Yield, and Remediate Effects if Necessary

SAFCA shall implement a program to monitor groundwater elevations within 500 feet of the NEMDC west levee to determine what effects, if any, occur on the yield of shallow domestic wells following installation of cutoff walls in this area of the NLIP. In the event that the yield of any of these wells is measurably reduced, SAFCA shall arrange with the owners of affected wells to retrofit or replace these wells to provide pre-construction yields.
### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<td><strong>Water Quality</strong></td>
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<tr>
<td>Phase 1: 3.3-a/ 3.4-a/ 3.5-a</td>
<td>Implement Standard Best Management Practices, Prepare and Implement a Stormwater Pollution Prevention Plan, and Comply with National Pollutant Discharge Elimination System Permit Conditions</td>
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<td>Phase 2: 3.3-a/ 3.5-a/ 3.6-a</td>
<td>SAFCA shall file a Notice of Intent (NOI) to discharge stormwater associated with construction activity with the Central Valley RWQCB. Final design and construction specifications shall require the implementation of standard erosion, siltation, and good housekeeping Best Management Practices (BMPs). Construction contractors shall be required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) and comply with the conditions of the National Pollutant Discharge Elimination System (NPDES) general stormwater permit for construction activity. The SWPPP shall describe the construction activities to be conducted, BMPs that will be implemented to prevent discharges of contaminated stormwater into waterways, and inspection and monitoring activities that shall be conducted.</td>
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<td>Phase 3: 4.5-a</td>
<td>The SWPPP shall include the following:</td>
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<td>Phase 4a: 4.6-a</td>
<td>▶ pollution prevention measures (erosion and sediment control measures and measures to control nonstormwater discharges and hazardous spills),</td>
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<td>▶ demonstration of compliance with all applicable Central Valley RWQCB standards and other applicable water quality standards,</td>
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<td></td>
<td>▶ demonstration of compliance with regional and local standards for erosion and sediment control,</td>
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<td></td>
<td>▶ identification of responsible parties,</td>
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<td>▶ detailed construction timelines, and</td>
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<td></td>
<td>▶ a BMP monitoring and maintenance schedule.</td>
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### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<td>BMPs shall include the following:</td>
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<td>► conduct all work according to site-specific construction plans that identify areas for clearing, grading, and revegetation so that ground disturbance is minimized;</td>
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<td>► install silt fences near riparian areas or streams to control erosion and trap sediment, and reseed cleared areas with native vegetation;</td>
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<td>► stabilize disturbed soils of the new or raised levees, existing levee removal areas, and borrow sites before the onset of the winter rainfall season; and</td>
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<td>► stabilize and protect stockpiles from exposure to rain and potential erosion.</td>
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<td>The SWPPP also shall specify appropriate hazardous materials handling, storage, and spill response practices to reduce the possibility of adverse impacts from use or accidental spills or releases of contaminants. Specific measures applicable to the project include, but are not limited to, the following:</td>
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<tr>
<td>► develop and implement strict on-site handling rules to keep potentially contaminating construction and maintenance materials out of drainages and other waterways;</td>
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<td>► conduct all refueling and servicing of equipment with absorbent material or drip pans underneath to contain spilled fuel, and collect any fluid drained from machinery during servicing in leak-proof containers and deliver to an appropriate disposal or recycling facility;</td>
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<td>► maintain controlled construction staging and fueling areas at least 100 feet away from channels or wetlands to minimize accidental spills and runoff of contaminants in stormwater;</td>
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<td>► prevent substances that could be hazardous to aquatic life from contaminating the soil or entering watercourses;</td>
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<td>► maintain spill cleanup equipment in proper working condition. Clean up all spills immediately according to the spill prevention and response plan;</td>
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<tr>
<td><strong>Phase 2: SEIR 3.2-a</strong></td>
<td>Implement Standard Best Management Practices and Comply with NPDES Permit</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td><strong>Phase 3: 4.5-b</strong></td>
<td>SAFCA and its contractor(s) for construction shall implement a suite of stormwater quality BMPs designed to remove contaminants from water discharging through the Garden Highway outlets. These BMPs shall be based on the strategies for effectively integrating stormwater quality management into project design described in <em>Stormwater Quality Design Manual for Sacramento and South Placer Regions</em> (May 2007). Treatment control measures such as vegetated swales and vegetated filter strips shall be used, depending upon the design requirements of the levee. BMPs shall meet “maximum extent practicable” and “best conventional technology/best available technology” requirements, and comply with NPDES permit conditions.</td>
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<tr>
<td><strong>Phase 4a: 4.6-b</strong></td>
<td>BMPs shall be applied to meet the “maximum extent practicable” and “best conventional technology/best available technology” requirements and to address compliance with water quality standards. A monitoring program shall be implemented during and after construction to ensure that the project is in compliance with all applicable standards and that the BMPs are effective.</td>
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</table>

- develop a slurry spill contingency plan to respond to a potential for bentonite slurry spill and prevent slurry from entering the Sacramento River or NCC; and
- immediately notify the California Department of Fish and Game (DFG) and the Central Valley RWQCB of any spills and cleanup procedures.
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<tr>
<td>Phase 2: 3.5-b</td>
<td>Conduct Groundwater Quality Tests, Notify the Central Valley RWQCB, and Comply with the RWQCB’s Waste Discharge Authorization and NPDES Permit</td>
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<td>Phase 4a: 4.6-c</td>
<td>SAFCA, in coordination with RD 1000, shall ensure that groundwater in the vicinity of potential relief well locations is tested during project design and before well construction, to ensure that discharge of extracted groundwater does not exceed maximum contaminant levels specified in Title 22. SAFCA shall provide the Central Valley RWQCB with the results of these water quality tests and a conceptual plan for how the relief wells will be used (e.g., extracting and discharging groundwater), and shall comply with any waste discharge requirements and the NPDES permit issued by the Central Valley RWQCB.</td>
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<tr>
<td>Phase 3: 4.5-c</td>
<td>Implement Best Management Practices and Comply with NPDES Permit Conditions for a Point-Source Discharge</td>
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<td>Prior to operation of Pumping Plant No. 2 for discharge of water into the Sacramento River, SAFCA and RD 1000 shall file a report of waste discharge with RWQCB and comply with NPDES permit conditions (See Mitigation Measure 4.5-a for more information on BMPs and the SWPPP).</td>
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<tr>
<td>Biographical Resources</td>
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<td>Phase 3: 4.8-a</td>
<td>Minimize Effects on Woodland Habitat; Implement all Woodland Habitat Improvements and Management Agreements; Compensate for Loss of Habitat; and Comply with Section 7 of the Federal Endangered Species Act, Section 1602 of the California Fish and Game Code, and Section 2081 of the California Endangered Species Act Permit Conditions</td>
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<tr>
<td>Phase 4a: 4.7-a</td>
<td>➤ Native woodland areas shall be identified and the primary engineering and construction contractors shall ensure, through coordination with a qualified biologist retained by SAFCA, that construction is implemented in a manner that minimizes disturbance of such areas to the extent feasible. Temporary fencing shall be used during construction to prevent disturbance of native trees that are located adjacent to construction areas but can be avoided.</td>
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<tr>
<td>SAFCA shall coordinate with U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), DFG, and the Sacramento County Airport System (SCAS) (if on Airport property) to ensure that all woodland habitat improvements of the NLIP are created and managed. SAFCA shall prepare a project-specific Mitigation and Monitoring Plan (MMP) and append the programmatic Long-Term Management Plan (LTMP) to ensure the creation and long-term management of these components before construction commences. SAFCA shall enter into agreements with the appropriate local entity responsible for long-term management of these created woodland habitats and shall coordinate with USFWS, NMFS, and DFG to ensure that performance standards and long-term management goals that are required by the regulatory agencies with jurisdiction over these resources will be specifically detailed and outlined in the MMP and LTMP. All performance standards and long-term management goals will be in full compliance with the Endangered Species Act (ESA) and California Endangered Species Act (CESA). SAFCA shall implement all terms and conditions of the agreements.</td>
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<tr>
<td>Sacramento River waterside riparian woodland areas that provide shaded riverine aquatic (SRA) habitat functions shall be identified and the primary engineering and construction contractors shall ensure, through coordination with a qualified biologist retained by SAFCA, that construction is implemented in a manner that minimizes disturbance of such areas to the extent feasible. Temporary fencing shall be used during construction to prevent disturbance of trees and shrubs that are located adjacent to construction areas but can be avoided.</td>
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<tr>
<td>► Sacramento River waterside riparian forest and scrub (canopy acreage) shall be restored using ratios established by NMFS. Mitigation shall be 1:1 for in-kind mitigation and 3:1 for mitigation above the levee bench hinge (a surrogate for the ordinary high water mark (OHWM) for impacts below the levee bench hinge (OHWM). Mitigation shall be conducted using native plant species, including an assemblage of grasses, sedges, shrubs, and trees. At maturity, the riparian vegetation community would provide SRA functions. SAFCA shall develop a detailed woodland planting design and management protocols in coordination with USFWS, NMFS, and DFG. A monitoring plan with performance criteria shall be developed to determine the progress of the woodland habitats towards providing adequate mitigation.</td>
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<td>► The criteria for measuring performance shall be used to determine if the habitat improvement is trending toward sustainability (reduced human intervention) and to assess the need for adaptive management (e.g., changes in design or maintenance revisions). These criteria must be met for the habitat improvement to be declared successful, both during a particular monitoring year and at the end of the establishment period. These performance criteria, shall be developed in consultation with USFWS, NMFS, and DFG, and shall include, but not be limited to:</td>
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<td>• percent survival of planted trees (from 65–85%),</td>
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<td>• percent survival of transplanted trees (from 60–85%), and</td>
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<td>• percent relative canopy cover (from 5–35%).</td>
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<td>► SAFCA shall also enter into agreements with entities responsible for long-term management of created SRA habitats to ensure that performance standards and long-term management goals are met. SAFCA shall provide assurances for habitat creation and management goals that are required by regulatory agencies with jurisdiction over these resources will be specifically detailed and outlined in the LTMP and MMP. Such agreements shall be coordinated with USFWS, NMFS, and DFG. SAFCA shall implement all terms and conditions of the agreements.</td>
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<tr>
<td>Phase 1: 3.5-a (b)</td>
<td>Restore, Replace, or Rehabilitate Loss of Degraded SRA Habitat Function and Comply with Section 1602 Permit Conditions</td>
<td>✓</td>
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<tr>
<td>Phase 2: 3.6-b</td>
<td>SAFCA or its representative shall consult with DFG regarding potential disturbance to fish habitat, including SRA, and shall obtain a streambed alteration agreement, pursuant to Section 1602 of the California Fish and Game Code, for construction work associated with levee improvements made on the water side of a levee, if needed. SAFCA shall comply with all permit conditions of the streambed alteration agreement to protect fish habitat or to restore, replace, or rehabilitate any habitat on a no-net-loss basis.</td>
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- A Section 1602 Streambed Alteration Agreement from DFG shall be obtained before any trees within a stream zone under DFG jurisdiction are removed. SAFCA shall comply with all terms and conditions of the streambed alteration agreement including measures to protect fish habitat or to restore, replace, or rehabilitate any SRA habitat on a no-net-loss basis.

- USACE shall initiate Section 7 consultation with NMFS under Section 7 of the Federal ESA and SAFCA shall consult or coordinate with DFG under CESA regarding potential impacts of the loss of SRA habitat on Federally listed fish species and state-listed fish species, respectively. SAFCA shall implement any additional measures developed through the ESA Section 7 and CESA consultation processes, including Section 2081 permit conditions, to ensure no net loss of SRA habitat functions.
### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<td>Phase 2: 3.7-a (SEIR 3.3-a)</td>
<td>Minimize Effects on Sensitive Habitats, Develop a Habitat Management Plan to Ensure Compensation for Unavoidable Adverse Effects, and Comply with Section 404, Section 401, and Section 1602 Permit Processes</td>
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<td>Areas of sensitive habitat shall be identified and the primary engineering and construction contractors shall ensure, through coordination with a qualified biologist retained by SAFCA, that staging areas and access routes are designed to minimize disturbance of canals and ditches, seasonal wetlands, and woodland patches. Trees within the Sacramento County portion of the project area that qualify as Native Oaks or Heritage Trees under Sacramento County’s tree preservation ordinance shall be identified. All sensitive habitats and protected trees that are located adjacent to construction areas, but can be avoided, shall be protected by temporary fencing during construction. SAFCA shall develop a Mitigation Monitoring Plan (MMP) to address establishment and management of aquatic (i.e., GGS/Drainage Canal and marsh/seasonal wetland habitat) and woodland habitats that are created as part of the proposed project in order to ensure that the performance standard of no net loss of sensitive habitat is met. The MMP shall identify the measures and performance criteria during the initial mitigation monitoring period (8 years) and shall be submitted to federal and state agencies for review and approval prior to project construction.</td>
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<td></td>
<td><strong>GGS/Sensitive Aquatic Habitats</strong></td>
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<td>Mitigation for impacts to aquatic habitat include the construction of a new GGS/Drainage canal, relocation of the Elkhorn Irrigation Canal, and preservation of rice fields. The GGS Canal shall create jurisdictional waters of the United States, and include banks that are designed to facilitate shoreline growth of freshwater marsh plants, plantings of native perennial grasses on the upper canal banks for better giant garter snake cover, and creation of giant garter snake hibernacula (rock piles keyed into the bank). This habitat shall be protected in perpetuity through an easement. In addition, to the extent feasible, the Elkhorn Irrigation Canal shall be relocated near the new GGS/Drainage Canal to provide the potential for additional aquatic habitat (its main function would still be irrigation).</td>
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</table>
A monitoring program with performance criteria shall be developed to determine the progress of the GGS/Drainage canal towards achieving the performance standard of no net loss. The criteria for measuring performance shall be used to determine if the habitat is trending toward sustainability (reduced human intervention) and to assess the need for adaptive management (e.g., changes in mitigation design or maintenance revisions). These criteria must be met in order for the mitigation site to be declared successful, both during a particular monitoring year and at the end of the establishment period. These performance criteria, which shall be developed in consultation with DFG and USFWS, shall include, but are not limited to:

- percent total cover (from 85–90%),
- percent relative cover by wetland species (from 85–90%),
- percent relative cover by native species (from 50–85%), and
- water level controlled to within +/- 6 inches of design water level.

Vegetation assessments of the GGS/Drainage Canal shall be conducted annually for native perennial grasses (during the appropriate peak flowering period). The presence of giant garter snakes shall be monitored and recorded along this canal, consistent with monitoring methods currently conducted for SAFCA and TNBC elsewhere in the Natomas Basin.

All monitoring shall occur for the full monitoring period or until the performance criteria are met, whichever period is longer. Waterline plug plantings (sedges and rushes) may not be mowed once established. All areas seeded with perennial grasses shall be mowed to a height of between 6–12 inches above ground.

