Initial Study/Mitigated Negative Declaration

Yolo Bypass Wildlife Area Habitat and Drainage Improvements Project

Prepared for:

California Department of Fish and Wildlife

December 2017

DOUGLAS ENVIRONMENTAL

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MITIGATED NEGATIVE DECLARATION

Pursuant to Division 6, Title 14, Chapter 3, Article 6, Sections 15070 and 15071 of the California Administrative Code, the California Department of Fish and Wildlife does cause to be filed with the State of California, this Mitigated Negative Declaration.

1. **Title and Short Description of Project:** Yolo Bypass Wildlife Area Habitat and Drainage Improvements Project (proposed project)

   The proposed project includes five major improvements, identified as Project Components, that are being proposed to enhance the California Department of Fish and Wildlife's (CDFW) ability to manage wetland resources and agricultural operations within the Yolo Bypass Wildlife Area (YBWA). Specific improvements include installing new water control structures, expanding canals, installing box culverts and two con-span bridges, replacing existing culverts, raising road grades, separating dual function ditches, relocating an existing water pump, and installing two new pumps.

2. **Location of Project:** The proposed project is located within the northern portion of the YBWA within the southern portion of Yolo County, California. The YBWA is located directly west of the City of West Sacramento and is approximately 2.5 miles east of the eastern edge of the City of Davis. The latitude and longitude of the approximate center of the site are 38.553540º North and -121.624150º West.

   The project site is generally bounded on the north by Interstate 80, on the east by the Sacramento Deep Water Ship Channel and the City of West Sacramento, on the south by agricultural lands and managed wetlands, and on the west by the Yolo Bypass western levee. The proposed project consists of habitat and drainage improvements in five separate areas of the YBWA that would encompass a total of 116 acres. All of these areas are accessible from existing gravel roadways within the YBWA.

3. **Project Proponent:** Ducks Unlimited

4. **Said project will not have a significant effect on the environment for the following reasons:**

   Based on the analysis included in the attached Initial Study, the proposed habitat and drainage improvements within the Yolo Bypass Wildlife Area have the potential to cause adverse environmental impacts. However, with implementation of the mitigation measures identified in the Initial Study, the impacts associated with the proposed project would remain less than significant.

5. **As a result thereof, the preparation of an Environmental Impact Report pursuant to the California Environmental Quality Act (Division 13 of the Public Resources Code of the State of California) is not required.**

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1 INTRODUCTION

1.1 OVERVIEW

This document is the Initial Study for the proposed Yolo Bypass Wildlife Area Habitat and Drainage Improvements Project (proposed project) located in the southern portion of Yolo County, California. This Initial Study has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq. and the State CEQA Guidelines, California Code of Regulations Section 15000 et seq. An Initial Study is prepared by a lead agency to determine if a project may have a significant effect on the environment. In accordance with State CEQA Guidelines Section 15064(a), an Environmental Impact Report (EIR) must be prepared if there is substantial evidence that a project may have a significant effect on the environment. A Negative Declaration is prepared if the lead agency determines that the proposed project would not have a significant effect on the environment, and therefore, that it would not require the preparation of an EIR (State CEQA Guidelines Section 15070).

The Initial Study is divided into four chapters: Chapter 1 includes this introduction, Chapter 2 provides a description of the project setting and characteristics; Chapter 3 includes an environmental evaluation/checklist that identifies the potential environmental impacts associated with implementation of the project and a discussion of checklist responses and findings; and Chapter 4 includes references used in the preparation of this report.

1.2 LEAD AGENCY

The lead agency is the public agency with primary responsibility over the proposed project. In accordance with CEQA Guidelines Section 15051(b)(1), "the lead agency will normally be the agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose…" Because the project is being proposed on land owned by the California Department of Fish and Wildlife (CDFW) and will require CDFW approval to construct, CDFW is the lead agency for the proposed project.

1.3 PROJECT LOCATION

The proposed project is located within the northern portion of the 16,770-acre Yolo Bypass Wildlife Area (YBWA) within the southern portion of Yolo County, California (Exhibit 1) (CDFG and YBF 2008). The YBWA is located directly west of the City of West Sacramento and is approximately 2.5 miles east of the eastern edge of the City of Davis. The latitude and longitude of the approximate center of the site are 38.553540º North and -121.624150º West.

The proposed project is located entirely within the Yolo Bypass. The Yolo Bypass is a central feature of the Sacramento River Flood Control Project, which conveys floodwaters from the major valley rivers including the Sacramento, American, and Feather Rivers, and their tributary watersheds. The Yolo Bypass conveys seasonal high flows from these rivers to help control river stage and protect the cities of Sacramento, West Sacramento, and Davis and other local communities, farms, and lands from flooding. The Yolo Bypass typically floods in about 60 percent of years, when high winter and spring floodwaters enter from the Sacramento River and it overtops the Fremont Weir and/or the Sacramento Weir. Flooding in the Yolo Bypass can also be caused by high

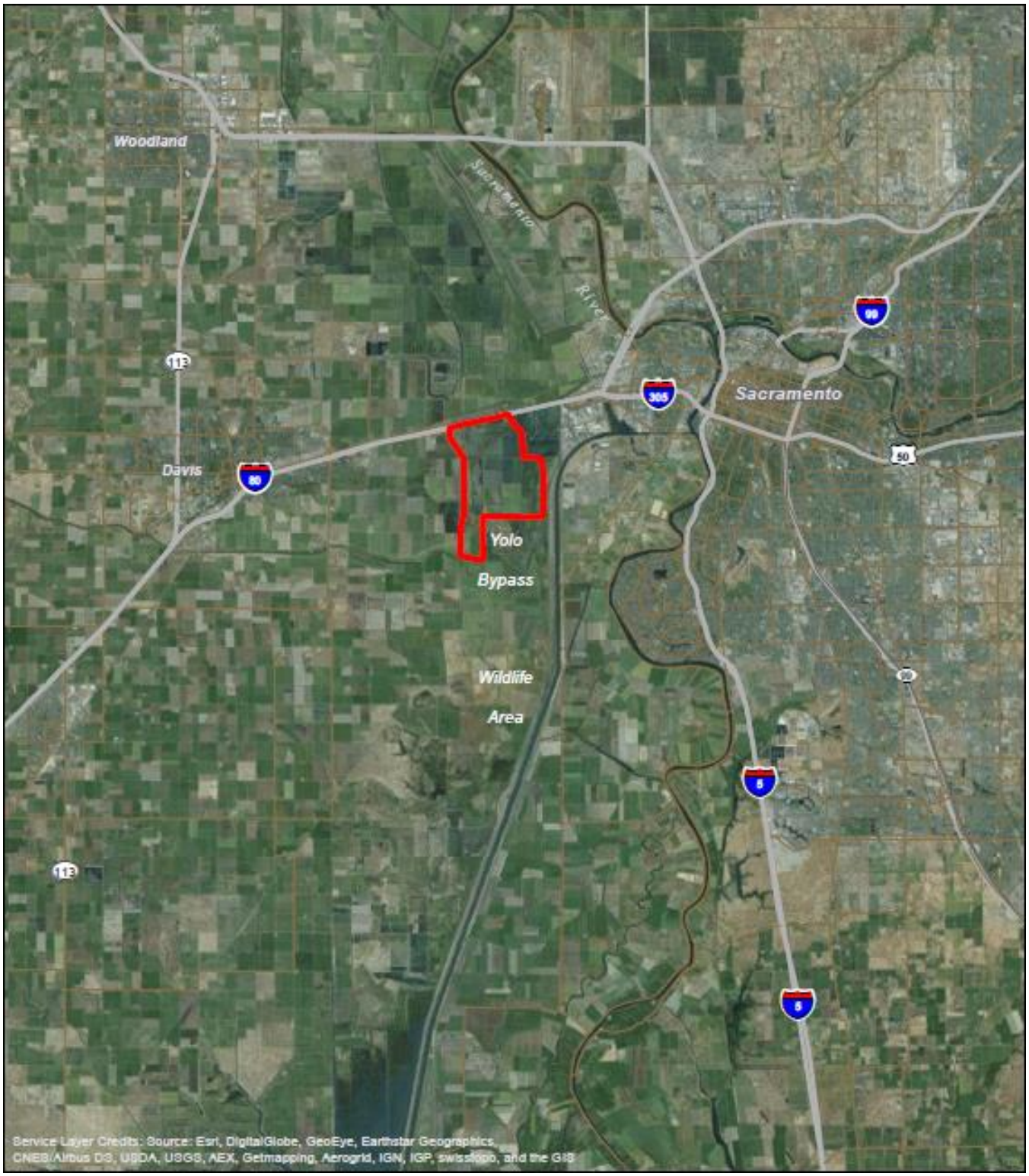


Exhibit 1 – Regional Location Map

winter and spring floodwaters in Cache Creek, Putah Creek, Willow Slough, and the Knight's Landing Ridge Cut (California Department of Water Resources 2016).

The project site is generally bounded on the north by Interstate 80, on the east by the Sacramento Deep Water Ship Channel and the City of West Sacramento, on the south by agricultural lands and managed wetlands, and on the west by the Yolo Bypass western levee.

The primary entrance to the YBWA, which can be reached via the East Chiles Road (County Road 32B) exit of Interstate 80, is approximately 2 miles east of Davis and 4 miles west of West Sacramento. The entry driveway intersects Chiles Road at the west levee of the Yolo Bypass, immediately west of the west end of the Yolo Causeway.

The proposed project consists of habitat and drainage improvements in five separate areas of the YBWA that would encompass a total of 116 acres. All of these areas are accessible from existing gravel roadways within the YBWA. These improvements are described in further detail in Chapter 2, Project Description.

1.4 PURPOSE OF THIS DOCUMENT

Prior to approving the proposed project, CDFW must evaluate the project's potential environmental impacts as required by CEQA. CDFW, as the lead agency under CEQA, will consider the proposed project's environmental impacts when considering whether to approve project construction. This Initial Study is an informational document to be used in the planning and decision-making process; it does not recommend approval or denial of the proposed project.

This Initial Study will be available for public review for 30 days. CDFW will take into consideration comments received during the public review period and will factor these comments into their assessment of the environmental impacts associated with the proposed project prior to making their decision regarding project approval.

2 PROPOSED PROJECT DESCRIPTION

2.1 PROJECT BACKGROUND

The Yolo Bypass Wildlife Area (YBWA) is a 16,770-acre area of farmland, managed wetlands and pasture. The land is managed for multiple uses with varying water supply and drainage needs during the year. Approximately 6,500 acres of managed wetlands are located throughout the YBWA. Rice farming is conducted on the 1,500-acre Glide Causeway Ranch under a lease with DeWit Farms (cbec et al. 2014).

The Toe Drain, paralleling the western toe of the Yolo Bypass eastern levee, serves as the main supply source for fall flood up of the managed wetlands from October to December. Water from the Toe Drain is used until March/April to maintain appropriate water levels in the managed wetlands. The Toe Drain receives water from the wetlands beginning in March as they are drained to promote plant growth and seed production based on Moist Soil Best Management Practices. Seasonal wetlands are dry during the summer with an occasional summer irrigation to improve plant growth and seed production. The US Army Corps of Engineers initially funded drainage and supply infrastructure facilities and habitat restoration within the YBWA through Section 1135 funds in the early 1990s. Ducks Unlimited and the California Waterfowl Association improved the wetlands infrastructure later using grants from the North American Wetland Conservation Act (NAWCA) (cbec et al. 2014).

Rice grown on Glide Causeway Ranch immediately south of Interstate 80 (located completely within Yolo Bypass Wildlife Area) and bounded to the east and west by managed wetlands, requires spring flooding and fall drainage and then a post-harvest flood up while the adjacent wetlands typically require spring drainage and fall flooding. The Glide Causeway Ranch rice fields are also managed for winter waterfowl and summer shorebird habitat (CDFG and YBF 2008). Coordinating the timing and location of these multiple uses often presents management challenges, especially because several main conveyance pathways function as dual drainage and supply canals (cbec et al. 2014).

Beaver blockage removal, vegetation maintenance and sediment removal to maintain conveyance in canals occurs on a weekly to yearly basis depending on specific location and management needs. Canals oriented north- south typically require less maintenance than those oriented east- west due to scouring flows from Yolo Bypass flood inundation. Spraying for noxious weeds, including water primrose, occurs twice per year. Removal of silt occurs on an as needed basis. Beaver blockages are removed on an as needed basis, but can be needed weekly or sub- weekly (cbec et al. 2014).

Lisbon Weir creates a tidal backwater pool in the Toe Drain that provides the primary irrigation source for the YBWA. Water is lifted by a series of pumps located throughout the YBWA as described in the YBWA Land Management Plan (CDFG and YBF 2008). The elevated pool created by the Lisbon Weir holds the water that flows in during high tide (cbec et al. 2014).

Nine drainage canals convey water toward the Toe Drain above Lisbon Weir. The two main drainage pathways consist of open channel connections to the Toe Drain. These include the Cross Canal, which extends east from the Yolo Bypass western levee to the Toe Drain, and the Putah Creek straight channel east of the Los Rios Check Dam. These two channels drain the majority of the northern lands within the YBWA. Several other drains have

culvert crossings or control structures at the Toe Drain depending on whether the canal functions as a dual supply/drain or solely as a drain. Culvert outfalls to the Toe Drain on the YBWA are typically 36 to 48 inches in diameter from main drains and 18 to 24 inches from local field drains (cbec et al. 2014).

