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## Department of Water Resources INITIAL STUDY AND CHECKLIST

### CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) REQUIREMENTS

This report has been prepared pursuant to the California Environmental Quality Act (CEQA) (Public Resources Code, Section 21000 et seq.) and the CEQA *Guidelines*.

#### Background

Project Title: Lookout Slough Restoration Project

Project Location: Cache Slough Complex  
Solano County, CA  
38.298708, -121.702967

Lead Agency: California Department of Water Resources  
3500 Industrial Blvd  
West Sacramento, CA 95691

Lead Agency Contact: Heather Green  
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#### Project Description

The California Department of Water Resources (DWR) is considering the Lookout Slough Restoration Project. The Proposed Project as described below would restore within the Proposed Project Site approximately 3,000 acres of tidal marsh that will help satisfy the Department's obligations under Reasonable and Prudent Alternative (RPA) 4 of the 2008 United States Fish and Wildlife Service (USFWS) Delta Smelt Biological Opinion (BiOp) and consistent with RPA 1.6.1 of the 2009 National Marine Fisheries Service Salmonid BiOp for the coordinated operations of the State Water Project and the Central Valley Project. The Proposed Project would create habitat that is beneficial to wildlife including Delta Smelt (*Hypomesus transpacificus*), Giant Garter Snake (GGS, *Thamnophis gigas*), and other fish and wildlife species, and widen a portion of the Yolo Bypass to increase flood storage and conveyance, increase the resiliency of levees, and reduce flood risk.

The Proposed Project would also improve flood conditions in the region by providing increased flood conveyance and storage within the Yolo Bypass. Activities to improve flood abatement include lowering

the Shag Slough Levee and constructing a new Setback Levee. The Proposed Project consists of levee modifications, grading to achieve suitable elevation for tidal inundation, and ecosystem restoration and monitoring. The Proposed Project would restore approximately 3,000 acres of high-quality floodplain, intertidal (tidal marsh and mudflats), and subtidal habitats that would provide spawning habitat for Delta Smelt and Longfin Smelt; rearing habitat for all the target special-status fish species; aquatic, basking and winter refugia habitat for Giant Garter Snake (GGS,); substantial food web support; and increase temporal flood storage by approximately 40,000 acre-feet. The majority of the Proposed Project Site exhibits elevations within the intertidal habitat range. Physical conditions including salinity, temperature, and turbidity are all suitable for the target special-status fish species.

### **Zoning, Surrounding land uses and setting**

The Proposed Project Site consists of irrigated agricultural land and managed wetlands. The Solano County General Plan designates the site and its surroundings as agricultural land with a resource conservation overlay. The Proposed Project Site is currently zoned A-80 (Exclusive Agricultural 80 acres)<sup>1</sup>. The Proposed Project Site is generally surrounded by lands used for agriculture, open space and habitat conservation, and recreational uses such as fishing, hunting, and boating.

The Proposed Project Site is centrally located within the Cache Slough Complex (CSC), a portion of the Sacramento-San Joaquin Delta (Delta) with an agricultural character that is important for conservation efforts. The CSC is an important region for the recovery of the federally threatened Delta Smelt and the greater Delta ecosystem. Habitat restoration projects in and around the CSC aim to restore important habitat for the smelt and other species. In conjunction with other completed and in-progress projects in the area, the Proposed Project would result in over 16,000 acres of nearly contiguous tidal marsh habitat in the CSC, restoring habitat for aquatic special-status species such as Chinook Salmon and Steelhead, including Delta Smelt, which has precipitously declined in population in recent decades.

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<sup>1</sup> Solano County Planning Department, "Solano County - Zoning Maps," accessed June 27, 2018, [https://www.solanocounty.com/depts/rm/planning/zoning\\_maps.asp](https://www.solanocounty.com/depts/rm/planning/zoning_maps.asp).

## Proposed Project

EIP proposes to restore tidal hydrology and promote habitat conditions suitable for special-status species such as Delta and Longfin Smelt, Chinook Salmon, Steelhead, and Giant Garter Snake in the Proposed Project Site while protecting nearby infrastructure through the following actions. Each action is discussed below in greater detail: 1) construct a new setback levee along Duck Slough; 2) breach the Cache Slough Levee; 3) breach the Shag Slough Levee (also called the Yolo Bypass West Levee); 4) breach the Vogel Island levees; 5) protect, relocate, and replace infrastructure; and 6) restore approximately 3,400 acres of native habitat, including tidal and subtidal marsh through grading, fill placement, and natural revegetation.

### 1) *Construct Setback Levee along Duck Slough*

A new setback levee would be constructed on the northwestern and northern sides of the Proposed Project Site, which would become part of the State-Federal levee system and replace the protection currently offered to Reclamation District 2098 by the existing levee system along Shag Slough and Cache Slough. The levee would begin near the confluence of Hass Slough and Duck Slough, run parallel to Duck Slough on the northwestern side of the Proposed Project; and upon reaching the northwestern corner of the Proposed Project Site, turn east and run parallel to the south side of Liberty Island Road—eventually tying into the Shag Slough levee system in the northeast corner of the Proposed Project Site. The segment of levee running parallel to Duck Slough would be offset to provide a refugia habitat buffer on the land side for Giant Garter Snake (*Thamnophis gigas*).

### 2) *Breach of Cache Slough Levee*

A single 100-foot wide breach opening would be created at the east (left bank) levee of Cache Slough at the southern terminus of the existing Lookout Slough alignment. This opening would re-establish hydraulic connectivity to Cache Slough, creating opportunity for tidal exchange and habitat connectivity. The dimensions of the Cache Slough levee breach opening have been constrained to avoid raising water levels significantly in Cache Slough and Hass Slough during high flow conditions. Rock slope protection would be placed at the opening to prevent degradation.

### 3) *Modification of Shag Slough Levee*

The west (right bank) levee of Shag Slough and the Yolo Bypass would be breached at eight locations to provide hydraulic connectivity to Shag Slough and restore normal tidal exchange to the majority of the site and habitat connectivity to Shag Slough. The remainder of the existing levee would be degraded to the match the elevation of the ten year storm event. In large flood events, the remnant levee segments would allow flood water from the Yolo Bypass onto the Proposed Project Site.

### 4) *Breach of Vogel Island Levees*

The uncertified agricultural levees that form the perimeter of Vogel Island would be breached at three locations to provide hydraulic connectivity to Cache Slough and restore normal tidal exchange to the island and habitat connectivity to Cache Slough. In large flood events, the remnant levee segments would continue to be allowed to overtop as they do today.

#### 5) *Excavation Work*

Tidal channels would be excavated throughout the Liberty Farms, Bowlsbey Ranch and Vogel properties to facilitate full tidal hydrology within the Proposed Project Site and tidal connectivity between the Proposed Project Site and the CSC. Unused excavated soils within the interior of the site would be disposed in a manner that is consistent with the ecological goals of the Proposed Project.

#### 6) *Infrastructure Protection, Relocation, and Replacement*

Utility infrastructure located on site would be protected or relocated to allow for completion of restoration and levee improvement components. Various PG&E power poles and associated overhead lines would be removed, relocated, or preserved, depending on their function. Buildings, sheds, barns, fences, posts, the condemned Shag Slough Bridge, concrete pads and any other such materials within the construction footprint would be demolished and hauled to a nearby landfill or used on-site, as appropriate.

#### 7) *Re-Vegetation and Restoration of Native Habitat*

Approximately 3,400 acres of native habitat, including tidal and subtidal marsh, would be restored through grading, fill placement, and natural revegetation. Based on the limited amount of sediment in the channel and preliminary shear stress and velocity estimates, it is expected that the tidal marsh would be fully vegetated and relatively stable in plan and profile. The rehabilitated and re-established tidal marshes are expected to revegetate through natural recruitment. The Proposed Project would create foraging habitat for GGS and spawning habitat for Delta Smelt.

## Required Permits and Approvals

Federal, state, regional, and local agencies with jurisdiction over aspects of the Proposed Project may require permits and approvals, including but not necessarily limited to those outlined in Table 1.

**Table 1. Required Approvals, Permits, and Consultations**

Approval, Permit, Agreement or Consultation	Agency(ies)
Section (§) 408 Letter of Permission	US Army Corps of Engineers (Corps) and Central Valley Flood Protection Board (CVFPB)
CCR, Title 23 Water Code, Floodway Encroachment Permit	
Clean Water Act (CWA) §404 Nationwide Permit No. 27 and Rivers and Harbors §10 approval	Corps
NEPA Compliance	Corps/ USFWS / NMFS
CEQA Compliance	DWR / Solano County/ CDFW/ RWQCB
Federal Endangered Species Act (FESA) §7 informal Consultation	USFWS / NMFS
Essential Fish Habitat Consultation	NMFS
California Endangered Species Act (CESA) §2081 Incidental Take Permit	CDFW
Certification of Wetland Reserve Program (WRP) Compliance	US Department of Agriculture
Fish and Game Code § 1602 streambed alteration agreement	CDFW
CWA § 401 water quality certification	Central Valley RWQCB
CWA § 402 National Pollutant Discharge Elimination System (NPDES) Statewide Construction General Permit enrollment	
§106 Consultation	State Historic Preservation Office
Certification of Consistency	Delta Stewardship Council
Grading Permit	Solano County
Building Demolition Permit	
Road Abandonment Permit	
Grading Permit	Yolo County
Road Abandonment Permit	
Flood Coordination	Reclamation District 2068, 2098, SAFCA
Conditional Letter of Map Revision/ Letter of Map Revision	Federal Emergency Management Agency
Electrical Infrastructure Agreement, and local electrical/ oil/gas easement removal	Pacific Gas and Electric
Local electrical/ oil/gas easement removal	

## ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project involving impacts that are a "Potentially Significant Impact" as indicated by the checklist on the pages below.

	1. Aesthetics		8. Greenhouse Gas Emissions	✓	15. Public Services
✓	2. Agriculture & Forestry Resources	✓	9. Hazards & Hazardous Materials		16. Recreation
✓	3. Air Quality	✓	10. Hydrology / Water Quality		17. Transportation
✓	4. Biological Resources		11. Land Use / Planning	✓	18. Tribal Cultural Resources
✓	5. Cultural Resources	✓	12. Mineral Resources		19. Utilities/Service Systems
	6. Energy		13. Noise		20. Wildfire
✓	7. Geology / Soils		14. Population / Housing		21. Mandatory Findings of Significance

## DETERMINATION

	I find that the proposed project COULD NOT have a significant effect on the environment and a NEGATIVE DECLARATION should be prepared.
	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Proposed Project have been made by or agreed to by the Proposed Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
✓	I find the proposed project MAY have a significant effect on the environment and an ENVIRONMENTAL IMPACT REPORT is recommended based on Section 15162 of the CEQA Guidelines.
	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	I find that although the proposed project could have a significant effect on the environment because all potentially significant effects a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION including revisions or mitigation measures that are imposed upon the proposed project nothing further is required.

Signature: *Dean Messer*  
*acting for* Dean Messer  
 Chief, Division of Environmental Services

Date: 3/21/2019

## Environmental Analysis

### 1. Aesthetics.

Except as provided in Public Resources Code  
Public Resources Code (PRC) Section 21099,  
would the project:

- a. Have a substantial adverse effect on a scenic vista?
- b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?
- c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?
- d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
		✓	
			✓
		✓	
		✓	

### Discussion:

- a) **Less-than-Significant Impact.** The Proposed Project Site and its surroundings are currently a blend of agricultural open space and wetlands. Upon completion of the Proposed Project, this overall visual character would remain, but some agricultural land and managed wetland would be converted to tidal marsh and associated upland habitats. The Solano County General Plan describes both agricultural open spaces and water bodies as offering important scenic vistas. The Proposed Project would therefore convert one scenic vista into another, resulting in a neutral effect on a scenic vista. Any effects on scenic vistas would not be substantial or adverse, and would therefore constitute a **less-than-significant impact**.

- b) **No Impact.** There are no state-designated scenic highways in Solano County, although Highway 37 is eligible<sup>2</sup> for listing. Highway 37 is located in the southwest corner of Solano County, whereas the Proposed Project is on the county's eastern side. Similarly, there are no designated scenic highways in adjacent Yolo County. The only eligible highway in Yolo County is the northern section of Highway 16, which is not located near the Proposed Project Site as it borders Yolo County in the south. As there are no state scenic highways within or near the Proposed Project Site, there would be **no impacts**.
- c) **Less-than-Significant Impact.** The Proposed Project is in a non-urbanized area with limited public views available. Public views of the site are limited to views from Liberty Island Road, a two-lane road experiencing limited traffic. Public views of the Proposed Project Site are therefore limited.

In the short-term, the presence of construction equipment and unsettled earth may degrade the visual quality of the Proposed Project Site. This would be temporary; and construction equipment would leave the site and disturbed areas would be revegetated following construction.

As discussed in response to question 1a, the Proposed Project's surroundings contain a blend of agricultural land, wetlands, and marsh. The Proposed Project would result in some conversion of agricultural land and managed wetland to tidal marsh, resulting in changes to the area's current appearance. These changes would be consistent with the visual character of the Proposed Project's surroundings, as existing marsh and wetlands neighbor the site. As such, there would be no long-term degradation in the visual quality and character of the Proposed Project Site and its surroundings.

In summary, public views of the non-urbanized Project Site are limited. There would be a small, temporary degradation of the Proposed Project Site's visual quality. In the long-term, the Proposed Project would yield permanently protected marshland which would be consistent with the presence of the existing nearby open space and agricultural areas. As the Proposed Project would permanently provide views of native marsh and wetland and would only temporarily lead to a minor degradation of visual quality, the Proposed Project would not substantially degrade the visual character or quality of the site or its vicinity; and impacts would be **less than significant**.

- d) **Less-than-Significant Impact.** The Proposed Project may result in the creation of more standing water in the area. While this would not produce any additional light, some daytime glare may result. Such glare would be minimal and would not be sufficiently bright as to have an adverse impact on area views. Light and glare from the Proposed Project would therefore create **less-than-significant impacts** on area views.

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<sup>2</sup> Dennis Cadd Brian Shultis, "OFFICIALLY DESIGNATED STATE SCENIC HIGHWAYS AND HISTORIC PARKWAYS," accessed June 20, 2018, [http://www.dot.ca.gov/hq/LandArch/16\\_livability/scenic\\_highways/index.htm](http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm).

## 2. Agricultural and Forestry Resources<sup>3</sup>.

Would the project:

- a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?
- b. Conflict with existing zoning for agricultural use, or a Williamson Act Contract?
- c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?
- d. Result in the loss of forest land or conversion of forest land to non-forest use?
- e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
✓			
✓			
			✓
			✓
✓			

<sup>3</sup> In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

**Discussion:**

- a) **Potentially Significant Impact.** According to the California Department of Conservation's 2016 Farmland Mapping and Monitoring Program<sup>4</sup>, the Proposed Project Site contains prime farmland, grazing land, and "other" land. The Prime Farmland is located north of Lookout Slough and south of Duck Slough, within the Moore Tract. The proposed levee modifications would result in the conversion of approximately 1,500 acres of irrigated pasture within the Proposed Project Site to tidal marsh and floodplain and creating conservation land for threatened and endangered species. The inundation of Prime Farmland presents a **potentially significant impact**. This will be further examined in the EIR.
- b) **Potentially Significant Impact.** According to the Solano County General Plan<sup>5</sup>, the entire Project Site is subject to Williamson Act contracts. The Bowsbey Property is under contract as prime farmland. Two separate contracts are in place for separate portions of the property. Although marsh restoration is conditionally permitted in non-prime farmland, marsh restoration is not permitted within prime farmland. The Proposed Project would convert some prime agricultural land subject to a Williamson Act Contract into non-agricultural land, presenting a **potentially significant impact**. This will be examined further in the EIR.
- c) **No Impact.** The Proposed Project Site is zoned as A-80, Exclusive Agricultural 80 Acres<sup>6</sup>. There is no forest land, timberland, or timberland zoned Timberland in the Proposed Project Site. As there is no forest or timberland present, the Proposed Project would not conflict with or necessitate rezoning of forest or timberland. There would be **no impacts**.

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<sup>4</sup> California Department of Conservation, *Solano County Important Farmland 2016*, August 2017, August 2017.

<sup>5</sup> Solano County, "Solano County - General Plan," November 4, 2008, [https://www.solanocounty.com/depts/rm/planning/general\\_plan.asp](https://www.solanocounty.com/depts/rm/planning/general_plan.asp).

<sup>6</sup> "Solano County - Zoning Maps," accessed June 27, 2018, [https://www.solanocounty.com/depts/rm/planning/zoning\\_maps.asp](https://www.solanocounty.com/depts/rm/planning/zoning_maps.asp).

- d) **No Impact.** As stated in response to question 2c, there is no forest present in the Proposed Project Site. As such, there would be no conversion of forest land to non-forest land. There would therefore be **no impacts**.
- e) **Potentially Significant Impact.** The Proposed Project Site does not contain any forest land, but does contain Farmland. The Proposed Project proposes breaches to existing levees that would result in the restoration of tidal marsh and floodplain, and consequently, inundation of parts of the site. Flooding agricultural lands would render them unusable for many agricultural purposes, leading to the conversion of Farmland into non-agricultural use. There would therefore be **potentially significant impacts**. These will be examined further in the EIR.

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**3. Air Quality.**

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

- a. Conflict with or obstruct implementation of the applicable air quality plan?
- b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?
- c. Expose sensitive receptors to substantial pollutant concentrations?
- d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
✓			
✓			
		✓	
		✓	

The Proposed Project Site is in eastern Solano County, which is in the Sacramento Valley Air Basin (SVAB). This Basin includes the counties of Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo and portions of Placer and Solano. The SVAB climate is characterized by hot, dry summers and cool, wet winters. Solano County's annual average temperature is 60 degrees Fahrenheit, with summer highs in the 80s and winter lows in the 40s. Rainfall averages about 21 inches per year and winds annually average 16.35 miles per hour. The mountains surrounding the SVAB create a barrier to airflow which, under certain meteorological conditions, traps pollutants in the valley.