The primary function and service of the Elkhorn Canal is to deliver irrigation water to users throughout the Natomas Basin. The water supply within the Elkhorn Canal shall vary depending on the needs of those users. Therefore, the performance standard for the Elkhorn Canal is the delivery of irrigation water.
### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<td><strong>Woodlands</strong></td>
<td>To mitigate impacts to woodland habitats, woodland corridors and groves shall be established. In addition, existing woodlands located within project acquisition areas adjacent to the new groves shall be preserved. Generally, the woodland mitigation areas shall vary somewhat depending on the characteristics of their unique locations. Trees under 10 inches diameter at breast height (dbh) located within the project footprint (mostly valley oaks), that can be feasibly relocated shall be transplanted into woodland mitigation areas. Elderberry shrubs located within the project footprint that can be feasibly relocated shall be transplanted into woodland mitigation areas. The botanical species composition of individual clusters and rows shall mimic vegetation types commonly found along the Sacramento River, including: ► Valley oak woodland ► Mixed riparian forest, cottonwood-dominant ► Shallow scrub (at moist soil sites or depressions) ► Sycamore and oak savanna (with native perennial grassland) ► Elderberry shrub/scrub</td>
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<td>A monitoring plan with performance criteria shall be developed to determine the progress of the woodland habitats towards providing adequate mitigation. The criteria for measuring performance shall be used to determine if the mitigation is trending toward sustainability (reduced human intervention) and to assess the need for adaptive management (e.g., changes in mitigation design or maintenance revisions). These criteria must be met in order for the mitigation site to be declared successful, both during a particular monitoring year and at the end of the establishment period. These performance criteria, which shall be developed in consultation with DFG and USFWS, shall include, but are not limited to: ► Percent survival of planted trees (from 65–85%) ► Percent survival of transplanted trees (from 60–85%) ► Percent relative canopy cover (from 5–35%)</td>
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<td>Field assessments of woodland planting areas shall be conducted once per year. The timing of these assessments shall be adjusted according to annual site-specific conditions, but assessments shall generally occur in late summer. To measure percent survival of trees and shrubs, each plant shall be inspected and the species of each live plant shall be recorded. Qualitative assessments shall be recorded to track the health and vigor of each species for adaptive management of the mitigation sites.</td>
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<td>To determine the success of the woodland plantings as a functioning ecosystem, percent canopy shall be estimated each fall by recording the extent of woodland habitat on aerial photographs, or using repeat transects or fixed radius plots at ground level. The timing of these assessments shall be adjusted according to annual site-specific conditions, but assessments shall generally occur in late summer or early fall while trees are still in full foliage. The results of these assessments shall also be used to determine where replanting should occur to maintain suitable Swainson’s hawk habitat. All monitoring shall occur for the full monitoring period or until the performance criteria are met, whichever is longer.</td>
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<td>A Long-Term Management Plan (LTMP) shall be implemented by SAFCA in connection with the NLIP Landside MMP. The LTMP shall establish the long-term management practices (post establishment period success criteria) and land protection mechanisms that shall be implemented as each phase of the NLIP is approved and permitted. Land ownership and management responsibilities shall be held by SAFCA, RD 1000, NCMWC, TNBC, and the SCAS.</td>
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<td>Applicable permits, including a Section 404 permit from the USACE, Section 401 certification from the Central Valley RWQCB, and a Section 1602 streambed alteration agreement from DFG, shall be obtained before any impact on the relevant resources occurs. All permit terms and conditions adopted through these permitting processes shall be implemented.</td>
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<td>Phase 1: 3.6-a</td>
<td>Sensitive Habitats: Avoid Sensitive Habitats to the Extent Feasible, Comply with Section 404 and Section 1602 Permit Processes as Needed, and Mitigate on a No-Net-Loss Basis</td>
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<td>The primary engineering and construction contractors shall ensure, through coordination with a qualified biologist retained by SAFCA, that construction zones, staging areas, and access routes are designed to minimize disturbance of sensitive habitats to the extent feasible and practicable. All sensitive habitat that can be avoided shall be protected during construction by temporary fencing, as appropriate. A protective barrier shall be installed below the construction zone on the water side of the NCC south levee to minimize potential for incidental fallback of material into the NCC during project construction. Construction activity within the seasonal wetland shall be minimized to the maximum extent feasible and practical. Qualified biologists shall regularly monitor construction to ensure these impact avoidance and minimization measures are properly implemented. SAFCA shall consult with the USACE to determine whether the potential for incidental fallback of material into the NCC and/or disturbance of the seasonal wetland during project construction can be adequately avoided to preclude the need for USACE authorization. If such authorization would be required, the Section 404 permitting process shall be completed and the acreage of affected jurisdictional habitat shall be rehabilitated. Habitat rehabilitation shall be by feasible methods agreeable to the USACE. SAFCA shall implement minimization and rehabilitation measures adopted through the permitting process.</td>
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<td><strong>SAFCA shall also consult with DFG regarding impacts to the NCC levee and unavoidable effects to riparian habitat. A streambed alteration agreement shall be obtained, if necessary, and affected woodland shall be replaced and/or rehabilitated in accordance with DFG regulations and as specified in the streambed alteration agreement, if warranted. Habitat restoration, rehabilitation, and/or replacement shall be conducted in a manner that ensures there is no net loss of riparian habitat functions and values and shall be at a location and by methods agreeable to DFG. SAFCA shall implement minimization and compensation measures adopted through the permitting process.</strong></td>
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<td><strong>Phase 3: 4.6-a Implement a Feasible Construction Work Window that Minimizes Impacts to Special-Status Fish Species for Any In-Water Activities; and Implement Operational Controls and a Fish Rescue Plan that Minimizes Impacts to Fish Associated with Cofferdam Construction and Dewatering</strong></td>
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<td>SAFCA shall identify and implement feasible in-water construction work windows in consultation with National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USWFS), and DFG. In-water work windows shall be timed to occur when sensitive fish species/life stages are not present or least susceptible to disturbance (e.g., July 1–October 31). This measure would reduce potential construction-related direct impacts to fish from potential dredging and/or construction of the cofferdam and dewatering, and/or the placement of rock riprap because all in-water work would occur during the period of time that sensitive fish (or life stages) would be least likely to be present in the construction area.</td>
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<td>The cofferdam sheetpiles at the outfall structure construction site shall be installed using a vibratory hammer that minimizes underwater sound pressure levels to the greatest extent feasible to minimize effects to sensitive fish species. Hammers shall only be used during daytime hours and shall commence at low energy levels and slowly build to impact force. If it is determined that a higher-intensity percussion hammer would be required for installing the cofferdam, avoidance of potential adverse effects would be achieved by consulting with NMFS, USFWS, and DFG to determine the appropriate actions, which may include surveying the outfall site to determine fish presence prior to installation, and possibly modifying the work window accordingly.</td>
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<td>To reduce the potential for fish stranding or minimize the potential for harm during cofferdam dewatering activities, SAFCA or its contractor shall implement a fish rescue plan. Prior to the closure of the cofferdam in the Sacramento River, seining by a qualified fisheries biologist (with a current DFG collection permit) would be conducted within the cofferdam using a small-mesh seine to direct and move fish out of the cofferdam area. Upon completion of seining, the entrance to the cofferdam will be blocked with a net to prevent fish from entering the cofferdam isolation area before the cofferdam is completed. Once the cofferdam is completed and the area within the cofferdam is closed and isolated, additional seining will be conducted within the cofferdam to remove any remaining fish. Once most of the fish have been removed from the isolated area, portable pumps with intakes equipped with 1.75 mm mesh screen shall be used to dewater to a depth of 1.5-2 feet. A qualified biologist would implement further fish rescue operations using electrofishing and dip nets. All fish that are captured will be placed in clean 5-gallon buckets and/or coolers filled with Sacramento River water, transported downstream of the construction area, and released back into suitable habitat in the Sacramento River with minimal handling. After all fish have been removed using multiple seine passes, electrofishing, and dip nets (as necessary) portable pumps with screens (see above) will be used for final dewatering. NMFS, USFWS, and DFG shall be notified at least 48 hours prior to the fish rescue.</td>
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<td>Phase 3: 4.7-a Phase 4a: 4.7-c</td>
<td>Minimize Effects on Jurisdictional Waters of the United States; Complete Detailed Design of Habitat Creation Components and Secure Management Agreements to Ensure Compensation of Waters Filled; and Comply with Section 404, Section 401, Section 10, and Section 1602 Permit Processes</td>
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  - Waters of the United States, including wetlands, shall be identified and the primary engineering and construction contractors shall ensure, through coordination with a qualified biologist(s), that construction is implemented in a manner that minimizes disturbance of canals, ditches, and seasonal wetlands. Temporary fencing shall be used during construction to prevent disturbance of waters of the United States that are located adjacent to construction areas but can be avoided. √

  - To mitigate for permanent impacts to sensitive aquatic resources, at least 1 acre of aquatic habitat (irrigation/drainage canal) or 1 acre of seasonal wetland shall be created for every acre that is lost to ensure no net loss of sensitive aquatic habitat. The mitigation ratio that is ultimately required will be determined by USACE through the Section 404 permitting process. √

  - Features planned in the Phase 4a Project (under both action alternatives), would provide aquatic habitat that has been designed to offset the effects described above. These features include the creation of aquatic habitat resulting from construction of the relocated Riverside Canal and creation of managed marsh in the vicinity of Fisherman’s Lake, much of which would meet the criteria for Waters of the United States, including wetlands. √
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<td>▶ Develop and implement a Mitigation and Monitoring Plan and Long-Term Management Plan in coordination with and subject to approval of USACE, USFWS, and DFG. The MMP and LTMP shall provide complete detailed designs of habitat creation components, performance standards and management protocols. SAFCA shall also enter into agreements with entities responsible for long-term management of created canals and marsh habitats to ensure that performance standards and long-term management goals that are required by the regulatory agencies with jurisdiction over these resources will be met and specifically detailed and outlined in the LTMP and MMP. All performance standards and long-term management goals will be in full compliance with ESA and CESA. SAFCA shall secure all such agreements and implement all conditions of the agreements.</td>
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<td>▶ Obtain the following applicable permits prior to the start of construction activities that would affect the resources covered by these permits: an individual permit pursuant to Section 404 of the CWA and Section 10 of the Rivers and Harbors Act from USACE, Section 401 certification from the Central Valley RWQCB, and a Section 1602 Streambed Alteration Agreement from DFG. All requirements of these permitting processes shall be implemented by SAFCA.</td>
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<td><strong>Phase 2: 3.7-b Phase 3: 4.9-a</strong></td>
<td><strong>Conduct Focused Surveys for Special-Status Plants, Minimize Effects, Transplant Unavoidable Individual Plants, and Develop Management Plans for Transplanted Populations</strong></td>
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<td>Before any ground-disturbing activities begin, a qualified biologist retained by SAFCA shall conduct surveys for special-status plants in appropriate habitat within the project footprint, in accordance with USFWS and/or DFG guidelines and at the appropriate time of year when the target species would be clearly identifiable. If no special-status plants are found during focused surveys, no further action shall be required.</td>
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<td>► If special-status plants are found in the project footprint, areas of occupied habitat shall be identified and the primary engineering and construction contractors shall ensure, through coordination with the biologist, that construction activities are implemented in a manner that minimizes disturbance of these areas (e.g., temporary fencing shall be used during construction to protect all occupied habitat that is located adjacent to construction areas that can be avoided).</td>
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<td>► If special-status plants are present in areas that cannot be avoided, SAFCA shall coordinate with USFWS and DFG to determine whether transplanting would be appropriate to further minimize adverse effects. Affected plants may potentially be transplanted to the GGS/Drainage Canal, if feasible. At least 1 acre of irrigation/drainage canal or marsh habitat shall be created for every acre of occupied special-status plant habitat that is lost.</td>
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<td>► If special-status plants cannot be avoided, seed shall be collected and propagated at a DFG-approved nursery to provide additional plantings and transplanted during the dormant season if feasible to an approved site. Additionally, a mitigation plan shall be developed and approved by DFG. The plan shall include success criteria and specific requirements for planting, monitoring, and remediation in the event that success criteria cannot be met. Mitigation sites shall be permanently protected and managed in perpetuity.</td>
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<tr>
<td>Phase 2: 31.7-b</td>
<td>If special-status plants are found, areas of occupied habitat shall be identified and the primary engineering and construction contractors shall ensure, through coordination with the biologist, that staging areas and access routes are designed to minimize disturbance of these areas. All occupied habitat that is located adjacent to construction areas, but can be avoided, shall be protected by temporary fencing during construction. If special-status plants are present in areas that cannot be avoided, plants that would be affected shall be transplanted to the GGS/Drainage Canal, if feasible. If this is infeasible (i.e., because the created habitat is not suitable at the time transplantation is required), an alternative transplantation location (e.g., TNBC preserves), approved by USFWS and DFG, shall be utilized. A plan to address management of the transplanted populations and their habitat shall be developed. The management plan shall be approved by USFWS and DFG and shall, at a minimum, establish specific success criteria (e.g., no net loss of occupied special-status plant habitat), specify remedial measures to be undertaken if success criteria are not met (e.g., enhancement of habitat quality and additional monitoring), and describe short- and long-term maintenance of the transplantation site. Long-term protection of the special-status plants, and funding for management of their habitat, shall be provided through appropriate mechanisms to be determined by SAFCA, in consultation with the regulatory agencies and other entities cooperating in implementation of the proposed project.</td>
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<tr>
<td>Project Phase and Mitigation Measure No.</td>
<td>Mitigation Measure</td>
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<tr>
<td>Phase 1: 3.6-c Phase 2: SEIR 3.3-b</td>
<td>Minimize the Potential for Direct Loss of Giant Garter Snake Individuals, Implement All Upland and Aquatic Habitat Improvements and Management Agreements to Ensure Adequate Compensation for Loss of Habitat, and Obtain Incidental Take Authorization</td>
<td>✓</td>
<td>✓</td>
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</tr>
<tr>
<td>Phase 3: 4.9-c Phase 4a: 4.7-e</td>
<td>▶ The engineering and design consultants and primary construction contractors shall ensure, through coordination with a qualified biologist retained by SAFCA, that construction is implemented in a manner that minimizes disturbance of giant garter snake habitat (e.g., temporary fencing shall be used during construction to protect all aquatic and adjacent upland habitat that is located adjacent to construction areas that can be avoided).</td>
<td>✓</td>
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<tr>
<td></td>
<td>▶ Additional measures consistent with the goals and objectives of the NBHCP shall be implemented to minimize the potential for direct injury or mortality of individual giant garter snakes during project construction.</td>
<td>✓</td>
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<td></td>
<td>▶ Such measures shall be finalized in consultation with USFWS and DFG, and are likely to include conducting worker awareness training, timing initial ground disturbance to correspond with the snake’s active season (as feasible in combination with project needs and minimizing disturbance of nesting Swainson’s hawks), dewatering aquatic habitat before fill, conducting preconstruction surveys, erecting fencing around habitat features that can be avoided to ensure that these remain undisturbed by construction vehicles and personnel, conducting biological monitoring during construction, and removing any temporary fill or construction debris and restoring temporarily disturbed areas to their pre-project conditions according to the USFWS’s Guidelines for the Restoration and/or Replacement of Giant Garter Snake Habitat (USFWS 1997).</td>
<td>✓</td>
<td>✓</td>
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<td>Project Phase and Mitigation Measure No.</td>
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<tr>
<td>SAFCA shall coordinate with USFWS, DFG, and SCAS (if on Airport property) to ensure that the NLIP’s aquatic and upland habitat improvements are created and managed. SAFCA shall prepare a project-specific MMP and programmatic LTMP to ensure the creation and long-term management of these components before construction commences. SAFCA shall enter into agreements with the appropriate local entity responsible for long-term management of these created giant garter snake habitats and shall coordinate with USFWS and DFG to ensure that performance standards and long-term management goals required by the regulatory agencies with jurisdiction over these resources will be specifically detailed and outlined in the LTMP and MMP.</td>
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<tr>
<td>All performance standards and long-term management goals will be in full compliance with ESA and CESA. SAFCA shall implement all terms and conditions of the management agreements.</td>
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<td>SAFCA shall implement all measures developed through informal consultation with UWFWS and DFG, as well as any additional measures adopted through a formal permitting process, if applicable.</td>
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<td>Where borrow sites would result in impacts to giant garter snake habitat over more than one construction season, the work shall progress in cells that will be incrementally developed as habitat or returned to agricultural use as the borrow activities are completed such that no area would be used in consecutive years or such that replacement habitat is available prior to loss of existing habitat.</td>
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<tr>
<td>Authorization for take of giant garter snake under the ESA and CESA shall be obtained. All measures subsequently adopted through the permitting process shall be implemented.</td>
<td>√</td>
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**Phase 1:** 3.6-e Phase 2: SEIR 3.3-c Phase 3: 4.9-f Phase 4a: 4.7-f