Access for the public and for operations and maintenance during flood periods is a key constraint within the YBWA. Specific locations with low lying road elevations such as the Rice Corner and the "Y" have restricted access during the early stages of flooding. Fremont Weir overtopping impacts YBWA access for the public and for operations and maintenance, with an average of 14 days of closures during the duck hunting season from mid-October to January. Drainage from the southern portion of Davis via the El Macero Channel (South Davis Drain) also contributes to flooding along the main driving route for the public and for operations and maintenance access (cbec et al. 2014).

2.2 PROPOSED PROJECT

The Yolo Bypass Wildlife Area Habitat and Drainage Improvements Project (Proposed Project) includes five major improvements, identified as Project Components, that are being proposed to enhance the California Department of Fish and Wildlife's (CDFW) ability to manage wetland resources and agricultural operations within the YBWA (Exhibits 2 and 3). Specific improvements include installing new water control structures, expanding canals, installing box culverts and con-span bridges, replacing existing culverts, raising road grades, separating dual function ditches, relocating an existing water pump, and installing two new pumps.

These improvements would allow CDFW to expand the acreage of managed wetlands within the YBWA and would increase the productivity of existing wetlands. They would reduce the on-site flooding that regularly limits access to the wildlife area by improving channel capacities and road crossings and would improve the ability to drain lands following flood events. These project components would accelerate the ability of farmers, wetland managers, and the Yolo Basin Foundation to access the YBWA following flood events. By accelerating when farmers and wetland managers can get on the land, the project would be expected to improve the productivity of these lands. Also, the number of days when local school children can participate in environmental education within the Bypass would increase. Public access would also be expected to improve for wildlife viewing, research, hunting, and other activities within the wildlife area.

The following are the five specific Project Components that Ducks Unlimited is proposing to construct within the YBWA:

2.2.1 PROJECT COMPONENT 1 – RICE CORNER DRAINAGE IMPROVEMENTS

The Yolo Bypass receives winter storm water and summer tail water returns from the southern portion of the City of Davis and from the agricultural fields east of Davis. These flows are conveyed from the City to the Yolo Bypass western levee in the El Macero Channel, also known as the South Davis Drain. The El Macero Pumping Station, located at the western toe of the Yolo Bypass western levee, uses two 250-horsepower pumps and one 40-horsepower pump to move storm water and agricultural tail water under the western levee and into the Yolo Bypass. The pumped water flows into the Yolo Bypass portion of the South Davis Drain, which extends directly east to the Toe Drain adjacent to the Yolo Bypass eastern levee.

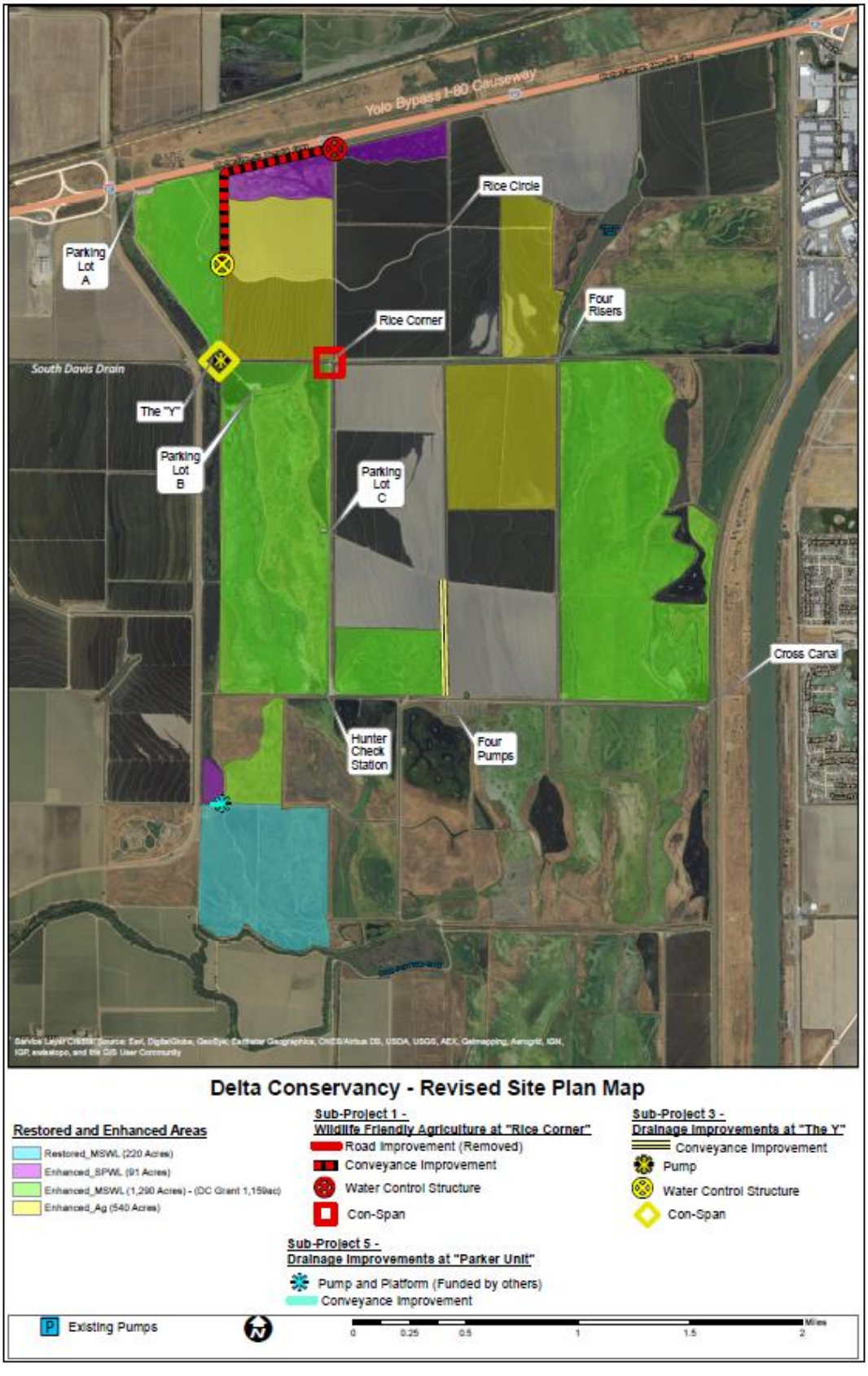


Exhibit 2 – Project Components 1, 3 and 5

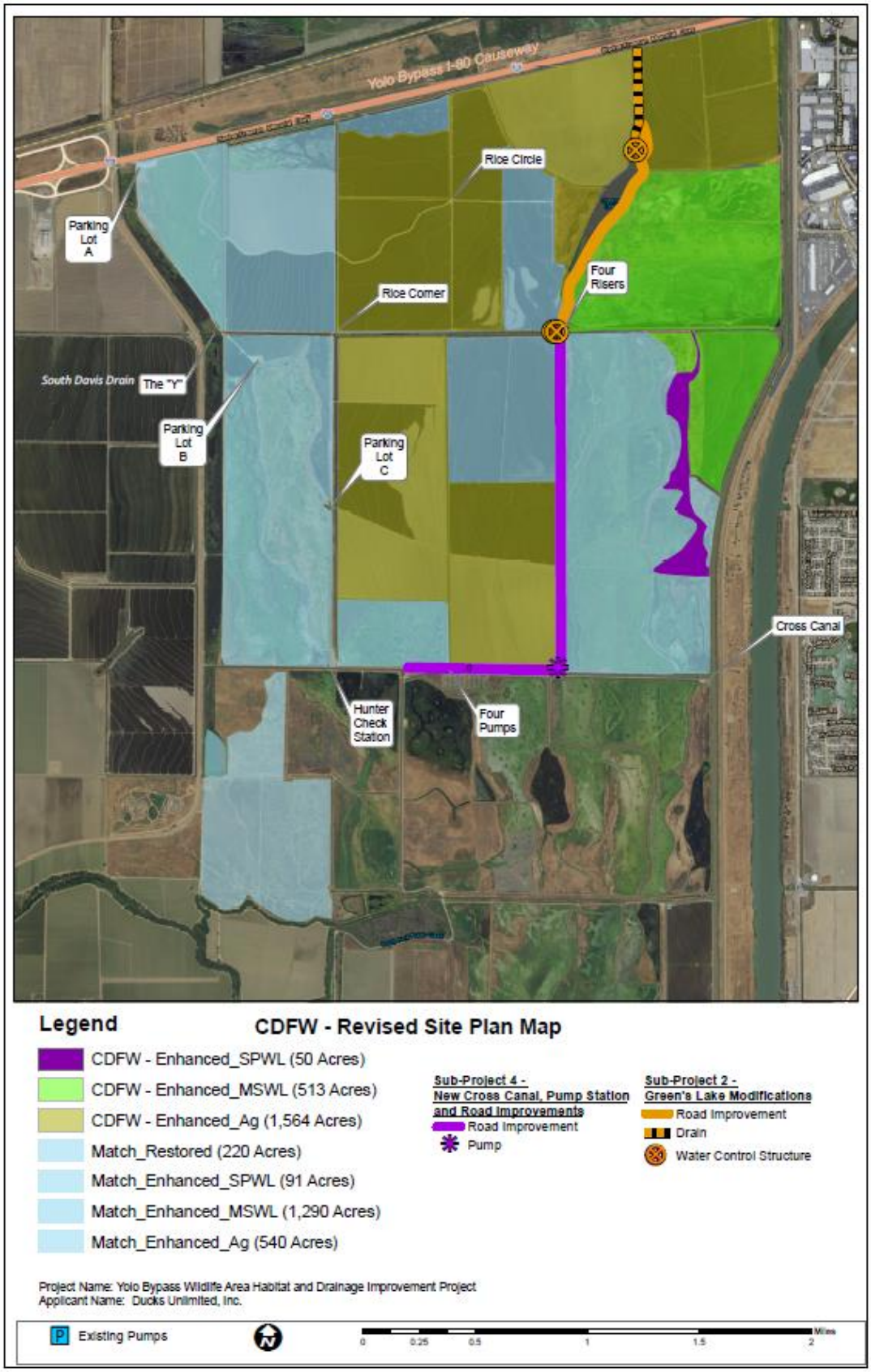


Exhibit 3 – Project Components 2 and 4

Within the Yolo Bypass, the capacity of the South Davis Drain is constrained by the existing drainage culverts at the Rice Corner and "Y" road crossings. The Rice Corner includes two parallel road crossings over the South Davis Drain, including the main crossing to the west, which has two 42-inch drainage culverts and a less-used crossing to the east, which has a 48-inch drainage culvert. The "Y" includes two relatively parallel road crossings over the South Davis Drain with a single pipe culvert under each. The western road crossing is located along the main public access roadway within the YBWA and the eastern road crossing is used to access the eastern side of the drainage channel that extends directly north from the "Y" road crossings.

In addition to their limited capacity, the culverts under these road crossings can be further constrained by beaver blockages, excessive vegetation, sedimentation within the pipes, and long-term pipe compression due to vehicle traffic. As a result, flows pumped into the Bypass by the El Macero Pumping Station can back up behind these culverts, inundating surrounding lands and flooding access roads. During larger flood events in the Yolo Bypass, these capacity constraints can substantially extend the time it takes to drain flood waters off of the YBWA. The extended inundation and wet soil conditions can limit the ability to achieve moist soil management practices, which are used by YBWA managers to encourage growth of seed-producing wetland plants by mimicking seasonal wet and dry cycles of natural wetlands. These conditions also limit access to the YBWA by wetland managers, farmers and the public due to the extended inundation of the main internal YBWA access roads.

Project Component 1 includes the replacement of the culverts and parallel road crossings at the Rice Corner with a single precast concrete bridge. The bridge surface would be covered with 12 inches of gravel and the channel would be excavated to have a 25-foot channel bottom and 2:1 (horizontal to vertical) bank slopes for 50 feet in each direction from the bridge. The excavated channel would match the existing channel's bottom at a 10:1 slope. The bridge would have a 30-foot width to safely accommodate two-way vehicle traffic. With the installation of this bridge, the full capacity of the South Davis Drain would be accommodated at the Rice Corner road crossing. Therefore, the Rice Corner road crossing would no longer constrain flows in the South Davis Drain, which would accelerate drainage of the surrounding lands and roadways.

This project component also includes improving the drainage channel located north and northwest of the Rice Corner road crossing. From a point approximately 5,000 feet directly north of the Rice Corner road crossing and directly adjacent to Interstate 80, this channel extends approximately ½ mile to the west, paralleling Interstate 80, and then turns due south for approximately 2,150 feet to an existing road crossing. This entire channel is proposed to be excavated to a bottom width of 15 feet. In addition, existing dirt roads that parallel both sides of this channel are proposed to be improved. These roadways are proposed to be 12 feet wide and would be elevated by approximately one foot using materials excavated from the channel. The road surface would remain below the level established by the Central Valley Flood Protection Board within flood bypasses (i.e., 3 feet). The combination of raising the roads and excavating the channel would increase the overall capacity of the channel, improve the ability to move water onto the wetlands and agricultural lands adjacent to the channel, and improve maintenance access.

The eastern end of this channel contains a road crossing and two 24-inch culverts that connect to the channel that extends to the east. These culverts are proposed to be replaced with two 36-inch HDPE culverts. The existing weir boxes and canal gates would be salvaged and installed on the east end of the channel. An additional road crossing with a 24-inch culvert extends to the channel that flows south to the Rice Corner. This culvert would be replaced with a 36-inch HDPE culvert. The existing weir box with canal gate would be salvaged and installed on the north

end. The two road crossings over these new culverts would be restored to their original condition. In addition to the channel excavation, parallel road improvements, and culvert improvements at its eastern terminus, culvert improvements are also proposed at this channel's southern end. However, these improvements are included in Project Component 3 and are described in further detail below.