The Yolo-Solano Air Quality Management District (YSAQMD) is the primary agency responsible for assuring that the federal and state ambient air quality standards are attained and maintained in this portion of Solano County. Federal and state standards have been established for six criteria pollutants, including ozone (O<sub>3</sub>), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulates less than 10 microns and 2.5 microns in diameter (PM<sub>10</sub> and PM<sub>2.5</sub>), and lead (Pb). Additionally, the State has established standards for four pollutants for which there are no federal standards.

Depending on whether the standards for a criteria air pollutant have been met or exceeded, the local air basin is classified as being in "attainment" or "nonattainment." YSAQMD is currently in

non-attainment for the federal and state ozone and PM<sub>2.5</sub> standards<sup>7</sup> (NAAQS and CAAQS, respectively). Additionally, the District is a non-attainment area for the PM<sub>10</sub> CAAQS. The District is either designated as being within attainment or unclassified for all other NAAQS and CAAQS.

The Federal and State Clean Air Acts (CAA) require air districts to prepare a plan for air quality improvement for criteria pollutants for which the District is in nonattainment. The YSAQMD is part of the US EPA's greater Sacramento Federal Non-Attainment Area for ozone and PM<sub>2.5</sub>. As such, the District has prepared joint planning documents with other air districts in the Sacramento Region to work towards attainment of ozone and PM<sub>2.5</sub> standards per the requirements of the federal CAA. The most recent such documents include the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan<sup>8</sup> (2013) and the Proposed PM<sub>2.5</sub> Implementation/Maintenance Plan and Re-designation Request for Sacramento PM<sub>2.5</sub> Nonattainment Area<sup>9</sup> (2013). For the purposes of the California CAA, the District adopted a Triennial Assessment and Plan Update<sup>10</sup> to regulate ozone, PM<sub>2.5</sub>, and PM<sub>10</sub> emissions. These planning documents are the basis for the District's functional strategy to meet federal and state ambient air quality standards.

Additionally, in 2007 the District issued guidelines on assessing and mitigating air quality impacts for CEQA projects<sup>11</sup>. The purpose of the guidelines is to ensure that projects are properly evaluated for consistency with ambient air quality standards and plans. Within these guidelines, the District issues thresholds of significance for criteria pollutants (Table 3-1) and other relevant impacts (Table 3-2). The guidelines also provide project sizes and screening criteria where further analysis on air quality impacts is merited. These values were derived using URBEMIS12 version 8.7 and do not account for construction emissions. For ROG, NO<sub>x</sub>, and PM<sub>10</sub>, no project size threshold is issued for conservation areas. The closest land use type is city parks, which has a threshold of 3,100 acres. For CO, a violation is likely if the Proposed Project would result in an unacceptable (E or F) peak-hour traffic level of service (LOS) on one or more streets or intersections in the Proposed Project vicinity or worsen an already existing peak-hour LOS F by 10 seconds or more.

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<sup>7</sup> "Attainment Status," Yolo-Solano Air Quality Management District, accessed July 3, 2018, <https://www.ysaqmd.org/plans-data/attainment/>.

<sup>8</sup> El Dorado County Air Quality Management District et al., "Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (2013 SIP Revisions)," September 26, 2013, [http://www.airquality.org/ProgramCoordination/Documents/4\)%202013%20SIP%20Revision%20Report%201997%20Std.pdf](http://www.airquality.org/ProgramCoordination/Documents/4)%202013%20SIP%20Revision%20Report%201997%20Std.pdf).

<sup>9</sup> El Dorado County Air Quality Management District et al., "Proposed PM<sub>2.5</sub> Implementation/Maintenance Plan and Redesignation Request for Sacramento PM<sub>2.5</sub> Nonattainment Area," October 24, 2013, <https://www.ysaqmd.org/wp-content/uploads/2016/11/Sac-Region-PM2.5-Maintenance-Plan.pdf>.

<sup>10</sup> Yolo-Solano Air Quality Management District, "Triennial Assessment and Plan Update," March 11, 2016, <http://www.ysaqmd.org/wp-content/uploads/2016/11/triennial-plan-2016-draft.pdf>.

<sup>11</sup> Yolo-Solano Air Quality Management District, "Handbook for Assessing and Mitigating Air Quality Impacts," July 11, 2007, <http://www.ysaqmd.org/wp-content/uploads/2016/06/CEQAHandbook2007.pdf>.

<sup>12</sup> "URBEMIS 2007 Program," accessed July 3, 2018, <https://www.arb.ca.gov/planning/urbemis/urbemis2007/urbemis2007.htm>.

**Table 3-1. Thresholds of Significance for Criteria Pollutants**

Pollutant	Thresholds of Significance
Reactive organic gases	10 tons/year
NOx	10 tons/year
PM10	80 lbs/day
CO	Violation of a state ambient air quality standard for CO

**Table 3-2. Other Relevant Thresholds of Significance**

Pollutant	Thresholds of Significance
Toxic air contaminants	<ul style="list-style-type: none"> <li>• Probability of contracting cancer for the Maximally Exposed Individual (MEI) equals to 10 in one million or more</li> <li>• Ground-level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index equal to 1 for the MEI or greater</li> </ul>
Cumulative impacts	<ul style="list-style-type: none"> <li>• Any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative impact</li> <li>• CO impacts are cumulatively significant when modeling shows that the combined emissions from the Proposed Project and other existing and planned projects... will exceed air quality standards</li> </ul>
Plan Consistency	<ul style="list-style-type: none"> <li>• General Plans of cities and counties must show consistency with the District's Air Quality Attainment Plan (AQAP) and SIP strategies in order to claim a less than significant impact on air quality</li> <li>• General plan amendments, redevelopment plans, specific area plans, annexations of lands and services, and similar planning activities should receive the same scrutiny as general plans with respect to consistency with the AQAP and SIP</li> </ul>
Federal Activities Thresholds	<ul style="list-style-type: none"> <li>• In an area with a SIP (non-attainment), [general] conformity can be demonstrated in one of four ways: <ol style="list-style-type: none"> <li>1. By showing that the emission increases caused by an action are included in the SIP,</li> <li>2. By demonstrating that the State agrees to include the emission increases in the SIP,</li> <li>3. Through offsets,</li> <li>4. Through mitigation</li> </ol> </li> <li>• The defined <i>de minimis</i> level is 25 tons/year for ozone (VOC or NOx). Federal actions with emissions below this minimum threshold are not obligated to perform a conformity determination.</li> </ul>

Offensive Odors Threshold	<ul style="list-style-type: none"> <li>• [Project] Generates odorous emissions in such quantities as to cause detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which may endanger the comfort, response, health, or safety of any such person or the public, or which may cause, or have a natural tendency to cause, injury or damage to business or property</li> </ul>
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### **Discussion:**

- a) **Potentially Significant Impact.** The Proposed Project is situated in the YSAQMD, a non-attainment area for ozone and PM<sub>2.5</sub> emissions at the federal level and PM<sub>10</sub> at the state level. YSAQMD has adopted appropriate plans to achieve attainment for ozone and has submitted a re-designation request and maintenance plan for PM<sub>2.5</sub>. In establishing the ozone plan, the District took a regional approach; so individual ozone exceedances are not in compliance with the ozone attainment plan and are considered significant impacts.

In the long-term, the Proposed Project would lead to a reduction in ozone precursor and PM<sub>2.5</sub> emissions, as the site's agricultural operations would cease and there would be less vehicle trips to the site. However, the construction phase would require the use of vibratory hammers, excavators, and other gas and diesel-powered equipment, and may temporarily generate sufficient ozone precursors and PM<sub>2.5</sub> emissions as to be noncompliant with the District's ozone plan. Conflict with implementation of applicable air quality plans is therefore a **potentially significant impact**, and will be discussed further in the EIR.

- b) **Potentially Significant Impact.** As described in response to question 3a, the Proposed Project is situated within an ozone and PM<sub>2.5</sub> non-attainment area. Long-term emissions associated with the Proposed Project's operational phase, vehicle trips to the Proposed Project Site for maintenance and recreation, would be minimal. Emissions associated with current agricultural operations, including significant movement of cattle by trucks onto and off of the Proposed Project Site would end. A net decrease in long-term vehicle emissions is therefore anticipated. Thus, long-term impacts on criteria pollutants are anticipated to be less than significant.

Short-term construction-related activities such as grading, fill placement, building removal, vegetation processing, and operation of construction vehicles would create a temporary increase in particulate pollution and fugitive dust within the immediate vicinity of the Proposed Project Site and contribute temporarily to increases in heavy-duty vehicle emissions (ozone precursor emissions, such as reactive organic gases (ROG) and nitrogen oxides (NOx), and fine particulate matter). As the Proposed Project involves a substantial amount of heavy-duty equipment, construction-related air quality impacts are **potentially significant** and will be addressed in the EIR. Construction air quality impacts will be addressed by predicting construction period emissions and identifying best management practices to control emissions.

- c) **Less than Significant Impact.** The Proposed Project Site is surrounded by agricultural land, managed wetlands, and other open spaces. The area is used for agricultural and conservation purposes, with no residential subdivisions, schools, hospitals, or other sensitive land uses or receptors located nearby. While there may be a temporary increase in emissions in the area during construction, there are no sensitive receptors in the vicinity of the Proposed Project to be exposed to such an increase. As such, there would be **less than significant impacts**.
- d) **Less than Significant Impact.** The YSAQMD suggests further odor impact analysis for common odor-generating facilities used for wastewater treatment, chemical manufacturing, landfills, fiberglass manufacturing, transfer stations, painting/coating operations, composting, food processing, petroleum refining, feed lots, asphalt batch, and rendering. The District is especially concerned with incompatible land uses located in close proximity to each other and odor impacts on residential areas and other sensitive receptors. There are no residential areas proximate to the Proposed Project; and the Proposed Project would not result in an odor-generating facility such as those listed above.

The conservation area resulting from the completed Project would be compatible with existing land uses in the area. Construction activities could create odors through earth disturbance and the use of diesel powered equipment and the operational facility could generate mild odors, but there are not substantial numbers of people nearby to perceive these odors. Further, any odors would not be created "in such quantities as to cause detriment, nuisance, or annoyance to any considerable number of persons or to the public, or [...] endanger the comfort, response, health, or safety of any such person or the public, or [...] cause, or have a natural tendency to cause, injury or damage to business or property"<sup>13</sup>; and the Proposed Project would not generate any other emissions adversely affecting a substantial number of people. As such, there would be **less than significant impacts**.

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<sup>13</sup> Yolo-Solano Air Quality Management District, "Handbook for Assessing and Mitigating Air Quality Impacts."

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**4. Biological Resources.**

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	✓			
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in the City or regional plans, policies, regulations by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	✓			
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	✓			
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	✓			
e. Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance?			✓	

**4. Biological Resources.**

Would the project:

- f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
		✓	

The analysis of potential biological impacts has incorporated information from a Biological Resources Assessment (BRA; WRA 2018; Appendix B). The BRA is based on archival research and site visits throughout 2017 and 2018. The Study Area for the BRA is a 3,636-acre area primarily focused on the Proposed Project Site—including Duck, Lookout, and Sycamore Sloughs. Sloughs adjacent to and hydrologically important to the Proposed Project Site were also included, as they may supply water for agriculture or inundate the Study Area during seasonal flooding. Such sloughs include Cache and Hass Sloughs of the Cache Slough Complex and Shag Slough of the Yolo Bypass. The Study Area is located in Solano County, immediately west of Liberty Island and northeast of the Hastings Tract.

The purpose of the site visits and BRA was to identify, describe, and map the current biotic and abiotic baseline conditions within the Study Area to inform habitat restoration and related improvements. The report describes these baseline conditions, as well as the potential for special-status species to occur within the study area and an evaluation of possible impacts to special-status species and sensitive biological resources that may occur as a result of Proposed Project construction and operation.

**Biological Communities**

Three non-sensitive biological communities were observed within the Study Area: California annual grassland, agriculture, and developed land. Five sensitive biological communities were identified: seasonal wetland, freshwater perennial emergent, Valley Foothill riparian, perennial aquatic, and managed wetland. These biological communities and their acreage within the Study Area are summarized in Table 4-1 below.

Table 4-1. Summary of Biological Communities within the Study Area

Vegetation Structure	Community	Sensitive	Acres within Study Area
Tree/Shrub	Great Valley mixed riparian forest	Yes	30.0
Herbs	Coastal and Valley freshwater marsh	Yes	1,127.9
	Irrigated pasture*	No	1,364.2
	Non-native grassland	No	486.3
Open Water	Slough (tidal/non-tidal)	Yes	332.8
	Drainage ditches*	Yes	
	Irrigation pond	Yes	
N/A	Developed	No	295.4
<b>Total</b>			<b>3,637</b>

## Non-Sensitive Biological Communities

### **Irrigated Pasture**

Irrigated pastures include land used primarily for the production of food, fiber, and livestock. Irrigated pastures within the Study Area are managed by seeding, grazing, and/or irrigation. Within the Study Area, this land cover type occurs throughout Bowsbey Ranch, and comprises approximately 38% of the Study Area.

Plant species observed within the irrigated pasture land cover type in the Study Area include dallis grass (*Paspalum dilatatum*), barley (*Hordeum* spp.), clover (*Trifolium* spp.), rabbitsfoot grass (*Polypogon monspeliensis*), Italian ryegrass (*Festuca perennis*; Moderate California Invasive Plant Council [Cal-IPC] Rating), tall fescue (*Festuca arundinacea*; Moderate Cal-IPC Rating), Bermuda grass (*Cynodon dactylon*; Moderate Cal-IPC Rating), bird's-foot trefoil (*Lotus corniculatus*), perennial pepperweed (*Lepidium latifolium*; High Cal-IPC Rating), narrowleaf plantain (*Plantago lanceolata*), smut grass (*Sporobolus indicus*), saltgrass (*Distichlis spicata*), cocklebur (*Xanthium strumarium*), wild radish (*Raphanus sativus*), wild fennel (*Foeniculum vulgare*; Moderate Cal-IPC Rating), and bristly ox-tongue (*Helminthotheca echioides*).

### **Non-native Grassland**

This biological community contains elements of four herbaceous alliances, including perennial rye grass fields (*Lolium perenne* [*Festuca perennis*] Herbaceous Semi-Natural alliance), annual brome grasslands (*Bromus diandrus*, *B. hordeaceus*-*Brachypodium distachyon* Herbaceous Semi-Natural Alliance), wild oats grasslands (*Avena* [*barbata*, *fatua*] Herbaceous Semi-Natural Alliance), and bent grass-tall fescue meadows (*Agrostis* [*gigantea*, *stolonifera*]-*Festuca arundinacea* Herbaceous Semi-Natural Alliance).

Within the Study Area, this community occurs along levee roads in the northern half of Liberty Farms and throughout Vogel Island. Non-native grassland comprises approximately 13% of the Study Area. Non-native grassland in the Study Area is dominated by non-native annual grasses, such as Italian ryegrass, ripgut brome (*Bromus diandrus*; Moderate Cal-IPC Rating), and soft chess (*Bromus hordeaceus*). Additional species within the Study Area include: bull thistle (*Cirsium vulgare*; Moderate Cal-IPC Rating), broad leaf filaree (*Erodium botrys*), spring vetch (*Vicia sativa*), wild carrot (*Daucus carota*), wild radish, milk thistle (*Silybum marianum*), Italian thistle (*Carduus pycnocephalus*; Moderate Cal-IPC Rating), red stemmed filaree (*Erodium cicutarium*), mallow (*Malva* sp.), and Canada horseweed (*Erigeron canadensis*).

### **Developed**

The developed land cover type includes portions of the Study Area that have been highly disturbed or impacted through development, including a barn and livestock complex located on the western border of Liberty Farms adjacent to Malcom Lane. Roads situated atop levees are also classified as developed land cover. Developed land cover comprises approximately 8% of the Study Area.

## Sensitive Biological Communities

### **Great Valley Mixed Riparian Forest**

Within the Study Area, this sensitive biological community contains elements of several alliances, including arroyo willow thickets (*Salix lasiolepis* Shrubland Alliance), valley oak woodland (*Quercus lobata* Woodland Alliance), and black willow thickets (*Salix gooddingii* Woodland Alliance). This biological community occurs on an island adjacent to Vogel Island, as well as along the higher-elevation margins of sloughs channels, irrigation ditches, coastal and valley freshwater marsh, and upland portions of levees within the Study Area. Great Valley mixed riparian forest comprises approximately 2% of the Study Area.

Sections of Great Valley mixed riparian forest located along irrigation ditches (i.e., areas away from slough channels) appear to have been planted in late 2005 to early 2006, likely as a means of erosion control. Thus, such areas do not represent natural historic conditions in the Study Area. The overstory of this community is dominated by white alder (*Alnus rhombifolia*) or valley oak (*Quercus lobata*), and willows (*Salix* spp.). The canopy of this community ranges from open to closed configurations. Himalayan blackberry (*Rubus armeniacus*; Moderate Cal-IPC Rating) and California wild rose (*Rosa californica*) dominate the understory of this community.