**Minimize Potential Impacts on Swainson’s Hawk and Other Special-Status Birds Foraging and Nesting Habitat, Monitor Active Nests during Construction, Implement All Upland and Agricultural Habitat Improvements and Management Agreements to Compensate for Loss of Quantity and Quality of Foraging Habitat, Obtain Incidental Take Authorization**
## Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<tr>
<th>Project Phase and Mitigation Measure No.</th>
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<tbody>
<tr>
<td>► The primary engineering and design consultants and primary construction contractors shall ensure, through coordination with a qualified biologist retained by SAFCA, that construction is implemented in a manner that minimizes disturbance of potential nesting habitat for special-status birds through the following activities:</td>
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<td>► The biologist shall conduct preconstruction surveys to identify active special-status bird nests near construction areas.</td>
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<td>• Surveys for nesting birds shall be conducted before project activities are initiated during the nesting season (March 1–September 15). Surveys shall be conducted in accordance with standardized protocols and NBHCP requirements.</td>
<td>✓</td>
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<td>• Removal of potential nesting habitat shall be conducted during the non-nesting season, to the extent feasible and practicable, to minimize the potential for loss of active nests.</td>
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<tr>
<td>• If an active nest is found, the biologist shall determine an appropriate buffer that minimizes potential for disturbance of the nest, in coordination with DFG. No project activities shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active or the birds are not dependent on it.</td>
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<tr>
<td>• Monitoring shall be conducted during construction and by a qualified biologist to ensure that project activity does not result in detectable adverse effects on the nesting pair or their young.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>• The size of the buffer may vary, depending on the nest location, nest stage, construction activity, and monitoring results. If implementation of the buffer becomes infeasible or construction activities result in an unanticipated nest disturbance, DFG shall be consulted to determine the appropriate course of action.</td>
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<tr>
<td>►</td>
<td>The biologist shall conduct preconstruction surveys to identify active nests within 0.50 mile of construction areas, in accordance with DFG guidelines. Surveys shall be conducted in accordance with NBHCP requirements and <em>Recommended Timing and Methodology for Swainson’s Hawk Nesting Surveys in California’s Central Valley</em> (Swainson’s Hawk Technical Advisory Committee 2000).</td>
<td>√</td>
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<tr>
<td>►</td>
<td>SAFCA shall coordinate with USFWS, DFG, and SCAS (if on Airport property) to ensure that the NLIP’s woodland, upland, and agricultural habitat improvements are created and managed. SAFCA shall prepare a project-specific MMP and programmatic LTMP to ensure the creation and long-term management of these components before construction commences. SAFCA shall enter into agreements with the appropriate local entity responsible for long-term management of these created Swainson’s hawk habitats and shall coordinate with USFWS and DFG to ensure that performance standards and long-term management goals that are required by the regulatory agencies with jurisdiction over these resources will be specifically detailed and outlined in the LTMP and MMP. All performance standards and long-term management goals will be in full compliance with ESA and CESA. SAFCA shall implement all terms and conditions of the management agreements.</td>
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<tr>
<td>►</td>
<td>The criteria for measuring performance shall be used to determine if the habitat improvement is trending toward sustainability (reduced human intervention) and to assess the need for adaptive management (e.g., changes in design or maintenance revisions). These criteria must be met for the habitat improvement to be declared successful, both during a particular monitoring year and at the end of the establishment period. Performance criteria for managed grasslands shall be developed in consultation with USFWS, NMFS, and DFG, and shall include, but not be limited to:</td>
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<td></td>
<td>• percent cover of invasive species (&lt;1%),</td>
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<td></td>
<td>• percent cover of nonnative herbaceous plants (&lt;10–25%), and</td>
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<td></td>
<td>• percent absolute cover of native species (&gt;50–80%).</td>
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<tr>
<td>▶ Authorization for take of Swainson’s hawk under CESA shall be obtained. All measures subsequently adopted through the permitting process shall be implemented.</td>
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<td>✓</td>
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<tr>
<td><strong>Phase 2: SEIR 3.3-c</strong></td>
<td>SAFCA shall develop and implement an MMP to address management of grassland habitats that are created as part of the proposed project in order to ensure that the performance standard of no net loss of sensitive habitat is met. To mitigate impacts on cropland and grassland suitable for Swainson’s hawk foraging habitat, SAFCA shall create managed native perennial grassland habitats on the new levee slopes, seepage berms, access right-of-ways, and canal embankments. This grassland shall provide moderate-quality Swainson’s hawk foraging habitat. In addition, grasslands on and adjacent to canal banks shall provide basking and aestivation habitat for giant garter snake.</td>
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<td>▶ The MMP shall include methods to create the grasslands, including native grass mixes which shall be seeded along new levee slopes and seepage berms, staging areas, and adjacent maintenance and utility rights-of-way. Seed material shall be purchased from a reputable nursery and must be from local genetic stock within 200 miles of the project site unless otherwise approved by a qualified ecologist. The native grass mix shall include the following: Purple needlegrass (<em>Nassella pulchra</em>)</td>
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<td>▶ Creeping wildrye (<em>Leymus triticoides</em>)</td>
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<td>▶ Six weeks grass (<em>Vulpia microstachys</em>)</td>
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<td>▶ Slender wheatgrass (<em>Elymus trachycaulus</em>)</td>
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<td>▶ Meadow barley (<em>Hordeum brachyantherum</em>)</td>
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<td>▶ An initial baseline assessment of grassland mitigation sites shall be conducted following the initial drill seeding program, and then a monitoring program with performance criteria shall be developed to determine the progress of the grassland habitats towards providing adequate mitigation.</td>
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## Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<tr>
<td><strong>Phase 1: 3.6-f</strong></td>
<td><strong>Special-Status Nesting Birds: Identify Habitat and Nest Locations, Minimize Potential Impacts, Monitor Active Nests during Construction, and Mitigate in Consultation with USFWS and DFG as Needed</strong></td>
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<td>The primary engineering and construction contractors shall ensure, through coordination with a qualified biologist retained by SAFCA, that construction zones, staging areas, and access routes are designed to minimize disturbance and removal of nesting habitat for special-status nesting birds to the extent feasible and practicable. Nesting habitat that cannot be avoided shall be removed during the non-nesting season, to the extent feasible and practicable. To avoid potential impacts to active nests of special-status birds, pre-construction surveys shall be conducted and buffers implemented. A qualified biologist shall conduct preconstruction surveys to identify active special-status bird nests along the NCC, within 500 feet of construction areas. Surveys shall be conducted in accordance with NBHCP requirements. If an active nest is found, an appropriate buffer to minimize impacts and maintain consistency with the goals and objectives of the NBHCP shall be determined by a qualified biologist. No project activities shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active or the birds are not dependent upon it. The size of the buffer may vary, depending on the nest location, nest stage, and construction activity. Monitoring shall be conducted by a qualified biologist to ensure project activity does not result in detectable adverse effects to the nesting pair or their young. SAFCA shall consult with USFWS and DFG regarding measures to avoid and minimize disturbance of active nests and shall implement all measures deemed appropriate and feasible during this consultation.</td>
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<td><strong>Phase 3: 4.9-b</strong></td>
<td><strong>Conduct Focused Surveys for Elderberry Shrubs as Needed, Implement all Woodland Habitat Improvements and all Management Agreements, Ensure Adequate Compensation for Loss of Shrubs, and Obtain Incidental Take Authorization</strong></td>
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<td><strong>Phase 4a: 4.7-g</strong></td>
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<tr>
<td>▶ A qualified biologist retained by SAFCA shall conduct focused surveys of elderberry shrubs within 100 feet of the project footprint, in accordance with USFWS guidelines. All elderberry shrubs with potential to be affected by project activities shall be mapped, the number of stems greater than 1 inch in diameter on each shrub that requires removal shall be counted, and these stems shall be searched for beetle exit holes.</td>
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<tr>
<td>▶ The engineering and design consultants and primary construction contractors shall ensure, through coordination with the biologist, that construction is implemented in a manner that minimizes disturbance of areas that support elderberry shrubs (e.g., temporary fencing shall be used during construction to protect all elderberry shrubs that are located adjacent to construction areas but can be avoided). Shrubs that require removal shall be transplanted to the woodland creation areas, if feasible, when the plants are dormant (November through the first 2 weeks of February) to increase the success of transplanting. If none of the areas of suitable habitat to be created as part of the project would be available before the impact would occur, alternative transplantation locations (e.g., other SAFCA mitigation areas or The Natomas Basin Conservancy [TNBC] preserves) shall be identified and shall be approved by USFWS.</td>
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<td>▶ The number of replacement elderberry plantings shall be determined based on USFWS guidelines, which require replacement ratios ranging from 1:1 to 8:1 for lost stems at least 1 inch in diameter, depending on the size of the affected stems and presence or absence of beetle exit holes. Associated native species shall be planted at ratios ranging from 1:1 to 2:1 for each elderberry planting.</td>
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<td><strong>Phase 1</strong></td>
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<tr>
<td><strong>SAFCA</strong></td>
<td>SAFCA shall coordinate with USFWS, DFG, and SCAS (if on Airport property) to ensure that the NLIP’s woodland habitat improvements are created and managed. SAFCA shall prepare a project-specific MMP and programmatic LTMP to ensure the creation and long-term management of these components before construction commences. SAFCA shall enter into agreements with the appropriate local entity responsible for long-term management of these created woodland habitats and shall coordinate with USFWS and DFG to ensure that performance standards and long-term management goals that are required by regulatory agencies with jurisdiction over these resources will be specifically detailed and outlined in the LTMP and MMP. All performance standards and long-term management goals will be in full compliance with the ESA and CESA. SAFCA shall implement all terms and conditions of the management agreements USACE shall initiate consultation activities with USFWS under Section 7 of the ESA, and authorization for take of valley elderberry longhorn beetle under the ESA shall be obtained if it is determined, in consultation with USFWS, that shrub removal is likely to result in such take. All measures subsequently developed through the Section 7 consultation process shall be implemented by SAFCA.</td>
<td>✓</td>
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<tr>
<td><strong>Phase 2: 3.7-c</strong></td>
<td>Minimize Effects on Valley Elderberry Longhorn Beetle, Conduct Focused Surveys, Develop a Management Plan to Ensure Adequate Compensation for Unavoidable Adverse Effects, and Obtain Incidental Take Authorization</td>
<td>✓</td>
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<tr>
<td>The primary engineering and construction contractors shall ensure, through coordination with a qualified biologist retained by SAFCA, that staging areas and access routes are designed to minimize disturbance of areas that support elderberry shrubs. All elderberry shrubs that are located adjacent to construction areas, but can be avoided, shall be protected by temporary fencing during construction.</td>
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<td><strong>Phase 3</strong></td>
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<td><strong>Phase 4a</strong></td>
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<td></td>
<td>Before the initiation of any ground-disturbing activities, the biologist shall conduct surveys for elderberry shrubs within 100 feet of the impact area, in accordance with USFWS guidelines. All elderberry shrubs with potential to be affected by project activities shall be mapped, the number of stems greater than 1 inch in diameter on each shrub that requires removal shall be counted, and these stems shall be searched for beetle exit holes. Shrubs that are removed shall be transplanted to the woodland creation areas, if feasible. If none of the areas of suitable habitat to be created as part of the proposed project would be available before the impact would occur, alternative transplantation locations (e.g., other SAFCA mitigation areas or TNBC preserves) shall be identified. SAFCA shall develop and implement a plan to address establishment and management of the elderberry shrubs and associated species plantings to compensate for unavoidable effects on elderberry shrubs. The plan shall, at a minimum, describe requirements for transplantation of shrubs that require removal; specify the number of replacement elderberry shrubs and associated native plants to be established and associated success criteria; specify remedial measures to be undertaken if mitigation success criteria are not met; and describe short- and long-term maintenance and management. The number of replacement plantings shall be determined based on USFWS guidelines, which require replacement ratios ranging from 1:1 to 8:1 for lost stems at least 1 inch in diameter, depending on the size of the affected stems and presence or absence of beetle exit holes. Associated native species shall be planted at ratios ranging from 1:1 to 2:1 for each elderberry planting. Long-term protection of the planting area for elderberry and associated species, and funding for its management, shall be provided through appropriate mechanisms to be determined by SAFCA, USFWS, and other entities cooperating in implementation of the proposed project.</td>
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<tr>
<td>Phase 2: 3.7-e &amp; 3.7-g</td>
<td>A qualified biologist retained by SAFCA shall conduct surveys for northwestern pond turtle in aquatic habitats to be dewatered and/or filled during project construction. Surveys shall be conducted immediately after dewatering and before fill of aquatic habitat suitable for pond turtles. If pond turtles are found, the biologist shall capture them and move them to nearby areas of suitable habitat that would not be disturbed by project.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Phase 3: 4.9-e &amp; 4.9-g</td>
<td>The engineering and design consultants and primary construction contractors shall ensure, through coordination with a qualified biologist retained by SAFCA, that construction is implemented in a manner that minimizes disturbance of potential nesting habitat for burrowing owls (e.g., removal of potential nesting habitat shall be conducted during the non-nesting season, to the extent feasible and practicable, to minimize the potential for loss of active nests).</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
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<tr>
<td>Phase 4a: 4.7-h</td>
<td>The management plan shall be reviewed and approved by USFWS before removal of any elderberry shrubs. Authorization for take of valley elderberry longhorn beetle under ESA shall be obtained if it is determined, in consultation with USFWS, that shrub removal is likely to result in such take. All measures subsequently developed through informal consultation with USFWS shall be implemented, as well as any additional measures adopted through a formal permitting process, if applicable.</td>
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### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<tr>
<td>▶ The biologist shall conduct preconstruction surveys to identify occupied burrowing owl burrows in the vicinity of construction areas. Surveys for burrowing owl shall be conducted before project activities are initiated at any time of year. Surveys shall be conducted in accordance with standardized protocols, including DFG’s <em>Staff Report on Burrowing Owl Mitigation</em> (DFG 1995), and NBHCP requirements. If an occupied nest burrow is found, an appropriate buffer that minimizes potential for disturbance of the nest shall be determined by the biologist, in coordination with DFG. No project activities shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active or the birds are not dependent on it. Monitoring shall be conducted by a qualified biologist to ensure that project activity does not result in detectable adverse effects on the nesting pair or their young. The size of the buffer may vary, depending on the nest location, nest stage, construction activity, and monitoring results. If implementation of the buffer becomes infeasible or construction activities result in an unanticipated nest disturbance, DFG shall be consulted to determine the appropriate course of action.</td>
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<td>▶ If an occupied burrowing owl burrow that does not support an active nest is found, SAFCA shall develop and implement a relocation plan, in coordination with and subject to approval of DFG and USFWS and consistent with requirements of the NBHCP, DFG’s <em>Staff Report on Burrowing Owl Mitigation</em> (DFG 1995), and the Airport <em>Wildlife Hazard Management Plan</em> (WHMP). Relocation is anticipated to occur through passive exclusion of owls from the project site (using one-way doors at the burrow entrances). The owls would then be able to reoccupy the area after construction is complete. Because the project would generally result in temporary disturbance of burrowing owl habitat and conversion from one suitable habitat type to another, no mitigation for temporary burrow or habitat loss would be required.</td>
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### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<tr>
<td>Phase 3: 4.6-a</td>
<td>Implement a Feasible Construction Work Window that Minimizes Impacts to Special-Status Fish Species for Any In-Water Activities, and Implement Operational Controls and a Fish Rescue Plan that Minimizes Impacts to Fish Associated with Cofferdam Construction and Dewatering</td>
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<td>Phase 4a: 4.7-i</td>
<td>▶ SAFCA shall implement Mitigation Measure 4.6-a, as described in Section 4.6, “Water Quality.” This measure requires filing a Notice of Intent (NOI) with the Central Valley RWQCB; implementing standard erosion and siltation measures and best management practices (BMPs); preparing and implementing a storm water pollution prevention plan (SWPPP); preparing and implementing a spill containment plan; and complying with the conditions of the National Pollutant Discharge Elimination System (NPDES) general stormwater permit for construction activity.</td>
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<td>▶ SAFCA shall identify and implement feasible in-water construction work windows in consultation with NMFS and DFG. In-water work windows shall be timed to occur when sensitive fish species/life stages are not present or least susceptible to disturbance (e.g., July 1–October 1). This measure would reduce potential construction-related direct impacts to fish from dredging and/or construction of the cofferdam and dewatering, general in-water construction, and/or the placement of rock riprap because all in-water work would occur during the period of time that sensitive fish (or life stages) would be least likely to be present in the construction area.</td>
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<td>▶ USACE shall initiate Section 7 consultation with NMFS under Section 7 of the ESA, and SAFCA shall consult with DFG under CESA regarding potential construction-related impacts to Federally listed fish species and state-listed fish species, respectively. SAFCA shall implement any additional measures developed through the ESA Section 7 and CESA consultation processes, including Section 2081 permit conditions, to ensure that impacts are avoided and/or minimized.</td>