The staging area for the construction equipment and supplies necessary for this project component would be located within Parking Lot A, which is the main gravel parking lot located at the northwest corner of the YBWA along the main entrance road.

2.2.2 PROJECT COMPONENT 2 – GREEN'S LAKE MODIFICATIONS

Green's Lake is an irrigation reservoir located in the northeastern portion of the YBWA that includes a channel that extends south to the South Davis Drain, a channel that extends directly north to Interstate 80, and a channel that extends northwest to Interstate 80. The lake and South Davis Drain are separated by a gravel road but they are hydrologically connected via culverts under the road. The South Davis Drain flows due east across the Yolo Bypass from the western levee to the Toe Drain adjacent to the eastern levee. Green's Lake is accessed from the gravel road that parallels the north side of the South Davis Drain.

To fill Green's Lake for water supply purposes, a water pump within the Toe Drain at the eastern terminus of the South Davis Drain is used to pump water from the Toe Drain into the South Davis Drain. Once the water level within the South Davis Drain is elevated, it flows north through the existing culverts into the southern lake channel and continues north to the lake. However, when the South Davis Drain is being used to drain water into the Toe Drain, the drop in its water level results in water from Green's Lake flowing into the South Davis Drain, reducing the volume of water stored in the lake. The drop in the lake level reduces its ability to be operated as a water storage reservoir.

To ensure water within Green's Lake does not flow into the South Davis Drain when it is being used to drain the YBWA, two weir boxes with gates are proposed to be installed near the terminus of the lake's drainage channel and directly west of the 4-Risers facility. The 4-Risers facility is a small depression at the confluence of the lake channel, the South Davis Drain and an additional drainage channel that extends to the south. All of these channels are connected to the 4-Risers facility via existing pipe culverts. The proposed improvements include installing two 36-inch high-density polyethylene (HDPE) pipes that would extend from the lake channel, under the gravel road and into the South Davis Drain. Because gates would be installed on the two pipes, the flow of water between the lake channel and the South Davis Drain could be controlled by YBWA farmers and wetland managers to independently achieve their water supply and drainage objectives. This improvement would ensure that water levels in Green's Lake could be maintained when South Davis Drain is being used to drain water off of the YBWA following a storm event or in the spring when wetlands are being drained and rice fields flooded up.

This project component also includes excavation and vegetation clearing around the perimeter of Green's Lake and improvement of the gravel road along the eastern bank of the lake. Commencing at the southern tip of the lake channel adjacent to the South Davis Drain, the excavation would extend north along the entire lake channel and along the eastern and western sides of the lake. At its southern tip, the excavation would result in a bottom width of approximately 18 feet with a depth of approximately 7 feet above mean sea level (msl), or approximately 6 feet below the surrounding ground surface. Continuing to the north, the excavation depth would remain at approximately 7 feet but the channel bottom would be widened to approximately 30 feet with 1:1 side slopes. As

the excavation reaches the southern tip of Green's Lake, the depth would be increased to 1.9 feet msl and would extend north along both the east and west sides of the lake. The excavation width in these reaches would reflect the anticipated reach of a long-arm excavator. The excavation on both sides would end near the northern end of the lake. The lake excavation would add additional water storage capacity to the lake and would provide shallow shoreline habitat for dabbling birds.

Vegetation and debris are proposed to be removed from the channel that extends north from the northern tip Green's Lake to Interstate 80. The vegetation and debris are proposed to be removed below the 12-foot msl elevation level from the top of bank to the top of bank. The channel width in this reach is approximately 40 feet and its length is approximately 0.4 mile.

This project component also includes improving the gravel road that extends north from the South Davis Drain along the east bank of the lake to its northern tip. The grade on approximately 1 mile of the road would be raised using excavation materials from other project components. The roadway would be 20 feet wide. Raising the road would allow access during minor flood events and would also create a low berm that would protect bird habitat from inundation from Toe Drain outfalls during minor flood events. The two staging areas for the construction equipment and supplies necessary for this project component would be located at an existing agriculture staging area directly east of the southern tip of Green's Lake and adjacent to the eastern bank of the lake about midway between its northern and southern tips.

2.2.3 PROJECT COMPONENT 3 – DRAINAGE IMPROVEMENTS AT THE "Y"

As discussed under Project Component 1, the road crossings within the South Davis Drain can constrain flows and cause backups that inundate surrounding lands and flood access roads. As the first road crossings east of the El Macero Pumping Station, the "Y" road crossings represent a major constraint to draining the western side of the YBWA. The crossing directly to the east of the El Macero pumping station serves as the main access road for all agriculture operations, wetland management and public access north of the Putah Creek channel.

Project Component 3 includes removing the two parallel road crossings over the South Davis Drain at the "Y" and replacing them with a single precast concrete (i.e., con-span) bridge. The two parallel road crossings currently each include a single 36-inch pipe culvert. The channel excavation would result in an 18-foot channel bottom and 2:1 bank slopes for 20 feet upstream of the new bridge and 20 feet downstream of the eastern road crossing removal. The excavated channel would match the existing channel's bottom at a 10:1 slope. The bridge would have a 30-foot width to accommodate two-way vehicle traffic. In addition, a new east-west road crossing would be installed in the channel directly to the north, which would form the northern bank of the South Davis Drain. The new east-west road crossing would provide the access to the northeast parcels that would be lost with the removal of the eastern road crossing. No culvert would be installed in this crossing.

With the installation of this bridge, the full capacity of the South Davis Drain would be accommodated at the "Y" road crossings. Therefore, the "Y" road crossings would no longer constrain flows in the South Davis Drain, which would accelerate drainage of the surrounding lands and roadways.

An existing pump station that is used to irrigate the rice fields and wetlands surrounding the "Y" road crossings is located within the South Davis Drain directly northwest of the "Y" road crossings. This pump station is proposed to be relocated to the northern drainage channel directly north of the new bridge. A new sump or low area with a

40-foot by 40-foot bottom surface, a bottom depth of 6 feet msl, and a total depth of approximately 18 feet would be excavated within the northern channel to accommodate the relocated pump station. As with the current pump station, the electrical components of the relocated station would be elevated on a platform to avoid inundation during flood events. The top of the pump station platform would be 31.6 feet, or approximately 14 feet above the surrounding ground surface. The elevated structure and staircase for the relocated station would be salvaged from the existing pump station. The existing irrigation piping connected to the existing pump station would be reconfigured to accommodate the relocated pump station location. The dirt roadway along the west side of the northern drainage channel would be improved (i.e., expanded to 12 feet wide) adjacent to the new sump to accommodate access to the relocated pump station.

Project Component 3 also includes culvert and channel improvements in two separate areas of the YBWA. In the road crossing that is located 2,270 feet directly north of the "Y" road crossings, culvert improvements are proposed to be installed to improve flow between the northern channel discussed in Project Component 1 and the extension of that channel extending south to the "Y" road crossings. Specifically, two 36-inch HDPE pipes with weir boxes on the northern end are proposed to be installed to directly connect the two channels. In addition, an existing 27-inch pipe that extends from the northern channel to the property to the west is proposed to be replaced with a 30-inch HDPE pipe.

Channel improvements are also proposed to be made in the southern portion of a channel that is located approximately half way between the "Y" road crossings and the Rice Corner road crossings. Known as the North-South Ditch, this channel extends south from the South Davis Drain to the next major east-west trending drainage within the YBWA, known as the Cross Canal. The northern portion of the North-South Ditch was expanded in 2014 to improve conveyance, but that expansion ended approximately 1,450 feet short of the southern end of the channel. The relatively narrow cross section of the channel's southern segment limits its ability to move water from the South Davis Drain to the Cross Canal. This project component includes excavating the channel's western side. The excavation would extend approximately 1,450 feet north from the Cross Canal to match the upper channel's recently expanded cross section. The excavated material would be side-caste onto the western dirt road that parallels the channel and compacted in place to form a wider road, which would improve maintenance access. Combined with the other construction included in Project Components 1 and 3, this improvement would enhance the ability to drain water within the South Davis Drain into the Toe Drain by way of the Cross Canal.

Similar to Project Component 1, the primary staging area for the construction equipment and supplies necessary for this project component would be located within Parking Lot A, which is the main gravel parking located at the northwest corner of the YBWA along the main entrance road. For the improvements to the North-South Ditch, the staging area would be located approximately ½ mile east of the construction activities along the Cross Canal at a location identified as Parking Lot H.

2.2.4 PROJECT COMPONENT 4 – NEW CROSS CANAL PUMP STATION AND ROAD IMPROVEMENTS

Inundation in the eastern portion of the YBWA north of the Cross Canal can be difficult to manage due to a lack of adequate infrastructure in this area. Project Component 4 includes installing a new water pump directly west of Parking Lot H and directly north of the Cross Canal. A new sump would be excavated at this location to accommodate the new pump and a 12-inch pipe would extend south from the pump, under the existing dirt road,

and to the Cross Canal. The sump is proposed to be excavated to a depth of 6 feet msl with a 40-foot by 40-foot bottom surface and a total depth of approximately 12 feet.

Two existing 36-inch concrete pipes that connect the Cross Canal to the drainage channel extending directly north would be replaced with 36-inch HDPE pipes. Weir boxes with canal gates would be installed on the northern end of these two pipes and stainless steel single-hinge flap gates would be installed on the southern end within the Cross Canal. Two 36-inch HDPE pipe culverts would be installed in the northern channel that would extend west into the new sump. Weir boxes with flash boards would be installed on the eastern end of these pipes. The installation of this new pump station would allow drawdown of rice fields and wetlands if there is minor flooding in March through June.

This project component also includes improving the roadway to the west and north of this proposed new pump station and sump. These improvements include adding dirt to the roadway to raise its elevation by approximately two feet and expanding its width to 20 feet. The roadway improvement to the west would occur along the north side of the Cross Canal and would extend for approximately 2/3 of a mile. The road improvement to the north would occur along the east side of the drainage channel and would extend for approximately 1.5 miles to the 4-Risers facility referenced in Project Component 2. At the 4-Risers, the roadway improvements would tie into the roadway proposed to extend up to and around Green's Lake as part of Project Component 2. In addition to enhancing drainage control, these improvements are being proposed to increase access to the eastern portion of the YBWA and to aid in separating Toe Drain flood waters from managed wetlands and rice fields. The staging area for the construction equipment and supplies necessary for this project component would be located at Parking Lot H.

2.2.5 PROJECT COMPONENT 5 – PARKER POND IMPROVEMENTS

The approximately 12-acre Parker Pond is located directly east of the Yolo Bypass western levee just north of the point where the levee gradually turns from a southward direction to a westward direction to parallel the northern bank of Putah Creek. The pond forms the southern terminus of the drainage canal that parallels the Yolo Bypass western levee. The pond is connected to the drainage system on the west side of the Yolo Bypass western levee through a drainage culvert that extends west under the levee. Sedimentation and invasive aquatic vegetation within the pond has reduced its water-holding capacity and limited the ability to manage the water within the pond.

This project component includes excavating a segment of the southern edge of the pond to create a sump or low area within the pond that would accommodate a new water lift station and would expand the pond's water storage capacity. The excavation is proposed to extend approximately 115 feet east from the southwestern corner of the pond with the sump located at the eastern end of the excavation. The sump excavation would extend to a bottom elevation of 6 feet msl and would have a total depth of approximately 12 feet. The bottom width of the excavated channel would be approximately 20 feet and the bottom surface of the sump would be approximately 20 feet by 40 feet. The excavated slopes of the channel would be 1:1 and the excavated slopes of the sump would be 2:1. The electrical components of the new pump station would be elevated on a platform to avoid inundation during flood events. Irrigation pipes would extend from the pump station to the properties to the south and east. The staging area for the construction equipment and supplies necessary for this project component would be located direct west of the southwest corner of the pond on the west side of the Yolo Bypass western levee.

A 220-acre area of land located directly south of the Parker Pond was intended to be converted to wetlands. However, because the pond is lower in elevation than these lands, no mechanism is currently in place to move pond water onto these potential managed wetlands. Therefore, they only get wet when they are inundated by flood flows within the Yolo Bypass during and directly after large storm events. A 50-acre area of land located directly east of the Parker Pond has been converted to wetlands but similarly is only inundated during and directly after large storm events. Because storm events of sufficient size to inundate these lands have been infrequent, particularly during the past five years of drought, these lands have largely remained dry. Once excavation is completed and the pump is installed, the seasonal irrigation of the 220 acres of restored wetlands to the south and 50 acres of enhanced wetlands to the east would be expected to occur annually.

2.3 REQUIRED PERMITS AND APPROVALS

The proposed project would require the adoption of this Initial Study/Mitigated Negative Declaration and issuance of a Streambed Alteration Agreement by the California Department of Fish and Wildlife to the project proponent. The project would also require an encroachment permit from the Central Valley Flood Protection Board, Section 408 and 404 permits from the U.S. Army Corps of Engineers, and a Section 401 permit from the Central Valley Regional Water Quality Control Board. Because the project would require a Clean Water Act Section 404 permit, the project would also require consultation with U.S. Fish and Wildlife Service and National Marine Fisheries Service under Section 7 of the Endangered Species Act and compliance with Section 106 of the National Historic Preservation Act. The project proponent will be responsible for obtaining all of the necessary permits required to implement the proposed project.