### **Coastal and Valley Freshwater Marsh**

Within the Study Area, this sensitive community contains elements of several alliances including hardstem bulrush marsh (*Schoenoplectus acutus* Herbaceous Alliance), California bulrush marsh (*Schoenoplectus californicus* Herbaceous Alliance), and cattail marshes (*Typha* [*angustifolia*, *domingensis*, *latifolia*] Herbaceous Alliance). Coastal and valley freshwater marsh in the Study Area is actively artificially flooded and drained. These areas are flooded annually and vegetation is managed to provide suitable avian habitat. Management includes farming to provide food sources for waterfowl and scraping, or plowing, to create contiguous, heterogeneous habitat. Coastal and valley freshwater marsh is situated within the southern half of Liberty Farms.

Coastal and valley freshwater marsh comprises approximately 30% of the Study Area. Within this community, hardstem bulrush (*Schoenoplectus acutus*) is dominant or co-dominant with broadleaf cattail (*Typha latifolia*), flat sedge (*Cyperus* spp.), common reed grass (*Phragmites australis*), and Himalayan blackberry. In areas of still water, Pacific mosquito fern (*Azolla filiculoides*) occurs on the water's surface.

### **Open Water**

Within the Study Area, open water exists in several different forms, including drainage ditches, irrigation ponds, and sloughs (tidal/non-tidal). Open water comprises approximately 9% of the Study Area.

Drainage ditches within the Study Area are earthen-lined ditches used to drain agricultural fields on Bowsbey Ranch and irrigated pastures on Liberty Farms. These ditches vary in size from approximately 5 feet in width to over 20 feet in width, and have varying water regimes, with some ditches being permanently inundated and others carrying water for only a portion of the year. All

water regimes are artificially controlled through pumping and draining for the purposes of agriculture and avian production. All ditches are manmade, excavated features connected through a complex network of culverts and slide gates. Although many of the ditches are lined with cattails and tules, they were classified as open water due to the small amount of vegetation relative to the overall size of the features and because vegetation within the ditches is regularly removed through burning and dredging.

Irrigation ponds within the Study Area include two raised, earthen-lined ponds located on the western side of Bowsbey Ranch. The ponds are supported by earthen berms. Water is pumped into these ponds via two pumps, located in Duck Slough and Hass Slough. From the ponds, water is gravity-fed into a network of concrete-lined irrigation ditches where it is diverted to individual pastures for flood irrigation. The ponds are regularly maintained and did not contain vegetation at the time of the surveys.

Sloughs within the Study Area include tidal perennial aquatic and non-tidal perennial aquatic open water habitat. Tidal perennial aquatic habitat occurs in the southern portion of the Study Area within Cache and Hass Sloughs, and in the eastern portion of the Study Area within Shag Slough. Non-tidal perennial aquatic habitat occurs within the irrigation ditches, as well as within Duck, Lookout, and Sycamore Sloughs. All irrigation ditches were constructed to provide irrigation for existing or previously existing irrigated pastures. Both tidal and non-tidal sloughs contain emergent vegetation, such as cattails and tules.

Drainage ditches and irrigation ponds are considered sensitive, as they are jurisdictional of the Corps and RWQCB. Sloughs (tidal/non-tidal) are considered sensitive, as they are jurisdictional of the Corps, RWQCB, and CDFW (if riparian vegetation is present).

### *Special-Status Species*

#### Plants

Thirty six (36) special-status plant species have been documented within a 5-mile radius of the Study Area. The potential for these species to occur within the Study Area was evaluated prior to site visits. Of these, 24 species were determined to have little or no potential to occur based on a lack of appropriate habitats and/or site conditions. The remaining 12 special-status plant species were determined to have moderate or high potential to occur on the Proposed Project Site. Protocol-level surveys were conducted to examine these species' presence. If species were not observed during these surveys, they were concluded to be not present within the Proposed Project Site. Special-status plant species observed during protocol-level surveys and therefore present within the Proposed Project Site are discussed below:

**Parry's rough tarplant (*Centromadia parryi* ssp. *rudis*).** CNPS Rank 4.2. Parry's rough tarplant is an annual herb in the sunflower family (Asteraceae) that blooms from May to October. It typically occurs in alkaline, vernal mesic valley and foothill grasslands and vernal pools and seeps, and sometimes along roadsides at elevations ranging from 0 to 330 feet. Associated species include pappose tarplant, yellow dock, hayfield tarplant (*Hemizonia congesta*),

Mediterranean barley (*Hordeum murinum*), common lippia (*Phyla nodiflora*), saltgrass, narrowleaf milkweed (*Asclepias fascicularis*), alkali mallow (*Malvella leprosa*), cutleaf plantain (*Plantago coronopus*), and sundry annual grasses.

This species has been recorded in 35 different counties within California, including Butte, Colusa, Glenn, Lake, Merced, Sacramento, San Joaquin, Solano, Sutter, and Yolo Counties. There are no recorded California Natural Diversity Database (CNDDDB) occurrences of this species within the vicinity of the Study Area; however, this species has been recorded within five of the surrounding eight quadrangles by the California Native Plant Society (CNPS).

Parry's rough tarplant was present within the Study Area. Approximately 348 individuals were observed on and adjacent to levee roads within the non-native grassland community on Bowsbey Ranch and ten individuals were observed at one location (alongside a levee road in the same biological community) on Vogel Island. Individuals were found along fence lines and along both gravel and dirt access roads.

**Woolly rose-mallow (*Hibiscus lasiocarpus* var. *occidentalis*). CNPS Rank 1B.2.** Woolly rose-mallow is a perennial herb in the mallow family (Malvaceae) that blooms from June to September. It typically occurs in freshwater marshes and swamps, often within riprap on the sides of levees at elevations ranging from 0 to 394 feet. This species has no wetland indicator status (Lichvar et al. 2016). Associated species include cattail, club-rush, knotweeds, and willows.

This species has been recorded in 36 different counties within California, including Butte, Contra Costa, Colusa, Glenn, Sacramento, San Joaquin, Solano, Sutter, and Yolo Counties. There are two CNDDDB records (#142 and #223) located within a 5-mile radius of the Study Area. The nearest documented occurrence was last observed in August of 2005 and is located along the southern edge of Haas Slough.

Woolly rose-mallow was present within the Study Area. In total, approximately 80 individuals were observed among emergent vegetation located along the eastern bank of Sycamore Slough in the northeastern portion of Bowsbey Ranch.

**Mason's lilaeopsis (*Lilaeopsis masonii*). State Listed Rare. CNPS Rank 1B.1.** Mason's Lilaeopsis is a perennial forb in the carrot family (Apiaceae) that blooms from April to November. It typically occurs in areas within the direct tidal or splash zones on mud banks of sloughs and channels in riparian scrub and freshwater and brackish marsh habitat at elevations ranging from 0 to 35 feet. This species is an OBL plant species. Associated species include Baltic rush, low bulrush (*Isolepis cernua*), tule, cattails, common reed, fleshy jaumea (*Jaumea carnosa*), salt grass, fat hen (*Chenopodium album*), arrow grasses (*Triglochin* spp.), water parsley (*Oenanthe sarmentosa*), gumweed (*Grindelia* spp.), and pickleweed (*Salicornia virginica*).

This species has been recorded in 24 different locations within Alameda, Contra Costa, Marin, Napa, Sacramento, San Joaquin, Solano, and Yolo Counties. There are 19 CNDDDB occurrence records in the vicinity of the Study Area. The nearest documented occurrence was observed in August of 2005 (#73) and is located at the confluence of Cache and Haas Slough.

Mason's lilaeopsis was present within the Study Area. Approximately 12 individuals were observed on the outboard side of levees within the tidal zone of Vogel Island. Mason's lilaeopsis was observed growing in dense and dominant patches, sometimes alongside other species, such as Suisun Marsh aster.

**Suisun Marsh aster (*Symphyotrichum lentum*).** **CNPS Rank 1B.2.** Suisun Marsh aster is a perennial forb in the sunflower family (Asteraceae) that blooms from May to November. It typically occurs along sloughs and channels in dense marsh vegetation in freshwater and coastal brackish marsh habitat at elevations ranging from 0 to 10 feet. This species is an OBL plant species. Known associated species include gumweed, western goldenrod (*Euthamia occidentalis*), Delta tule pea, cattails, hardstem bulrush, Olney's bulrush (*Schoenoplectus americanus*), California tule, Baltic rush, marsh fleabane (*Pluchea odorata*), California wild rose, and common reed.

This species has been recorded in 26 different counties within Contra Costa, Napa, Sacramento, San Joaquin, Solano, and Yolo counties. Thirty CNDDDB occurrence records occur in the vicinity of the Study Area. The nearest colony of Suisun Marsh aster is located approximately 0.4 mile southwest of the Study Area. This occurrence was last observed in 2008 and contained three robust patches of individuals. Additionally, two colonies of Suisun Marsh aster (CNDDDB occurrences #191 and #192) are located approximately 0.6 and 0.7 mile northwest of the Study Area, respectively. These colonies are located among emergent tidal marsh vegetation along Haas Slough and are presumed extant (though abundance estimations in these colonies were not recorded).

Suisun Marsh aster was present within the Study Area. Approximately 241 individuals of Suisun Marsh aster were observed in the Study Area. In total, 216 individuals were observed on the outboard side of the levee that parallels Shag Slough. The remaining 27 individuals of Suisun Marsh aster were observed on the outboard side of the levee that surrounds Vogel Island. Suisun Marsh aster was found alongside Mason's lilaeopsis.

### Wildlife

Based upon a review of available resources, 88 special-status wildlife species have been documented in the vicinity of the Study Area. Of these, 65 special-status wildlife species documented in the vicinity of the Study Area have no potential or are unlikely to occur due to a lack of suitable habitat or habitat components. The remaining 23 special-status wildlife species were observed within, or have a moderate or high potential to occur in the Study Area and are discussed below.

In addition to having potential or known occurrences of 23 special-status wildlife species, the Study Area is located within or adjacent to critical habitat for four special status species—Delta smelt, Central Valley Spring-run Chinook salmon, Central Valley steelhead, and Southern DPS green sturgeon. The Study Area is also located within or adjacent to essential fish habitat (EFH) for two fisheries management plans (FMP): Pacific Groundfish and Pacific Salmon. The waters of Cache, Haas, and Shag Sloughs are identified as EFH for Pacific Groundfish, while the entire

watershed encompassing the Study Area is located within the Lower Sacramento unit of EFH for Pacific Salmonids. A brief description of species covered by each fisheries management plan is outlined below.

**Pacific Groundfish EFH:** The Pacific Groundfish FMP is designed to protect habitat for approximately 80 species of fish, including various species of flatfish, rockfish, roundfish, and several species of sharks and skates.

**Pacific Salmon EFH:** The Pacific Salmon FMP is designed to protect habitat for commercially important salmonid species. Chinook salmon is the primary species that would be seasonally present within waters surrounding the Study Area.

Currently, flood control levees exclude the majority of the Study Area from providing biological or physical components of critical wildlife habitat. The exception would be the exterior (outer) levee and Vogel Island portion of the Study Area, which afford some habitat to each species during flood events. The majority of the Study Area is similarly isolated from waters and habitat that form EFH due to flood control levees; the exception being the exterior (outer levee area and Vogel Island during flood event).

*Species Considered Present within the Study Area*

**Loggerhead shrike (*Lanius ludovicianus*).** USFWS Bird of Conservation Concern, CDFW Species of Special Concern. The loggerhead shrike is a year-round resident and winter visitor in lowlands and foothills throughout California. This species is associated with open country with short vegetation and scattered trees, shrubs, fences, utility lines, and/or other perches. Although they are songbirds, shrikes are predatory and forage on a variety of invertebrates and small vertebrates. Captured prey items are often impaled on suitable substrates for storage purposes, including thorns or spikes on vegetation, and barbed wire fences. Nests are located in trees and large shrubs. Nests are usually placed 3 to 10 feet off the ground.

This species was observed within the Study Area during the January 6, 2017 site visit. The Study Area contains short-statured grasslands suitable for foraging by the species. In addition, trees, shrubs, and other suitable vegetation is present along levees or in scattered patches around the Study Area, which may support nesting by the species. The species has been observed within the Study Area, and both foraging and nesting habitat are present. This species was determined to have high potential to nest within the Study Area.

**Swainson's hawk (*Buteo swainsoni*).** State Threatened, USFWS Bird of Conservation Concern. Swainson's hawk is a summer resident and migrant in California's Central Valley and in scattered portions of the southern California interior. Nests are constructed of sticks and are placed in trees located in otherwise largely open areas. Areas typically used for nesting include the edge of narrow bands of riparian vegetation, isolated patches of oak woodland, lone trees, and both planted and natural trees associated with roads, farmyards, and sometimes adjacent residential areas. Foraging occurs in open habitats, including grasslands, open woodlands, and agricultural areas. While breeding, adults feed primarily on rodents (and other vertebrates). For

the remainder of the year, large insects (e.g., grasshoppers, dragonflies) comprise most of this species' diet. In many areas, Swainson's hawks have adapted to foraging primarily in and around agricultural plots (particularly alfalfa, wheat and row crops), as prey are both numerous and conspicuous at harvest and/or during flooding or burning.

During the survey conducted by WRA in the spring of 2018, two nests associated with this species were observed within the Study Area. Additionally, two nests were observed outside of the Study Area, but within 500 feet of the boundary. A nest for this species was also recorded in the CNDDDB from 2001-2005 and in 2007. This species is considered present in the Study Area because it was observed nesting during cursory surveys.

**Giant garter snake (*Thamnophis gigas*). State Threatened Species, Federal Threatened Species.** This endemic species of snake is found only in the Sacramento and San Joaquin Valleys. The giant garter snake prefers freshwater marshes and low gradient streams, but has adapted to drainage channels and irrigation ditches. The giant garter snake inhabits agricultural wetlands and other waterways, such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley.

The giant garter snake is endemic to the Central Valley wetlands of California. It is active when water temperatures are at 68 degrees Fahrenheit or more. It is dormant underground when its aquatic habitat is below this 68 degrees Fahrenheit. Fish and frogs form a large portion of this species' diet. This highly aquatic snake is active during daylight year-round and at night, temperature permitting. It uses vegetation near water for basking, but is evasive and difficult to approach. The giant garter snake will quickly submerge into the water near its basking site when startled. It hibernates in animal burrows and emerges from overwintering sites in March.

This species was previously believed to be extirpated from the Liberty Island area of the Delta. However, a specimen was recorded in the CNDDDB along the southeastern border of the Study Area in 2017. Additionally, WRA passively sampled Environmental DNA (eDNA) from this species in Lookout and Sycamore Sloughs. Furthermore, in 2018, the USGS conducted trapping surveys for giant garter snake within the Study Area. While the survey results have not been finalized or released at this time, WRA biologists accompanied the USGS for a day of trapping, during which time it was confirmed that giant garter snake had been captured in one of the traps. Therefore, this species is considered present within the Study Area.

**Western pond turtle (*Emys marmorata*). CDFW Species of Special Concern.** This turtle can be found in suitable aquatic habitat throughout California, west of the Sierra-Cascade crest and Transverse Ranges. Pond turtles inhabit perennial aquatic habitats, such as lakes, ponds, rivers, streams, and canals that provide submerged cover and suitable basking structures, such as rocks and logs. Pond turtles prefer to nest on unshaded upland slopes close to their aquatic habitat, and hatchlings require shallow water with relatively dense emergent and submerged vegetation for aquatic invertebrate foraging. Within the Delta, pond turtle is typically found where suitable basking sites, deep water, and friable soils occur together.

This species was observed within the Study Area and in the adjacent waters of the Cache Slough Complex. The presence of deep water found in irrigation ditches and in Sycamore Slough, combined with multiple sloughs surrounding the Study Area, provides an abundance of suitable habitat within and surrounding the Study Area. Additionally, the Study Area provides suitable basking sites and friable soils capable of supporting reproduction for this species. Therefore, this species is considered present within the Study Area.

**Sacramento splittail (*Pogonichthys macrolepidotus*). CDFW Species of Special Concern.** Splittail are primarily freshwater fish that have been found mostly in slow-moving sections of rivers and sloughs. In the Delta and Suisun Marsh, they often congregate in dead end sloughs. Splittail are benthic foragers that feed extensively on opossum shrimp (*Neomysis mercedis*). However, detrital material typically comprises a high percentage of their stomach contents. They will feed opportunistically on earthworms, clams, insect larvae, and other invertebrates. They are preyed upon by striped bass and other predatory fish. Splittail ostensibly require flooded vegetation for spawning and as foraging areas for young, hence they are found in habitat subject to periodic flooding during the breeding season.

Aquatic habitat surrounding the Study Area is composed of slow-moving, dead end sloughs, which are suitable for both foraging and spawning by the species. Surveys conducted by University of California, Davis have documented this species within the surrounding Cache Slough Complex. Additionally, during aquatic surveys throughout the irrigation ditches of the Study Area, an individual of this species was observed. Therefore, as Sacramento splittail is known to occur in the habitats that surround the Study Area and was detected within the Study Area, it is considered present.

#### *Species with High Potential to Occur within the Study Area*

**Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*). CDFW Species of Special Concern.** This subspecies of the common and widespread savannah sparrow is a year-round resident of the coastal California fog belt. It typically occupies upper tidally-influenced habitats, and is often found where wetland communities transition to upland grassland. Nesting occurs in vegetation on or near the ground, including along roads, levees, and canals. Like most sparrows, Bryant's savannah sparrow consumes primarily invertebrates and vegetable matter (e.g., seeds).

Within the Study Area, there are several sections of suitable marsh where wetland habitat transitions to uplands, though tidal influence is restricted to the outer edges of levees. In addition, this species is known to nest within the vicinity of the Study Area. Due to the presence of potentially suitable, primarily non-tidal habitat and nearby records of nesting, this species was determined to have a high potential to nest in the Study Area.