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## Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<tr>
<td>► The cofferdam shetpiles at the outfall structure construction site and the piles at the South Lauppe Pumping Plant site shall be installed using a vibratory hammer when possible to minimize underwater sound pressure levels to the greatest extent feasible and associated effects to sensitive fish species. Vibratory hammers/pile drivers shall only be used during daytime hours and shall commence at low energy levels and slowly build to impact force. If it is determined that a higher-intensity percussion hammer or pile driver would be required for installing the cofferdam or pilings, avoidance of potential adverse effects would be achieved by consulting with NMFS, USFWS, and DFG to determine the appropriate actions, which may include surveying the outfall site to determine fish presence prior to installation, and possibly modifying the work window accordingly.</td>
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<td>► To reduce the potential for fish stranding or minimize the potential for harm during cofferdam dewatering activities, SAFCA or its contractor shall implement a fish rescue plan. Prior to the closure of the cofferdam in the Sacramento River, seining by a qualified fisheries biologist (with a current DFG collection permit) will be conducted within the cofferdam using a small-mesh seine to direct and move fish out of the cofferdam area. Upon completion of seining, the entrance to the cofferdam will be blocked with a net to prevent fish from entering the cofferdam isolation area before the cofferdam is completed. Once the cofferdam is completed and the area within the cofferdam is closed and isolated, additional seining will be conducted within the cofferdam to remove any remaining fish. Once most of the fish have been removed from the isolated area, portable pumps with intakes equipped with 1.75 mm mesh screen shall be used to dewater to a depth of 1.5–2 feet. A qualified biologist shall implement further fish rescue operations using electrofishing and dip nets. All fish that are captured will be placed in clean 5-gallon buckets and/or coolers filled with Sacramento River water, transported downstream of the construction area, and released back into suitable habitat in the Sacramento River with minimal handling. After all fish have been removed using multiple seine passes, electrofishing, and dip nets (as necessary) portable pumps with screens (see above) will be used for final dewatering. NMFS, USFWS, and DFG shall be notified at least 48 hours prior to the fish rescue.</td>
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<tr>
<td>Phase 2: 3.7-i Phase 3: 4.9-h Phase 4a 4.7-k</td>
<td>Ensure that Project Encroachment Does Not Jeopardize Successful Implementation of the NBHCP</td>
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<td>Based on the current value-per-acre, SAFCA shall contribute funds to TNBC to offset direct impacts to TNBC reserves on an acre-per-acre basis, drawing upon TNBC’s existing land surplus</td>
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<td>SAFCA shall coordinate with TNBC to determine the most effective means of ensuring that the small encroachment onto reserves that would result from project implementation does not adversely affect the ability to meet the minimum-size and mitigation-ratio requirements of the NBHCP, require revision of existing management plans, and/or affect revenue-generation requirements. SAFCA shall, in coordination with TNBC, identify and implement necessary actions to ensure that encroachment does not jeopardize successful implementation of the NBHCP. Such actions may include direct supplementation of TNBC funding to offset losses in revenue generation, management of portions of the reserve that are encroached upon by project</td>
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<td>Cultural Resources</td>
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<td>Phase 1: 3.7-a</td>
<td>Document Alterations and Distribute the Information to the Appropriate Repositories</td>
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<td></td>
<td>Consistent with previous mitigation efforts for alterations to RD 1000, a qualified professional archaeologist or architectural historian shall document the alterations made to the NCC levee and distribute the information to the appropriate repositories.</td>
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Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<tr>
<td>Phase 2: SEIR 3.4-a</td>
<td>Incorporate Mitigation Measures to Documents Regarding Any Elements Contributing to RD 1000 and Rural Landscape District and Distribute the Information to the Appropriate Repositories</td>
</tr>
<tr>
<td>Phase 4.10-a</td>
<td>The management of the cultural resources that constitute the contributing elements of RD 1000 is governed by the PA. Because the elements of the RD 1000 historic landscape district have already been recorded, a new inventory of these resources is not required under Stipulation IV(A) of the PA. After an APE has been determined per Stipulation III(C), a qualified architectural historian shall determine if contributing elements of the district are present in the APE. If contributing elements are present, the architectural historian shall update records for these resources and evaluate those elements to determine if they retain integrity. Because much of the Natomas Basin has been developed, it is possible that changes to the setting have diminished the integrity and thus eligibility of contributing elements in the APE. If the elements in the APE retain eligibility, the architectural historian shall make a finding of effect.</td>
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<tr>
<td>Phase 4a: 4.8-a</td>
<td>If there is an adverse effect to a contributing element (under Section 106) or a significant impact on the resource’s integrity as an historical resource (under CEQA), the architectural historian shall review existing HAER documentation and determine whether any augmentation of this documentation is needed. The original documentation for the American River Watershed Project (completed in 1997) contemplated changes to the setting of the district and thus provided comprehensive documentation to record the district before urbanization (Peak &amp; Associates 1997). This original documentation was intended to adequately recorded and preserve records of the elements that may be affected. However, if this documentation is not sufficient for adversely affected and contributing elements, SAFCA shall prepare an Historic Property Treatment Plan (HPTP) stipulating additional HAER documentation, or other similar treatment as required under Stipulation V(A). After consultation with USACE and the State Historic Preservation Officer (SHPO), SAFCA shall implement the required documentation or treatment prior to construction. Any additional documentation that is needed shall be prepared and distributed to appropriate public repositories.</td>
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Phase 1 Project: √
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<tr>
<td>Phase 3: 4.10-c</td>
<td>Avoid Ground Disturbance Near Eligible and Listed Resources to the Extent Feasible, Prepare a Finding of Effect, and Resolve Any Adverse Effects through Preparation of an HPTP</td>
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<td>Phase 4a: 4.8-b</td>
<td>► Complete an evaluation of identified resources, and determine the effect of each phase of work on all eligible or listed resources in accordance with Stipulation IV(A) of the PA.</td>
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<td>► Consult with USACE, the SHPO, the MLD and other consulting parties such as Native American individuals and organizations, to develop appropriate treatment or mitigation in an HPTP, per Stipulation V(A) of the PA if the project would result in adverse effects on eligible resources.</td>
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<td>► Document the site and avoid further effects by protecting the resource through capping per management under an HPTP or other avoidance measures where feasible. Where physical impacts cannot be avoided and such physical impacts could damage the data these sites contain, including mortuary components, further mitigation may be required. Such mitigation may consist of data recovery excavations to retrieve those values and mortuary assemblages that contain significance for archaeology after consultation with and the agreement of the Native American most likely descendent (MLD), where possible.</td>
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<td>► Monitor potentially destructive construction in the vicinity of documented resources, as required under the Construction Monitoring and Inadvertent Discovery Plan.</td>
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<td>Phase 2: 3.8-c(1)</td>
<td>Avoid Ground Disturbance Near Known Prehistoric Archaeological Sites CA-Sac-485/H and the Barney Mound to the Extent Feasible, and Conduct Resource Documentation and Data Recovery at CA-Sac-485/H as Needed</td>
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| For CA-Sac-485/H                       | ► SAFCA and its engineers for canal design and construction shall consult with a qualified professional archaeologist during project design to delineate the extent of potentially significant deposits east of the mapped location of CA-Sac-485/H and shall design ground-disturbing work to avoid the deposits as feasible and practicable.  
► The archaeologist shall determine an appropriate radius around the site for monitoring adjacent construction work, and SAFCA shall retain an archaeological monitor and Native American monitor to be present during this work.  
► If prehistoric resources are discovered, a professional archaeologist shall assess the significance of the find and recommend additional work such as data recovery to retrieve the materials that convey the significance of the resource. |                | ✓               |                 |                 |
| For the Barney Mound:                  | ► SAFCA and its engineers for borrow excavation shall consult with a qualified professional archaeologist during project design to delineate the extent of potentially significant deposits in the vicinity of the Barney Mound. SAFCA shall restrict all ground disturbance for borrow removal to areas beyond the significant deposits as feasible and practicable.  
► SAFCA shall retain an archaeological monitor and Native American monitor to be present during adjacent construction work.  
► If prehistoric resources are discovered, a professional archaeologist shall assess the significance of the find and recommend additional work such as data recovery to retrieve the materials that convey the significance of the resource. |                |                 | ✓               |                 |
### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<tr>
<td>Phase 2: 3.8-c(2)</td>
<td>Avoid Ground Disturbance near Known Prehistoric Archaeological Site CA-Sac-485/H to the Extent Feasible, and Conduct Resource Documentation and Data Recovery as Needed</td>
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<td>▶ If ground disturbance may be conducted within 500 feet of known prehistoric resources (CA-Sac-485/H), SAFCA and its engineers for levee design and construction shall consult with a qualified professional archaeologist during project design to delineate the extent of potentially significant deposits around the recorded locations. If feasible and practicable, the project activities shall be designed to avoid disturbance of the resource. The archaeologist shall determine an appropriate radius around the site for monitoring adjacent construction work, and SAFCA shall retain an archaeological monitor and Native American monitor to be present during this work.</td>
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<td>▶ If, in the judgment of the archaeologist, project activities would disturb the resource and these impacts cannot be avoided, the archaeologist shall prepare and implement a research design and treatment plan. Before any construction-related ground disturbance begins in the vicinity of the resource, a professional archaeologist shall carry out a testing program based on the plan to determine whether the resource meets the definition of a unique archaeological resource or a historical resource as defined by CEQA. If the construction activity is part of a federal undertaking, all actions shall be conducted in compliance with Section 106 of the NHPA. If the resource is determined to be ineligible for listing on the CRHR or the NRHP, no further mitigation is required. If the resource appears to meet the definition of a unique archaeological resource or a historical resource or property (under NHPA), the archaeologist shall perform a program of data recovery in coordination with a Native American monitor to retrieve the materials that convey the significance of the resource.</td>
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<tr>
<td>Phase 2: SEIR 3.4-b</td>
<td>Avoid Ground Disturbance near Known Prehistoric Archaeological Site CA-Sac-485/H to the Extent Feasible and Prepare and Implement a Historic Properties Treatment Plan.</td>
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<td>SAFCA shall implement the following measures required by the PA (Appendix C) to address potential significant impacts on CA-SAC-485/H associated with Phase 2 Project construction impacts:</td>
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<td>► Prior to start of construction, SAFCA shall prepare an HPTP as required under the PA (Stipulation V[A]).</td>
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<td>► The HPTP shall address the effect of construction of a seepage berm on CA-SAC-485/H, including the effects of operating heavy equipment on the site during construction and of the placement of a seepage berm over the resource</td>
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<td>► The HPTP shall recommend an appropriate program of research and analysis for any portion of the assemblage removed from the site during test excavations. SAFCA shall then consult with USACE, the SHPO, and appropriate Native American individuals and entities regarding the recommendations of the HPTP.</td>
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<td>► To the extent possible, SAFCA shall minimize or avoid direct impacts on the site by carefully selecting equipment with consideration given to the pressure the construction equipment will place on the site and the capability of the assemblage to withstand these impacts. SAFCA shall also minimize the impact of the weight of the berm on the site through engineering and design to the maximum extent possible.</td>
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<td>► Upon concurrence from USACE and the SHPO, SAFCA shall implement the HPTP. The HPTP shall account for and incorporate the concerns of all consulting parties, to the extent possible, given project goals, as required under Section 106.</td>
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<td>► During construction, SAFCA shall monitor construction at this location and within an appropriate radius. This monitoring shall be governed by a plan for monitoring and response to inadvertent discoveries that has been approved by USACE, as required in the PA (Stipulation V[B]).</td>
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| Phase 1: 3.7-b Phase 2: 3.8-d           | Perform Research and/or Surveys, Brief Workers Before Construction, Monitor Construction, Halt Potentially Damaging Activities, Investigate and Avoid Resources to the Extent Feasible, and Conduct Resource Documentation and Data Recovery as Needed  
  ▶ A qualified archaeologist shall survey all accessible portions of the proposed areas of project disturbance if they have not been surveyed within the previous 5 years, and shall document and evaluate the significance of any resources that are found during the surveys. If any resources are found during the surveys that may be considered historical or unique resources under CEQA, the steps described in Mitigation measure 3.8-c for known resources shall be followed.  
  ▶ Before construction begins, a qualified professional archaeologist shall give a presentation and training session to all construction personnel so that they can assist with identification of undiscovered cultural materials and avoid them where possible.  
  ▶ A qualified archaeologist shall monitor all ground-disturbing construction activities along the Sacramento River east levee and at other locations determined by the archaeologist to be sensitive for subsurface cultural resource deposits. If a previously unidentified archaeological resource is uncovered during construction, construction activities shall be halted within 50 feet of the find and the construction contractor, SAFCA, and other appropriate parties shall be notified regarding the discovery. | ✓               | ✓               |                 |                 |
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<td>The archaeologist shall determine whether the resource is significant under CEQA or the NHPA and shall develop appropriate mitigation. If the resource is found to be a unique archaeological resource or a historical resource, the archaeologist shall recommend additional actions deemed necessary for the preservation or documentation of the resource. Such actions may include (but shall not be limited to) measures such as testing for subsurface features, additional background research, additional resource documentation, avoidance of the resource, or additional monitoring of construction activity to minimize any effects. SAFCA shall ensure that necessary protection actions are implemented before construction resumes within 50 feet of the site. The preferred mitigation is preservation in place of as much of the resource as possible through project modification or protective measures. In many cases, archaeological data recovery can mitigate impacts to a less-than-significant level. However, construction activities may encounter unique or historical archaeological resources that cannot be protected or recovered and for which adequate data recovery may not be feasible.</td>
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<td>Phase 4a: 4.8-c</td>
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<td>SAFCA shall complete surveys to identify cultural resources in the Phase 4a Project footprint, as identified in the Phase 2 EIR (SAFCA 2007:3.8-31) at the program level.</td>
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<td>Mitigation Measure 3.4-d from the SEIR prepared for the Phase 2 Project is copied below and shall be implemented, as appropriate within the footprint of the Proposed Action (SAFCA 2009: 3.4-10).</td>
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<td>Phase 2: SEIR 3.4-d</td>
<td>Conduct Additional Backhoe and Canine Forensic Investigations As Appropriate</td>
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<td>To increase the data set for identifying buried sites under the existing levee, SAFCA shall recommend that the following additional mitigation measures be adopted by USACE during Section 106 consultation:</td>
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<td>► Additional inventory may be conducted at appropriate intervals along the Sacramento River east levee, using a backhoe excavator, to increase the sample of information at depths below 6 feet that cannot be reached with conventional shovel test methods.</td>
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<td>► Such methods may be used only when necessary to address potential project-related effects to cultural resources because other methods are ineffective or project circumstances dictate that such resources must be identified in advance of construction. USACE and SAFCA shall consult with the MLD regarding the use of such methods. USACE and SAFCA recognize the Tribe’s preference for less invasive methods of investigation such as the use of canine forensics.</td>
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<td>► Where this process or additional inventory efforts reveal other resources, SAFCA recommends the use of canine forensic investigations as a way of identifying interred human remains with minimal disturbance, and for further refinement of an understanding of the constituents of identified resources</td>
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## Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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- Before construction begins, a qualified professional archaeologist retained by SAFCA shall give a presentation and training session to all construction personnel so that they can assist with identification of undiscovered cultural resource materials and avoid them where possible. Such training shall note the importance of these materials to Native American groups that attach cultural significance to resources in the project area. A qualified archaeologist shall monitor ground-disturbing construction activities along the Sacramento River east levee. In areas of known sacred value, such as archaeological sites containing Native American burials, a Native American monitor will be present to observe potentially destructive construction activities and to ensure proper treatment of human remains in accordance with State law. If a previously unidentified archaeological resource is uncovered during construction, construction activities shall be halted in the vicinity of the find and the construction contractor, SAFCA, USACE, the MLD, and the NAHC (if appropriate), and other appropriate parties shall be notified regarding the discovery. Where construction would consist of cutoff walls excavated in a bentonite and/or cement slurry, SAFCA and USACE anticipate that it will not be possible to identify the precise location of any materials found in spoils or at soil mixing stations, thus construction cannot stop during excavation of cutoff walls if resources are discovered in spoils.