3 ENVIRONMENTAL CHECKLIST

PROJECT INFORMATION		
1.	Project Title:	Yolo Bypass Wildlife Area Habitat and Drainage Improvements Project
2.	Lead Agency Name and Address:	California Department of Fish and Wildlife 7329 Silverado Trail Napa, CA 94558
3.	Contact Person and Phone Number:	Craig Weightman (707) 944-5500
4.	Project Location:	Yolo Bypass Wildlife Area 45211 County Road 32B Davis, CA 95618
5.	Project Sponsor's Name and Address:	Aaron Will Ducks Unlimited. 3074 Gold Canal Drive Rancho Cordova, CA 95670
6.	General Plan Designation:	Open Space (OS). In addition, the southern portion of the project site is located wtihin a Delta Protection Overlay (DPO)
7.	Zoning:	Public Open Space (POS)
8.	Description of Project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.) See the project description included in Section 2 above.	
9.	Surrounding Land Uses and Setting: (Briefly describe the project's surroundings)	See the description of proposed project's location in Section 1 above.
10:	Other public agencies whose approval is required: (e.g., permits, financing approval, or participation agreement)	Streambed Alteration Agreement issued by the California Department of Fish and Wildlife; encroachment permit from the Central Valley Flood Protection Board, Section 408 and 404 permits from the U.S. Army Corps of Engineers, Section 401 permit from the Central Valley Regional Water Quality Control Board, Section 7 consultation with U.S. Fish and Wildlife Service and National Marine Fisheries Service, and Section 106 consultation with the State Historic Preservation Officer.
11:	Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?	CDFW has conducted tribal notification for consultation pursuant to Public Resources Code section 21080.3.1, and the CDFW Tribal Communication and Consultation Policy (2014).

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology / Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology / Water Quality
☐ Land Use / Planning	☐ Mineral Resources	☐ Noise
☐ Population / Housing	☐ Public Services	☐ Recreation
☐ Transportation / Traffic	☐ Utilities / Service Systems	☐ Mandatory Findings of Significance
☐ Tribal Cultural Resources		☒ None With Mitigation

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will 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 project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.

☐ I find that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

☐ 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	Date: 11/30/17
Craig Weightman	Acting Regional Manager, Bay Delta Region
Printed Name	Title
California Department of Fish and Wildlife	
Agency	

EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.

   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify: the significance criteria or threshold, if any, used to evaluate each question; and the mitigation measure identified, if any, to reduce the impact to less than significance.

3.1 AESTHETICS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. Aesthetics. 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) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

AFFECTED ENVIRONMENT

The project site is located entirely within the YBWA and is generally bounded on the north by Interstate 80, on the east by the Sacramento Deep Water Ship Channel and the City of West Sacramento, on the south by agricultural lands and managed wetlands, and on the west by the Yolo Bypass western levee. The site is visible to the south for travelers on the elevated lanes of Interstate 80, which crosses from east to west along the project site's northern boundary. Other than from the freeway, views of the site from the east and west are screened by the eastern and western Yolo Bypass levees, respectively. The project site is visible from the south for visitors within the YBWA, although the flat terrain limits views to the surrounding vegetation and above ground facilities (e.g. elevated pump stations).

The views within the YBWA consist of agricultural rice fields and restored wetlands, gravel roads, pump stations, agricultural ditches, and wooden power poles/power lines. Distant views to the east include the Sacramento skyline and, on a clear day, the Sierra Nevada Mountain Range. Views to the north are dominated by the elevated lanes of Interstate 80, which screen more distant views. Views to the west include high-voltage electrical transmission towers in the middleground with the Coast Mountain Range in the background. Southern views consist of agricultural fields and managed wetlands. Airplanes traveling along the flight path to the Sacramento International and Executive Airports are frequently visible in the sky.

The project site is not visible from a state scenic highway (Caltrans 2017) or from any locally-designated scenic routes in Yolo County (County of Yolo 2009).

DISCUSSION

a) A scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. Located within a designated wildlife area, the project site provides unparalleled views of managed wetlands and active working lands, which are characterized by their abundance of wildlife and their expansive scenery. The project site also provides an iconic view of the Sacramento skyline as a prominent

backdrop to the wildlife area. These views of and from the project site would be considered scenic vistas. However, the proposed project would not be expected to substantially affect these scenic vistas.

The majority of the project improvements would have a negligible effect on the site's visual character, as they would include the installation of drainage improvements within existing drainage channels below the ground surface. The installation of the two con-span bridges along the South Davis Drain would only slightly elevate the road surface at these crossings and they would be covered with gravel, consistent with the surrounding road surface. Although these bridges would provide additional drainage capacity within the South Davis Drain, the arches that form the bridges would only be visible when in close proximity to these road crossings. Elevating roadways within the YBWA by adding gravel would not be expected to alter their visual character. Also, relocate the existing pump station at the "Y" road crossing approximately 25 feet to the northeast would not be expected to alter the local views because this pump station is already located within the YBWA and it is consistent with the agricultural character of the project site.

The two new elevated pump stations proposed to be installed at the Cross Canal and Parker Pond locations, respectively, are also consistent with the site's agricultural character. In addition, because these pumps are located in the central portion of the YBWA (i.e., 2.5 to 3 miles south of Interstate 80), they would only be seen by a small number of visitors within YBWA. The proposed project would not block views of any scenic vistas, would not alter the expansive views of the project site, and would not have a substantial adverse effect on a scenic vista. Therefore, the project would have a **less than significant** impact on scenic vistas.

b) The project site is not visible from a state scenic highway (Caltrans 2017). Because the project site is not located within the viewshed of a state-designated scenic highway, the proposed project would have **no impact** on the scenic resources of a state scenic highway.

c) As described in response to question a) above, the proposed project would not be expected to alter the visual character of the YBWA with implementation of the proposed drainage improvements. Therefore, the proposed project would not substantially degrade the existing visual character or quality of the site and its surroundings and a **less-than-significant impact** would occur.

d) The proposed project does not include any lighting sources and would not create a new source of substantial light or glare. The project consists primarily of drainage improvements within an existing wildlife area. These improvements would not generate glare. Therefore, the proposed project would not adversely affect day or nighttime views in the area and **no impact** on light or glare would occur with project implementation**.**

3.2 AGRICULTURAL AND FOREST RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II. Agricultural and Forest Resources. 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 (1997, as updated) 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.				
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), 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?	☐	☐	☐	☒

AFFECTED ENVIRONMENT

A small percentage of the land in the YBWA is designated as prime farmland. The wildlife area managers commonly grow agricultural crops for the benefit of wildlife. The managers use agriculture to manage habitats while providing income for the management and operation of the property. Many natural resource-compatible agricultural practices occurring in the YBWA that provide habitat for a diverse assemblage of wildlife species. Rice is grown, harvested, and flooded to provide food for waterfowl. Corn fields are harvested to provide forage

for geese and cranes. Crops such as safflower are cultivated and mowed to provide seed for upland species such as ring-necked pheasant and mourning dove. Much of the grassland in the southern portion of the YBWA is managed with cattle grazing, resulting in wildflower blooms during the spring months (CDFG and YBF 2008).

DISCUSSION

a) The proposed project includes the installation of drainage improvements that are intended to enhance the existing agricultural lands and managed wetlands within the YBWA. The proposed project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, and it would not interfere with activities on Farmlands. Therefore, there would be **no impact** on Farmland.

b) The proposed project includes the installation of drainage improvements that are intended to enhance the existing agricultural lands and managed wetlands within the YBWA. The proposed project is located on state-owned land and would not conflict with existing zoning for agricultural use or a Williamson Act contract. Therefore, there would be **no impact**.

c) The project site is not located in an area with forest land or any land zoned for forest land. Therefore, there would be **no impact**.

d) The project site does not contain, and is not located in the vicinity of, any forest land. Therefore, implementation of the proposed project would not result in the loss of forest land or the conversion of forest land to a non-forest use. There would **no impact**.

e) As described above, the proposed project does not include any components that would cause conversion of either farmland or forest land. Therefore, there would be **no impact**.

3.3 AIR QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. Air Quality.				
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the following determinations.				
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
c) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

AFFECTED ENVIRONMENT

Air Basin

The proposed project is located in Yolo County, which is in the Sacramento Valley Air Basin (SVAB). The SVAB includes all of Shasta, Tehama, Glenn, Colusa, Butte, Sutter, Yuba, Sacramento, and Yolo counties, the western portion of Placer County, and the northeastern half of Solano County.

Attainment Status of the Air Basin

Both the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) designate areas of the state as attainment, nonattainment, maintenance, or unclassified for the various pollutant standards. An "attainment" designation for an area signifies that pollutant concentrations did not violate the standard for that pollutant in that area. A "nonattainment" designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an exceptional event, as identified in the criteria. A "maintenance" designation is assigned to areas where monitored pollutant concentrations exceeded an air quality standard in the past but which are no longer in violation of that standard. An "unclassified" designation signifies that data do not support either an attainment or nonattainment status. In addition, each agency has several levels of classification used to further describe the severity of nonattainment

conditions. For instance, the CARB classifies nonattainment areas into moderate, serious, or severe air pollution categories, with increasingly strict control requirements mandated for each.

The 2016 State Strategy for the State Implementation Plan (State SIP Strategy) describes CARB staff's strategy to attain health-based federal air-quality standards over the next 15 years as part of the SIPs due in 2016 (CARB 2016a). The 2016 SIPs consist of a combination of State and local air-quality planning documents that must show how California will meet federal air quality standards for both ozone and fine particulate matter ($PM_{2.5}$). Measures contained in the SIP include, but are not limited to, deploying cleaner technologies, lowering NO_x engine standards, incentive funding to achieve further emissions reductions from on-road heavy duty vehicles, and low-emission diesel requirements for off-road equipment.

Locally, the Yolo-Solano Air Quality Management District (YSAQMD) is required to meet air quality standards set by CARB. Local districts that do not meet the state standards are required to prepare an air quality attainment plan (AQAP) for meeting certain standards. Counties in the Sacramento Federal Nonattainment Area have adopted the *Northern Sacramento Valley Planning Area 2015 Triennial Air Quality Attainment Plan*, which outlines strategies for achieving the ozone and fine particulates standards (Sacramento Valley Air Quality Engineering and Enforcement Professionals 2015).

The YSAQMD 1992 AQAP for attaining and maintaining State ambient air-quality standards for ozone is also updated every three years. The 2015 Triennial Assessment and Plan Update (Triennial Plan Update) discusses the progress the YSAQMD has made towards improving the air quality in its jurisdiction since its last Triennial Plan Update, and includes proposed commitments for the 2015–2017 period (Yolo-Solano Air Quality Management District 2016).

Ambient air quality in the project area and vicinity is monitored and regulated by the YSAQMD. Table 1 summarizes the attainment status of the YSAQMD and Table 2 summarizes YSAQMD Thresholds of Significance. The area is designated as nonattainment for $PM_{2.5}$ (federal), PM_{10} (State), and ozone (federal and State), and maintenance for carbon monoxide (federal). Ozone and particulate matter are respiratory irritants that can cause serious health problems. Reactive organic gases (ROGs) and nitrogen oxides (NO_x) are ozone precursors. Vehicle emissions, such as from light and heavy-duty vehicles traveling on roads and agricultural vehicles and equipment, contribute to ozone precursors and particulate matter. Wind-blown dust from dirt roads and agricultural activities, as well as from open burning of burn piles, also contributes to particulate matter. Diesel particulate matter is a component of inadequately filtered diesel exhaust and is considered to be a toxic air contaminant.

Odors

Objectionable or offensive odors rarely cause physical harm; however, because they are unpleasant they may lead to distress among the public and can generate citizen complaints to local governments. Odor impacts vary in frequency and severity, depending on the nature of the source, the wind direction, and the location of sensitive receptors. Existing sources of odors within the project area include diesel exhaust from vehicles traveling on Interstate 80 and from agricultural vehicles and equipment.

Table 1 Federal and State Attainment Status

Pollutant	National Attainment Status[1]	California Attainment Status[2]
Carbon monoxide	Maintenance (Moderate[3])	Attainment
Lead	Attainment	Attainment
Nitrogen Dioxide	Attainment	Attainment
Particulate matter (PM_{10})[4]	Unclassified	Nonattainment
Fine particulate matter ($PM_{2.5}$)	Nonattainment	Unclassified
Ozone (8-hour average)	Nonattainment (Severe)	Nonattainment
Sulfur dioxide	Attainment	Attainment
Hydrogen sulfide	No national standards	Unclassified
Sulfates	No national standards	Attainment
Vinyl Chloride	No national standards	No data
Visibility-reducing particles	No national standards	Unclassified

1 Source: United States Environmental Protection Agency 2017.

2 Source: California Air Resources Board 2016.

3 Redesignated from Nonattainment to Maintenance in 2010. Moderate classification means an area has a designation value from 9.1 to16.4 parts per million (ppm).

4 National annual PM_{10} standard was revoked on December 17, 2006.

Sensitive Receptors

Sensitive receptors are areas where human populations (especially children, seniors, and sick persons) are located and where there is reasonable expectation of continuous human exposure to air pollutants of concern. Typical sensitive receptors are residential subdivisions, schools, or hospitals. There are no sensitive receptors within the project area. The nearest sensitive receptors are residences 1.1 miles to the east within the Southport area of the City of West Sacramento.

DISCUSSION

a) A project is deemed inconsistent with air quality plans if it would result in population, travel, employment, industrial and commercial activity, and energy-use growth that exceeds growth estimates included in the air quality plan. The project would not contribute to regional population or employment growth. The project would not result in stationary or mobile sources that would continue to use old technology or impede deploying cleaner technologies, as described in the State SIP Strategy.