**Northern harrier (*Circus cyaneus*). CDFW Species of Special Concern.** The northern harrier is a resident within and winter visitor to open habitats throughout most of California, including freshwater and brackish marshes, grasslands and fields, agricultural areas, and deserts. Harriers

typically nest in treeless areas within patches of dense, relatively tall vegetation that varies in composition. Nests are constructed on the ground and are often located near water or within wetlands. Harriers are birds of prey that subsist on a variety of small mammals and other vertebrates.

Open areas composed of shrubby vegetation in close proximity to marsh and foraging habitat create potential nesting habitat for the northern harrier. This species has been observed foraging in and adjacent to the Study Area. While agricultural disturbance may degrade portions of the nesting habitat, the large scale of the Study Area, which contains contiguous and open non-wooded habitats, provides a high potential for this species to nest.

**Chinook salmon - Central Valley Fall/late fall-run, Evolutionarily Significant Unit (ESU) (*Oncorhynchus tshawytscha*). NMFS Species of Concern, CDFW Species of Special Concern.** The Central Valley fall/late fall-run ESU includes all naturally spawned spring-run Chinook salmon populations from the Sacramento/San Joaquin River mainstem and its tributaries. Late-fall run Chinook salmon are morphologically similar to spring-run Chinook salmon. They are large salmonids, reaching 75-100 cm standard length and weighing up to 9-10 kilograms or more. The vast majority of late-fall Chinook salmon appear to spawn in the mainstem of the Sacramento River, which they enter from October through February. Spawning occurs in January, February and March, although it may extend into April in some years. Eggs are laid in large depressions (redds) hollowed out in gravel beds. The embryos hatch following a 3-4 month incubation period and the alevins (sac-fry) remain in the gravel for another 2-3 weeks. Once their yolk sac is absorbed, the fry emerge and begin feeding on aquatic insects. All fry have emerged by early June. The juveniles hold in the river for nearly a year before migrating to the ocean the following December through March. Once in the ocean, salmon are largely piscivorous and grow rapidly. The specific habitat requirements of late-fall Chinook salmon have not been determined, but they are presumably similar to other Chinook salmon runs and fall within the range of the physical and chemical characteristics of the Sacramento River above Red Bluff.

The Study Area is located directly off of the primary migration corridors (the Sacramento River and the Sacramento River Deep Water Shipping Channel [DWSC]) used by this species when migrating to the American, Sacramento, or Fall River spawning grounds. While adults do not typically use sloughs or marshes like those surrounding the Study Area during migration, juvenile salmonids require such habitats for rearing, and as cover during outmigration. Fish salvage operations at the Yolo Bypass have identified this species as being present in the local area. Therefore, due to the presence of habitat within and surrounding the Study Area, as well as the proximity to the migration corridors used by salmonids moving through the Sacramento River, this species was determined to have high potential to be seasonally present, particularly during the outmigration period of juvenile fish.

**Chinook salmon - Central Valley Spring-run ESU (*Oncorhynchus tshawytscha*). Federal Threatened, State Threatened.** The Central Valley Spring-run ESU includes all naturally spawned spring-run populations from the Sacramento/San Joaquin River mainstem and its tributaries. Chinook salmon are anadromous (adults migrate from a marine environment into the freshwater streams and rivers of their birth) and semelparous (spawn only once and then die).

Spring-run Chinook salmon enter the Sacramento River between February and June. They move upstream and enter tributary streams from February through July, peaking in May-June. These fish migrate into the headwaters, hold in pools until they spawn, starting as early as mid-August and ending in mid-October, peaking in September. They are fairly faithful to the home streams in which they were spawned, using visual and chemical cues to locate these streams. While migrating and holding in the river, spring chinook do not feed, relying instead on stored body fat reserves for maintenance and gonadal maturation. Eggs are laid in large depressions (redds) hollowed out in gravel beds. Some fish remain in the stream until the following October and emigrate as "yearlings", usually at the onset of storms starting in October and lasting through the following March (peaking in November-December). Large pools with cold water provide essential over-summering habitat for this species.

The Study Area is located directly adjacent to the primary migration corridors (the Sacramento River and the DWSC) used by this species. While adults do not typically use sloughs and marshes like those surrounding the Study Area during migration, juvenile salmonids require such habitat for rearing, and as cover during outmigration. Spring Kodiak trawl data from the CDFW operations south of Liberty Island, as well as fish rescue operations in the Yolo Bypass, have confirmed the presence of this species throughout the local area. Therefore, due to: (1) the presence of suitable rearing and foraging habitat within and surrounding the Study Area, (2) the proximity to primary migration corridors used by Chinook salmon moving through the Sacramento River, and (3) confirmed occurrences of Chinook salmon in the local area, this species was determined to have a high potential to be seasonally present, particularly during the outmigration period of juvenile fish.

**Chinook salmon - Sacramento River Winter-run ESU (*Oncorhynchus tshawytscha*). Federal Endangered, State Endangered.** The ESU includes all naturally spawned populations of winter-run Chinook salmon in the Sacramento River and its tributaries in California, as well as two artificial propagation programs: winter-run Chinook salmon from the Livingston Stone National Fish Hatchery (NFH), and winter-run Chinook salmon in a captive broodstock program maintained at Livingston Stone NFH and at the University of California Bodega Marine Laboratory. Winter-run chinook salmon are unique because they spawn during summer months when air temperatures usually approach their yearly maximum. As a result, these salmon require stream reaches with cold water sources that will protect embryos and juveniles from the warm ambient conditions in summer. Winter-run chinook salmon are primarily restricted to the mainstem Sacramento River.

The Study Area is located directly off of the primary migration corridors (the Sacramento River and the DWSC) used by this species. While adults do not typically use sloughs and marshes like those surrounding the Study Area during migration, juvenile salmonids require such habitat for rearing, and as cover during outmigration. This species has been detected during CDFW Kodiak trawls south of Liberty Island, as well as during fish salvage operations within the Yolo Bypass. Therefore, due to the presence of rearing and foraging habitat within and surrounding the Study Area, as well as the proximity to this species' primary migration corridor, and the recorded occurrences of the species within adjacent waters, this species was determined to have high potential to be seasonally present, particularly during the outmigration period of juvenile fishes.

**Delta smelt (*Hypomesus transpacificus*).** **Federal Endangered, State Threatened.** Delta smelt are a pelagic species (i.e., they spend their lives within the water column and are not associated with a structural physical habitat). All life stages of Delta smelt generally occur within two meters of the surface and tend to concentrate near the mixing zone where salinities of 2 parts per 1,000 (ppt) occur. The point in the estuary where the average daily salinity at the bottom of the water is two ppt is referred to as the X2. This is the distance from the Low Salinity Zone (about 0.6 to 3.0 ppt) to the Golden Gate Bridge, measured in kilometers. This distance changes over the course of the year based on freshwater inflow through the Delta, and during years when the X2 is centered around the shallows of Suisun Bay during the spring generally result in high abundance of Delta smelt in the fall.

The only known important physical habitat for Delta smelt occurs during spawning, when suitable spawning substrate is required. Suitable spawning habitat is composed of open, unvegetated, shallow subtidal (less than 3 meters) waters with sand or pebble-sized substrate found within freshwater sloughs. Most spawning is believed to occur at temperatures between 7 and 15 degrees Celsius. Smelt are broadcast spawners with demersal, or bottom-sinking, fertilized eggs that adhere to pebble or sand substrate to keep them from washing away and to allow them to "tumble incubate" with wave movement.

Spawning generally occurs during the late winter and spring months, with peak spawning activity occurring in April and May. Adults migrate to more freshwater environments of the upper Delta, where they seek sloughs and shallow edge areas. Most spawning occurs within the upper Delta and in the Sacramento River above Rio Vista. Spawning locations are inferred by the locations of captured gravid females, spent females, and larvae in trawl samples. Wet years, in which higher levels of freshwater are moving through the Delta system, appear to result in a greater abundance and distribution of smelt in the following year. Larvae hatch in 10 to 14 days, are planktonic (float with the water currents), and are washed downstream until they reach areas near the X2. Delta smelt are fast-growing and short-lived, with the majority of growth occurring within the first 7 to 9 months of life. Throughout their lifespan, this species feeds entirely on zooplankton.

The area surrounding Liberty Island, as well as the Cache Slough Complex, are known to support Delta smelt spawning and rearing habitat. A small portion of the Delta smelt population is believed to inhabit the Cache Slough Complex year-round. Data from CDFW trawls also support this

information. Trawl Station 716 is located at the southern end of Liberty Island and data collected from this location confirm that adult, juvenile, and larval smelt have been consistently detected in this area. Given the confirmed presence of the species immediately downstream of the Study Area, as well as at Liberty Island which borders the Study Area to the east, this species is considered present in the surrounding sloughs and was determined to have high potential to occur adjacent to and within the Vogel Island portion of the Study Area during flood events.

**Longfin smelt (*Spirinchus thaleichthys*). Federal Candidate, State Threatened, CDFW Species of Special Concern.** The longfin smelt is an anadromous fish found in California's bay, estuary, and nearshore coastal environments. Its range extends along the Pacific Coast of North America from the Sacramento-San Joaquin Estuary in California, north to the Gulf of Alaska. The San Francisco Estuary supports the largest, and southern-most population in California. Longfin smelt are known to inhabit the entire San Francisco Estuary, including portions of the Napa River, Suisun Marsh, and the Sacramento-San Joaquin Delta. The species is also currently proposed for listing under the federal ESA.

Juvenile longfin smelt feed on copepods and cladocerans. With subsequent growth, their diet expands to include mysids and amphipods. Longfin smelt are an important prey species and are fed upon by many native and non-native species of predatory fish. However, striped bass (*Morone saxatilis*) are a dominant predator of longfin smelt in the Sacramento-San Joaquin Delta. The other primary threats to the species are due to the effects of water diversions from the Delta.

Longfin smelt typically use backwater sloughs and channels like those within the Cache Slough Complex for both feeding and rearing. This species has been documented immediately downstream of the Study Area near Liberty Island during CDFW trawl surveys. Focused surveys within the Cache Slough Complex and Yolo Bypass conducted by University of California, Davis has documented this species in Cache, Haas, and Shag Sloughs. Given that the Study Area is surrounded by documented occurrences of this species, and suitable habitat for rearing and foraging is present, the species is considered present within the surrounding sloughs and was determined to have high potential to occur within the waters immediately adjacent to the Study Area and potentially within Vogel Island during periods of flooding.

**Steelhead - Central Valley Distinct Population Segment (DPS; *Oncorhynchus mykiss*). Federal Threatened.** The Central Valley DPS includes all naturally spawned populations (and their progeny) in the Sacramento and San Joaquin Rivers and their tributaries, excluding San Francisco and San Pablo Bays and their tributaries. Preferred spawning habitat for steelhead is in perennial streams with cool to cold water temperatures, high dissolved oxygen levels and fast flowing water. During the winter or early spring, the spawning fish reach suitable gravel riffles (shallow areas with gravel or cobble substrate) in the upper sections of streams, where they dig their redds. Abundant riffle areas for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding. When steelhead spawn, they nearly always return to the stream in which they were hatched. At that time, they may weigh between 2 to 12 pounds, or more.

The Study Area is located directly adjacent to the primary migration corridor (the Sacramento River and the DWSC) for this species. While adults do not typically use sloughs, marshes, or off-channel habitats like those surrounding the Study Area, juvenile salmonids require such habitat for rearing, and as cover during outmigration. Juvenile steelhead have been regularly encountered by the CDFW within the Yolo Bypass during fish salvage operations following flood events. The Yolo Bypass is hydrologically connected to the Study Area, therefore it is likely that the Cache Slough complex also serves as rearing habitat for the species. Therefore, due to the presence of habitat within and surrounding the Study Area, the proximity to migration corridors used by the species, and the presence of steelhead in adjacent habitats during salvage operations, this species was determined to have high potential to be seasonally present, particularly during the outmigration period of juvenile fishes.

*Species with Moderate Potential to Occur within the Study Area*

**Pallid bat (*Antrozous pallidus*).** CDFW Species of Special Concern, WBWG High Priority. Pallid bats are distributed from southern British Columbia and Montana to central Mexico, and east to Texas, Oklahoma, and Kansas. This species occurs in a number of habitats ranging from rocky, arid deserts to grasslands, and into higher-elevation coniferous forests. They are most abundant in the arid Sonoran life zones below 6,000 feet, but have been found up to 10,000 feet in the Sierra Nevada Mountains. Pallid bats often roost in colonies of between 20 and several hundred individuals. Roosts are typically located in rock crevices, tree hollows, mines, caves, and a variety of man-made structures, including vacant and occupied buildings. Tree roosting has been documented in large conifer snags (e.g., ponderosa pine), inside basal hollows of redwoods and giant sequoias, and within bole cavities in oak trees. They have also been reported roosting in stacks of burlap sacks and stone piles. Pallid bats are primarily insectivorous, feeding on large prey that is usually taken on the ground but sometimes in flight. Prey items include arthropods, such as scorpions, ground crickets, and cicadas.

Several occurrences of this species are known within 5-mile vicinity of the Study Area. Typically, this species has been found in attics and crawl spaces of buildings, which offer thermal refugia while still having close access to water and foraging opportunities. The Study Area contains farm buildings within attics, crawl spaces, or lofts, as well as nearby freshwater and marshes to support foraging. This species was determined to have moderate potential to occur within the Study Area because it is known to inhabit occupied buildings in Study Area portion of Solano County and due to the presence of suitable foraging habitat.

**Black-crowned night-heron (*Nycticorax nycticorax*).** No status; nesting sites (rookeries) monitored by the CDFW. The black-crowned night-heron is a year-round resident in California, and like other herons is associated with aquatic habitats. Nesting occurs colonially (often with other heron or waterbird species). Nesting substrates include trees (many types and sizes), shrubbery, emergent and herbaceous vegetation, and even the ground. This species is generally nocturnal and forages primarily for fish and aquatic invertebrates.

A rookery of egrets and cormorants is located on a series of small islands within Haas Slough outside of the Study Area. This species has also been observed foraging and perching during surveys. A potential roosting or rookery was observed within the northern riparian portion of Lookout Slough; however, habitat quality in this area was lacking compared to the adjacent riparian islands and established rookery location. Therefore, this species is only considered to have a moderate potential to nest within the Study Area.

**Grasshopper sparrow (*Ammodramus savannarum*). CDFW Species of Special Concern.**

Grasshopper sparrow is a summer resident in California, wintering in Mexico and Central America. This species occurs in open grassland and prairie-like habitats with short- to moderate-statured vegetation, and often in scattered shrubs. Both perennial and non-native annual grasslands are used. Nests are placed on the ground and are well concealed, often adjacent to grass clumps. Grasshopper sparrows are evasive and are generally detected by voice. Insects comprise the majority of their diet.

Grasshopper sparrow was recorded nesting in the local area in 2014. Primary land use within portions of the Study Area is pasture, which maintains short-statured, open grassland in a habitat mosaic used for foraging by this species. Due to the presence of suitable habitat and nearby occurrences, this species was determined to have moderate potential to nest within the Study Area.

**Least bittern (*Ixobrychus exilis*). CDFW Species of Special Concern, USFWS Bird of Conservation Concern.** California populations of least bittern are concentrated in low-lying areas of the Central Valley and Modoc Plateau, along the Colorado River, and coastal southern California, south of San Luis Obispo County. Colonial nesters are found in fresh and brackish marshlands and along margins of ponds and reservoirs which provide ample cover. Nests are usually placed low in tules, over water, and are constructed from emergent aquatic vegetation and sticks.

Marshes around the southern edge of the Study Area have been historically maintained as duck ponds for hunting. Such habitats are also likely to provide suitable nesting and foraging habitat for this species. This species has been observed in the vicinity of the Study Area, but recent surveys have not documented nesting within Solano County. Due to the presence of potentially suitable habitat and observations of least bittern in the vicinity of the Study Area, this species was determined to have moderate potential to nest within the Study Area.

**Nuttall's woodpecker (*Picoides nuttallii*). USFWS Bird of Conservation Concern.** Nuttall's woodpecker, common in much of its range, is a year-round resident throughout most of California, west of the Sierra Nevada Mountains. Typical habitat for this species is oak or mixed woodland and riparian areas. Nesting occurs in tree cavities, principally those of oaks and larger riparian trees. Nuttall's woodpecker also occurs in older residential settings and on orchards, where trees provide suitable foraging and nesting habitat. This species forages on a variety of arboreal invertebrates.

In this portion of Solano County, this species is fairly common and is known to nest in trees bordering sloughs. During multiple site visits, woodpecker cavities were observed in trees throughout the Study Area. Based on the evidence of previous use of the area by woodpeckers and the documented occurrences nearby, this species was determined to have moderate potential to occur in the Study Area.

**Song sparrow - Modesto Population (*Melospiza melodia*), CDFW Species of Special Concern.** The Modesto population of the song sparrow is endemic to the north-central portion of the Central Valley. The highest densities of this species occur in the Butte Sink area. This song sparrow has an affinity for emergent freshwater marshes, but will also nest in willow thickets, valley oak riparian forests, and along vegetated irrigation ditches and levees.

This species has been recorded in marshes within 5-miles to the south of the Study Area. Additionally, marshes within the southern section of the Study Area have been historically managed as a duck hunting club and may provide suitable nesting and foraging habitat for the species. Therefore, due to the proximity of occurrences, as well as the presence of marsh habitat, this species was determined to have moderate potential to nest within the Study Area.

**White-tailed kite (*Elanus leucurus*). CDFW Fully Protected Species.** The white-tailed kite is a resident in open to semi-open habitats throughout the lower-elevation areas of California, including grasslands, savannahs, woodlands, agricultural areas, and wetlands. Vegetative structure and prey availability seem to be more important habitat elements for this species than associations with specific plants or vegetative communities. Nests are constructed mostly of twigs and are placed in trees, often at habitat edges. Nest trees are highly variable in size, structure, and immediate surroundings, ranging from shrubs to trees greater than 150 feet tall. This species preys on a variety of small mammals, as well as other vertebrates and invertebrates.