- SAFCA shall then consult with USACE and the SHPO to determine the eligibility of the resource. If SAFCA and USACE, in consultation with the SHPO, concur that the resource is eligible and the project may result in adverse effects on the resource, SAFCA shall prepare and implement an HPTP as required under the PA, Stipulation V(A). The HPTP shall be prepared in consultation with USACE, the SHPO, and other appropriate consulting parties such as Native American individuals or organizations.

- Work may only resume when either all necessary treatment has been performed under the HPTP, or construction in the vicinity will not result in adverse effects, and that work does not encroach within 30 meters of the known boundaries of the resource, or the boundaries designated by the SHPO, per the PA, Stipulation V(B)(2). All treatment stipulated in the HPTP shall be performed by SAFCA, in consultation with USACE.
## Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<tr>
<td>Phase 1: 3.7-b</td>
<td><strong>Suspend Potentially Damaging Activity, Investigate Resources, Avoid to the Extent Feasible, and Conduct Resource Documentation and Data Recovery as Needed</strong></td>
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<td>► Before the commencement of construction, a qualified professional archaeologist shall give a presentation to all construction personnel regarding the likelihood and type of resources that might be found during construction operations associated with the individual flood control projects, and measures that shall be taken in the event that potential archaeological or historical resources are found during construction.</td>
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<td>► If unrecorded cultural resources (e.g., unusual amounts of shell, animal bone, bottle glass, ceramics, structure/building remains, etc.) are encountered during construction activity, all ground-disturbing activities shall be restricted within a 100-foot radius of the find or a distance determined by a qualified professional archaeologist to be appropriate based on the potential for disturbance of additional cultural resource materials.</td>
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<td>► A qualified archaeologist shall identify the materials, determine their potential to meet the definition of a unique archaeological resource or a historical resource in Section 15064.5, and formulate appropriate measures for their treatment, which shall be implemented by the agency implementing the project. Potential treatment methods for significant and potentially significant resources may include, but would not be limited to, no action (i.e., resources determined not to be significant), avoidance of the resource through changes in construction methods or project design, and implementation of a program of testing and data recovery, in accordance with all applicable federal and state requirements.</td>
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<td>For unique archaeological resources and archaeological historical resources, the preferred mitigation is preservation in place of as much of the resource as possible, where feasible, through project modification or protective measures. In many cases, archaeological data recovery can mitigate impacts that cannot be avoided. However, construction activities may encounter unique archaeological resources and archaeological historical resources that cannot be protected or recovered and for which adequate data recovery may not be feasible. For example, resources encountered during excavation through the NCC levee for construction of a cutoff wall are likely to be unrecoverable.</td>
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<tr>
<td>Phase 2: SEIR 3.4-c Phase 3: 4.10-e Phase 4a: 4.8-d</td>
<td>Stop Work Within An Appropriate Radius Around the Find, Notify the Applicable County Coroner and Most Likely Descendant, and Treat Remains in Accordance with State Law and Measures Stipulated in an HPTP Developed in Consultation between USACE, SAFCA, and the SHPO</td>
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<td>If human remains are uncovered during ground-disturbing activities, SAFCA shall cease all ground-disturbing activities within the vicinity of the find, if known. If the discovery occurs in spoils removed from construction of cutoff walls, the remains shall be treated in accordance with state law. Because cutoff walls are constructed at great depth within a slurry of soil and bentonite and/or cement, SAFCA and USACE anticipate that it will not be possible to pinpoint the location of human remains that may be disinterred during construction of these features and it will not be feasible or useful to stop construction. Discovered remains removed from cutoff wall spoils will be treated as required by state law, as follows. SAFCA’s archaeological monitors and/or the contractor shall notify the relevant county coroner and a SAFCA-retained archaeologist skilled in osteological analysis to determine the nature of the remains. If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The NAHC will designate an MLD who may decide how to reinter the remains with appropriate dignity in an appropriate location.</td>
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### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<tr>
<td>Phase 1: 3.7-c</td>
<td>Halt Work Within 100 Feet (Phase 1)/50 Feet (Phase 2) of the Find, Notify the County Coroner and Most Likely Descendant, and Implement Appropriate Treatment of Remains</td>
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<tr>
<td>Phase 2: SEIR 3.4-e</td>
<td>If human remains are uncovered during ground-disturbing activities, all ground-disturbing activities shall cease within a 100-foot radius (Phase 1)/50-foot radius (Phase 2) of the find, and SAFCA or its designated representative shall be notified. In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, SAFCA and/or the contractor shall notify the county coroner of the county in which the remains are uncovered (Sutter or Sacramento) and a professional archaeologist to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The NAHC will designate a Most Likely Descendant (MLD) to dispose of the remains with appropriate dignity.</td>
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<tr>
<td>► After a determination that the remains are of prehistoric Native American origin, SAFCA shall coordinate with the MLD for reburial of the remains and associated grave goods in an appropriate location. If the MLD fails to make a recommendation or re-inter the remains, further treatment will conform to PRC Section 5097 et seq. and other appropriate authorities.</td>
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<td>► The discovery of prehistoric burials often reveals locations sensitive for the occurrence of additional archaeological material. Newly discovered prehistoric resources associated with human remains shall be evaluated, and if the resource is eligible for the CRHR or the NRHP and the project would result in adverse effects to those eligible resources, SEIR Mitigation Measure 3.4-c shall be implemented.</td>
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<tr>
<td><strong>Phase 2: SEIR 3.4-c</strong></td>
<td>Evaluate NLIP-7 and NLIP-22. If the Resources are Eligible, Avoid Disturbance to the Extent Feasible, and Prepare and Implement a Historic Properties Treatment Plan.</td>
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<td>► Complete an evaluation of NLIP-7 and NLIP-22 resources, and determine the effect of Phase 2 work on all eligible or listed resources in accordance with Stipulation IV(A) of the PA.</td>
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<td>► Consult with USACE, the SHPO, and other consulting parties such as Native American individuals and organizations, to develop appropriate treatment or mitigation in an HPTP, as required by Stipulation V(A) of the PA, if the project would result in adverse effects on eligible resources.</td>
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<td>► If the resources are deemed to be eligible, document the sites and avoid or reduce adverse effects by minimizing disturbance from construction of the berm. Where physical impacts cannot be avoided and such physical impacts could damage the data these sites may contain, further excavation shall be conducted in order to support documentation of the resource as required under Section 110(b) of the NHPA, or, in the alternative, data recovery excavations to retrieve those values and mortuary assemblages that contain significance for archaeology and Native American culture after consultation with and the agreement of the Native American MLD tribe.</td>
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<td>Monitor all construction in the vicinity of documented and eligible resources, as required under the pending construction monitoring and inadvertent discovery plan.</td>
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#### Paleontological Resources

**Phase 1: 3.8-a**  
**Phase 2: 3.9-a**  
**Phase 3: 4.11-a**  
**Phase 4a: 4.9-a**  

- **Conduct Construction Personnel Training and, if Paleontological Resources Are Found, Stop Work Near the Find and Implement Mitigation in Coordination with a Professional Paleontologist**

  Before the start of construction and/or borrow activities in the Riverbank Formation or the Modesto Formation, construction personnel involved with earthmoving activities shall be informed by SAFCA of the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction activities, and the proper notification procedures should fossils be encountered. This worker training may be either (1) prepared and presented by an experienced field archaeologist at the same time as construction worker education on cultural resources, or (2) prepared and presented separately by a qualified paleontologist.

  If paleontological resources are discovered during earthmoving activities, the construction crew shall immediately stop work in the vicinity of the find. SAFCA shall retain a qualified paleontologist to evaluate the resource and prepare a mitigation plan in accordance with SVP guidelines (1995). The mitigation plan may include a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations made by the paleontologist, in consultation with SAFCA, shall be implemented before construction activities can resume at the site where the paleontological resources were discovered.
### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<tr>
<td><strong>Transportation and Circulation</strong></td>
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<td>Phase 1: 3.9-b Phase 2: 3.10-a Phase 3: 4.12-a Phase 4a: 4.10-a</td>
<td>Prepare and Implement a Traffic Safety and Control Plan for Construction-Related Truck Trips</td>
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<td>Before the start of construction in each construction season, SAFCA and its primary contractors for engineering and construction shall develop a coordinated construction traffic safety and control plan to minimize the simultaneous use of roadways by different construction contractors for material hauling and equipment delivery to the extent feasible and to avoid and minimize potential traffic hazards on local roadways during construction. Upon selection of borrow sites within the Elkhorn Borrow Area, the traffic safety and control plan shall reflect affected roadways. Items (a) through (e) of this mitigation measure, as listed below, shall be integrated as terms of the construction contracts.</td>
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<td>(a) The plan shall outline phasing of activities and the use of multiple routes to and from off-site locations to minimize the daily amount of traffic on individual roadways. SAFCA shall ensure that the construction contractors enforce the plans throughout the construction periods.</td>
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<td>(b) The construction contractors shall develop a traffic safety and control plan for the local roadways that would be affected by construction traffic. Before the initiation of construction-related activity involving high volumes of traffic, the plan shall be submitted for review by Caltrans and the agencies of the local jurisdictions (Sutter County, Sacramento County, and/or City of Sacramento) having responsibility for roadway safety at and between project sites. The plan shall call for the following elements:</td>
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<td>► posting warnings about the potential presence of slow-moving vehicles;</td>
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<td>► using traffic control personnel when appropriate; and</td>
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<td>► placing and maintaining barriers and installing traffic control devices necessary for safety, as specified in Caltrans’s Manual of Traffic Controls for Construction and Maintenance Works Zones and in accordance with city/county requirements (Caltrans 1996).</td>
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<td>The contractor shall train construction personnel in appropriate safety measures as described in the plan and shall implement the plan. The plan shall include the prescribed locations for staging equipment and parking trucks and vehicles. Provisions shall be made for overnight parking of haul trucks to avoid causing traffic or circulation congestion.</td>
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<td>(c)</td>
<td>Consistent with Phase 4a Mitigation Measure 4.11-a “Implement Applicable District-Recommended Control Measures to Minimize Temporary Emissions of reactive organic gases (ROG), oxides of nitrogen (NOX), and respirable particulate matter less than 10 microns in diameter (PM&lt;sub&gt;10&lt;/sub&gt;) during Construction,” the track-out of bulk material onto public paved roadways as a result of operations, or erosion, shall be minimized by the use of track-out and erosion control, minimization, and preventive measures. Tracked-out materials shall be removed within 1 hour from adjacent streets anytime such material track-out extends for a cumulative distance of greater than 50 feet onto any paved public road during active operations. All visible roadway dust tracked out upon public paved roadways as a result of active operations shall be removed at the conclusion of each work day when active operations cease, or every 24 hours for continuous operations. Wet sweeping or a high-efficiency particulate air (HEPA) filter equipped vacuum device shall be used for roadway dust removal.</td>
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<td>All operations shall limit and expeditiously remove, as necessary, the accumulation of project-generated mud or dirt from adjacent public streets at least once every 24 hours if substantial volumes of soil have been carried onto adjacent paved public roadways during project construction.</td>
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<td>(d)</td>
<td>Construction of project features along the Sacramento River east levee shall be accommodated through the creation of temporary haul roads along the landside of the adjacent levee and berm footprint. Garden Highway shall not be used for earthen materials hauling activities.</td>
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<td>(e)</td>
<td>A Transportation Management Plan shall be prepared and submitted to Caltrans District 3 to cover any points of access from the state highway system for haul trucks and other construction equipment.</td>
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<td>(f) Before the start of the construction season, SAFCA shall coordinate with Sacramento and Sutter Counties and the City of Sacramento to address maintenance and repair of affected roadways resulting from increased truck traffic.</td>
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<td>(g) Before project construction begins, SAFCA shall provide notification of project construction to all appropriate emergency service providers in Sutter County, Sacramento County, and/or the City of Sacramento and shall coordinate with providers throughout the construction period to ensure that emergency access through construction areas is maintained.</td>
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<td>(h) Before the start of construction, SAFCA and its primary contractors shall coordinate with Sutter County, Sacramento County, and/or the City of Sacramento regarding any closures of any public roadways.</td>
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<td>Phase 4a: 4.10-d</td>
<td>Prepare and Implement a Bicycle Detour Plan for Project Area Roadways, Including Garden Highway</td>
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<td>➤ Before the start of construction, SAFCA or its primary contractor shall prepare a bicycle detour plan for roadways that would be affected by project construction activities, including Garden Highway, in consultation with the County Alternative Modes Coordinator and/or City of Sacramento Bicycle and Pedestrian Coordinator as applicable. The detour plan shall include posted signs clearly indicating closure points, truck haul routes, detour routes, and informational signs to notify motorists and bicyclists to share the roads. Signs shall be posted outside of the immediate project area in order to notify bicyclists of closure points and detours. The detour plan shall be in place before the start of construction and shall be maintained and implemented throughout the construction period.</td>
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<td>Air Quality</td>
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<td>Phase 3: 4.13-a</td>
<td>Implement Applicable District-Recommended Control Measures to Minimize Temporary Emissions of ROG, NOx, and PM10 during Construction</td>
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<tr>
<td>Phase 4a: 4.11-a</td>
<td>Implement Applicable District-Recommended Control Measures to Minimize Temporary Emissions of ROG, NOx, and PM10 during Construction</td>
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<tr>
<td>Construction in Sutter County (Feather River Air Quality Management District [FRAQMD])</td>
<td>For portions of the project occurring in Sutter County, FRAQMD’s <em>Indirect Source Review Guidelines</em> and online CEQA guidance provide mitigation measures for reducing short-term air quality impacts. As recommended by FRAQMD, SAFCA shall ensure that the following mitigation measures are implemented during all project construction activities to the extent practicable.</td>
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<tr>
<td>In addition, construction of the proposed levee improvements are required to comply with all applicable FRAQMD rules and regulations, in particular Rule 3.0 (Visible Emissions), Rule 3.16 (Fugitive Dust Emissions), and Rule 3.15 (Architectural Coatings).</td>
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<tr>
<td>1. SAFCA shall implement a Fugitive Dust Control Plan that includes the following measures:</td>
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<td>▶ All earthmoving operations should be suspended when winds exceed 20 miles per hour or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.</td>
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<tr>
<td>▶ Construction sites shall be watered as directed by the Sutter County Department of Public Works or FRAQMD and as necessary to prevent fugitive dust violations.</td>
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<tr>
<td>▶ An operational water truck shall be on-site at all times. Apply water to control dust as needed to prevent visible emissions violations and off-site dust impacts.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>▶ On-site dirt piles or other stockpiled particulate matter shall be covered, wind breaks installed, and water and/or soil stabilizers employed to reduce wind blown dust emissions. Incorporate the use of approved nontoxic soil stabilizers to all inactive construction areas according to manufacturers’ specifications.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>▶ All transfer processes involving a free fall of soil or other particulate matter shall be operated in such a manner as to minimize the free-fall distance and fugitive dust emissions.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
## Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<th>Phase 4a Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>▶ Apply approved chemical soil stabilizers to all inactive construction areas (previously graded areas that remain inactive for 96 hours), including unpaved roads and employee/equipment parking areas, according to the manufacturers’ specifications.</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>2</td>
<td>▶ To prevent track-out, wheel washers shall be installed where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment shall be washed before each trip. Alternatively, a gravel bed or rumble strip may be installed as appropriate at vehicle/equipment site exit points to effectively remove soil buildup on tires and tracks to prevent/diminish track-out.</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>3</td>
<td>▶ Paved streets shall be swept frequently (at least once per day by water sweeper with reclaimed water recommended; wet broom) if soil material has been carried onto adjacent paved, public thoroughfares from the project site.</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>4</td>
<td>▶ Provide temporary traffic control as needed during all phases of construction to improve traffic flow, as deemed appropriate by the Sutter County Department of Public Works and/or Caltrans and to reduce vehicle dust emissions. An effective measure is to enforce vehicle traffic speeds at or below 15 miles per hour on unpaved roads.</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>5</td>
<td>▶ Reduce traffic speeds on all unpaved surfaces to 15 miles per hour, where feasible, and reduce unnecessary vehicle traffic by restricting access. Provide appropriate training, on-site enforcement, and signage.</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>▶ Where restricting vehicle speeds on unpaved surfaces to 15 miles per hour would make timely completion of the project infeasible, SAFCA shall cooperate with FRAQMD to implement alternative dust control measures that would be at least as effective in reducing fugitive dust emissions. Such measures may include increased frequency in applying water to the unpaved roads in the vicinity of sensitive receptors and reducing speeds in the vicinity of sensitive receptors.</td>
<td></td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>7</td>
<td>▶ Reestablish ground cover on the construction site as soon as possible, through seeding and watering.</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
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</table>
### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Open burning is yet another source of fugitive gas and particulate emissions, and it shall be prohibited at the project site. No open burning of vegetative waste (natural plant growth wastes) or other legal or illegal burn materials (trash, demolition debris, etc.) may be conducted at the project site. Vegetative wastes should be chipped or delivered to waste to energy facilities (permitted biomass facilities), mulched, composted, or used for firewood. It is unlawful to haul waste materials off-site for disposal by open burning.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2.</td>
<td>Construction equipment exhaust emissions shall not exceed FRAQMD Regulation III, Rule 3.0, Visible Emissions Limitations (40% opacity or Ringelmann 2.0). Operators of vehicles and equipment found to exceed opacity limits shall take action to repair the equipment within 72 hours or remove the equipment from service. Failure to comply may result in a notice of violation.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3.</td>
<td>SAFCA shall be responsible for ensuring that all construction equipment is properly tuned and maintained before and during on-site operation.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4.</td>
<td>Minimize idling time to 10 minutes, to conserve fuel and minimize emissions.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5.</td>
<td>Use existing power sources (e.g., power poles) or clean fuel generators rather than temporary diesel-powered generators.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>6.</td>
<td>Portable engines and portable engine-driven equipment units used at the project work site, with the exception of on-road and off-road motor vehicles, may require California Air Resources Board (ARB) Portable Equipment Registration with the state or a local district permit. The owner/operator shall be responsible for arranging appropriate consultations with ARB or FRAQMD to determine registration and permitting requirements before equipment is operated at the site.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<tr>
<td>7. SAFCA shall assemble a comprehensive inventory list (i.e., make, model, engine year, horsepower, and emission rates) of all heavy-duty off-road (portable and mobile) equipment (50 horsepower [hp] and greater) that will be used an aggregate of 40 or more hours for the construction project and apply the following mitigation measure:</td>
<td>▶ Reduce NO\textsubscript{X} emissions from off-road diesel-powered equipment: SAFCA shall provide a plan for approval by FRAQMD demonstrating that the heavy-duty (equal to or greater than 50 hp) off-road equipment to be used in the construction project, including owned, leased and subcontractor vehicles, shall achieve a project wide fleet-average 20% NO\textsubscript{X} reduction and 45% particulate reduction(^1) compared to the most recent ARB fleet average at time of construction.</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>8. SAFCA shall enter into a voluntary emissions reduction agreement with the FRAQMD to mitigate the portion of construction-generated emissions of NO\textsubscript{X} that exceeds EPA’s applicable threshold for general conformity purposes. The calculation of the fee shall be determined in coordination with the FRAQMD and paid prior to the occurrence of any construction-related activities within areas under the jurisdiction of the FRAQMD.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>√</td>
</tr>
</tbody>
</table>