Table 2 Yolo-Solano Air Quality Management District Thresholds of Significance for Pollutants

Pollutant	YSAQMD Thresholds of Significance
Reactive organic gases (ROGs)	10 tons/year
Nitrogen oxides (NO_x)	10 tons/year
Particulate matter (PM_{10})	80 pounds/day
Fine particulate matter ($PM_{2.5}$)	No established threshold
Sulfur dioxide (SO_2)	No established threshold
Carbon monoxide (CO)	Violation of a State ambient air quality standard for CO.
Toxic air contaminants from stationary sources	The probability of contracting cancer for the Maximally Exposed Individual (MEI) equals 10 in 1 million or more. OR Ground-level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index equal to 1 for the MEI or greater.
Offensive odors	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, repose, 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.

Source: Yolo Solano Air Quality Management District 2007.

The project is consistent with the site's existing open space land use and would not require a general plan amendment. The project would not result in a substantial intensification the underlying mobile and population assumptions contained in the YSAQMD AQAP or State SIP Strategy. The project would not permanently change the existing or planned transportation network or traffic patterns in the area. Additionally, due to its short-term nature, the project would not result in a substantial unplanned increase in population, employment, or regional growth in vehicle miles traveled (VMT), or emissions. Therefore, the project would not conflict with or obstruct implementation of the YSAQMD AQAP or State SIP Strategy and there would be **no impact**.

b) Construction Emissions – During construction, material and equipment deliveries would occur from vehicles ranging from medium to large 4-to-8 axle trucks and semi-tractor trailers. However, these truck deliveries would be limited to a period of several weeks and would typically not exceed 20 per day. Heavy construction equipment would also operate on the site during the different project construction phases including excavation, pouring bridge foundations, installing culverts and con-span bridges, relocating and installing water pumps, and spreading material onto existing gravel roadways. Construction equipment would likely include excavators, graders, rollers, front-end loaders, dozers, backhoes, compressors, generators, and a water truck. In addition, construction workers would drive their personal vehicles to the site. The project would be expected to require approximately 10 construction workers during peak construction activities.

Proposed project construction activities have the potential to affect ambient air quality by generating criteria pollutant emissions through vehicle and equipment operations, travel on unpaved surfaces, and soil disturbance

activities. Potential project-related criteria pollutant emissions include carbon monoxide, sulfur dioxide, PM_{10}, and $PM_{2.5}$. Proposed project construction activities also have the potential to generate ROG and NO_x emissions, which are ozone precursors. The potential maximum daily and annual ROG, NO_x, and criteria pollutant emissions calculated for proposed project construction activities are summarized in Table 3.These emissions would occur over a single construction season.

Table 3 Calculated Maximum Daily and Annual ROG, NOx, and Criteria Pollutant Emissions

Period	ROGs	NOx	CO	PM10	PM2.5
Maximum Daily (pounds)	7.3607	69.9951	60.5174	34.0084	6.1248
Annual (tons) [1]	0.2404	2.2076	2.0310	0.7995	0.1975
YSAQMD Threshold[2]	10 tons/year	10 tons/year	Violation of a State ambient air quality standard for CO	80 pounds/day	No threshold established

CO = carbon monoxide, NOx = nitrogen oxides, PM2.5 = particulate matter less than 2.5 microns in diameter, PM10 = particulate matter less than 10 microns in diameter, ROGs = reactive organic gases, YSAQMD = Yolo-Solano Air Quality Management District

1 All emissions would occur in 2018.

2 YSAQMD has adopted annual (tons/year) thresholds for ROG and NOx and a daily (pounds/day) threshold for PM10.

The calculated maximum daily and annual emissions for the proposed project's construction activities would not exceed YSAQMD significance thresholds, as identified in Table 3. However, the generation of fugitive dust emissions (PM_{10}, and $PM_{2.5}$) from disturbed soil during construction activities could create a localized nuisance. The YSAQMD recommends implementation of best management practices to reduce dust emissions and avoid localized health impacts, even for projects that do not exceed district PM thresholds. The generation of fugitive dust during construction activities would be **less than significant with mitigation incorporated** as follows:

Mitigation Measure AIR-1: Minimize Emissions During Construction

The following mitigation measures shall be implemented during any ground-disturbing activities associated with project construction. These measures shall be implemented consistent with the land management requirements of the YBWA Land Management Plan:

- Water all active construction sites at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure.
- Haul trucks shall maintain at least 2 feet of freeboard.
- Cover all trucks hauling dirt, sand, or loose materials.
- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations and hydroseed area.
- Plant vegetative ground cover in disturbed areas as soon as possible.

- Cover inactive storage piles.
- Sweep streets if visible soil material is carried out from the construction site.
- Treat accesses to a distance of 100 feet from the paved road with a 6- to 12-inch layer of wood chips, gravel, or mulch.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing maximum idling time to 5 minutes (as required by the California airborne toxics control measure in Title 13, Section 2485 of California Code of Regulations [CCR]).
- Dirt roads used for construction at the site shall be posted with 10 mile per hour speed limit signs.
- The project contractor shall adhere to all requirements of the Yolo-Solano Air Quality Management District regarding equipment requirements and permits to operate.

The implementation of these mitigation measures would ensure this impact remains **less than significant with mitigation incorporated**.

Operational Emissions – Following project construction, the YBWA operations would not substantially differ from current operations, although the improved water management capabilities would be expected to enhance the managed wetlands and agricultural operation within the YBWA. Two new electrical water pumps would be operated on the site, which would not generate any localized air emissions. These post-construction operations would not be expected to violate any air quality standards or contribute substantially to an existing or projected air quality violation. Therefore, the project's operational emissions would be considered **less than significant**.

c) The project is consistent with the site's existing open space land use and would not require a general plan amendment. The project would not result in a substantial intensification of the underlying mobile and population assumptions contained in the YSAQMD AQAP or State SIP Strategy. Additionally, because it is limited to drainage improvements, the project would not result in a substantial unplanned increase in population, employment, or regional growth in vehicle miles traveled (VMT), or emissions. The air emissions generated through project construction would be minimized with implementation of Mitigation Measure AIR-1. Therefore, the project would not create air pollutants, either directly or indirectly, that would result in a considerable cumulative net increase of any criteria pollutant. This impact is **less than significant**.

d) YSAQMD considers a sensitive receptor to be any facility or land use that includes members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. If a project is likely to be a place where people live, play, or convalesce, it should be considered a receptor. It should also be considered a receptor if sensitive individuals are likely to spend a significant amount of time there. Examples of receptors include residences, schools and school yards, parks and play grounds, daycare centers, nursing homes, and medical facilities.

The project site is located within a designated wildlife area and does not include any adjacent sensitive receptors. The nearest residences are located approximately 1.1 miles to the east in the Southport area of the City of West Sacramento. Also, the project's construction emissions would only be generated during the single construction

season. No new emissions would be expected following project construction. Therefore, the proposed project would not expose sensitive receptors to substantial pollutant concentrations and this impact would be **less than significant**.

e) Construction-related odors would not be likely to violate YSAQMD nuisance standards due to the limited construction period and the project site's distance from sensitive receptors. Following project construction, the YBWA operations would not substantially differ from current operations, although the improved water management capabilities would be expected to enhance the managed wetlands and agricultural operation within the YBWA. These post-construction operations would not be expected to generate odors that would substantially differ from current operations. Therefore, the proposed project would not result in the exposure of sensitive receptors to substantial odor emissions and **no impact** would occur.

3.4 BIOLOGICAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. Biological Resources. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (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 a tree preservation policy or ordinance?	☐	☐	☐	☒
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?	☐	☐	☐	☒

AFFECTED ENVIRONMENT

This section describes the existing biological resources setting and potential effects from project implementation on those resources. Descriptions and analysis in this section are based on a reconnaissance-level site survey conducted by AECOM biologists on December 02 and 05, 2016. Prior to conducting surveys, information about species and habitats in the project area was obtained from review of biological resource databases, including the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB), the California Native Plant Society (CNPS) Inventory, the U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Conservation System (IPaC), the Yolo Bypass Wildlife Area Land Management Plan (YBWA LMP) (CDFG and YBF 2008), and aerial photography of the project area. A USFWS official species list was obtained from the Sacramento Fish and Wildlife Office Web site on December 02, 2016 and again on December 24, with a refined project boundary.

The project and the surrounding land in the bypass is entirely undeveloped and consists of managed and natural and semi-natural habitats including seasonal and permanent wetland, seasonal agriculture, remnant patches of riparian woodland, and terrestrial upland grasslands with a variety of nonnative and native grasses and forbs. The primary agricultural crop is rice, which also serves as seasonal wetland habitat, but some fields are dry crops or left unplanted. With the onset of the wet season, agricultural areas and semi-natural seasonal wetland areas gradually begin to flood, and in very wet years, the entire bypass serves as a flood-control corridor and becomes entirely inundated with overflow from the Sacramento River. Gravel and dirt roads border the waterways and provide direct access to all the project sites.

Habitat Types in the Study Area

The location and extent of the habitat types present on the project sites is shown in Appendix A and, when applicable, habitat types are classified below based on the dominant plant species in the dominant strata according to vegetation types described in The Manual of California Vegetation (Sawyer *et al.* 2009). Classified vegetation types include Water primrose wetlands, Cattail marshes, Hardstem bulrush marsh, Black willow thickets; unclassified types include ruderal, seasonal wetland, agriculture, and access roads and barren/parking areas.

Water primrose wetlands [*Ludwigia* (*hexapetala, peploides*) Provisional Semi-Natural Stands] is an emergent or floating, herb-dominated vegetation type that accounts for 20.3 acres and occurs on the surface of waterways where, in many cases, they cover the entire water surface and extend beyond the top of channel bank or shoreline, and transition into the ruderal vegetation type. On Green's Lake, in the northeast corner of the project area, they cover large areas of the water surface and shoreline and then extend north and south in the connected ditches. Common associate species observed in these wetlands include bulrush (*Bolboschoenus* sp.), tall cyperus (*Cyperus eragrostis*), barnyard grass (*Echinochloa crus-galli*), knot grass (*Paspalum distichum*), hardstem bulrush (*Schoenoplectus acutus*), and broad-leaved cattail (*Typha latifolia*).

Cattail marshes [*Typha* (*angustifolia, domingensis, latifolia*) Alliance] are emergent, herb-dominated vegetation types dominated by one or more cattail species. Cattail species make up at least 50 percent of the relative cover. This vegetation type accounts for 6.0 acres and occurs in ditches and canals, around the borders of ponds, and in managed marshes that border the access roads and ditches on the project sites. Common associate species observed include hardstem bulrush, barnyard grass, and knot grass.

Hardstem bulrush marsh (*Schoenoplectus acutus* Alliance) is an emergent, herb-dominated vegetation type where hardstem bulrush makes up at least 10 percent of the absolute cover. This vegetation type accounts for 1.4 acres and occurs in ditches and canals, around the borders of ponds, and in managed marshes that border the access roads and ditches on the project sites. Broad-leaved cattail is typically present, and other common associate species include bulrush, barnyard grass, and tall cyperus.

Black willow thickets (*Salix gooddingii* Alliance) are a woodland vegetation type that account for 1.2 acres and occur in patches along larger ditches or canals and near the edges of permanent wetlands. Black willow makes up greater than 30 percent of the relative tree canopy cover. The largest area of black willow thicket occurs immediately south of Green's Lake, where older trees and snags occur along the banks. Other associate tree species include narrow-leaved willow, box elder (*Acer negundo*), and Oregon ash (*Fraxinus latifolia*), and the primary understory shrub species is California rose (*Rosa californica*). Similar riparian habitat, but with a couple large Fremont cottonwood (*Populus freemontii*) trees, occurs at the northern end of Green's Lake, indicating that

both areas could have historically contained Fremont cottonwood. A few areas with smaller black willow thickets also occur at the north end of the lake, and on the west side of the project area, where a new pump is being installed at Project Component 3.

Seasonal wetlands are herb-dominated vegetation types that account for 16.7 acres and occur outside the perimeter of permanent wetlands or waterways and were observed adjacent to access roads and ruderal habitat. These wetlands are on slightly higher ground than permanent wetlands and become inundated or wet from precipitation, or when managed water is released into these areas to create habitat for waterfowl and other water birds. Sawyer *et al. (*2009) do not classify this vegetation type and refer to it as semi-natural seasonal wetlands. Common associate species observed in these wetlands include fat-hen (*Atriplex prostrata*), bulrush, tall cyperus, barnyard grass, common spikerush (*Eleocharis macrostachya*), common gumplant (*Grindelia camporum*), common sunflower (*Helianthus annuus*), rush (*Juncus* sp.), iris-leaved rush (*Juncus xiphioides*), field mint (*Mentha arvensis*), knot grass, curly dock (*Rumex crispus*), California aster (*Symphyotrichum chilense*), and cocklebur (*Xanthium strumarium*).

Ruderal habitat accounts for 42.6 acres and occurs on and along the borders of the main access roads open to the public, entirely covers smaller roads closed to the public, and occasionally occurs on higher ground intermixed with the seasonal wetlands. This habitat entirely covers small, less-traveled roads across the project area, a significant amount of the road shoulders on these small roads, which occur on levees between fields and along waterways, and on larger roads that are graveled and used regularly. This vegetation type is characterized by several nonnative annual grass and weedy species including black mustard (*Brassica nigra*), bristly ox-tongue (*Helminthotheca echioides*), yellow starthistle (*Centaurea solstitialis*), field bindweed (*Convolvulus arvensis*), Bermuda grass (*Cynodon dactylon*), Canada horseweed (*Erigeron canadensis*), common sunflower, common mallow (*Malva neglecta*), white sweetclover (*Melilotus albus*), radish (*Raphanus* sp.), curley dock, blessed milkthistle (*Silybum marianum*), clover (*Trifolium* spp.), and vetch (*Vicia* sp.).