This species has been observed within the local area and frequents agricultural areas where grasses are short and hunting for small mammals is aided by farm activities. While the Study Area has been regularly flood irrigated, open grasslands along levees and areas cleared for residential use are likely to support a prey base of small mammals, such as mice and voles as well as non-flooded annual grasslands. Large trees along levees also have sufficient structure to support nesting by this species. Given that potential foraging and nesting habitat are present, but the species has not been observed on-site during multiple surveys, this species was determined to have only moderate potential to nest within the Study Area.

**Yellow warbler (*Setophaga (Dendroica) petechia brewsteri*), CDFW Species of Special Concern, USFWS Bird of Conservation Concern.** The yellow warbler is a neotropical migrant bird that is widespread in North America, but it has declined throughout much of its California breeding range. The Brewster's (*brewsteri*) subspecies is a summer resident and represents the vast majority of yellow warblers that breed in California. West of the Central Valley, typical yellow warbler breeding habitat consists of dense riparian vegetation along watercourses, including wet meadows, with willow growth being favored. Insects comprise the majority of this species' diet.

Willow riparian areas lining the banks of Lookout Slough and within portions of Liberty Farms provide potential nesting habitat for this species. Potential foraging habitat is also supported throughout the riparian and edge habitat as well. Given that potential foraging and nesting habitat are present, but the species has not been observed on-site during multiple surveys, this species only was determined to have moderate potential to nest within the Study Area.

**Southern DPS green sturgeon (*Acipenser medirostris*). Federal Threatened.** The southernmost spawning population of green sturgeon is in the Sacramento River, with the principal spawning area located in the lower Feather River. Spawning populations of green sturgeon in the San Joaquin River are presumed to have been extirpated in the past 25-30 years. Green sturgeon are primarily marine species, entering into freshwater rivers mainly to spawn, although early life stages may reside in freshwater for up to two years. Adults typically migrate into freshwater from late February through late July.

The spawning period occurs from March to July, with peak spawning occurring from mid-April to mid-June. Green sturgeon prefer deep pools in large, turbulent, freshwater river mainstems to spawn. Juvenile green sturgeon migrate to the ocean primarily during the summer and fall before the end of their second year. Green sturgeon adults, subadults, and juveniles are widely distributed throughout the Delta and estuary.

Adults typically migrate upstream on the western edge of the Delta, returning to the ocean when river temperatures decrease and flows increase during the fall and early winter. They may hold in low gradient or off-channel sloughs or coves where temperatures are within acceptable thresholds. Larvae prefer open aquatic habitats for foraging, but utilize structure habitat during the day. Juvenile rearing habitats for green sturgeon include spawning areas and migration corridors. Rearing habitat utilization varies depending on seasonal flows and temperatures. Juvenile green sturgeon are found year-round in the Delta and use the region as a migration corridor, feeding area, and juvenile rearing area. Green sturgeon are salvaged at the CVP and SWP pumping plants on an irregular basis throughout the year, verifying their presence in the south Delta.

Juvenile green sturgeon use the Delta as a migration corridor, as well as for feeding and rearing habitat. The primary migration corridors for this species include the Sacramento River, the DWSC, and the Yolo Bypass, all of which converge near the southern end of the Study Area. Due to difficulties associated with catching, tagging, and tracking this species, records are difficult to obtain. However, during flooding within the Yolo Bypass, green sturgeon are typically stranded and rescued, therefore this represents the nearest confirmed occurrences of the species to the Study Area.

The Study Area is hydrologically connected to the adjacent Yolo Bypass, and given the proximity to the primary migration corridor for this species, it is anticipated that the Cache Slough Complex is also used by juveniles of the species for passage, rearing, and foraging. Given the location of the Study Area in relation to known occurrences of the species, the distance to the species migration corridor, and the presence of suitable rearing and foraging habitat in sloughs

surrounding the Study Area, this species was determined to have high potential to occur seasonally within aquatic habitats surrounding the Study Area and may occur within the Vogel Island portion of the Study Area during flooding.

**White sturgeon (*Acipenser transmontanus*).** CDFW Species of Special Concern. This sturgeon is found in most estuaries along the Pacific Coast, and is known to the San Francisco Bay Estuary. Adults in the San Francisco Bay Estuary system spawn in the Sacramento River and are not known to enter freshwater or non-tidal reaches of estuary streams. White sturgeon typically spawn in May through June. Their diet consists of crustaceans, mollusks, and some fish.

White sturgeon are known to use the Sacramento DWSC to migrate from spawning grounds in the Sacramento and Feather Rivers out to the San Francisco Bay. During these migrations, or during general foraging, individuals are anticipated to occur within sloughs surrounding the Study Area. Considering the known distributions of the species, and the location of the Study Area, the species was determined to have moderate potential to be present in waters surrounding the Study Area throughout the year.

### **Discussion**

- a) **Potentially Significant Impact.** A total of 27 state and/or federally listed special-status plant (4) and animal (23) species have been observed within or have moderate to high potential to occur in the Proposed Project Site. Additionally, the Proposed Project Site is located in and adjacent to EFH for Pacific Groundfish and Pacific Salmonids and critical habitat for Delta smelt, Central Valley Spring-run Chinook salmon, Central Valley steelhead, and Southern DPS green sturgeon. The Proposed Project is anticipated to have a net-positive impact on area plants and wildlife through the creation of habitat and improvements to hydrologic connectivity. However, temporary disturbances to the area during construction including vibratory noise, use of heavy machinery, and alterations to the physical environment may temporarily adversely impact special-status species both directly and indirectly, presenting a potentially significant impact.

In summary, construction could temporarily adversely impact special-status species through generation of noise, vibration, and/or chemical intrusion in waterways. This would be temporary but is still a potentially significant impact. The Proposed Project's long-term impacts on special-status species are generally anticipated to be positive because the Proposed Project will enhance and restore habitat and improve habitat connectivity. Construction impacts are **potentially significant impacts** that will be discussed further in the EIR.

- b) **Potentially Significant Impact.** Upon Project completion, sensitive natural communities in the Proposed Project Site are anticipated to include tidal and subtidal marsh, floodplain, and Great Valley riparian forest. The Proposed Project will actively restore and enhance these communities and protect them in perpetuity, resulting in a positive long-term impact on sensitive natural communities.

At present, sensitive natural communities within the Proposed Project Site include Great Valley mixed riparian forest, Coastal and Valley freshwater marsh, tidal/non-tidal slough, and jurisdictional drainage ditches and irrigation ponds. Project construction activities could temporarily result in adverse effects to one or more of these communities through modification and/or removal. For example, the Proposed Project would result in the replacement of artificially controlled jurisdictional drainage ditches and irrigation ponds with naturally designed channels. Further, proposed levee modifications would have temporary impacts to riparian vegetation through breach of existing levees with riparian vegetation. These possibilities present a **potentially significant impact** to be examined further in the EIR.

- c) **Potentially Significant Impact.** The Proposed Project would involve work within and modifications to Waters of the U.S. and the State. Waters of the U.S. and the State in the Proposed Project Site are potentially subject to Corps jurisdiction under Section 404 of the Clean Water Act and the jurisdiction of the RWQCB under the Porter Cologne Act and Section 401 of the Clean Water Act.

The Proposed Project would involve breaching three existing levees and constructing a new setback levee and interior naturally designed channels, which would restore tidal hydrology to the Proposed Project Site and facilitate the restoration of federally protected wetlands including freshwater tidal and non-tidal marsh. Upon successful restoration, the restored Project Site would be preserved in perpetuity. The Proposed Project would therefore have a long-term positive impact on state and federally protected wetlands.

Prior to restoring tidal hydrology to the Proposed Project Site, jurisdictional artificial drainage ditches and irrigation ponds would be removed and naturally designed channels installed. As such, although the Proposed Project is intended to restore wetlands and would generally have a positive impact, construction activities could potentially have adverse temporary impacts on state and federally protected wetlands within the Proposed Project Site. As stated above, the Proposed Project with have a net positive increase in wetlands acreages throughout the site. None the less, temporary impacts to state and federally protected wetlands within the Proposed Project Site is a **potentially significant impact** that will be further examined in the EIR.

- d) **Potentially Significant Impact.** Wildlife movement corridors are described as pathways or habitat linkages that connect discrete areas of natural open space otherwise separated or fragmented by topography, changes in vegetation, and other natural or human-induced factors such as urbanization. The Proposed Project is proposed as part of a larger suite of projects aimed at tidal marsh creation, floodplain restoration, and fish passage improvement pursuant to federal biological opinions. The Proposed Project therefore

contains elements which would improve the movement of fisheries—including through the restoration of habitat adjacent to pre-existing habitat.

The Proposed Project's improvements to habitat connectivity among the tidal marshes of the Sacramento-San Joaquin Delta region would positively impact the movement of native resident and migratory fish and the use of upstream spawning sites. However, habitat modifications could result in adverse impacts to other wildlife species. Such species include Swainson's Hawk, a resident and migratory wildlife species which forages in grasslands and nests in riparian vegetation, both of which would be altered as part of the Proposed Project. These modifications could adversely affect this species' ability to nest within the Proposed Project Site, thus affecting the use of a wildlife nursery site. The presences of sensitive migratory fish and wildlife in the area necessitates further analysis due to possible alterations to movement corridors and nursery sites. There would therefore be **potentially significant impacts**, which will be further discussed in the EIR.

- e) **Less-than-Significant Impact.** The Solano County General Plan calls for the protection of oak woodlands and "heritage trees" and the development of a county ordinance for the protection of these trees. The tree ordinance has not yet been developed, but the General Plan stipulates that it will delineate such regulations as a replacement ratio for healthy tree removal and enforcement mechanisms for unlawful removal of trees. Heritage trees are defined as trees with a trunk diameter of 15 inches or more measured at 54 inches above natural grade, any oak tree native to California with a diameter of 10 inches above natural grade, or any tree or group of trees specifically designated by the County for protection because of its historical significance. Heritage trees are present in the Proposed Project Site and some might be removed as part of the Proposed Project, but Project activities would include replanting riparian vegetation, consistent with the General Plan's call for replacement where removal of healthy heritage trees is required. Because applicable policies would be complied with, there would be **less-than-significant impacts**.
- f) **Less-than-Significant Impact.** The Solano County Multi-Species Habitat Conservation Plan places the area within Covered Activity Zone 3. Recommended uses for this zone include habitat creation and restoration activities on existing and future reserve lands designed to contribute to the conservation requirements of Covered Species and their habitats. Covered Species include the Spring-Run Chinook Salmon and the Delta Smelt, both of which would benefit from the habitat restoration that would result from the completed Project. There are no other applicable habitat conservation plans, community conservation plans, or other conservation plans. The Proposed Project therefore does not conflict with the relevant habitat conservation plan, and there would be a **less-than-significant impact**.

**5. Cultural Resources.** Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?		✓		
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?		✓		
c. Disturb any human remains, including those interred outside of formal cemeteries?		✓		

The information and analysis in this section is based on the following report prepared for the proposed project, which is included in Appendix B of this Initial Study:

- Marcus H. Bole & Associates (Bole), Cultural Resources Inventory Survey – Lookout Slough Setback Levee Project

Bole conducted cultural resources studies in support of the Proposed Project. The studies consulted data at the Northwest Information Center (NWIC) at Sonoma State University as well as available published and unpublished documents relevant to local prehistory, ethnography, and early historic developments. Official Solano County archaeological records were examined using a ¼-mile search radius around the Proposed Project Site on March 23, 2018 (NWIC File No. 17-2139). According to the NWIC's records, no prehistoric or historic-era resources have been documented within the APE or within a ¼-mile search radius.

Following completion of archival research, the entire Area of Potential Effect (APE) was subjected to intensive pedestrian survey by means of walking parallel transects, spaced at 20-meter intervals. This was accomplished by walking along the slope, just below the crown along the water side of the levee system, for its entire length, and then returning the original point by walking along the slope, just below the crown on the land side of the levee system. In searching for cultural resources, the surveyor took into account the results of background research and was alert for any unusual contours, soil changes, distinctive vegetation patterns, exotic materials, artifacts, feature or feature remnants and other possible markers of cultural sites.

**Discussion:**

Field work identified the following general conditions within the Proposed Project Site. Extensive disturbance to the ground surface and subsurface has occurred throughout all of the APE as a result of levee construction and ongoing maintenance. As well, a new bridge was constructed across Shag Slough in 1992, penetrating the present project levee with footings and facilitating access to Liberty Island. Finally, various pumps and pipelines transect the levee system, and have contributed to both surface and subsurface disturbance within the APE.

No evidence of prehistoric use or presence was noted during the pedestrian survey. The absence of these resources may best be explained by the degree of disturbance which has been undertaken within the APE and surrounding lands, over the past 150 years. One historic-era resource was identified within the Proposed Project Site during the pedestrian survey. It was recorded on a DPR 523 form, and assigned the temporary designation "Liberty Farms Levee."

Historical documents indicate that levees in the area were originally constructed in the 1900s, predominantly of organic clay dredged from adjacent sloughs and channels. The Corps enlarged and raised the levees in mid-1900s with borrow material dredged from the DWSC and borrow along Cache Slough. Several failed repair attempts and subsequent reconstruction of various area levees followed in the late 1900s.

Specific application of the criteria for evaluation in 36 CFR Part 60.4 finds that the Liberty Farms Levee is not eligible for the National Register of Historic Places (NRHP), either individually or as part of the system of levees throughout the Delta, because it is not a good representative example of such a levee/levee system. The ongoing damage to portions of the levee, the subsequent new levee that was constructed in 1986, the frequent inundation and erosion of the levee, and the absence of in-depth reclamation and agricultural records render it deficient in any individual or regional distinction as a historic property.

- a-c) ***Less than Significant with Mitigation Incorporated.*** An archival and pedestrian survey of the Proposed Project Site conducted by a qualified archaeologist did not identify any significant historic or archaeological resources or a significant possibility of discovering human remains on the Proposed Project Site. The potential for the Proposed Project to adversely change the significance of or disturb any of these resources is therefore minimal.

Nonetheless, the Proposed Project Site will undergo extensive excavation; and although unlikely, it is possible that there are buried human remains or archaeological or historic resources that have not yet been discovered. Should ground disturbance unearth significant cultural resources and should such resources be harmed by Project activities, a significant impact could occur. The CEQA Guidelines set forth below provide procedures that the contractor must follow in the event of accidental discovery and reduces potential impacts associated with accidental discovery to less-than-significant levels.

In summary, there are no known cultural, archaeological, or historical resources on the Proposed Project Site; nor are there known human remains. Although the discovery of any such resources is unlikely due to the site's highly disturbed nature, state law provides procedures that must be carried out in the event of any accidental discoveries. As these laws are applicable to the Proposed Project, there would be no adverse effect to the significance of any cultural, historical, or archaeological resources, or any disturbance of human remains. Impacts are therefore ***less than significant with mitigation incorporated.***

***Mitigation Measure CULT-1***

Pursuant to PRC Section 21082 and CEQA Guidelines Section 15064(f), DWR shall make provisions for discovery of historical or unique archaeological resources during construction. These provisions shall include an immediate stop of activities in the area of the find and evaluation by a qualified archaeologist. If the find is determined to be a historical or unique archaeological resource, contingency funding and time allotment should be allocated to allow implementation of avoidance measures or appropriate mitigation should be available.

***Mitigation Measure CULT-2***

Consistent with CEQA Guidelines Section 15064(e), H&SC §7050.5, and PRC §5097.98, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the county coroner is contacted to determine that no investigation of the cause of death is required. If the coroner determines the remains are Native America, the coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours. The NAHC shall subsequently identify the most likely living descendent, who may make recommendations to the landowner or person responsible for excavation for means of treating or disposing of the remains and any associated grave items.

If the NAHC is unable to identify the most likely descendent, the descendent fails to make a recommendation within 24 hours of notification, or the landowner rejects the recommendation and mediation by NAHC fails to yield a mutually agreeable recommendation, the landowner or representative shall rebury the remains and associated items with appropriate dignity on the property in a location not subject to further subsurface disturbance.

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**6. Energy.** Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?			✓	
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				✓

**Discussion:**

- a) **Less-than-Significant Impact.** During construction, energy resources would be required to transport equipment, workers, and solid waste to and from the site as well as to power construction equipment. On-site vehicle staging, minimization of solid waste production, and minimization of equipment idling pursuant to California law would ensure that energy resources would not be used in a wasteful or inefficient manner during construction.

During the ecosystem monitoring and management period following the completion of construction, a few vehicle trips associated with monitoring and management activities would occur. Additionally, upon completion, the restored ecosystem would be publicly accessible for recreational purposes, which could lead to some fuel use from vehicles such as automobiles and boats accessing the site. Vehicle trips associated with cattle transport and duck club use would no longer occur. A net decline in vehicle trips to the site is therefore anticipated in the long-term, and the use of energy resources for transportation would consequently decline.

In summary, the Proposed Project may result in a short-term increase in energy use during construction. Any such increase would not be unnecessary, wasteful, or inefficient; as measures to minimize the need for transportation and equipment idling are built into the Proposed Project design. In the long-term, the Proposed Project is anticipated to lead to a slight decline in energy usage for vehicle trips to and from the site. As construction energy use would not be wasteful, inefficient, or unnecessary and there would be negligible operational energy use, there would be a **less-than-significant impact**.