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**Phase 1: 3.10-a**

6. Develop a traffic plan to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Schedule operations affecting traffic for off-peak hours. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites. | | | | | √ |

---

\(^1\) Acceptable options for reducing emissions may include use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology (Carl Moyer Guidelines), and after-treatment products; voluntary off-site mitigation projects; providing funds for air district off-site mitigation projects; and/or other options as they become available. FRAQMD should be contacted to discuss alternative measures.
### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<tr>
<td><strong>Construction in Sacramento County (Sacramento Metropolitan Air Quality Management District [SMAQMD])</strong></td>
<td>For portions of the project occurring in Sacramento County, SMAQMD’s Guide to Air Quality Assessment in Sacramento County (SMAQMD 2004) provides mitigation measures for reducing short-term air quality impacts. As recommended by SMAQMD, SAFCA shall ensure that the following mitigation measures are implemented during all project construction activities to the extent practicable and feasible.</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➤ SAFCA shall prepare a construction emissions dust control plan(s) in accordance with SMAQMD recommendations that reduces fugitive dust emissions by at least 85% (or shall provide calculations based on SMAQMD-approved methodologies showing that emissions would be reduced to less than 100 tons per year assuming a conservative reduction of 75% with typical mitigation). All grading operations shall be suspended when fugitive dust levels exceed levels specified by SMAQMD rules. SAFCA and its primary construction contractors shall ensure that dust is not causing a nuisance beyond the property line of the construction site.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➤ If overlapping construction phases in Sacramento County create unmitigated PM$<em>{10}$ emissions in excess of 400 TPY SAFCA shall use advanced dust suppressant materials (such as EnviroTac II) on all unpaved roadways and stockpiled materials to ensure 95% or greater control of fugitive dust and a reduction of PM$</em>{10}$ emissions below 100 TPY.</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overlapping Phases where this would apply includes all work on the Sacramento River east level for the Phase 3 and 4a Projects.</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
</tbody>
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## Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<tr>
<td>1.</td>
<td>SAFCA shall develop a plan, in consultation with SMAQMD, demonstrating that the heavy-duty (&gt;50 hp), off-road vehicles to be used in the construction project (including owned, leased, and subcontractor vehicles) shall achieve a project-wide fleet-average 20% NO\textsubscript{X} reduction and 45% particulate reduction compared to the most recent ARB fleet average at the time of construction.</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Acceptable options for reducing emissions include the use of late-model engines, low-emission diesel products, alternative fuels, particulate-matter traps, engine retrofit technology, after-treatment products, and/or such other options as become available.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3.</td>
<td>A comprehensive inventory of all off-road construction equipment equal to or greater than 50 hp that will be used for an aggregate of 40 or more hours during any portion of project construction shall be submitted to SMAQMD. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction operations occur. At least 48 hours before heavy-duty off-road equipment is used, SAFCA shall provide SMAQMD with the anticipated construction timeline, including the start date, and the name and phone number of the contractor’s project manager and on-site foreman.</td>
<td></td>
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</tr>
</tbody>
</table>

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2 Acceptable options for reducing emissions include the use of late-model engines, low-emission diesel products, alternative fuels, particulate-matter traps, engine retrofit technology, after-treatment products, and/or such other options as become available.
## Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<tr>
<td>Emissions from off-road, diesel-powered equipment used on the project site shall not exceed 40% opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40% opacity (or Ringelmann 2.0) shall be repaired immediately, and SMAQMD shall be notified of noncompliant equipment within 48 hours of identification. A visual survey of all in-operation equipment shall be made at least weekly. A monthly summary of visual survey results shall be submitted to SMAQMD throughout the construction period, except that the monthly summary shall not be required for any 30-day period in which no construction operations occur. The monthly summary shall include the quantity and type of vehicles surveyed, as well as the dates of each survey. SMAQMD and/or other officials may conduct periodic site inspections to determine compliance.</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td></td>
</tr>
<tr>
<td>SAFCA shall pay SMAQMD an off-site mitigation fee for implementation of any proposed alternatives for the purpose of reducing impacts to a less-than-significant level.</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td></td>
</tr>
<tr>
<td>Calculation of fees associated with subsequent improvement plans/project phases shall be conducted at the time of project approval. The applicable fee rate shall be determined and the total fee shall be calculated based on the fee rate in effect at the time that subsequent environmental documents are prepared. The fee for subsequent construction projects shall be remitted to SMAQMD before groundbreaking.</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td></td>
</tr>
<tr>
<td>SAFCA shall pay into SMAQMD’s off-site construction mitigation fund to further mitigate construction-generated emissions of NOX that exceed SMAQMD’s daily emission threshold of 85 lb/day. The calculation of daily NOX emissions is based on the cost to reduce 1 ton of NOX at the time when the document is prepared (currently $16,000 per ton [Phase 4a-11/09]). The determination of the final mitigation fee shall be conducted in coordination with SMAQMD before any demolition or ground disturbance occurs for any project phase. Calculation of and payment of the fee for all subsequent project phases shall also be included in the CEQA MMRP for the project.</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td></td>
</tr>
</tbody>
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<tbody>
<tr>
<td>All Project Construction</td>
<td>SAFCA shall implement the following additional measures to reduce construction emissions of PM$_{10}$ comprising fugitive dust and mobile-exhaust and ozone precursors throughout the project area:</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>► Open burning of removed vegetation shall be prohibited. Vegetation material shall be chipped on-site or delivered to waste-to-energy facilities to the extent feasible.</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>► An operational water truck shall be on-site at all times. Water shall be applied to control dust as needed to prevent dust impacts off-site.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>► Unpaved areas subject to vehicle traffic, including employee parking areas and equipment staging areas, shall be stabilized by being kept wet, treated with a chemical dust suppressant or soil binders, or covered.</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>► The track-out of bulk material onto public paved roadways as a result of operations, or erosion, shall be minimized by the use of track-out and erosion control, minimization, and preventive measures, and removed within 1 hour from adjacent streets such material anytime track-out extends for a cumulative distance of greater than 50 feet onto any paved public road during active operations.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td>► All visible roadway dust tracked out upon public paved roadways as a result of active operations shall be removed at the conclusion of each work day when active operations cease, or every 24 hours for continuous operations. Wet sweeping or a HEPA filter equipped vacuum device shall be used for roadway dust removal.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>► Low-sulfur fuel shall be used for stationary construction equipment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>► Existing power sources or clean fuel generators shall be used rather than temporary power generators to the extent feasible.</td>
<td></td>
<td></td>
<td></td>
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### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<tr>
<td>➤ Low-emission on-site stationary equipment shall be used.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>➤ Vehicle speeds on unpaved roadways shall be limited to 15 miles per hour.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>➤ Idling time for all heavy-duty equipment shall be limited to 5 minutes.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>➤ Install ARB-certified Level 3 diesel particulate filters (DPF) on a minimum of 15% of the total number of off-road (non-street legal) diesel-powered construction equipment pieces with an engine size equal to or greater than 50 hp throughout the duration of the project. For fleets with 6 or fewer total applicable equipment pieces, a DPF shall be installed on a minimum of one engine. All DPFs shall be kept in working order and maintained in operable condition according to manufacturer’s specifications. At the time of writing, a list of ARB-certified Level 3 DPF can be found at <a href="http://www.arb.ca.gov/diesel/verdev/level3/level3.htm">http://www.arb.ca.gov/diesel/verdev/level3/level3.htm</a>.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>➤ Install Level 3 ARB-certified DPF that are functional and kept in working order to meet manufacturer’s specifications throughout the duration of the project on at least 15% of the total pieces of off-road (non-street legal) construction equipment on the project site over 50 hp (a minimum of one diesel particulate filter for fleets with 6 or less total pieces).</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
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</table>
SMAQMD has also recently released since publication of the [Phase 4a] DEIS/DEIR, draft BMPs for consideration as practical alternatives to reduce construction-generated greenhouse gas (GHG) emissions. SAFCA shall implement a range of measures to reduce GHG emissions, which may include the following:

- improve fuel efficiency from construction equipment by reducing unnecessary idling (modify work practices, install auxiliary power for driver comfort); performing equipment maintenance (inspections, detect failures early, corrections); training equipment operators in proper use of equipment; using the proper size of equipment for the job; and using equipment with new technologies (repowered engines, electric drive trains);
- use alternative fuels for generators at construction sites such as propane or solar, or use electrical power;
- encourage and provide carpools, shuttle vans, transit passes, and/or secure bicycle parking for construction worker commutes;
- reduce electricity use in the construction office by using compact fluorescent bulbs, powering off computers every day, and replacing heating and cooling units with more efficient ones;
- recycle or salvage non-hazardous construction and demolition debris (goal of at least 75% by weight);
- use locally sourced or recycled materials for construction materials (goal of at least 20% based on costs for building materials, and based on volume for roadway, parking lot, and sidewalk and curb materials); and
- develop a plan to efficiently use water for adequate dust control.
### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<tr>
<td><strong>Noise</strong></td>
<td><strong>Implement Noise-Reducing Construction Practices, Prepare and Implement a Noise Control Plan, and Monitor and Record Construction Noise Near Sensitive Receptors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 1: 3.11-a</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 2: 3.12-a</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Phase 3: 4.14-a</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 4a: 4.12-a</td>
<td>√</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**All Project Construction**

Measures that shall be used to reduce noise impacts shall include the following:

- Equipment shall be used as far away as practical from noise-sensitive uses.
- All construction equipment shall be equipped with noise-reduction devices such as mufflers to minimize construction noise and all internal combustion engines shall be equipped with exhaust and intake silencers in accordance with manufacturers’ specifications.
- Equipment that is quieter than standard equipment shall be used, including electrically powered equipment instead of internal combustion equipment where use of such equipment is a readily available substitute that accomplishes project tasks in the same manner as internal combustion equipment.
- Construction site and haul road speed limits shall be established and enforced.
- The use of bells, whistles, alarms, and horns shall be restricted to safety warning purposes only.
- Noise-reducing enclosures shall be used around stationary noise-generating equipment (e.g., compressors and generators).
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</thead>
<tbody>
<tr>
<td>➤ Fixed construction equipment (e.g., compressors and generators), construction staging and stockpiling areas, and construction vehicle routes shall be located at the most distant point feasible from noise-sensitive receptors.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>➤ When noise sensitive uses are within close proximity and subject to prolonged construction noise, noise-attenuating buffers such as structures, truck trailers, or soil piles shall be located between noise generation sources and sensitive receptors.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>➤ Before construction activity begins within 500 feet of one or more residences or businesses, written notification shall be provided to the potentially affected residents or business owners, identifying the type, duration, and frequency of construction activities. Notification materials shall also identify a mechanism for residents or business owners to register complaints with the appropriate jurisdiction if construction noise levels are overly intrusive. The distance of 500 feet is based on the 60-dBA contour of the loudest anticipated construction activity.</td>
<td>✓</td>
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<tr>
<td>➤ If noise-generating activities are conducted within 300 feet (Phase 1)/100 feet (Phases 2, 3, 4a) of noise-sensitive receptors (the 70-dBA noise contour of construction noise), the primary contractor shall continuously measure and record noise levels generated as a result of the proposed work activities. Sound monitoring equipment shall be calibrated before taking measurements and shall have a resolution within 2 dBA. Monitoring shall take place at each activity operation adjacent to sensitive receptors. The recorded noise monitoring results shall be furnished weekly to SAFCA.</td>
<td>✓</td>
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<tr>
<td>➤ The primary contractor shall prepare and implement a detailed noise control plan based on the proposed construction methods. This plan shall identify specific measures to ensure compliance with the noise control measures specified above. The noise control plan shall be submitted to and approved by SAFCA before any noise-generating construction activity begins.</td>
<td>✓</td>
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</tbody>
</table>
### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

<table>
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<tr>
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<th>Phase 2 Project</th>
<th>Phase 3 Project</th>
<th>Phase 4a Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>24/7 Project Construction</strong></td>
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<tr>
<td>► When construction of cutoff walls takes place during nighttime hours (between 10:00 p.m. and 6:00 a.m.), SAFCA shall honor requests from affected residents to provide reasonable reimbursement of local hotel or short-term rental stays for the period of time that cutoff wall construction takes place within 500 feet of the residents requesting reimbursement.</td>
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<tr>
<td>► When construction of groundwater wells (including up to two weeks of continuous pump testing for each well) or modifications to Pumping Plant Nos. 3 and 5 takes place during nighttime hours (between 10:00 p.m. and 6:00 a.m.) and the resulting noise levels exceed the applicable County noise standard (i.e., 45 dBA $L_{eq}$ and 65 dBA $L_{max}$ for Sutter County and 45 dBA $L_{50}$ and 65 dBA $L_{max}$ for Sacramento County), SAFCA shall honor requests from affected residents to provide reasonable reimbursement of local hotel or short-term rental stays for the period of time that construction of groundwater wells or modifications to Pumping Plant Nos. 3 and 5 takes place within 500 feet of the residents requesting reimbursement.</td>
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<tr>
<td><strong>Phase 2: 3.12-a</strong></td>
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<tr>
<td>► The primary contractor shall prepare a detailed noise control plan based on the construction methods proposed. This plan shall identify specific measures to ensure compliance with the noise limits specified above. The noise control plan shall be submitted to and approved by SAFCA before any noise-generating construction activity begins.</td>
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</tr>
<tr>
<td>► Construction of cutoff walls in Reaches 1 and 4A of the Sacramento River east levee shall be limited to the hours of 6 a.m. to 8 p.m., Monday through Saturday, with only maintenance activities on Sunday.</td>
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<tr>
<td><strong>Phase 3: 4.14-b</strong></td>
<td><strong>Implement Measures to Minimize Construction-Related Vibration Effects (Phase 2) and at the Pumping Plant No. 2 Site (Phase 3)</strong></td>
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</tbody>
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### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<th>Phase 4a Project</th>
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</thead>
<tbody>
<tr>
<td>Pile driving shall be conducted as far as practicable from the residential structure.</td>
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<tr>
<td>Vibration monitoring equipment shall be placed at the property line adjacent to large equipment and, with owner approval, at the back of the residential structure adjacent to the large equipment.</td>
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<td>✔️</td>
<td>✔️</td>
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<tr>
<td>A preconstruction and postconstruction survey shall be conducted to assess potential architectural damage from pile driving at the residence near the RD 1000 Pumping Plant No. 2 site which is owned by RD 1000 and/or Natomas Central Mutual Water Company (NCMWC). The survey shall include visual inspection of the structure and documentation of the structure by means of photographs and video. This documentation shall be reviewed with the individual owner prior to any construction activity. Postconstruction monitoring of the structure shall be performed to identify (and repair, if necessary) damage, if any, from construction vibrations. Any damage shall be documented with photographs and video.</td>
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<tr>
<td>Implement Noise-Reduction Measures to Reduce the Impacts of Haul Truck Traffic Noise</td>
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<td>All heavy trucks shall be equipped with noise-control (e.g., muffler) devices in accordance with manufacturers’ specifications.</td>
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<tr>
<td>All haul trucks shall be inspected before use and a minimum of once per year to ensure proper maintenance and presence of noise-control devices (e.g., lubrication, nonleaking mufflers, and shrouding).</td>
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<tr>
<td>Before haul truck trips are initiated during a construction season on roads within 600 feet of residences (Phase 2)/160 feet of residences (Phase 3&amp;4a) (the 60-dBA noise contour of haul truck traffic), written notification shall be provided to the potentially affected residents identifying the hours and frequency of haul truck trips. Notification materials shall also identify a mechanism for residents to register complaints with the appropriate jurisdiction if haul truck noise levels are overly intrusive or occur outside the exempt daytime hours for the applicable jurisdiction.</td>
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### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program,
Phase 1–4a Landside Improvements Projects