Open water accounts for 5.2 acres and is found in deeper areas of larger canals and the center of Green's Lake and Parker Pond where submergent, emergent, and aquatic vegetation are lacking. Relative to the habitat across the entire wildlife area, the open water habitat is limited to ditches and canals, and two water bodies (Green's Lake and Parker Pond). The most significant areas of open water are located in Green's Lake and Parker Pond, which are located in the northeast and southwest sections of the project area, respectively.

Agriculture accounts for 31.0 acres and primarily consists of seasonally-flooded rice fields located immediately adjacent to levees, berms, and canals that border them. Agricultural areas in the wildlife area are actively managed to benefit wildlife. Rice fields support a variety of seasonal and year-round waterfowl and shorebirds, and after they are harvested and flooded, they attract thousands of migratory waterfowl. In some years these field could also be converted to grains, which support grassland bird species and foraging raptors.

Bare ground accounts for 1.2 acres, and is limited to parking lots and staging areas.

Wildlife

The habitat types described above provide suitable habitat for a variety of wildlife species; however, because the project sites consist of linear footprints along roads, canals, and small waterbodies, they do not support the large

number of seasonal migratory birds that occur in the large areas of seasonal and permanent wetland habitat across the wildlife area. Nevertheless, the project sites are expected to support several guilds of bird and wildlife species.

Birds - Waterfowl such as northern shoveler (Anas. clypeata), mallard (A. platyrhynchos), and wood duck (Aix sponsa); and diving ducks such as ring-necked duck (Aythya collaris), scaup (Aythya spp.), goldeneye (Bucephala spp.), and ruddy duck (Oxyuria jamaicensis) would likely use the habitat in Green's Lake and Parker Pond. Wood duck could also nest in tree cavities located in riparian woodland habitat.

Shorebirds and wading bird species such as killdeer (*Charadrius vociferus*), Virginia rail (*Rallus limicola*), double-crested cormorant (*Phalacrocorax auritus*) (migrant only), black-crowned night heron (*Nycticorax nycticorax*), great blue heron (*Ardea herodias*), snowy egret (*Egretta thula*), and great egret (*Ardea alba*) are known to occur in and along canals and along the edges of larger waterbodies.

Neotropical migratory birds that breed and/or migrate through this area include western kingbird (*Tyrannus verticalis*), western wood-pewee (*Contopus sordidulus*), tree swallow (*Tachycineta bicolor*), barn swallow (*Hirundo rustica*), Bullock's oriole (*Icterus bullockii*), Wilson's warbler (*Wilsonia pusilla*), yellow warbler (*Setophaga petechia*) (migrant only), and blue grosbeak (*Guiraca caerulea*).

A variety of migratory and resident raptors that winter and/or breed in the area are known to occur in the Yolo Bypass. Some of the raptors that have the potential to occur include red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*B. swainsoni*), white-tailed kite (*Elanus leucurus*), rough-legged hawk (*B. lagopus*), ferruginous hawk (*B. regalis*), prairie falcon (*Falco mexicanus*), American kestrel (*F. sparverius*), barn owl (*Tyto alba*), great horned owl (*Bubo virginianus*), and northern harrier (*Circus cyaneus*).

Upland game birds known to occur in the project area include mourning dove (*Zenaida macroura*) and ring-neck pheasant (*Phasianus colchicus*). High winter and spring floods, however, can substantially affect pheasant nesting and recruitment success, thereby reducing populations in subsequent years.

Several bird colonies were documented in the northern project area between 2004 and 2008 including colonies of tricolored blackbird and White faced ibis. A Yellow headed blackbird colony and a Black crown night heron colony have moved in and out of the project area since 1997.

Fish –Yolo Bypass provides habitat for a wide variety of fish species. The YBWA LMP (CDFG and YBF 2008) reports that the floodplain is used by at least 42 fish species including seasonal fish and fish that are year-round residents in the perennial water sources.

Other Wildlife – The upland grassland and ruderal vegetation supports several common mammal species, such as black-tailed jack rabbit (*Lepus californicus*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), western harvest mouse (*Reithrodontomys megalotis*), house mouse (*Mus musculus*), Botta's pocket gopher (*Thomomys bottae*), Virginia opossum (*Dedelphis virginiana*), Norway rat (*Rattus norvegicus*), coyote (*Canis latrans*), and possibly red and/or gray fox (*Vulpes vulpes, Urocyon cinereoargenteus*).

Other species associated with aquatic habitat and permanent wetland and riparian communities that are known to occur in the region and could use the project sites include northern river otter (*Lutra canadensis*), American beaver (*Castor canadensis*), and muskrat (*Ondatra zibethicus*). Recent beaver activity was observed during

biological surveys on the east side of the riparian woodland habitat south of Green's Lake, and this area provides the most suitable habitat for all these species.

Common reptile and amphibian species found in the area include western fence lizard (*Sceloporus occidentalis*), common garter snake (*Thamnophis sirtalis*), gopher snake (*Pituophis melanoleucus*), red-eared slider turtle (*Chrysemys scripta*), Pacific tree frog (*Hyla regilla*), western toad (*Bufo boreas*), and bullfrog (*Rana catesbeiana*). Giant garter snake (*Thamnophis gigas*) is also present in the wildlife area and region.

Several bat species occur in the region and could forage and roost in trees in the riparian woodland habitat. Riparian trees and snags provide suitable roosting habitat for special-status species such as pallid bat (*Antrozous pallidus*). In addition, a maternity roost of approximately 250,000 Mexican free-tailed bats (*Tadarida brasiliensis*) occurs in the expansion joints of the Yolo Causeway, north of the project area.

Sensitive Biological Resources

Sensitive biological resources addressed in this section include those that are afforded consideration or protection under the California Environmental Quality Act (CEQA), California Fish and Game Code, California Endangered Species Act (CESA), Federal Endangered Species Act (ESA), Clean Water Act (CWA), and the Porter-Cologne Water Quality Control Act (Porter-Cologne Act).

Special-status Species – Special-status species include plants and animals in the following categories:

- species officially listed by the state or Federal government as endangered, threatened, or rare;
- candidates for state or Federal listing as endangered or threatened;
- taxa (i.e., taxonomic categories or groups) that meet the criteria for listing, even if not currently included on any list, as described in California Code of Regulations (CCR) Section 15380 of the State CEQA Guidelines;
- species identified by the California Department of Fish and Wildlife (CDFW) as species of special concern;
- species listed as Fully Protected under the California Fish and Game Code;
- species afforded protection under local or regional planning documents; and
- taxa considered by CDFW to be "rare, threatened, or endangered in California" and assigned a California Rare Plant Rank (CRPR). The CDFW system includes six rarity and endangerment ranks for categorizing plant species of concern, which are summarized as follows:
    - CRPR 1A – Plants presumed to be extinct in California;
    - CRPR 1B – Plants that are rare, threatened, or endangered in California and elsewhere;
    - CRPR 2A – Plants presumed to be extinct in California, but more common elsewhere;
    - CRPR 2B – Plants that are rare, threatened, or endangered in California, but more common elsewhere;
    - CRPR 3 – Plants about which more information is needed (a review list); and
    - CRPR 4 – Plants of limited distribution (a watch list).

The term "California species of special concern" is applied by CDFW to animals not listed under the federal ESA or CESA, but that are nonetheless declining at a rate that could result in listing, or that historically occurred in low numbers and have known threats to their persistence.

A list of special-status species that could potentially occur on the project site or immediate vicinity, provided suitable habitat conditions were present, was developed through review of CNDDB (2016) and CNPS Inventory (2016) database records. Exhibit 4 shows the location of special-status species occurrences recorded in the CNDDB within 3 miles of the project site. This exhibit depicts the accuracy classes for the identified species occurrences, which represents the relative confidence level of the species mapping. There are 10 accuracy classes with classes 1 and 2 being the most specific or accurate. The higher numbers are increasingly less precise. The USFWS IPaC system, the USFWS critical habitat mapper, the Yolo County Draft Conservation Plan and Natural Community Conservation Plan (Yolo HCP/NCCP 2015) were used as additional resources.

Special-status Plants – The majority of the project sites are linear and follow canals and access roads used to distribute water within the wildlife area to support agriculture and wildlife habitat. The canals are dominated by common emergent wetland plants and water primrose species, which are invasive, and the borders of the roads and canals are dominated by ruderal habitat, which primarily consists of weedy, nonnative species. Beyond this habitat are narrow, linear areas of agricultural fields and semi-naturalized seasonal wetland, which is primarily comprised of native herbaceous plant species. The literature and database reviews identified 24 previously documented or reported special-status plant species in the nine-quadrangle search area. Seventeen of these species known from the region have no potential to occur on the project site because they are restricted to particular habitat types (e.g., vernal pools, chenopod scrub, alkaline flats, or adobe clay soil) not present on any of the project sites. For these reasons, the following species were eliminated from further evaluation in this document:

1. Ferris' milkvetch (*Astragalus tener* var. *ferrisiae*)
2. Alkali milk-vetch (*Astragalus tener* var. *tener*)
3. Heartscale (*Atriplex cordulata* var. *cordulata*)
4. Brittlescale (*Atriplex depressa*)
5. Palmate-bracted bird's-beak (*Chloropyron palmatum*)
6. Dwarf downingia (*Downingia pusilla*)
7. Jepson's coyote thistle (*Eryngium jepsonii*)
8. San Joaquin spearscale (*Extriplex joaquinana*)
9. Boggs Lake hedge-hyssop (*Gratiola heterosepala*)
10. Legenere (*Legenere limosa*)
11. Heckard's pepper-grass (*Lepidium latipes* var. *heckardii*)
12. Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*)
13. Colusa grass (*Neostapfia colusana*)
14. Bearded popcornflower (*Plagiobothrys hystriculus*)
15. California alkali grass (*Puccinellia simplex*)
16. Saline clover (*Trifolium hydrophilum*)
17. Crampton's tuctoria or Solano grass (*Tuctoria mucronata*)

The potential for the remaining seven species was evaluated further based on specific habitat requirements, geographic distribution, and elevation range as described in Table 4, which also provides the regulatory status, habitat, elevation range, and blooming period for each species.

Special-status Fish and Wildlife – The CNDDB nine-quadrangle and USFWS database searches, USFWS IPaC system (USFWS 2016a and 2016b), and YBWA LMP identified a total of 36 special-status fish and wildlife species that are known or have potential to occur in the general vicinity of the project area.

Ten wildlife species have no potential to occur on or adjacent to the project site because they are restricted to particular habitat types (e.g., vernal pools, elderberry shrubs, friable soils, alkaline or saline habitat) not present on the project sites, the project sites are outside of the known range of the species, or the project area does not contain suitable habitat. For these reasons, the following species were eliminated from further evaluation:

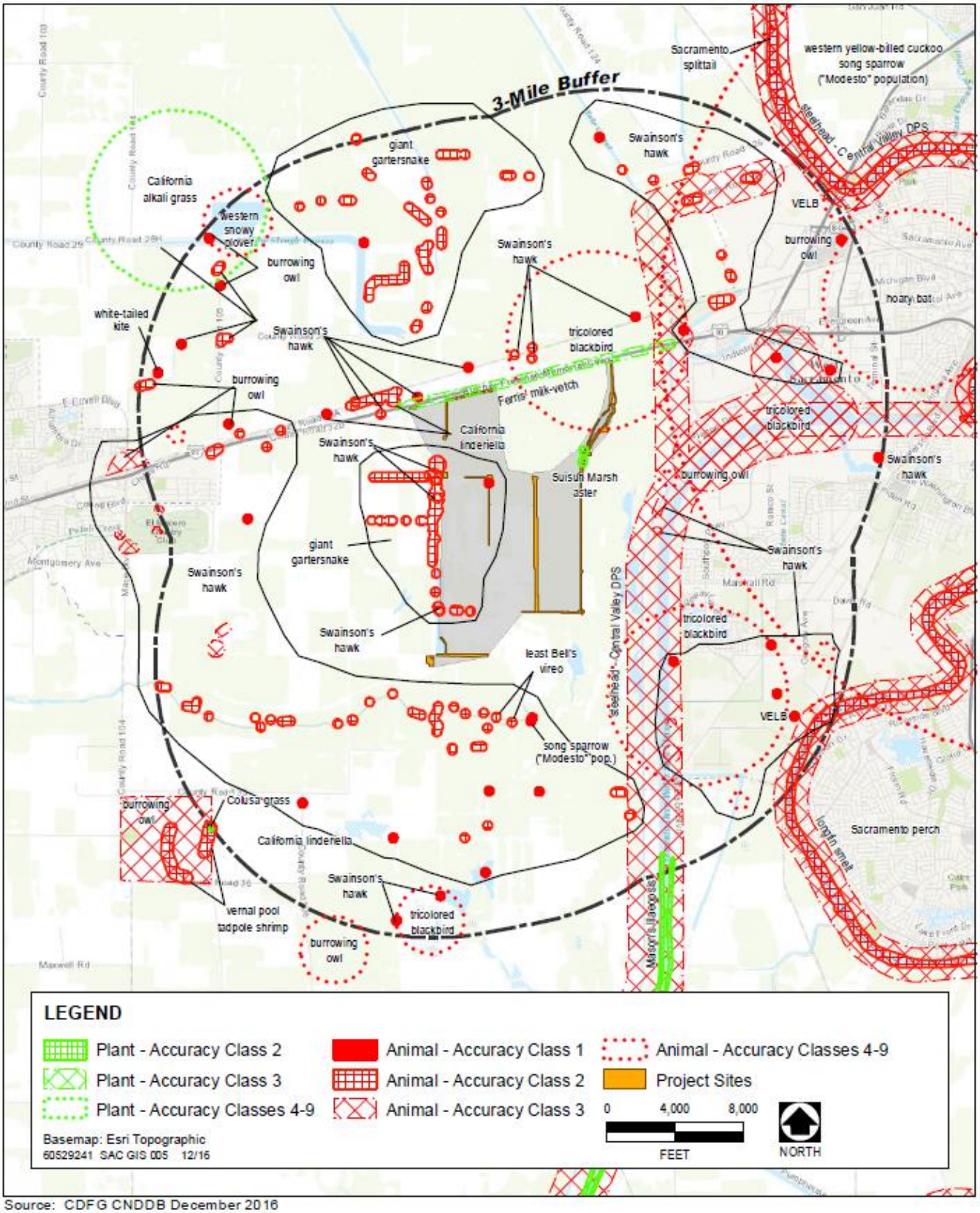
1. California tiger salamander (*Ambystoma californiense*)
2. Conservancy fairy shrimp (*Branchinecta conservatio*)
3. Vernal pool fairy shrimp (*Branchinecta lynchi*)
4. Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)
5. Delta green ground beetle (*Elaphorus viridis*)
6. Vernal pool tadpole shrimp (*Lepidurus packardi*)
7. Western snowy plover (*Charadrius alexandrines nivosus*)
8. California red-legged frog (*Rana draytonii*)
9. Riparian bank swallow (*Riparia riparia*)
10. American badger (*Taxidea taxus*)

The remaining 26 species were evaluated further based on specific habitat requirements, geographic distribution, and elevation range as described in Table 5.