- b) **No Impact.** . Aside from the Solano County Climate Action Plan (CAP) which is Solano County's primary planning document guiding greenhouse gas (GHG) reductions throughout the County's various land uses and economic sectors, there are no other state or local plans for renewable energy or energy efficiency that would apply to the proposed Project. The CAP is discussed below in Section 8. As no other local and state programs and policies relating to renewable energy or energy efficiency apply to the Proposed Project, there would be no conflict with any such programs and policies; and **no impact** would occur.

**7. Geology & Soils.**

Would the Proposed Project:

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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- a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

- i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.
- ii. Strong seismic ground shaking?
- iii. Seismic-related ground failure, including liquefaction?
- iv. Landslides?
- b. Result in substantial soil erosion or the loss of topsoil?
- c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Proposed Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?
- d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

		✓	
		✓	
		✓	
			✓
	✓		
	✓		
		✓	

**7. Geology & Soils.**

Would the Proposed Project:

- e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?
- f. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
		✓	
	✓		

The Proposed Project Site is not located within an Alquist-Priolo fault zone. The nearest active fault trace is the Cordelia Fault, approximately 23 miles west of the site<sup>14</sup>. Of the fault segments available on the Association of Bay Area Governments' online resiliency tool, the fault that would result in the most shaking at the site is the Great Valley Fault Segment 5, which would potentially result in moderate to strong shaking at the site upon rupture. Taking all nearby faults into account, the site's probabilistic seismic hazard assessment rating ranges from strong to very strong. The site is not at risk for a rainfall-induced landslide, nor has it historically experienced landslides. However, the area is categorized as highly susceptible to liquefaction<sup>15</sup>.

The Proposed Project involves breaching two existing levees and constructing a new setback levee in the northwest quadrant of the site. The setback levee is the only structure to be built and the Proposed Project would not attract people to live in the area, as the finished product would be designated for habitat conservation purposes. As such, the setback levee should be the primary structure considered for the purposes of exposing structures or people to geologic risks. The setback levee sits in low-risk area for landslides, but has a probabilistic seismic hazard assessment rating of strong shaking and a high susceptibility to liquefaction<sup>16</sup>. During the Proposed Project scoping phase, the Applicant conducted an extensive series of geotechnical borings to gather information on the area soil composition and suitability for the Proposed Project.

<sup>14</sup> California Geological Survey, "Earthquake Zones of Required Investigation," accessed June 20, 2018, <https://maps.conservation.ca.gov/cgs/EQZApp/app/>.

<sup>15</sup> Association of Bay Area Governments, "Bay Area Hazards," accessed June 20, 2018, <http://gis.abag.ca.gov/website/Hazards/?hlyr=concordGV&co=6013>.

<sup>16</sup> Association of Bay Area Governments.

**Discussion:**

- a-i) ***Less-than-Significant Impact.*** Based on the Alquist-Priolo Earthquake Fault Zoning Act, there are no active faults on the Proposed Project Site. Although the Chico Green Valley fault is approximately 25 miles away northwest of the site and has the potential to produce a 7.0 magnitude earthquake, it is not at risk of surface rupture. Further, no risk to people or structures would result from the Proposed Project, as there would be a net decrease of people and structures within the Proposed Project Site upon completion. Impacts related to loss and injury from rupture of an Alquist-Priolo fault would therefore be ***less than significant.***
- a-ii) ***Less-than-Significant Impact.*** Seismically-induced ground shaking could occur at the Proposed Project Site in the event of an earthquake along one of the Bay Area's many fault lines such as the Great Valley fault. However, the risk of ground shaking within the Proposed Project Site is no different than that for much of the Bay Area; and there are no special hazards on the site that would present an extra groundshaking risk during an earthquake. The Proposed Project would alter levees and other facilities on-site that could be exposed to potential adverse impacts during ground-shaking, but the modified levee system would be more resilient to earthquakes than the levees present. The levee's construction would follow the Corps' engineering guidelines, which include provisions for levee construction where there is earthquake risk. As the site does not have any known hazards during groundshaking that set it apart from the Bay area's baseline risk level and Corps guidelines would assure the levee is built to be resilient to an earthquake, impacts would be ***less than significant.***
- a-iii) ***Less-than-Significant Impact.*** Liquefaction is the process whereby saturated non-bedrock materials lose shear strength and behave as a fluid in response to strong earthquake ground shaking. The results of liquefaction include sudden settlement of liquefied soils and loss of bearing capacity to any foundation element deriving support from those soils. In order for liquefaction to occur, two criteria must be met: 1) potentially liquefiable soils must be present, and 2) those soils must be saturated or nearly saturated (i.e., high ground water levels). The majority of liquefaction hazards are associated with sandy soils, certain gravelly soils, and silty soils of low plasticity. Many of the Proposed Project Site's soils are alluvial and potentially susceptible to liquefaction.

The only structure proposed as part of the Proposed Project is a setback levee that would be part of the State-Federal Levee System and is therefore subject to the building regulations of the Corps. The Corps' levee design standards contain provisions requiring studies and providing for liquefaction risk in earthquake-prone areas. As the levee would have to be constructed to the Corps' standards, which account for liquefaction risk, the Proposed Project would not result in substantial adverse effects related to liquefaction; and impacts would be ***less than significant.***

- a-iv.) **No Impact.** Potential impacts from landslides are low on the Proposed Project Site due to the lack of significant slopes. The Proposed Project Site is flat, with minimal changes in elevation. Therefore, the Proposed Project would result in a **no impact**
- b) **Less than Significant with Mitigation Incorporated.** According to the United States Department of Agriculture's Web Soil Survey, soils in the Proposed Project Site are predominately alluvial—and due to their poor drainage, are susceptible to runoff and erosion. However, as part of the National Pollutant Discharge Elimination System (NPDES) under the CWA, the Applicant and Contractor must prepare and implement a Stormwater Pollution Prevention Plan (SWPPP), which includes BMPs for erosion control (See Mitigation Measure HYDRO-1). As erosion control measures would be implemented to minimize the chance of erosion and loss of topsoil pursuant to the provisions of the CWA, impacts would be **less than significant with mitigation incorporated**.

*Mitigation Measure HYDRO-1*

The contractor and Applicant shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) to minimize polluted runoff and erosion. Provisions of the SWPPP may include, but are not limited to, the following best management practices (BMPs):

- All inspection and sampling activities at the Proposed Project Site shall be performed or supervised by a qualified SWPPP practitioner (QSP) or designee.
  - Watering for dust control shall be conducted in such a way as to prevent runoff and ponding water.
  - Illicit connections or illegal dumping shall be prohibited. Material stockpile locations shall be located a minimum of 50 feet from concentrated flows of stormwater, drainage courses, and inlets.
  - The contractor shall establish silt fence perimeter control around utilized staging areas and stockpiles.
  - Dewatering activities shall utilize earth dikes, swales, and sediment basins that are isolated from receiving waters by existing levees.
- c) **Less-than-Significant Impact.** As discussed in response to questions a-iii and a-iv, the Proposed Project's risk of liquefaction would be substantially mitigated by application of Army Corps levee design guidelines and the risk of landslide is negligible due to the site's generally flat topography. As lateral spreading is generally associated with liquefaction, impacts related to lateral spreading are substantially mitigated by Army Corps design standards. The Proposed Project would have a positive effect on subsidence by inundating organic soils on the site and slowing the oxidative processes that have led to widespread subsidence throughout the Delta. As the Proposed Project would have negligible or positive impacts on landslides and subsidence and impacts related to

liquefaction and lateral spreading are accounted for by Army Corps levee design standards, impacts would be ***less than significant***.

- d) ***Less-than-Significant Impact.*** Expansive soils contain clay-like materials which shrink and swell with the release and absorption of water. Most soils underneath the Proposed Project Site are sandy or clay-like soils with the potential for soil expansion<sup>17</sup>. Although the setback levee would be at risk of the effects of soil expansion, it would be more resilient to these effects than the in-place levee system due to modern engineering practices and standards. Thus, although the Proposed Project Site is situated atop expansive soils, the Proposed Project would result in a diminished risk to people and property; and impacts would be ***less than significant***.
- e) ***Less-than-Significant Impact.*** Existing septic tanks on the Proposed Project Site would be removed and would not be replaced. The small residential/agricultural population of the Proposed Project Site would vacate the site prior to construction, so there would be no continued need for septic tanks or wastewater treatment systems. As no wastewater treatment systems are proposed or would be needed, there would be a ***less-than-significant impact***.
- f) ***Less than Significant with Mitigation Incorporated.*** A survey of the Proposed Project Site's history indicates that it is highly disturbed and the probability of undiscovered unique paleontological or geological resources being buried under the site is minimal. It is therefore unlikely that the Proposed Project would directly or indirectly damage any such resources. Nonetheless, damage to any such resources during ground disturbing activities would be a potentially significant impact. The Proposed Project Mitigation Measure GEO-1 outlines procedures to protect geologic and paleontological resources upon accidental discovery. With implementation of Mitigation Measure GEO-1, no unique paleontological or geological resources would be destroyed; and impacts would be ***less than significant with mitigation incorporated***.

#### ***Mitigation Measure GEO-1***

If buried paleontological resources or unique geologic features are discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find until a qualified paleontologist or geologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the Town of Corte Madera and other appropriate agencies.

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<sup>17</sup> United States Department of Agriculture, "Custom Soil Resource Report for Solano County, California, and Yolo County, California: Lookout Slough," June 22, 2018.

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**8. Greenhouse Gas Emissions.**

Would the project:

- a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
		✓	
		✓	

**GHG Emissions and Climate Change***Greenhouse Gas Emissions Reduction Plan*

In May 2012, the State Department of Water Resources (DWR) adopted the DWR Climate Action Plan – Phase 1: Greenhouse Gas Emissions Reduction Plan (GGERP), which details DWR's efforts to reduce its GHG emissions consistent with Executive Order S-3-05 and the Global Warming Solutions Act of 2006. DWR also adopted the Initial Study/Negative Declaration prepared for the GGERP in accordance with the CEQA Guidelines review and public process. Both the GGERP and Initial Study/Negative Declaration are incorporated herein by reference and are available at: <https://water.ca.gov/Programs/All-Programs/Climate-Change-Program/Climate-Action-Plan>. The GGERP provides estimates of historical (back to 1990), current, and future GHG emissions related to operations, construction, maintenance, and business practices (e.g., building-related energy use). The GGERP specifies aggressive 2020 and 2050 emission reduction goals and identifies a list of GHG emission reduction measures to achieve these goals.

DWR specifically prepared its GGERP as a "Plan for the Reduction of Greenhouse Gas Emissions" for purposes of CEQA Guidelines section 15183.5. That section provides that such a document, which must meet certain specified requirements, "may be used in the cumulative impacts analysis of later projects." Because global climate change, by its very nature, is a global cumulative impact, an individual project's compliance with a qualifying GHG Reduction Plan may suffice to mitigate the project's incremental contribution to that cumulative impact to a level that is not "cumulative considerable." (See CEQA Guidelines, Section 15064, subd. (h)(3).)

More specifically, "[l]ater project-specific environmental documents may tier from and/or incorporate by reference" the "programmatic review" conducted for the GHG emissions reduction plan. "An environmental document that relies on a greenhouse gas reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those

requirements as mitigation measures applicable to the project.” (CEQA Guidelines, Section 15183.5, subd. (b)(2).)

Section 12 of the GGERP outlines the steps that each DWR project will take to demonstrate consistency with the GGERP. These steps include: 1) analysis of GHG emissions from construction of the proposed project, 2) determination that construction emissions from the project do not exceed the levels of construction emissions analyzed in the GGERP, 3) incorporation into the design of the project DWR’s project level GHG emissions reduction strategies, 4) determination that the project does not conflict with DWR’s ability to implement any of the “Specific Action” GHG emissions reduction measures identified in the GGERP, and 5) determination that the project would not add electricity demands to the State Water Project (SWP) system that could alter DWR’s emissions reduction trajectory in such a way as to impede its ability to meet its emissions reduction goals.

Consistent with these requirements, a GGERP Consistency Determination Checklist was prepared for the proposed project (Appendix D), which documented that the proposed project has met each of the required elements.

### **Regional Regulations**

#### *Yolo-Solano Air Quality Management District*

The Yolo-Solano Air Quality Management District (YSAQMD) has jurisdiction over all of Yolo County and the northeast portion of Solano County, from Vacaville on the west, to Rio Vista on the South. The YSAQMD recommends that impacts to climate change be evaluated for every CEQA project; however, YSAQMD has not developed specific guidance to evaluate the potential significance of GHG emissions from new projects.<sup>18</sup>

#### *Solano County Climate Action Plan*

In June 2011, Yolo County adopted a Climate Action Plan (CAP) and the accompanying Sea Level Rise Strategic Program pursuant to SB 97 and the requirement under the Solano County General Plan.<sup>19</sup> The CAP summarizes GHG emissions inventories for 2005 and emission projections estimated for 2020 under the business-as-usual scenario. The CAP recommended 31 measures and 94 implementing actions that the community can take to reduce both emissions and communitywide contributions to global climate change. The following measures and actions from the CAP are relevant to the proposed project:

AG.I-22: Promote sustainable agricultural activities and practices that minimize impacts on soil quantity and erosion potential, water quantity and quality, air quality, and natural habitats. Sustainable agricultural practices should be addressed in the County’s proposed Climate Action Plan to address climate change effects.

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<sup>18</sup> YSAQMD, 2007. *Handbook for Assessing and Mitigating Air Quality Impacts*. 11 July.

<sup>19</sup> County of Solano, 2011. *Climate Action Plan*. Adopted on June 7.

LU-2: Protect and preserve forested areas, agriculture lands, wildlife habitat, and wetlands that provide carbon sequestration.

**Discussion:**

- a-b) ***Less-than-Significant Impact.*** Consistent with the steps required of each DWR project, a GHG emissions inventory was created for the Proposed Project by Baseline Environmental Consulting (Baseline). Baseline found that operation of the Proposed Project would not generate any maintenance or business activities that were not previously inventoried in DWR's verified emissions reporting. Thus, the Proposed Project's operational emissions need not be accounted for again for CEQA purposes. A GGERP Consistency Determination Checklist is included in Appendix D to document that the Proposed Project has met each of the required elements.

In the long-term, the Proposed Project would have a positive impact on greenhouse gas emissions and compliance with reduction plans. Preservation of open spaces and wetlands can sequester carbon. The completed Project would restore wetlands that should prove useful for such purposes. Further, diked and levied lands in the Delta are susceptible to oxidation of soil materials that lead to the release of CO<sub>2</sub><sup>20</sup>, and the Proposed Project would restore a large area of levied land back to tidally inundated land.

At present, the Proposed Project Site is used as irrigated pasture for livestock grazing. Livestock grazing generates greenhouse gases indirectly through the transportation of supplies, workers, and animals and directly through the animals' digestive processes, which release methane, a potent greenhouse gas. As the Proposed Project Site would no longer be used for livestock grazing, these emissions would no longer occur. Because agricultural emissions would decrease and the site's carbon sequestration capabilities would increase, greenhouse gas emissions would permanently decrease.

Thus, the Proposed Project would not generate GHGs that may have a significant impact on the environment or conflict with GHG emissions reduction plan, policy, or regulation; impacts related to the generation of greenhouse gases and conflict with greenhouse gas reduction plans would be less than significant.

Operation of the proposed project would not generate any maintenance or business activities that were not identified (inventoried) as part of DWR's verified emissions reporting to the Climate Registry done by the DWR State Water Project Power and Risk Office. Therefore, emissions generated by the project operation need not be accounted for again for CEQA purposes.

Construction of the proposed project would include on-road vehicles transporting workers and materials, and on-site diesel construction equipment. Main construction activities of

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<sup>20</sup> Sacramento - San Joaquin Delta Conservancy, "Delta Carbon Program | Delta Conservancy," 2015, <http://deltaconservancy.ca.gov/delta-carbon-program/>.

the proposed project are anticipated to occur between February 2020 and July 2021. An equipment list was provided by the DWR and included hours of operation of each piece of construction equipment for main construction activities. Information on haul trips for debris export and worker trips was also provided by the DWR. A summary of these assumptions was included in Appendix D, Air Quality Calculation, and was input into DWR's Inventory and Calculation of GHG Emissions spreadsheet model in accordance to DWR's Implementation Procedures for the GGERP.

Based on the analysis provided in the GGERP and the demonstration that the proposed project is consistent with the GGERP (Appendix D), DWR as the lead agency has determined that the proposed project's incremental contribution to the cumulative impact of increasing atmospheric levels of GHGs is less than cumulatively considerable, and, therefore, less than significant.

As discussed above, the project is consistent with the GGERP and therefore would not conflict with the applicable plans, policies and regulations related to GHG emissions and climate change adopted by DWR and other state and local agencies. Therefore, this impact is less than significant.

**9. Hazards & Hazardous Materials.**

Would the project:

- a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
- c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?
- d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?
- e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?
- f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	✓		
	✓		
			✓
			✓
		✓	
		✓	

**9. Hazards & Hazardous Materials.**

Would the project:

- g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
		✓	

WRA, Inc. conducted a Phase I Environmental Site Assessment (ESA) on the Proposed Project Site in February 2017 in an effort to identify recognized environmental conditions (RECs), controlled recognized environmental conditions (CRECs), historical recognized environmental conditions (HRECs), business environmental risks (BERs), and current and/or historical uses of the site that could impact soil and/or groundwater in the vicinity. One REC, one HREC, and three BERs were identified. These include the presence of hazardous materials in the form of petroleum products, a historical leaking underground storage tank, natural gas well infrastructure, and Bay-Delta mercury management.