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<tr>
<td><strong>Recreation</strong></td>
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<tr>
<td>Phase 2: 3.13-b</td>
<td>Compensate the City of Sacramento for Encroachments that Cause Permanent Loss of the Recreational Use of Affected Recreational Facilities&lt;br&gt;► Before the start of construction, SAFCA shall compensate the City of Sacramento for any loss of land on the Costa Park site. The negotiated compensation may be in the form of payment, replacement land, or other in-kind compensation for the permanent loss of recreational use at the affected site.</td>
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<tr>
<td>Phase 3: 4.15-a</td>
<td>Prepare and Implement a Bicycle Detour Plan for all Bicycle Trails and On-street Bicycle Routes, Including the Ueda Parkway Trail and Garden Highway, Provide Construction Period Information on Recreational Facility Closures and Detours, Provide Detours for Bicycle Facilities, and Coordinate with Recreation Agencies to Allow Them to Repair Damage to Recreational Facilities&lt;br&gt;► Before the start of construction, prepare a bicycle detour plan for all bicycle paths and on-street bicycle routes, including the Ueda Parkway Bicycle Trail and Garden Highway, in consultation with the County and/or City of Sacramento Bicycle and Pedestrian Coordinator as applicable. The detour plan shall include posted signs clearly indicating closure points, detour routes, roadway markings to designate temporary bike lanes, and informational signs to notify motorists to share the roads with bicyclists. Signs shall be posted at major entry points for bicycle trails and routes to notify users of closure points and detours. The detour plan shall be in place before the start of construction and shall be maintained and implemented throughout the construction period.&lt;br► Provide construction period information on recreational facility closures and detours.&lt;br► Upon completion of the levee improvements, coordinate with the City and/or County (where applicable) for the City and/or County (where applicable) to restore access and repair any construction related damage to recreational facilities, including the Ueda Parkway bicycle trail.</td>
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<tr>
<td>Project Phase and Mitigation Measure No.</td>
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<tr>
<td>Phase 3: 4.15-b</td>
<td>Provide Construction Period Information on Recreational Facility Closures and Detours and Provide Detours for Access Routes to Alternate Boat Launch Ramps and Marinas</td>
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<td></td>
<td>► Provide public information through the media and on SAFCA’s Web site regarding detours and alternative access routes to public and private recreational facilities affected by project construction. SAFCA shall coordinate with the City of Sacramento Recreation and Parks Department to make available information to the public regarding closure of public recreational facilities, detours and alternate sites available.</td>
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<tr>
<td>Visual Resources</td>
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<tr>
<td>Phase 3: 4.16-b</td>
<td>Direct Lighting Away from Adjacent Properties</td>
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<td></td>
<td>(a) SAFCA shall require that nearby residents be notified in advance of nighttime construction activities.</td>
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<td></td>
<td>(b) SAFCA shall require that construction and security lighting be shielded and directed downward to minimize the spill of light onto adjacent properties.</td>
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<tr>
<td>Utilities and Service Systems</td>
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<tr>
<td>Phase 2: 3.14-a</td>
<td>Coordinate with Irrigation Water Supply Users Before and During All Irrigation Infrastructure Modifications and Minimize Interruptions of Supply</td>
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<td>Phase 3: 4.17-a</td>
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<tr>
<td>Phase 4a: 4.14-a</td>
<td>SAFCA and its primary contractors for engineering design and construction shall ensure that the measures listed below are implemented to minimize the potential for irrigation water supply interruptions during construction activities.</td>
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</table>
### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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</thead>
<tbody>
<tr>
<td>Phase 2: 3.15-b</td>
<td>Verify Utility Locations, Coordinate with Utility Providers, Prepare and Implement a Response Plan, and Conduct Worker Training with Respect to Accidental Utility Damage</td>
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<tr>
<td>Phase 4a: 4.14-b</td>
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<tr>
<td>Phase 1 Project</td>
<td>Coordinate the timing of all modifications to irrigation supply infrastructure with the affected infrastructure owners and water supply users, either directly or through NCMWC.</td>
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<tr>
<td>Phase 2 Project</td>
<td>Include detailed scheduling of the phases of modifications/replacement of existing irrigation infrastructure components in project design and in construction plans and specifications.</td>
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<tr>
<td>Phase 3 Project</td>
<td>Plan and complete modifications of irrigation infrastructure for the nonirrigation season to the extent feasible.</td>
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<tr>
<td>Phase 4a Project</td>
<td>Provide for alternative water supply, if necessary, when modification/replacement of irrigation infrastructure must be conducted during a period when it would otherwise be in normal use by an irrigator.</td>
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</tr>
<tr>
<td>Phase 1 Project</td>
<td>Ensure either that (1) users of irrigation water supply do not, as a result of physical interference associated with the project, experience a substantial interruption in irrigation supply when such supply is needed for normal, planned farming operations (i.e., a decrease in level of service in comparison with the existing level of service), or (2) users of irrigation water supply that experience a substantial decrease in an existing level of service that meets the established standards for the project area are compensated in kind for losses associated with the reduction in level of service.</td>
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### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<tbody>
<tr>
<td>Phase 1–4a Landside Improvements Projects</td>
<td>Power pole relocations shall be coordinated with SMUD and SACDOT to avoid conflicts with the SACDOT-proposed bike/pedestrian path. Existing main electrical power transmission lines and poles on the waterside of the existing Garden Highway levee that do not need to be relocated or replaced to accommodate the project may be left in place. No new main electrical power transmission lines and poles shall be installed on the waterside of Garden Highway. Consistent with sound engineering practices that prioritize the following, individual service lines shall: (1) use existing configurations and facilities, and (2) any new poles shall be placed on the landside of Garden Highway, subject to the approval of USACE, the CVFPB, and any other regulatory public agencies and utility companies.</td>
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</tbody>
</table>
| Phase 2: 3-15-b | • SAFCA and its primary construction contractors shall provide the following: Notification of any potential interruptions in service shall be provided to the appropriate agencies and affected landowners.  
• Before the start of construction, utility locations shall be verified through field surveys and the use of the Underground Service Alert services. Any buried utility lines shall be clearly marked in the area of construction on the construction specifications in advance of any earthmoving activities.  
• Before the start of construction, a response plan shall be prepared to address potential accidental damage to a utility line. The plan shall identify chain of command rules for notification of authorities and appropriate actions and responsibilities to ensure the safety of the public and workers. Worker education training in response to such situations shall be conducted by the contractor. The response plan shall be implemented by SAFCA and its contractors during construction activities.  
• Utility relocations shall be staged to minimize interruptions in service. | ✓               | ✓               | ✓               |                  |
| Phase 1–4a Landside Improvements Projects | No new utility poles shall be located on the water side of Garden Highway in the vicinity of existing waterside residences unless there is no feasible alternative for providing service to these residences. |                 |                 |                 | ✓               |
## Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<td>Phase 3: 4.17-b</td>
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<tr>
<td>– Additionally, upon borrow site selection within the Elkhorn Borrow Area, further verification of utility locations, coordination with utility providers, preparation and implementation of a response plan, and any required construction worker training with respect to accidental utility damage shall be completed before any earth-moving activities take place.</td>
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### Hazards and Hazardous Materials

**Phase 3: 4.18-b(1)**

Complete Phase I and/or II ESAs and Implement Recommended Measures

**NLIP Phase 4a Phase I ESA sites**

Before the start of any construction activities, SAFCA shall ensure that Phase I ESAs are completed for all sites subject to ground disturbance, and that any additional site evaluations that be recommended in the Phase I ESAs are conducted. For the following sites where Phase I ESAs have been completed, the following additional evaluations (as recommended in the applicable Phase I ESAs) shall be completed prior to start of construction or earthmoving activities:

**Assessor's Parcel Number (APN) 201-0330-019**

– Conduct a limited Phase II ESA to evaluate for pesticide residues, and the possible presence of petroleum and/or other hazardous materials associated with on-site ASTs and drums.

**APNs 225-0010-038, 225-0010-041, and 225-0010-043**

– Conduct a limited Phase II ESA to evaluate for pesticide residues, and the possible presence of petroleum and/or other hazardous materials associated AST tanks and an on-site vehicle.

– Conduct a geophysical survey to assess the presence of a possible underground storage tank (UST) and if present, collect soil and/or groundwater samples to evaluate if contamination exists.

### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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</thead>
<tbody>
<tr>
<td>APN 225-0090-040 (Novak Property)</td>
<td>Conduct a limited Phase II ESA to evaluate for pesticide residues.</td>
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<td></td>
<td>As recommended in the Phase I ESA (Kleinfelder 2009a), a limited Phase II ESA was completed to evaluate for pesticide residues. The possible presence of petroleum and/or other hazardous materials associated with on-site ASTs, car batteries, burn areas, and drums shall be evaluated before the start of earth-moving activities.</td>
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<tr>
<td>APN 225-0090-069</td>
<td>Conduct a limited Phase II ESA to evaluate for pesticide residues.</td>
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<td>Conduct a geophysical survey to assess the presence of a possible UST and if present, collect soil and/or groundwater samples to evaluate if contamination exists.</td>
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<tr>
<td></td>
<td>Conduct a geophysical survey to assess the presence of a possible UST and if present, collect soil and/or groundwater samples to evaluate if contamination exists.</td>
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<tr>
<td>APN 225-0210-026</td>
<td>Conduct a limited Phase II ESA to evaluate for pesticide residues and residual chemical concentrations related to petroleum product surface staining.</td>
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<tr>
<td>APNs 225-0110-019, 225-0110-020, and 225-0110-037 (Huffstutler Trust/Johnson Property)</td>
<td>Conduct additional Phase II ESA work to further evaluate for potentially hazardous materials discussed in the Phase I ESA, including potential hydrocarbon contamination, miscellaneous refuse, unlabeled containers, and compounds found in aboveground and underground structures.</td>
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</thead>
<tbody>
<tr>
<td>Retain an Industrial Hygienist to prepare a Construction Worker Health and Safety Plan. The Construction Worker Health and Safety Plan Shall include, but shall not be limited to: personal protective equipment for workers, a delineation of the horizontal and vertical extent of elevated arsenic levels, a list of required monitoring equipment to be onsite during contaminated soil excavation (e.g., air quality meter), and proper procedures in the event that stained soil is encountered.</td>
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<tr>
<td>Retain a qualified professional to conduct an Ecological Risk Assessment. The Ecological Risk Assessment shall include, but shall not be limited to: potential chemicals of concern, biological characterization of the site, identification of potential exposure pathways, ecological receptors, and recommendations for and implementation of remediation, if necessary.</td>
<td>✓</td>
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<tr>
<td><strong>APNs 201-0250-015, 201-0270-002, and 201-0270-037 (South Sutter, LLC Borrow Site)</strong></td>
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<td>Conduct a Phase II ESA to evaluate for potentially hazardous materials discussed in the Phase I ESA, including potential miscellaneous refuse, unlabeled containers, and ASTs may have impacted the soil.</td>
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<td>Remove, as appropriate, items on site, such as the AST, car batteries, unlabeled storage tanks, debris, and water wells in accordance with regional, local, state, and Federal regulations.</td>
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<td><strong>Phase 3: 4.18-b(1)</strong></td>
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<tr>
<td><strong>NLIP Phase 3 Phase I ESA sites</strong></td>
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<td>Before the start of any construction activities, SAFCA shall ensure that all recommendations from the Kleinfelder Phase I ESA, listed below, are implemented by the property owner in compliance with applicable rules and regulations:</td>
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<td><strong>The Yuki Pear Farm (Assessor’s Parcel Number [APN] 201-0150-033):</strong></td>
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<td>Conduct further investigation and implement all feasible remedial actions recommended in the Phase II ESA.</td>
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<tr>
<td>Phase 1</td>
<td>Consult with the Sacramento County Environmental Management Department regarding any hazardous materials actions that may be necessary during future use of the site.</td>
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<tr>
<td>Phase 2</td>
<td>Continue sampling from monitoring wells on a quarterly basis.</td>
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<td>Phase 3</td>
<td>Stockpile and sample soil for dichloro-diphenyl-trichloroethane (DDT) and dichlorodiphenyldichloroethylene (DDE) before removal.</td>
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</table>

**Phase 2: 3.16-b(1) Ensure that Contaminants Are Not Present at Unacceptable Levels on the Yuki Farms Site Near the Location of Project Construction Activities**

Before the start of any construction activities on the Sacramento County–owned property known as “Yuki Farms,” SAFCA shall ensure that (1) any issues of documented soil or groundwater contamination on the property have been resolved by Sacramento County in accordance with federal, state, and local requirements; or (2) a qualified hazardous materials specialist, through soil and groundwater testing, has determined that any previously documented contamination site on the property is sufficiently distant from areas of project-related disturbance to ensure that hazardous materials at the site will not be encountered during construction activity and would not migrate into water carried in the new canals and pose a threat to the safety of construction workers, the general public, or the environment.

- **Dunmore Borrow Site (APN 201-0120-031):**
  - Properly abandon wells, in accordance with applicable Federal, state, and local requirements, if found within the site and determined to be no longer needed.

- **Brookfield Borrow Site (APN 35-080-021):**
  - Properly dispose of buckets containing waste found on-site at a licensed disposal facility.

- **APNs 201-0150-040, 201-0150-041, 201-0150-042:**
  - Obtain requirements from State of California Department of Oil, Gas, and Geothermal Resources (DOGGR) for construction activities near the dry hole.
# Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program,
## Phase 1–4a Landside Improvements Projects