Critical Habitat

Critical habitat is a geographic area containing features determined by USFWS to be essential to the conservation of a species listed as threatened or endangered under the federal ESA. Critical habitat does not have to be occupied by that species at the time it is designated, but it may be considered necessary for the recovery of the species.

The project area is located within designated critical habitat for Delta Smelt and the Southern DPS of Green Sturgeon, but not within critical habitat for Central Valley Spring-run Chinook Salmon Evolutionarily Significant Unit (ESU), Sacramento River Winter-run Chinook Salmon ESU, and Central Valley Steelhead Distinct Population Segment (DPS) (NMFS 2016). Critical habitat for Central Valley Spring-run Chinook Salmon is designated in the east Toe Drain, which parallels the eastern boundary of the wildlife area and connects with the eastern extent of South Fork Putah Creek; critical habitat for Sacramento River Winter-run Chinook Salmon is designated in the Sacramento River and not within the Yolo Bypass; and critical habitat for Central Valley Steelhead is designated in the east Toe Drain, on the eastern boundary of the wildlife area, and approximately one mile upstream from the east Toe Drain in eastern extent of South Fork Putah Creek (NMFS 2016).



Source: CDFG CNDDB December 2016

Exhibit 4 – Special-status Species Occurrences

Table 4
Special-Status Plant Species Known to Occur or with Potential to Occur on the Project Site

Species	Status[1]			Habitat and Blooming Period	Potential for Occurrence in the Project Area[2]
	USFWS	CDFW	CRPR		
Bristly sedge *Carex comosa*	–	–	2B.1	Coastal prairie, marshes and swamps, valley and foothill grassland, on lake margins and wet places; from 0 to 625 m in elevation. Blooms May – September.	Could occur. Low quality habitat present along shores of Green's Lake and large irrigation canal, One occurrence along the Sacramento River, near the town of Hood, was listed within the nine-quad USGS search area.
Peruvian dodder *Cuscuta obtusiflora* var. *glandulosa*	–	–	2B.2	Freshwater marshes and swamps; parasitic on aquatic herbs such as *Xanthium*, *Persicaria*, *Dalea*, *Lythrum*, and *Alternanthera*; 15 to 280 foot elevation. Blooms July–October.	Unlikely to occur. This species is not generally known to occur in the region. The nearest known record is from Elk Grove, but there is uncertainty about the identification of that specimen.
Woolly rose-mallow *Hibiscus lasiocarpos* var. *occidentalis*	–	–	1B.2	Freshwater marshes and swamps, generally found on wetted river banks and low peat islands in sloughs, but can also occur on riprap levees; known from the Delta watershed; from 0 to 120 m in elevation. Blooms June–September.	Could occur. Suitable habitat is present along shores of Green's Lake and the large irrigation canal.
Northern California black walnut *Juglans hindsii*	–	–	1B.1	Riparian forest/woodland on deep alluvial soil along creeks and streams; from 0 to 440 m in elevation. Blooms April–May.	Unlikely to occur. Habitat in the project area is generally unsuitable. Nearby occurrences have been extirpated. Although this species is widely cultivated in California as rootstock for English walnut, there are only three native populations still present.
Mason's lilaeopsis *Lilaeopsis masonii*	–	R	1B.1	Freshwater and brackish marshes and swamps, riparian scrub; generally found in tidal zones on muddy or silty soils formed through river deposition or bank erosion; from 0 to 10 m in elevation. Blooms April–November.	Unlikely to occur. This species is typically found in tidally influenced waterways, which are not present in the project area.
Sanford's arrowhead *Sagittaria sanfordii*	–	–	1B.2	Shallow freshwater marshes and swamps, ponds, ditches, in standing or slow-moving water; from 0 to 650 m in elevation. Blooms May–October.	Could occur. Suitable habitat present in the project ponds, ditches, and canals.
Suisun Marsh aster *Symphyotrichum lentum*	–	–	1B.2	Generally occurs in brackish and freshwater marshes and swamps, often along sloughs; endemic to Delta; from 0 to 3 m in elevation. Blooms May–November.	Known to occur. Documented in 2005 and 2013 at the southern end of Green's Lake, but there is uncertainty about the accuracy of the identification. The slough habitat in this location provides potentially suitable conditions.

Notes: CESA = California Endangered Species Act; CNDDB = California Natural Diversity Database; CRPR = California Rare Plant Rank; CDFW = California Department of Fish and Wildlife; ESA = Federal Endangered Species Act; USFWS = U.S. Fish and Wildlife Service

Table 4
Special-Status Plant Species Known to Occur or with Potential to Occur on the Project Site

Species	Status[1] USFWS	CDFW	CRPR	Habitat and Blooming Period	Potential for Occurrence in the Project Area[2]

[1] Legal Status Definitions

California Department of Fish and Wildlife
R Rare

California Rare Plant Rank Categories:

1B Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

2B Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

2B Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

CRPR Extensions:

.1 Seriously threatened in California (greater than 80% of occurrences are threatened and/or high degree and immediacy of threat)

.2 Moderately threatened in California (20 to 80% of occurrences are threatened and/or moderate degree and immediacy of threat)

[2] Legal Status Definitions

***Known to occur*—**Species has been documented in the planning area and suitable habitat is present.

***Could occur*—**Species could potentially occur due to suitable habitat in the project area and nearby documented occurrences; however, little to no other indicators reveal that the species might be present.

Unlikely to occur—None of the species' life history requirements are provided by habitat in the planning area, and/or the planning area is outside of the species' known distribution, and/or the species is not likely to occur because of marginal habitat quality or distance from known occurrences.

Sources: CDFG 2008, USFWS 2016a and 2016b, CNDDB 2016, CNPS 2016, data compiled by AECOM in 2016

Essential Fish Habitat

In addition to the critical habitat designations noted above, the Sacramento River, including the Yolo Bypass, is designated as essential fish habitat (EFH) by the Pacific Fishery Management Council to protect and enhance habitat for coastal marine fish and macroinvertebrate species that support commercial fisheries. The Magnuson-Stevens Act defines EFH as those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity.

Sensitive Habitats and Special-Status Natural Communities

CDFW maintains a list of plant communities that are native to California. Within that list, CDFW identifies special-status (or sensitive) natural communities, which they define as communities that are of limited distribution statewide or within a county or region and often vulnerable to environmental effects of projects (CDFG 2009). Black willow thicket is a sensitive natural community as identified by CDFW.

On the project site, 1.2 acres of a relatively large black willow thicket stand occur within the project footprint, immediately south of Green's Lake. The canopy is somewhat open and other associate tree species include narrow-leaved willow, box elder, and Oregon ash, while California rose and water primrose are the dominant

Table 5
Special-Status Wildlife Known or with Potential to Occur in the Vicinity of the Project Site

Species	Listing Status[1]		Habitat	Potential for Occurrence in the Project Area[2]
	Federal	State		
Amphibians and Reptiles				
Pacific pond turtle *Actinemys marmorata*	P	SSC	Inhabits slow-moving streams, sloughs, ponds, irrigation and drainage ditches, and adjacent upland areas.	Could occur. Emergent wetland, pond, and canal habitat on the project sites provides suitable aquatic habitat, although upland estivation habitat is limited to levees and uplands the periodically flood
Giant garter snake *Thamnophis gigas*	T	T	Inhabits slow-moving streams, sloughs, ponds, marshes, flooded rice fields, irrigation and drainage ditches, and adjacent upland areas.	Known to occur. Numerous occurrences have been documented immediately outside of the wildlife area in irrigation canals and one occurrence was documented within the wildlife area, basking at the edge of the dirt road immediately south of PC-1 (Rice Corner).
Birds				
Tricolored blackbird *Agelaius tricolor* (nesting colony)	_	E	Nests colonially in tules, cattails, willows, thistles, blackberries, and other dense vegetation. Forages in grasslands and agricultural fields.	Could occur. Documented in 1934 near the north end of wildlife area, in the vicinity of Green's Lake, in thick cattails, and at two locations near the Port of Sacramento, but all three populations are possibly extirpated. In 2005, a small nesting colony was documented approximately 3 miles south of the project area within the wildlife area. Colonies were documented in the northern project area between 2004 and 2008.
Grasshopper sparrow *Ammodramus savannarum* (nesting)	_	SSC	Forages and nests in dense grasslands; favors a mix of native grasses, forbs, and scattered shrubs. Nests in depressions on the ground at the bases of grass clumps. Prefers large tracts of habitat.	Could occur. This species could nest herbaceous vegetation near the project area. This species is known to forage and presumed to breed in the Tule Ranch Unit and territorial males have been observed singing.
Short-eared owl *Asio flammeus* (nesting)	_	SSC	Nests and forages in open habitats including marshes, grasslands, shrublands, and agricultural fields.	Could occur. This species is known to nest in the YBWA occasionally.
Burrowing owl *Athene cunicularia* (nesting and wintering)	–	SSC	Nests and forages in grasslands, shrublands, deserts, and agricultural fields, especially where ground squirrel burrows are present.	Could occur. Known to nest and forage in the YBWA, especially in the Tule Ranch Unit. Several CNDDB records within 3 miles of the project area, but they are all outside of the bypass. No ground squirrel burrows were observed in the project area, but they could occur nearby.
Swainson's hawk *Buteo swainsoni* (nesting)	–	T	Nests in riparian woodlands and isolated trees; forages in agricultural, grassland, and shrub habitats. Summer visitor in the Central Valley.	Known to occur. Numerous nests documented within 3 miles of project area since 1996, with the closest at the western side of the project area within approximately 400 feet of PC-3 ("The Y"). Suitable foraging and nesting habitat occurs in riparian woodlands and isolated trees in this area and near Green's Lake in PC-2.

Table 5
Special-Status Wildlife Known or with Potential to Occur in the Vicinity of the Project Site

Species	Listing Status[1]		Habitat	Potential for Occurrence in the Project Area[2]
	Federal	State		
Mountain plover *Charadrius montanus* (wintering)	–	SSC	Winter visitor that forages in short grasslands, plowed agricultural fields, and usually areas where vegetation is sparse and trees are absent.	Could occur. Not documented within 3 miles of the project area, but upland grassland/ruderal vegetation and seasonal wetland habitat in the area provide suitable winter foraging habitat.
Northern harrier *Circus cyaneus* (nesting)	_	SSC	Nests and forages in grasslands, agricultural fields, and marshes. Nests on the ground within patches of dense, often tall, vegetation in undisturbed areas.	Could occur. Known to nest and forage in the YBWA and suitable nesting and foraging habitat is present in and adjacent to the project area.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis* (nesting)	T	E	Nests in large blocks of riparian forest habitat with densely foliaged deciduous trees and shrubs, especially willows; other associated vegetation includes cottonwood trees, blackberry, nettle, and wild grape.	Unlikely to occur. A rare summer resident at isolated sites in the Sacramento Valley and Northern California; the riparian habitat near PC-2 and PC-3 has open canopy and understory and occurs in isolated patches of woodland that is not characteristic of the riparian habitat types where this species is typically found.
White-tailed kite *Elanus leucurus* (nesting)	–	FP	Nests in woodlands and isolated trees; forages in grassland, shrub, and agricultural habitats.	Known to occur. Nest location documented in 1999 north of the City of Davis, approximately 3 miles from the project area and listed as possibly extirpated; regularly observed foraging in open habitats within the wildlife area, and riparian habitat near PC-2 and PC-3 could provide suitable nesting habitat.
Greater sandhill crane *Grus canadensis tabida* (nesting and wintering)	_	T FP	Annual and perennial grassland habitats, moist croplands with rice or corn stubble, and open, emergent wetlands. Typically nests in mounds of wetland plants or hummocks in remote portions of extensive wetlands. Sometimes nests in grass-lined depressions on dry sites.	Could occur. This species is known to forage in agricultural habitats and wetlands throughout the YBWA during winter. Does not breed in California.
Loggerhead shrike *Lanius ludovicianus* (nesting)	_	SSC	Forages and nests in grasslands, shrublands, and open woodlands. Nests in trees and shrubs.	Could occur. Known to nest and forage in the YBWA, especially in the Tule Ranch Unit. The ruderal and agricultural habitats in the project area provide suitable foraging habitat and this species could nest in trees or shrubs in or near these habitats.
Song sparrow (Modesto population) (*Melospiza melodia*)	–	SSC	Year-round resident that nests in emergent freshwater marsh and willow and oak woodland riparian habitat along canals and waterways.	Could occur. Nesting pair documented in the wildlife area in 2011, approximately 0.7 miles south of the project area; observed in riparian scrub located along South Putah Creek. Riparian scrub in PC-2 and PC-3 provide suitable nesting habitat.