Based on the findings of the Phase I ESA, a Phase II ESA was carried out to determine the presence of chemicals of concern (COCs) and to investigate the REC (presence of hazardous materials in the form of petroleum products). The HREC and BERs (historical leaking underground storage tank, natural gas well infrastructure, and Bay-Delta mercury management), however, did not warrant intrusive investigation, as they were not interpreted as a constraint for the use of the Proposed Project Site. No COCs were identified during the Phase II ESA. Concerns over the presence of hazardous materials in the form of petroleum products are therefore considered resolved; and there are no known constraints on use of the Proposed Project Site due to the presence of hazardous materials.

**Discussion:**

- a) ***Less than Significant with Mitigation Incorporated.*** Project construction may result in some transport, use, or disposal of hazardous materials such as gasoline or drilling fluids. Most construction would take place in a portion of the Proposed Project Site where any spilled hazardous materials would drain to the Proposed Project Site interior rather than entering ecologically sensitive areas such as nearby sloughs.

Although unlikely, a hazardous spill in the CSC could have negative ecological implications given the region's biological sensitivity. This risk would be minimized by implementation of Mitigation Measure HAZ-1, which provides best management practices (BMPs) to minimize the likelihood of harmful effects from hazardous material spills. Thus, the Proposed Project would not create a significant hazard to the public or the environment; and impacts would be ***less than significant with mitigation incorporated.***

*Mitigation Measure HAZ-1*

The Applicant shall work with the contractor to implement the following best management practices (BMPs) to minimize the risk of accident, upset, and spill conditions involving hazardous materials:

- Follow all safety and health requirements set forth by the Occupational Safety and Health Administration.
- Prohibit storage of hazardous materials, such as materials used as fuel and for equipment maintenance, where they could affect nearby properties, or where they might enter waters draining to the CSC.
- Prepare and implement a spill prevention and control plan to minimize the chance of toxic spills. Spill kits shall contain oil booms of sufficient length to surround excavation equipment when working in or near open water. Spill kits shall be present for any work adjacent to open waters. All spills of oil and other hazardous materials shall be immediately cleaned up and contained. Any hazardous materials cleaned up or used on-site shall be properly disposed of at an approved disposal facility.
- Any materials removed during pre-clearing activities and determined to be unsuitable for re-use shall be disposed of off-site according to current laws and regulations. If materials are characterized as hazardous waste, then a hazardous materials licensed contractor and transporter shall be required to handle and transport the materials to a disposal facility permitted to receive the waste in accordance with California laws.

- b) ***Less than Significant with Mitigation Incorporated.*** As part of the site preparation process, existing on-site infrastructure would be demolished. Infrastructure on the site includes agricultural and residential structures primarily constructed during the 1900s, some of which contain hazardous materials such as asbestos and lead-based paint. Although such materials would be disposed of properly by trained professionals, their release during demolition could pose a threat to the public or the environment should accident or upset conditions occur. Additionally, as stated in response to question 8a, there would be some potential for the temporary use of hazardous materials during the Proposed Project's construction phase. These materials would be handled using proper health and safety protocols as to minimize the risk of any potential upset or accident conditions or releases into the environment.

With implementation of Mitigation Measure HAZ-1, impacts related to use of hazardous materials and demolition of hazardous building materials would be less than significant. Impacts related to the release of hazardous materials into the environment would be ***less than significant with mitigation incorporated.***

*Mitigation Measure HAZ-1*

The Applicant shall work with the contractor to implement the following best management practices (BMPs) to minimize the risk of accident, upset, and spill conditions involving hazardous materials:

- Follow all safety and health requirements set forth by the Occupational Safety and Health Administration.
  - Prohibit storage of hazardous materials, such as materials used as fuel and for equipment maintenance, where they could affect nearby properties, or where they might enter waters draining to the Cache Slough Complex.
  - Prepare and implement a spill prevention and control plan to minimize the chance of toxic spills. Spill kits shall contain oil booms of sufficient length to surround excavation equipment when working in or near open water. Spill kits shall be present for any work adjacent to open waters. All spills of oil and other hazardous materials shall be immediately cleaned up and contained. Any hazardous materials cleaned up or used on-site shall be properly disposed of at an approved disposal facility.
  - Any materials removed during pre-clearing activities and determined to be unsuitable for re-use shall be disposed of off-site according to current laws and regulations. If materials are characterized as hazardous waste, then a hazardous materials licensed contractor and transporter shall be required to handle and transport the materials to a disposal facility permitted to receive the waste in accordance with California laws.
- c) **No Impact.** There are no active or proposed schools present within one-quarter mile of the Proposed Project Site. Since there are no schools present, there would be **no impacts**.
- d) **No Impact.** The provisions of Government Code Section 65962.5 require the Department of Toxic Substance Control (DTSC), the State Water Resources Control Board, the California Department of Health Services, and the California Integrated Waste Management Board to submit information pertaining to sites associated with solid waste disposal, hazardous waste disposal, and/or hazardous materials releases to the Secretary of Cal/EPA. Based on a review of regulatory databases,<sup>21</sup> including listed hazardous materials release sites compiled pursuant to Government Code Section 65962.5, the Proposed Project Site is not listed as a hazardous materials site. The nearest such site is located approximately 2.2 miles south of the Proposed Project Site's southern border, on Liberty Island Road 1,100 feet south east of the Hastings Island Bridge. The site is inactive and potentially contaminated with petroleum. Because there are no hazardous

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<sup>21</sup> State Water Resources Control Board, 2011. *GeoTracker Environmental Database*. <http://www.envirostor.dtsc.ca.gov/public/>. Accessed on September 10, 2012.

materials sites in the immediate vicinity of the Proposed Project, there would be **no impacts**.

- e) **Less-than-Significant Impact.** The nearest airports to the Proposed Project Site are the Rio Vista Airport and the Travis Air Force Base (TAFB). The Proposed Project Site is not within the Rio Vista Airport Land Use Plan's area of influence. It is, however, within Zone C of TAFB's Plan.

Children's schools, day care centers, libraries, hospitals, nursing homes, and hazards to flight are prohibited in Zone C. Other regulations relevant to the Proposed Project within the TAFB's Plan include restrictions on Projects that might attract bird and wildlife movement within the Bird Strike Hazard Zone. The Bird Strike Hazard Zone extends for 14,500 feet from the runway centerlines. The Proposed Project is not located within the Bird Strike Hazard Zone. The Proposed Project therefore would not create any hazardous conditions as outlined in the TAFB Land Use Compatibility Plan.

Further, the Proposed Project would not create dust, tall structures, or light sources. Some glare may result from the creation of additional water surface area to the Proposed Project area. Any such glare would be insignificant given the abundance of water in the region and would not constitute a significant safety hazard for people living or working in the Proposed Project area. While the Proposed Project would create noise during construction, there are few people near the Proposed Project Site. The Proposed Project would therefore not expose people. Impacts would therefore be **less than significant**.

- f) **Less-than-Significant Impact.** Solano County tends to experience damaging flooding every 5-10 years, often necessitating an evacuation<sup>22</sup>. Evacuation procedures are administered by Solano County General Services, the Solano County Sheriff, and the Office of Emergency Services and flood warnings are generally issued several hours to a few days before floods. The Sheriff's Office is charged with identifying evacuation routes during any given evacuation event. While a unique evacuation route is selected during each disaster, main evacuation routes include major highways such as highways 85, 505, and 12<sup>23</sup> and interstates 80 and 680<sup>24</sup>. The closest of these to the Proposed Project Site are 80 and 12. Although located in Sacramento County and not mentioned in the Solano County General Plan, Interstate 5 is another major highway close to the site.

The Proposed Project could temporarily exacerbate traffic on nearby highways due to increased volume of slow-moving vehicles transporting construction equipment and solid waste to and from the site. However, most excavated materials would stay on-site, construction equipment would be staged on-site, and barges would be used preferentially

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<sup>22</sup> "Emergency Operation Plan (EOP)," 2017, 110.

<sup>23</sup> Solano County Office of Emergency Services, "Solano County Emergency Operations Plan - Evacuation Annex," January 2017, <https://www.solanocounty.com/civicax/filebank/blobdload.aspx?BlobID=13275>.

<sup>24</sup> Solano County, "Solano County General Plan - Chapter 5," n.d.

over trucks waste hauling. Construction traffic would therefore be minimal. Furthermore, cattle grazing operations currently create truck traffic to the site for the transportation of livestock and materials; so construction traffic would likely create minimal, if any increase in traffic compared to baseline conditions. Any such increase would be temporary and end following the construction stage of the Proposed Project.

In the long-term, the Proposed Project would create 40,000 acre-feet of additional flood storage, reducing the existing flood risk. Further, the new setback levee along Duck Slough would provide greater protection for nearby RD 2068 and 2098 than the existing levees. Additionally, a long-term decrease in traffic is anticipated due to the end of agricultural operations on the site, freeing up additional volume on the area's roads. Thus, the Proposed Project could potentially protect against the need for emergency flooding evacuations. While Project construction may temporarily introduce some traffic to the area, this would be minimal. Given the small possibility of evacuation impairment and the additional flood protection provided by the Proposed Project, the Proposed Project would not adversely affect evacuation plans and there would be **less-than-significant impacts**.

- g) **Less-than-Significant Impact.** The California Department of Forestry and Fire Protection (CAL FIRE) has mapped areas in Solano County with significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as Very High Fire Hazard Severity Zones, are classified by the CAL FIRE Director in accordance with Government Code Sections 51175-51189 to assist responsible local agencies identify measures to reduce the potential for losses of life, property, and resources from wildland fire. According to CAL FIRE, the Proposed Project Site is not located within a Fire Hazard Severity Zone but the site is located adjacent to a Moderate Fire Hazard Severity Zone (MFHSZ).<sup>25</sup>

The Proposed Project would not create any structures that would draw significant quantities of people to the area, and would only net creation of one new structure, a setback levee. Several structures would be demolished as part of the Proposed Project and the Proposed Project would restore wetlands in areas that were previously grassland. There would therefore be a slight reduction in fire risk on the site. Given the Proposed Project Site is not within a fire hazard severity zone, the adjacent area's risk is moderate, and the Proposed Project would not result in a net decrease of structures, there would be **less-than-significant impacts**.

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<sup>25</sup> Cal Fire. 2007. Available: [http://www.fire.ca.gov/fire\\_prevention/fhsz\\_maps\\_solano](http://www.fire.ca.gov/fire_prevention/fhsz_maps_solano). Accessed July 2018.

**10. Hydrology & Water Quality.**

Would the project:

- a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?
- b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?
- c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
- Result in substantial erosion or siltation on- or offsite?
  - Result in flooding on- or offsite?
  - Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?
  - Impede or redirect flood flows?
- d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
✓			
			✓

✓			
✓			
			✓
✓			
	✓		

**10. Hydrology & Water Quality.**

Would the project:

- e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	✓		

**Discussion:**

- a) **Potentially Significant Impact.** The Proposed Project Construction would involve the temporary disruption of soils and generation of solid waste. Some of this ground disturbance would occur along levees and in sloughs, creating the possibility that sediment could be deposited in area waterways. However, most ground disturbance would occur in portions of the Proposed Project Site interior where runoff could not make its way into the site's drainage facilities—minimizing the risk of polluted runoff containing sediment.

In-water work could result in spills of drilling fluids, fuels, and/or other hazardous materials; but a SWPPP would be prepared and implemented to avoid improper discharges into area waters pursuant to Mitigation Measure HYDRO-1 and in accordance with the Proposed Project's construction permit under the NPDES program of the CWA.

During pre-construction site preparation, dewatering activities have the potential to result in discharge of waters with elevated salinity. However, the SWPPP prepared pursuant to Mitigation Measure HYDRO-1 would contain provisions for site dewatering to minimize this possibility.

The completed Project would result in an approximate 3,400-acre tidal marsh and floodplain complex. In addition to restoring habitat for special-status species, tidal marsh performs important ecosystem services such as water filtration. In the long-term, the Proposed Project would have a generally positive impact on the area's water quality, aiding in the attainment of water quality standards. However, the effects of tidal marsh restoration on methylmercury concentrations are poorly understood. The Proposed Project therefore has the potential to violate the Delta's Total Maximum Daily Load (TMDL) for methylmercury. This is a **potentially significant impact** that will be further discussed in the EIR.

**Mitigation Measure HYDRO-1**

The contractor and Applicant shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) to minimize polluted runoff and erosion. Provisions of the SWPPP may include, but are not limited to, the following best management practices (BMPs):

- All inspection and sampling activities at the Proposed Project Site shall be performed or supervised by a qualified SWPPP practitioner (QSP) or designee.

- Watering for dust control shall be conducted in such a way as to prevent runoff and ponding water.
  - Illicit connections or illegal dumping shall be prohibited. Material stockpile locations shall be located a minimum of 50 feet from concentrated flows of stormwater, drainage courses, and inlets.
  - The contractor shall establish silt fence perimeter control around utilized staging areas and stockpiles.
  - Dewatering activities shall utilize earth dikes, swales, and sediment basins that are isolated from receiving waters by existing levees.
- b) **No Impact.** The Proposed Project Site is situated in Reclamation District 2098, which serves 25 people over 6,100 acres. The Proposed Project may require some water use during the construction phase, which would be sourced from existing, on-site entitlements and involve the use of surface water, as opposed to groundwater. Following construction and prior to successful ecosystem establishment, water may be temporarily manually applied to buffer shrubs in upland areas and riparian trees and shrubs. This too would use water sourced from on-site surface water entitlements. Riparian trees and shrubs would be planted within one foot from the high tide line, making surface water their principle water source. Given that adequate surface water entitlements exist to serve the Proposed Project and no groundwater would be used during or following construction, the Proposed Project would not substantially deplete groundwater sources, and there would be **no impact**.
- c.i-ii.) **Potentially Significant Impact.** The Applicant proposes alterations to and construction of levees and removal of existing water control infrastructure to increase flow into the Proposed Project Site. These changes would improve flood conveyance in the Yolo Bypass, potentially rerouting floodwater flows. Floodplain restoration in the Yolo Bypass and improved flood control infrastructure are goals of several local and regional agencies, making the Proposed Project's positive alterations to the area's flood patterns consistent with regional hydrological planning efforts. However, alterations to floodwater flows could alter erosion and/or siltation patterns, a possibility that will be further examined in the EIR. Changes to the existing drainage pattern therefore present **potentially significant impacts** to flooding, erosion, and siltation.
- c.iii.) **No Impact.** There are no existing stormwater facilities within or near the Proposed Project Site; and no stormwater facilities are proposed. Roughly 90% of work would occur in inboard portions of the Proposed Project Site where runoff water would permeate the ground surface and drain in place. Thus, there would be **no impact** related to the creation of polluted runoff or new sources of runoff that would overwhelm existing drainage facilities.
- c.iv.) **Potentially Significant Impacts.** The Applicant proposes to alter levees and remove existing water flow control infrastructure. These changes would redirect flood flows, diverting many flows from their current path to instead inundate the Proposed Project Site.

These changes are anticipated to be generally positive, but merit further study. The Proposed Project's alteration of flood flows in a 100-year floodplain therefore constitutes a **potentially significant impact** and will be further examined in the EIR.

- d) **Less than Significant with Mitigation Incorporated.** Seiche and tsunami hazards occur only in areas adjacent to a large body of water such as an ocean, bay, or lake. The Proposed Project Site is not located in such an area, as the nearby rivers are not sufficiently wide or proximate to the Bay. However, the Proposed Project Site is within a flood zone. Should flooding occur during construction and hazardous materials such as fuels or lubricants enter area waterways, a significant impact would occur. The below OSHA-required BMPs outline storage requirements and spill protocols designed to prevent release of pollutants into the environment. With implementation of this measure, the risk of pollutant releases upon flooding during construction would be less than significant. In the long-term, there would be no pollutants used on the Proposed Project Site. Since long-term impacts would be less than significant and mitigation is offered for construction impacts, there would be no pollutant release during flooding events, and impacts would be **less than significant with mitigation incorporated**.

*Mitigation Measure HAZ-1*

The Applicant shall work with the contractor to implement the following best management practices (BMPs) to minimize the risk of accident, upset, and spill conditions involving hazardous materials:

- Follow all safety and health requirements set forth by the Occupational Safety and Health Administration.
- Prohibit storage of hazardous materials, such as materials used as fuel and for equipment maintenance, where they could affect nearby properties, or where they might enter waters draining to the CSC.
- Prepare and implement a spill prevention and control plan to minimize the chance of toxic spills. Spill kits shall contain oil booms of sufficient length to surround excavation equipment when working in or near open water. Spill kits shall be present for any work adjacent to open waters. All spills of oil and other hazardous materials shall be immediately cleaned up and contained. Any hazardous materials cleaned up or used on-site shall be properly disposed of at an approved disposal facility.
- Any materials removed during pre-clearing activities and determined to be unsuitable for re-use shall be disposed of off-site according to current laws and regulations. If materials are characterized as hazardous waste, then a hazardous materials licensed contractor and transporter shall be required to handle and transport the materials to a disposal facility permitted to receive the waste in accordance with California laws.

- e.) ***Less than Significant with Mitigation Incorporated.*** The Proposed Project would not interfere with groundwater management; as no groundwater would be used and no impervious surfaces would be introduced. However, soil erosion and accidental spills during construction could conflict with water quality control plans, including Total Maximum Daily Loads (TMDLs) for the CSC. Implementation of the Proposed Project's SWPPP prepared pursuant to Mitigation Measure HYDRO-1 and as part of its construction permit under the NPDES program would minimize the risk of conflict with water quality control plans. Thus, there would be no conflict with groundwater management or water quality control plans; and impacts would be ***less than significant with mitigation incorporated.***

***Mitigation Measure HYDRO-1***

The contractor and Applicant shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) to minimize polluted runoff and erosion. Provisions of the SWPPP may include, but are not limited to, the following best management practices (BMPs):

- All inspection and sampling activities at the Proposed Project Site shall be performed or supervised by a qualified SWPPP practitioner (QSP) or designee.
- Watering for dust control shall be conducted in such a way as to prevent runoff and ponding water.
- Illicit connections or illegal dumping shall be prohibited. Material stockpile locations shall be located a minimum of 50 feet from concentrated flows of stormwater, drainage courses, and inlets.
- The contractor shall establish silt fence perimeter control around utilized staging areas and stockpiles.
- Dewatering activities shall utilize earth dikes, swales, and sediment basins that are isolated from receiving waters by existing levees.