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<tr>
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<tr>
<td>► Investigate the presence of an underground conveyance pipeline that may be present on the Shell Oil easement and if found, coordinate with the owner to avoid or minimize impacts on said pipeline during construction activities, or relocate the pipeline if it is determined to be necessary.</td>
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<tr>
<td>APNs 201-0150-055, 201-0140-059:</td>
<td>► Consult with DOGGR and the gas well lease holder if the idle gas well would be disturbed during construction activities; if so, then implement all recommendations for safe project operations as provided by DOGGR following the initial consultation.</td>
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<td></td>
<td>► Confirm the presence of water wells and septic systems and perform appropriate actions to abandon them in accordance with state and local requirements.</td>
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<tr>
<td>APN 201-0270-028:</td>
<td>► Complete a Phase II ESA to determine the presence of lead contamination associated with petroleum products.</td>
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<td></td>
<td>► Determine if the former underground storage tanks (USTs) are located on site, and if they have been properly abandoned and/or removed.</td>
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<tr>
<td>APN 201-0270-048:</td>
<td>► Complete a Phase II ESA to determine if the damaged automotive battery observed on site has contaminated soil.</td>
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<td>✓</td>
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<tr>
<td>APN 201-0280-037:</td>
<td>► Determine if a 100-gallon UST is located on site. If it exists, confirm proper abandonment practices.</td>
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<td>✓</td>
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<tr>
<td>APN 201-0280-044:</td>
<td>► Complete a Phase II ESA to determine elevated concentrations of chemicals remain on site.</td>
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### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<td><strong>Sites with Historical Agricultural Use:</strong></td>
<td>▶ Conduct a limited sampling program (Phase II ESA) to analyze concentrations of organochlorine pesticides, organophosphorous pesticides, chlorinated herbicides, and selected metals residues. ▶ Investigate presence and location of asbestos-containing irrigation pipes. ▶ Implement all feasible remedial action recommendations contained in the Phase II ESA.</td>
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<tr>
<td>Phase 1: 3.15-a</td>
<td>Prepare a Worker Health and Safety Plan, and Implement Appropriate Measures to Minimize Potential Exposure to Unknown Hazardous Materials</td>
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<td>Phase 2: 3.16-b(2)</td>
<td>If, during site preparation and construction activities, previous undiscovered or unknown evidence of hazardous materials contamination is observed or suspected through either obvious or implied site characteristics (e.g., stained or odorous soil), construction activities shall immediately cease in the area of the find. A qualified hazardous materials specialist shall assess the construction site and shall collect and analyze soil samples, if needed, from the site. If contaminants at unacceptable levels are identified in the samples, SAFCA or its primary construction contractor shall implement measures in accordance with federal and state regulations before beginning construction activities. SAFCA shall require all contractors to prepare a worker health and safety plan before the start of construction activities. This plan shall identify, at a minimum, all contaminants that could be encountered during construction activity; all appropriate worker, public health, and environmental protection equipment and procedures to be used during project activities; emergency response procedures; the most direct route to the nearest hospitals; and a site safety officer. The plan shall describe actions to be taken should hazardous materials be encountered on-site, including protocols for handling hazardous materials and preventing their spread and emergency procedures to be taken.</td>
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<td>Phase 3: 4.18-b(2)</td>
<td>Complete Investigations Related to the Extent to Which Soil and/or Groundwater May Have Been Contaminated in Areas Not Covered by the Phase I and/or II ESAs and Implement Required Measures (e.g., Site Management and/or Other Contingency Plans)</td>
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<td>Phase 4a: 4.15-b(2)</td>
<td>For parcels that will be used for borrow activities or where earthmoving activities would occur, SAFCA shall ensure that the contractor complete the following prior to start of construction and earthmoving activities:</td>
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<td>▶ Prepare a site management plan, subject to SAFCA review and approval that contains protocols and procedures for excavation, use, disposal, and handling of soil containing pesticide residues or contaminants, and for identifying possible contamination during construction. The plan shall include measures for the safe transport, use, and disposal of pesticide residue impacted soil and building debris removed from the site. Soil reuse may include: containing portions of the affected topsoil within the core of seepage berms, with an overlay of clean soil to prevent surface runoff caused by rainfall erosion on the topsoil materials; rip, mix, and/or amend affected topsoil that is re-spread onto borrow sites, levee, and/or berm surfaces, to provide a plant growth medium and reduce the concentration of pesticide residues in the soil; establish native perennial grasses and other perennial vegetation cover (e.g., hay, alfalfa) on these planted surfaces to reduce sediment runoff that may be caused by rainfall erosion or surface irrigation; and improve the drainage of agricultural lands used as borrow/mitigation sites to reduce ponded water and minimize the discharge of sediments into nearby drainages. In the event that impacted groundwater is encountered during site excavation activities, the contractor shall report the chemical concentrations to the appropriate regulatory agencies, dewater the excavated area, and treat the groundwater to remove the chemicals before discharge. The contractor shall be required to comply with applicable Federal, state, regional, and local laws. The plan shall outline measures for specific handling and reporting procedures for hazardous materials and disposal of hazardous materials removed from the site at an appropriate off-site disposal facility. The plan shall include, but shall not be limited to: delineations of the horizontal and vertical extent and concentration of soil contamination; a list</td>
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Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<td>of required monitoring equipment to be onsite during soil excavation (e.g., an air quality meter shall be used at the fenceline during dust-producing activities); sampling and analysis protocol for additional soil investigations; a list of necessary agencies to be contacted if chemical concentrations in water, air, and/or soil exceed set threshold limits; and a list of necessary permits, reports, or other compliance mechanisms.</td>
<td>✅ Retain an industrial hygienist to prepare a construction worker health and safety plan. The construction worker health and safety plan shall include, but not be limited to: personal protective equipment for workers, a delineation of the horizontal and vertical extent of elevated arsenic levels, a list of required monitoring equipment to be on-site during contaminated soil excavation (e.g., air quality meter), and proper procedures in the event that stained soil is encountered.</td>
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<td>Retain a qualified professional to conduct an ecological risk assessment on sites found to contain levels of contaminant exceeding pertinent ecological risk levels. The ecological risk assessment shall include, but not be limited to: potential chemicals of concern, biological characterization of the site, identification of potential exposure pathways, ecological receptors, and recommendations for and implementation of remediation, where feasible and practicable.</td>
<td>✅ Retain an air quality specialist to monitor the concentration of particulates of concern in the air at the project fenceline, adjacent to residential property to ensure compliance with Federal, state, regional, and local regulations, to the extent feasible and practicable. Airborne particulate monitoring should be performed in the on-site worker’s breathing zone using the Particulate Not Otherwise Specified (NOS) concentrations standard of 5 mg/m³ as well as at the project boundaries using the Fenceline Particulate NOS goal of 0.3 mg/m³.</td>
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<td>Retain a licensed contractor to remove USTs, ASTs, and stained soils in accordance with applicable Federal, state, regional, and local regulations.</td>
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<td>Retain a licensed contractor to remove and dispose of asbestos cement pipe found within the project area in accordance with applicable Federal, state, regional, and local regulations.</td>
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<td>Retain a licensed contractor to remove septic systems, water wells, and other underground structures, as needed, in accordance with applicable Federal, state, regional, and local regulations.</td>
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<td>Retain an asbestos specialist who is certified by the California Occupational Safety and Health Administration (Cal/OSHA) The asbestos specialist shall investigate whether asbestos-containing materials or lead-based paints are present before demolition of on-site buildings and utilities. If materials containing asbestos or lead are found, they shall be removed by an accredited contractor in accordance with EPA and Cal/OSHA standards. In addition, activities (construction or demolition) in the vicinity of these materials shall comply with Cal/OSHA asbestos and lead worker construction standards. The materials containing asbestos and lead shall be disposed of properly at an appropriate off-site disposal facility.</td>
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<td>Obtain an assessment conducted by the Sacramento Municipal Utility District and/or Pacific Gas &amp; Electric Company pertaining to the contents of the existing pole-mounted transformers that would be relocated as part of the Phase 4a Project. The assessment shall determine whether existing on-site electrical transformers contain polychlorinated biphenyls (PCBs) and whether there are records of spills from such equipment. If equipment containing PCBs is identified, the maintenance and/or disposal of the transformer shall be subject to the regulations of the Toxic Substances Control Act under the authority of the Sutter County Environmental Health Division and Sacramento County Environmental Management Department.</td>
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<td>Identify oil and gas well locations. Prepare and implement a California Department of Oil, Gas, and Geothermal Resources well review program, if necessary.</td>
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<tr>
<td>Phase 3: 4.18-b(2)</td>
<td>Notify the appropriate Federal, state, regional, and local agencies, as required, if evidence of previously undiscovered soil or groundwater contamination (e.g., stained soil, odorous groundwater) is encountered during construction activities. Areas with chemical concentrations exceeding regulatory levels shall be cleaned up in accordance with recommendations made by the Sutter County Environmental Health Division, Sacramento Environmental Management Department, Central Valley RWQCB, DTSC or other appropriate Federal, state, regional, or local regulatory agencies as generally described above.</td>
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<tr>
<td>Phase 3: 4.18-b(2)</td>
<td>Conduct Phase I ESAs, and if necessary, Phase II ESAs, and/or other appropriate testing and include, as necessary, analysis of soil and/or groundwater samples for the potential contamination sites that have not yet been covered by previous investigations before construction activities begin. Similar appropriate testing for borrow sites selected within the Elkhorn Borrow Area shall be completed before any earth-moving activities. Recommendations in the Phase I and II ESAs to address any contamination that is found shall be implemented before initiating ground-disturbing activities in these areas.</td>
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<tr>
<td>Phase 3: 4.18-b(2)</td>
<td>Implement the following measures before ground-disturbing or demolition activities begin within each project phase to reduce health hazards associated with potential exposure to hazardous substances:</td>
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<tr>
<td>Phase 3: 4.18-b(2)</td>
<td>✓</td>
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<tr>
<td>► Prepare a site plan that identifies any necessary remediation activities appropriate for proposed land uses, including excavation and removal of on-site contaminated soils, and redistribution of clean fill material on the project site. The plan shall include measures that ensure the safe transport, use, and disposal of contaminated soil and building debris removed from the site. In the event that contaminated groundwater is encountered during site excavation activities, the contractor shall report the contamination to the appropriate regulatory agencies, dewater the excavated area, and treat the contaminated groundwater to remove contaminants before discharge into the sanitary sewer system. The contractor shall be required to comply with the plan and applicable Federal, state, and local laws. The plan shall outline measures for specific handling and reporting procedures for hazardous materials and disposal of hazardous materials removed from the site at an appropriate off-site disposal facility.</td>
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<tr>
<td>Phase 4a: 4.15-c Review Design Specifications and Prepare and Implement an Impact Avoidance and contingency Plan in Consultation with Wickland Pipelines, LLC</td>
<td>Prior to issuance of construction contract bid requests for the Phase 4a Project, SAFCA and its engineering and design consultants shall ensure that Wickland Pipelines, LLC has approved design specifications and impact avoidance and safety measures for construction activities within 50 feet of the jet fuel pipeline (CCR Title 8, Section 1541). Construction specifications to be approved with Wickland Pipelines, LLC include, but are not limited to, the type of construction and equipment (e.g., bulldozers, graders, excavators) and the location and depth of earth-moving activities near the pipeline (i.e., 50 feet). All excavation and construction in the vicinity (i.e., 50 feet) of the jet fuel pipeline shall be undertaken in strict conformity with the most recent version of the Best Practice of the Common Ground Alliance available.</td>
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# Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<td>Prior to the start of earthmoving activities, an impact avoidance and contingency plan shall be prepared and implemented by SAFCA in consultation with Wickland Pipelines, LLC. The plan shall include, but shall not be limited to:</td>
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<td>▶ a contingency plan for actions to take in the event of damage to the pipeline or release of jet fuel, which shall include chain of command and notification procedures, worker safety, pipeline security, wildlife care, response procedures, necessary permits for response actions, and waste handling and disposal;</td>
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<tr>
<td>▶ a worker health and safety plan and worker training that shall consider personal protective equipment, operations safety within 50 feet of the pipeline, and a contact list for reporting and obtaining medical service; and</td>
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<td>▶ a method to provide the Airport with jet fuel in the event that the pipeline incurs substantial damage.</td>
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Agreements made between SAFCA, SAFCA’s contractor, and Wickland Pipelines, LLC shall be in compliance with applicable Federal and state regulations (e.g., Hazardous Liquid Pipeline Safety Act, Pipeline Safety Improvement Act of 2002, Cal OSHA regulations).

<p>| Phase 2: 3.16-e Phase 3: 4.18-c Phase 4a: 4.15-d | Notify State and Local Emergency Management Agencies about Project Construction and Coordinate Any SR 99/70 Detours with these Agencies to Ensure That Any Need for Emergency Use Is Not Significantly Impaired | | | | |
| (a) SAFCA shall implement [Phase 2 Project] Mitigation Measures 3.10-a, 3.10-b, and 3.10-c. | | | | ✓ |
| (b) During project design, SAFCA shall coordinate with Caltrans to plan detours through the NCC south levee construction area at SR 99/70 that will ensure an acceptable flow of traffic through this area. | | | ✓ | |</p>
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<td>(c) Before the beginning of construction, SAFCA shall notify the California Highway Patrol and the Sutter County, Sacramento County, and City of Sacramento emergency management agencies of the timing and nature of detours and traffic controls required on SR 99/70 during project construction. SAFCA shall coordinate with these agencies and Caltrans to ensure that information on potential traffic delays and impairment of the use of this highway as an emergency evacuation route are appropriately publicized, as determined necessary by these agencies.</td>
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<tr>
<td>SAFCA shall implement [Phase 3 Project] Mitigation Measure 4.12-a to avoid impairment of the use of SR 99/70 as an emergency evacuation route.</td>
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</table>
| Phase 3: 4.18-d  
Phase 4a: 4.15-e | Notify the Natomas Unified School District and Applicable Schools with Jurisdiction within One-Quarter Mile of Project Construction Activities  
SAFCA shall provide written notification of the project to each of the affected schools and the Natomas and Twin Rivers Unified School Districts within 30 days prior to certification of this EIS/EIR and shall consult with the Natomas and Twin Rivers Unified School Districts regarding the potential impacts on schoolchildren from hazards associated with project implementation. |                        |                 |                 |                 | √               |
### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

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<td>Phase 2: 3.16-c</td>
<td>Coordinate Work in the Critical Zone with Airport Operations and Restrict Night Lighting Within and Near the Runway Approaches</td>
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<td>Phase 3: 4.19-a</td>
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<td>Phase 4a: 4.15-f</td>
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<td>► No borrow activities shall be conducted within the Airport Critical Zone during nighttime hours.</td>
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<td>► All project-related nighttime lighting that is in, or is aligned with, the Airport runway approach zones (Natomas Cross Canal south levee Reaches 1–4, and Sacramento River east levee Reaches 1–11B) shall be directed downward to avoid potential interference with nighttime aircraft operations.</td>
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<td>► SAFCA shall ensure that the SCAS is informed in advance of the timing and nature of all construction activities within the Airport Critical Zone, and shall coordinate with SCAS during final project design to ensure that all appropriate safety precautions within the Airport Critical Zone are incorporated into the construction plans.</td>
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<td>► Additionally, requirements provided by the Federal Aviation Administration (FAA), not incorporated into this document, shall be followed.</td>
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<td>► SAFCA shall submit the FAA form 7460-1, Notice of Proposed Construction or Alteration, which notifies the FAA of construction or alteration that might affect navigable airspace. This form must be submitted to the FAA at least 30 days before the earlier of the following dates: (1) the date the proposed construction or alteration is proposed to begin, or (2) the date an application for a construction permit is to be filed.</td>
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<td>Phase 2: 3.16-d</td>
<td><strong>Implement Measures to Avoid Substantial Increases in Hazardous Wildlife within the Critical Zone or Wildlife Collisions with Aircraft</strong></td>
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<td>A qualified biologist, retained by SAFCA, shall conduct a wildlife-aircraft strike analysis to determine to what extent the proposed project could increase the potential for wildlife collisions with aircraft, and how the project could be modified to reduce any potential increase in wildlife collisions. The analysis, which shall be completed as part of project design of Airport borrow sites and of woodland plantings within the Critical Zone (2009–2010 construction), shall include the following:</td>
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<td>► A summary of existing information on wildlife-aircraft strikes at the Airport, relevant research conducted at the Airport and other airports in the United States, and a description of the sources of uncertainty resulting from insufficient data.</td>
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<td>► A comparison of current land use and habitat types in the Natomas Basin with anticipated land use changes over the next 20 years (i.e., the period covered by the Airport’s master plan). The purpose of this analysis will be to predict how anticipated land use changes will influence the diversity, abundance, and distribution of hazardous wildlife in the vicinity of the Airport. Particular attention will be given to analyzing potential effects of implementing the proposed project on hazardous wildlife populations.</td>
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<td>► An analysis of the anticipated effects of project implementation on the frequency and patterns of wildlife-aircraft strikes at the Airport.</td>
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<td>► Mitigation options, including alternative designs for habitat compensation sites, on-site versus off-site mitigation opportunities, and monitoring and adaptive management options that could be implemented if it is determined that the overall project could result in a no net increase of risk to aircraft.</td>
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<td>If the wildlife-aircraft strike analysis concludes that implementation of project elements proposed for construction in 2009–2010 would not result in an increase the potential for wildlife collisions with aircraft, no further mitigation is necessary.</td>
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</tbody>
</table>
### Summary of Mitigation Measures Adopted in Connection with the Natomas Levee Improvement Program, Phase 1–4a Landside Improvements Projects

<table>
<thead>
<tr>
<th>Project Phase and Mitigation Measure No.</th>
<th>Mitigation Measure</th>
<th>Phase 1 Project</th>
<th>Phase 2 Project</th>
<th>Phase 3 Project</th>
<th>Phase 4a Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 2: 3.16-f</td>
<td>Prepare and Implement a Fire Management Plan to Minimize Potential for Wildland Fires</td>
<td>✓</td>
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<tr>
<td>Phase 3: 4.20-a</td>
<td>Prepare and Implement a Fire Management Plan to Minimize Potential for Wildland Fires</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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</tr>
<tr>
<td>Phase 4a: 4.15-h</td>
<td>Prepare and Implement a Fire Management Plan to Minimize Potential for Wildland Fires</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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</tr>
</tbody>
</table>

- If the wildlife-aircraft strike analysis concludes that project elements proposed for construction in 2009–2010 could increase the potential for wildlife collisions with aircraft, SAFCA shall implement the following mitigation:
  - SAFCA, in consultation with SCAS and the FAA, shall design and implement mitigation and/or modify the proposed project as needed until it is determined by SCAS and the FAA that the proposed project would not substantially increase the risk of wildlife collisions with aircraft.

- The plan shall be amended, as appropriate, upon selection of borrow sites within the Elkhorn Borrow Area.
<table>
<thead>
<tr>
<th>Project Phase and Mitigation Measure No.</th>
<th>Mitigation Measure</th>
<th>Phase 1 Project</th>
<th>Phase 2 Project</th>
<th>Phase 3 Project</th>
<th>Phase 4a Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Environmental Justice</strong></td>
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<tr>
<td>Phase 3: 4.21-a</td>
<td>Increase the Direct Benefits of the Project for the Ancestors of the Native American Tribes</td>
<td></td>
<td></td>
<td>√</td>
<td>√</td>
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<tr>
<td>Phase 4a: 4.16-a</td>
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</tbody>
</table>

As part of the Phase 4a Project, SAFCA proposes to acquire various properties in the Natomas Basin as compensation for the project’s potential impacts, as required under Federal and state laws. As part of the process for restoring these lands, SAFCA shall implement the following measures to address environmental justice and increase the direct benefits to the ancestors of the Native American tribes that would bear disproportionate adverse effects:

- consult with appropriate Native American representatives to identify plant species of value for traditional cultural uses;
- consult with Native American representatives to identify traditional cultural activities that could occur on these lands, consistent with habitat conservation and safety objectives;
- to the extent feasible, include identified plant species in the planting palettes developed for habitat conservation;
- to the extent feasible, establish easements or other protective measures on these properties that include access for appropriate Native American representatives for plant gathering and other traditional cultural activities; and
- where feasible, also provide access to appropriate Native American representatives to the river front on acquired parcels that have access to the Sacramento River, provided that access does not permit the construction of physical structures on the levee, beaches, or in the river without prior approval from the appropriate regulatory agency.
REFERENCES

California Department of Fish and Game. 1995 (October 17). Staff Report on Burrowing Owl Mitigation. Sacramento, California.


Caltrans. See California Department of Transportation.

DFG. See California Department of Fish and Game.


SMAQMD. See Sacramento Metropolitan Air Quality Management District.


USFWS. See U.S. Fish and Wildlife Service.