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**11. Land Use and Planning.**

Would the project:

- a. Physically divide an established community?
- b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental impact?

Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
			✓
		✓	

The Solano County General Plan and Zoning Ordinance are the main land use plans and policies with jurisdiction over the Proposed Project. The Proposed Project is not within the jurisdiction of a specific plan or local coastal plan. The Solano County General Plan designates the site and its surroundings as agricultural land with a resource conservation overlay. The Proposed Project Site is currently zoned A-80, Exclusive Agricultural – 80 acres.

The Exclusive Agriculture designation allows for resource conservation uses, including conservation and mitigation banks; tidal, managed, and seasonal wetland restoration; and cultivation of plants and natural feed important to wildlife habitat. Resource conservation uses require control of noise, odor, dust, fumes, smoke or vibration; that generated traffic would not constitute a hazard or nuisance to surrounding property; and that adequate controls would be taken to prevent invasive weeds, plants or animals from becoming a nuisance to surrounding properties.

**Discussion:**

- a) **No Impact.** The area surrounding the Proposed Project Site is an undeveloped mix of wetlands and agricultural lands. There are no existing communities present in the Proposed Project Site or the immediate vicinity. As there are no established communities, no division would occur. There would be **no impacts**.
- b) **Less Than Significant Impact.** Conservation and seasonal wetland restoration are permitted land uses in the Proposed Project Site. This constitutes a **less than significant impact**.

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**12. Mineral Resources.**

Would the project:

- a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?
- b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
✓			
			✓

**Discussion:**

- a) **Potentially Significant Impact.** The Proposed Project Site sits at the southern end of a depleted natural gas production field. All wells on the Proposed Project Site have been plugged and abandoned. A remoteness opinion was prepared by a California licensed, qualified geologist, who concluded that future oil and gas production on the Proposed Project Site is so unlikely as to be negligible because gas wells in the site only operated for four years before ceasing production; the gas-producing zone was over 5,000 feet below the surface, making production excessively expensive; all wells in the property have been plugged and abandoned; nearly all wells in the adjacent production field have been plugged and abandoned; and the nearest active well is nearly 3 miles north of the Proposed Project Site and has not been used since 2009.

Although the likelihood of future natural gas extraction on the Proposed Project Site is low, habitat restoration and placement of a conservation easement could potentially interfere with or limit future natural gas extraction. Further, several parties other than the Applicant own a stake in the mineral resources underlying the Proposed Project Site. However, the remoteness opinion issued for the site indicates that the natural gas field is depleted and future mineral extraction efforts are so remote as to be negligible. Should the Proposed Project sufficiently limit extraction of mineral resources of value, a **potentially significant impact** may occur, a possibility that will be further examined in the EIR.

- b) **No Impact.** According to the Resources Chapter of the Solano County General Plan, mineral resources mined or produced in Solano County include mercury, sand and gravel, clay, stone products, calcium, and sulfur. The Plan delineates known resource zones and active mines, none of which are located in the Proposed Project Site or the immediate vicinity<sup>26</sup>. The site is not subject to any other local general plan, specific plan, or land use plan. As such, there would be no loss of availability of a designated locally-important mineral resource recovery site. Thus, there would be **no impact**. No further study is needed.

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<sup>26</sup> Solano County, "Solano County General Plan - Chapter 4."

**13. Noise.**

Would the project result in:

- a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- b. Generation of excessive groundborne vibration or groundborne noise levels?
- c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
		✓	
		✓	
			✓

**Fundamentals of Environmental Acoustics**

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its *pitch* or its loudness. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales, which are used to describe noise in a particular location. A *decibel (dB)* is a unit of measurement, which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10-decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities.

There are several methods of characterizing sound. The most common in California is the *A-weighted sound level or dBA*. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of

time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called  $L_{eq}$ . The most common averaging period is hourly, but  $L_{eq}$  can describe any series of noise events of arbitrary duration.

#### *Solano County General Plan*

The Solano County General Plan Public Health and Safety Chapter delineates acceptable noise levels by Land Use Category (LUC). The Proposed Project's surroundings are zoned for agricultural use, which has a normally acceptable noise level of <75 dBA and a conditionally acceptable noise level of 70-80 dBA.

#### **Discussion:**

- a) ***Less than Significant Impacts.*** The Proposed Project could generate substantial temporary ambient noise during the construction period. Upon Project completion, however, the area would become native ecosystem and would not generate substantial quantities of noise. The greatest source of noise would likely be permitted recreational activities in the conservation area, which may involve the use of motorized boats. Given recreation noise is already present in the Proposed Project Site and recreation would be a secondary land use, no increase in recreational noise is anticipated.

Project construction would entail the temporary use of power tools such as excavators, vibratory hammers, and bulldozers for leveling, grading, and boring. Additionally, large trucks and barges may make frequent trips in and out of the Proposed Project Site. Construction activities would therefore create a temporary increase in ambient noise levels above those existing without the Proposed Project. As discussed below, noise levels would not exceed standards established in the Solano County zoning ordinance, which requires that construction noise in agricultural districts not exceed 90 dBA at the receiving property line and not exceed 75 dBA for more than two minutes.

The Proposed Project Site is located in RD 2098, which has a population of 25 people over 6,100 acres. The area is very sparsely populated and there is little housing in the immediate vicinity of the Proposed Project Site. Apart from farm housing on the Proposed Project Site slated for removal, the nearest residential building is on Liberty Island Road, roughly 0.25 miles north of the Proposed Project Site. The next closest residential building is approximately two miles southwest of the Proposed Project Site.

Excavators, graders, and bulldozers typically generate noise at 85 dBA<sup>27</sup> as measured 50 feet away. For every doubling of distance from the source, noise diminishes by six dBA—

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<sup>27</sup> Federal Highway Administration, "9.0 Construction Equipment Noise Levels and Ranges - Handbook - Construction Noise - Noise - Environment - FHWA," accessed January 8, 2019, [https://www.fhwa.dot.gov/Environment/noise/construction\\_noise/handbook/handbook09.cfm](https://www.fhwa.dot.gov/Environment/noise/construction_noise/handbook/handbook09.cfm).

putting noise at the nearest receptors to the Proposed Project Site below 60 dBA. As such, the Proposed Project would not generate noise in excess of standards established in the General Plan and Noise Ordinance, excessive groundborne vibration, or excessive groundborne noise levels. Although the Proposed Project would generate temporary groundborne vibration and noise during construction, people would not be exposed to such noise and vibration, as there are very few people near the Proposed Project Site. Impacts would therefore be ***less than significant***.

- b) ***Less-than-Significant Impact.*** Levee breaching activities would require the use of construction equipment which would generate groundborne vibration, including excavators with vibratory hammer piles. Given the short duration of breaching activities, which are anticipated to occur over a span of 45 days, groundborne vibration due to the use of vibratory hammer piles would not constitute excessive groundborne noise or vibration. Further, noise and vibration would dampen as they travel towards the nearest receptors, which are situated over 0.25 miles away.

Other phases of construction would not generate appreciable quantities of groundborne noise or vibration. Upon completion, the restored ecosystem would generate no groundborne noise or vibration. Because only one short phase of construction would generate groundborne noise and vibration and noise and vibration would be substantially diminished upon reaching the nearest receptors, the Proposed Project would not generate excessive groundborne noise or vibration and a ***less-than-significant impact*** would occur.

- c) ***No Impact.*** There are no private airstrips within or near the Proposed Project Site. The Proposed Project Site is located within the jurisdiction of the TAFB Land Use Compatibility Plan within Zone C. The Plan places a minimum Noise Level Reduction of 20 dB on the construction of residences and buildings with noise-sensitive uses, which the Proposed Project would not construct. Further, there are few people living in the vicinity of the Proposed Project Site. So while the Proposed Project is located within the jurisdiction of an airport land use compatibility plan and would generate substantial noise, it would not expose people residing in the vicinity of an airport to excessive noise levels, and there would be ***no impact***.

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**14. Population and Housing.**

Would the project:

- a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?
- b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
			✓
		✓	

**Discussion:**

- a) **No Impact.** The only new structures proposed as part of the Proposed Project are a new setback levee along Duck Slough and peninsulas underneath PG&E transmission towers. These structures would protect existing assets and not introduce any new housing or employment opportunities. No new jobs, housing, roads, or businesses would be constructed. Thus, no direct or indirect unplanned population growth would result from the Proposed Project. There would be **no impacts** and no further analysis is needed.
- b) **Less than Significant Impact.** The Proposed Project Site is currently used for agriculture and duck hunting. There are 103 structures associated with agriculture and the duck club slated for removal as part of the Proposed Project. Most of these are storage units, farm buildings, and offices, but less than five of those are used for housing. While five residences would be demolished as part of the Proposed Project, there are not enough housing units on the Proposed Project Site or people living within them to constitute a substantial quantity of housing or to necessitate the construction of replacement housing elsewhere. Given the small quantity of housing to be removed, the Proposed Project would have **less than significant impacts** regarding displacement of housing and people.

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**15. Public Services.**

- a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

- i. Fire protection?
- ii. Police protection?
- iii. Schools?
- iv. Parks?
- v. Other public facilities?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
		✓	
			✓
			✓
			✓
✓			

**Discussion:**

- a.i) **Less than Significant Impact.** Fire protection services for the Proposed Project Site are provided by the California Department of Forestry and Fire Protection (CALFIRE). As previously noted, the Proposed Project would reduce the number of structures and reduce the number of people who live in the area. There would therefore be reduced exposure of people or structures to fire risk. The Proposed Project Site is not within a Fire Hazard Severity Zone (FHSZ), but is adjacent to a Moderate FHSZ. No structures would be at risk and hazard is low to moderate, so there would be no need for increased fire protection in the area. The Proposed Project would therefore not necessitate the construction of new fire protection facilities that may have an adverse effect on the environment; and there would be **less than significant impacts**.

- a.ii) **No Impact.** The Proposed Project Site is located in unincorporated Solano County, where police protection is provided by the Solano County Sheriff's Department. The Proposed Project would draw no new people to the area, so additional people would not need police protection. No new structures would be needed for increased police protection, so no environmental impact would occur; and there would be no impact.
- a.iii) **No Impact.** According to the Solano County General Plan, most students in unincorporated Solano County attend the school nearest to their residence. The nearest public schools to the Proposed Project Site are DH White Elementary School, Riverview Middle School, and Rio Vista High School of the River Delta Unified School District. They are located in the city of Rio Vista, 9-10 miles from the Proposed Project Site. Given the Proposed Project will not draw additional people to the area, these schools would not see an increase in enrollment as a result of the Proposed Project. No new facilities would be needed and there would be **no impacts**.
- a.iv) **No Impact.** There are no public parks in the immediate vicinity of the Proposed Project Site. The nearest public park to the Proposed Project Site is Sandy Beach Park in Rio Vista, about 10 miles south of the Proposed Project Site. Given the Proposed Project is not proximate to any public parks and would not increase the population of Solano County, there would be no need for the construction of new public park facilities. There would be **no impacts**.
- a.v) **Potentially Significant Impact.** Flood protection facilities such as levees, dikes, and drainage systems are important public facilities in the Delta. The Region's risk of flooding is high, so this infrastructure is essential for protecting agricultural assets and human life. The setback levee being constructed along Duck Slough for additional flood protection after levee breaching can be considered a public facility, and its construction may have significant effects on the environment, as detailed in this Initial Study and to be further analyzed in the EIR. Many of the levee's effects on the environment, especially hydrology, are anticipated to be positive. The levee would be built to current design standards while the levees in-place are structurally deficient.

While the setback levee would provide environmental benefits such as enhanced flood protection, adverse temporary environmental impacts from its construction remain possible. Adverse temporary environmental impacts from the construction of flood control infrastructure would therefore have a **potentially significant impact**, the nature of which will be further examined in the EIR.

**16. Recreation.**

- a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?
- b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
		✓	
			✓

**Discussion:**

- a) **Less-than-Significant Impact.** As habitat would be restored adjacent to other ecologic preserves, it is possible that more people will be drawn to the area due to the recreational opportunities offered by such large quantities of contiguous habitat. At the same time, the Proposed Project would expand publicly available recreational lands through the creation of additional navigable waterways that may be used for recreational purposes and; any increases to recreational traffic would likely be offset by the increase in available outdoor recreational space. Public access to the site would be confined to boating on the navigable waterways that would be created as part of project. It is therefore unlikely that any physical deterioration would occur or be accelerated at area ecologic preserves.

The Liberty Farms Duck Club is located in the southeastern portion of the Proposed Project Site. It is a managed wetland used as a private duck club for waterfowl hunting. Liberty Island Preserve (Preserve) is located directly east of the site. The Preserve is open to the public for recreational uses such as birdwatching, fishing, and hunting.

As part of the Proposed Project, the Liberty Farms Property would be converted from managed wetland cells to tidally inundated marsh. The property would convert from a private duck club with approximately five members to publicly accessible land, expanding recreational opportunity for the general public. However, changes in vegetation and habitat could affect the types of waterfowl found on the property, likely shifting to a greater balance to diving ducks from dabbling ducks. Although this would likely not alter the quantity of ducks present, hunters could preferentially visit other sites with more favorable waterfowl profiles. Currently, the private duck club is only used by five people; so a shift

to other sites would be insufficient to lead to physical deterioration. Impacts would therefore be ***less than significant*** and no physical deterioration of recreational facilities would occur or be accelerated.

- b) ***No Impact.*** The Proposed Project would restore approximately 3,400 acres of tidal marsh/floodplain. These lands would primarily be used for conservation purposes, and not alter existing recreational uses in the area. While the Proposed Project Site could allow for recreational uses, these uses would be secondary passive uses. Public access to the site would be confined to boating on the navigable waterways that would be created as part of the project. As no recreational facilities are currently proposed as part of the Proposed Project, there would be ***no impact.***

**17. Transportation.**

Would the Proposed Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle and pedestrian facilities?			✓	
b. Conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?			✓	
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			✓	
d. Result in inadequate emergency access?			✓	

**Discussion:**

- a) **Less-than-Significant Impact.** The Solano Transit Authority's (STA) Congestion Management Plan (CMP) establishes several goals for transportation system effectiveness. These include increasing non-auto mode share by 10%, decreasing vehicle miles traveled per capita by 10%, and maintaining the transportation system in a good state of repair by reducing transit assets past their useful life and keeping highways well-paved.

Hauling excavated materials, construction equipment, and removed vegetation off-site would require the use of trucks and barges, with barges used preferentially where possible. While some extra trips would be generated through soil hauling and equipment transportation, this would be temporary. In the long-term, there would be little to no vehicle traffic associated with the Proposed Project because the Proposed Project does not propose any new roads, employment sources, housing, or other human-serving facilities. Further, there are no existing or planned public transit, bicycle, or pedestrian facilities in the vicinity of the Proposed Project; and the Proposed Project would not conflict with or impede plans, policies, performance, or quality thereof.

Given that the Proposed Project would only temporarily generate vehicle traffic and that during this time barges would be used preferentially over vehicles, the Proposed Project would not a program, plan, ordinance, or policy addressing the circulation system,

including transit, roadways, bicycle and pedestrian facilities; and impacts would be **less than significant**.

- b) **Less-than-Significant Impact.** According to CEQA Guidelines Section 15064.3, Subdivision (b), a Project's effects on vehicle delay do not constitute significant environmental impacts. Instead, vehicle miles traveled (VMT) is the most appropriate measure of the Proposed Project's impact on transportation; and projects that would reduce VMT in their vicinity should be considered to have a less-than-significant transportation impact.

In the short term, construction may generate a small increase in VMT near the Proposed Project Site. Any such increase would be minimal, as construction equipment would be staged on-site and solid waste would be preferentially hauled using barges instead of trucks. Construction traffic would therefore include personnel, equipment, and limited solid waste transportation. This would be comparable to VMT currently associated with use of the Proposed Project Site, which includes the movement of farm equipment, farm personnel, livestock, and duck club users. Any increase in VMT during construction would therefore be temporary and minimal.

In the long term, the Proposed Project is anticipated to lead to a decrease in VMT. Publicly accessible recreational use of the site would likely generate similar levels of VMT from limited recreational use. VMT associated with the end of agricultural operations on the site would reduce vehicles trips within, to, and from the site for the transportation of personnel, livestock, and equipment would end.

In summary, any increase in VMT during construction would be temporary and minimal. In the long-term, VMT associated with use of the Proposed Project Site is anticipated to decrease. Thus, the Proposed Project would not conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b); and a **less-than-significant impact** would occur.

- c) **Less-than-Significant Impact.** The Proposed Project would not physically alter any publicly accessible roadways or intersections. Roads would be constructed atop elevated peninsulas underneath transmission lines to facilitate PG&E access, but these would not be publicly accessible. As such, no hazards would be increased due to design features. During construction, there would possibly be large equipment brought in for project usage. Such vehicles would be large and heavy, potentially traveling slowly to accommodate for their heavy load. While this may increase traffic on area roadways, it does not constitute an incompatible use, as the rural roads in the vicinity of the Proposed Project Site are frequented by slow moving, heavy trucks carrying agricultural good and equipment. Given the Proposed Project would not alter any publicly accessible roads and would not introduce any incompatible uses, hazards would not substantially increase and there would be **less-than-significant impacts**.