Table 5
Special-Status Wildlife Known or with Potential to Occur in the Vicinity of the Project Site

Species	Listing Status[1]		Habitat	Potential for Occurrence in the Project Area[2]
	Federal	State		
Purple martin *Progne subis* (nesting)	–	SSC	Uncommon to rare, summer resident in a variety of wooded, low-elevation habitats, including riparian areas, where it nests in old woodpecker cavities, often in old, tall trees or snags. Also nests in bridges, freeway overpasses, utility poles, and buildings. Forages in foothill and low montane oak and riparian woodlands; less frequently in coniferous forests and open or developed habitats.	Could occur. Not documented within 3 miles of the project area, but suitable nesting habitat is present within large black willows and snags near Green's Lake or under I-80. The potential for this species is low however because the only known breeding colony in the region is in the City of Sacramento where they nest in weep holes in a hollow-box bridge over I-5.
Least Bell's vireo *Vireo bellii pusillus* (nesting)	E	E	Forages and nests about 1 meter above ground in dense shrubs and small trees along rivers and streams.	Could occur. Singing pair documented in 2010 and 2011 approximately 0.7 mile south of the project area, in riparian scrub along South Putah Creek, presumably attempting to establish a nesting territory. Riparian scrub in PC-2 and PC-3 provide suitable nesting habitat.
Yellow-headed blackbird *Xanthocephalus xanthocephalus* (nesting)	–	SSC	Colonies typically nest in large emergent wetlands of cattails, bulrush, along border of a lake or pond. Nests are located 1 meter or less above water surface.	Could occur. The only CNDDB occurrence is documented 7 miles southeast of the project area near the town of Freeport, but the dense areas of cattails and bulrush around Parker Pond and south of Rice Corner provide potentially suitable habitat.
Mammals				
Pallid bat *Antrozous pallidus*	–	SSC	Roosts in rocky outcrops, cliffs, crevices, trees, and snags. Forages over water in mixed conifer forests and conifer woodlands.	Could occur. No CNDDB occurrences are documented within 3 miles of the project area, but suitable nesting and foraging habitat is present in large trees and snags near Green's Lake.
Fish				
Green Sturgeon Southern DPS *Acipenser medirostris*	T	SSC	Requires cold freshwater streams with suitable gravel for spawning; rears seasonally in inundated floodplains, rivers, tributaries, and the Delta.	Could occur. Documented in the Sacramento River and tributaries and recorded in the East Toe Drain, which parallels the eastern border of the wildlife area, but has a very low potential to occur within the project area after receding floodwaters
Sacramento Perch *Archoplites interruptus*	–	SSC	Spawns in schools from spring to late summer, depending on location and water temperature, among aquatic plants or in shallow waters, among or near inshore vegetation.	Unlikely to occur: Historically occurred in the Sacramento and San Joaquin Rivers and tributaries, but now extirpated from native range.
Delta Smelt *Hypomesus transpacificus*	T	E	Spawns in tidally influenced channel habitats; rears seasonally in inundated floodplains, tidal marsh, and the Delta.	Unlikely to occur. Occurs in the Sacramento River downstream of its confluence with the American River, but the conditions present in the Yolo Bypass are unsuitable for this species.

Table 5
Special-Status Wildlife Known or with Potential to Occur in the Vicinity of the Project Site

Species	Listing Status[1]		Habitat	Potential for Occurrence in the Project Area[2]
	Federal	State		
Central Valley Steelhead DPS *Oncorhynchus mykiss*	T	–	Requires cold freshwater streams with suitable gravel for spawning; rears seasonally in inundated floodplains, rivers, tributaries, and the Delta.	Could occur. Well documented in the Sacramento River and tributaries, including the Yolo Bypass and Putah Creek, but has a low potential to occur within the project area after receding floodwaters.
Central Valley Spring-run Chinook Salmon ESU *Oncorhynchus tshawytscha*	T	T	Requires cold freshwater streams with suitable gravel for spawning; rears seasonally in inundated floodplains, rivers, tributaries, and the Delta.	Could occur. Well documented in the Sacramento River and tributaries, including the Yolo Bypass, but has a low potential to occur within the project area after receding floodwaters.
Sacramento River Winter-run Chinook Salmon ESU *Oncorhynchus tshawytscha*	E	E	Requires cold freshwater streams with suitable gravel for spawning; rears seasonally in inundated floodplains, rivers, tributaries, and the Delta.	Could occur. Well documented in the Sacramento River and tributaries, including the Yolo Bypass, but has a low potential to occur within the project area after receding floodwaters.
Sacramento Splittail *Pogonichthys macrolepidotus*	–	SSC	Spawning and juvenile rearing occur in shallow vegetation on floodplains, such as those on the Sacramento River, including the Yolo Bypass.	Could occur. Occurs in the Delta and Sacramento River and tributaries. Occurs seasonally and is thought to successfully breed in the Yolo Bypass.
Longfin Smelt *Spirinchus thaleichthys*	–	T	Spawns in tidally influenced freshwater channel habitats; rears seasonally in inundated floodplains, tidal marsh, and the Delta.	Unlikely to occur. Occurs in the Sacramento River downstream of its confluence with the American River, but the conditions present in the Yolo Bypass are unsuitable for this species.

Notes: DPS = Distinct Population Segment; ESU = Evolutionarily Significant Unit; RM = River Mile; PC = Project Component

[1] Legal Status Definitions

Federal
E - Listed as endangered under ESA
T - Listed as threatened under ESA
C - Candidate for listing under ESA
P - Petitioned for Listing

State
E - Listed as endangered under CESA
T - Listed as threatened under CESA
SSC - California Species of Special Concern
FP - Fully protected species – may not be taken or possessed without a permit from the Fish and Game Commission

[2] Legal Status Definitions

Known to occur—Species has been documented in the planning area and suitable habitat is present.

Could occur—Species could potentially occur due to suitable habitat in the project area and nearby documented occurrences; however, little to no other indicators reveal that the species might be present.

Unlikely to occur—None of the species' life history requirements are provided by habitat in the planning area, and/or the planning area is outside of the species' known distribution, and/or the species is not likely to occur because of marginal habitat quality or distance from known occurrences.

Sources: CDFG 2008, CNDDB 2016, USFWS 2016a and 2016b; Data compiled by AECOM in 2016

understory species. Black willow thicket has a State rank of S3, which means the community type is vulnerable to extinction because of its restricted range, recent and widespread declines, or other factors; it has a global rank of G4, which states it is apparently secure, but factors exist to cause some concern (i.e., there is some threat, or somewhat restricted habitat).

Waters of the United States

The canals, ditches, waterbodies and wetland habitats (i.e., seasonal wetlands and marshes) within the footprint at each Project Component have direct hydraulic connectivity, via overland flow, downstream with South Putah Creek or the east Toe Drain, which is a tributary to the Sacramento River. These canals have continuous or at least seasonal flow, and have a clear significant nexus with the Sacramento River, which flows into Suisun Bay and eventually the Pacific Ocean. Therefore, these waterways and waterbodies, and adjacent wetlands are likely subject to regulation by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA).

DISCUSSION

a) This section discusses the species identified as candidate, sensitive, or special-status species in local or regional plans, policies or regulations, or by the CDFW or the USFWS.

Special-Status Plants

Project implementation would result in removal or disturbance of marsh and other seasonal wetland habitats that have potential to support special-status plant species, as discussed in Table 4. Loss of special-status plants would be **less than significant with mitigation incorporated** as follows:.

> **Mitigation Measure BIO-1: Conduct a Pre-Project Biological Survey**
>
> A qualified biologist shall conduct a pre-project biological survey for special-status plants in the project area. If special status plants are located within the construction zone, travel zone, or staging areas, a suitable buffer area shall be delineated around the plants with brightly colored construction fencing and identified on a map. If impacts to a special-status plant cannot be avoided, a qualified biologist shall relocate the plants to a nearby, ecologically appropriate site. The transplants would be monitored for 3 years. If the plants do not survive, they would be replaced on a 3:1 ratio and monitored for another 3 years.

The implementation of this mitigation measure would ensure this impact on special-status plants remains **less than significant with mitigation incorporated**.

Giant Garter Snake and Pacific Pond Turtle (formerly Western Pond Turtle)

The project site is within the known range of giant garter snake and pacific pond turtle and potentially suitable aquatic and marginal upland habitat are present in and adjacent to all of the project sites, staging areas, and roads. A review of the CNDDB (2016), the Revised Draft Recovery Plan for Giant Garter Snake (USFWS 2015), and the Giant Garter Snake 5-Year Review (USFWS 2012) indicates they occur in the Yolo Bypass, and the CNDDB documents one individual observed on the edge of the dirt road located within the impact footprint of Project Component 1, near Rice Corner. Giant garter snake has also been reported in the Yolo Bypass further south, near Pope Ranch, and further north in the Ridge Cut Conservation Bank. Additionally, the CNDDB documents numerous occurrences immediately west of the bypass and to the north within and immediately outside the bypass in irrigation canals, rice fields, and along roads. Although giant garter snake is an aquatic species, it is subject to

the detrimental effects of flooding and inundation that occurs in the Yolo Bypass during the winter and late spring, and therefore, it is most likely to occupy the area during the active season when flooding is unlikely.

The irrigation canals, ditches, ponds and access roads located within the project area (Project Components 1 through 5) provide suitable aquatic and upland dispersal, basking, and potentially over-wintering habitat for giant garter snake, and all staging areas and haul roads across the project area could also serve as upland dispersal and basking sites.

No CNDDB occurrence records of pacific pond turtle exist within three miles of the project area and the Yolo Draft HCP/NCCP does not report any known occurrences in the Yolo Bypass (Yolo HCP/NCCP 2015); however, seven records exist within the broader search of nine USGS quadrangles. Much like giant garter snake, pacific pond turtle has the potential to occur in the project area where aquatic and adjacent upland habitat occurs on the project sites and on all staging areas and roadways. Relative to irrigation canals and the narrow upland habitat that borders them, the habitat at Green's Lake and Parker Pond is more likely to support pacific pond turtle because the water is slow-moving or still and deeper, there are larger areas of surrounding upland habitat that could serve as nesting sites, and there is woody debris in the form of fallen snags that could serve as basking sites.

Implementation of this project would result in temporary impacts to aquatic and adjacent upland habitat and would result in the temporary loss of emergent and aquatic vegetation, and the permanent loss of upland habitat that is replaced by increasing the size of the canals and ponds.

Ground-disturbing activities associated with replacement of culverts with two new bridges, the excavation of the canals and ponds, the installation or replacement of pumps, weir boxes, culverts, and other water control structures, the raising and gravelling of roads, and the removal of invasive aquatic vegetation would disturb potentially suitable aquatic and upland habitat for giant garter snake and pacific pond turtle; and if these species are present, they could potentially be injured or killed by construction equipment, which would be **less than significant with mitigation incorporated** as follows:.

Mitigation Measure BIO-2: Conduct Worker Environmental Awareness Training

Before the onset of construction activities, a USFWS- and/or CDFW-approved biologist will conduct a worker environmental awareness program for construction personnel. At a minimum, the training program will include a description of giant garter snake, pacific pond turtle, and their habitats; the potential occurrence of these species within the project site; an explanation of the status of the species and protection under federal ESA and/or CEQA; the measures to be implemented to conserve listed species and their habitats as they relate to the work site; and the boundaries within which construction may occur. A fact sheet conveying this information will be prepared and distributed to all construction crews and personnel who will enter the project footprint. On completion of the program, attendees will sign a form stating that they have taken the training and understand all of the avoidance and minimization measures.

Mitigation Measure BIO-3: Avoid and Minimize Potential Adverse Effects to Giant Garter Snake During Construction

The project applicant and contractor/s would implement the following measures, consistent with USFWS's *Standard Avoidance and Minimization Measures during Construction Activities in Giant*

Garter Snake (*Thamnophis gigas*) *Habitat* (USFWS 1997), to avoid and minimize potential adverse project-related effects on giant garter snake and to compensate for suitable aquatic habitat loss:

- A preconstruction survey shall be conducted for Giant Garter Snake to identify suitable locations for snakes at least two weeks prior to construction activities. So that construction equipment and personnel do not affect aquatic habitat for giant garter snake outside the construction area, orange barrier fencing will be erected by, or with oversight from, a qualified biologist to clearly define any suitable aquatic habitat to be avoided and suitable upland habitat within 200 feet of aquatic habitat to be avoided. The fencing shall be maintained for the duration of the construction activities.

- All construction activities within 200 feet of aquatic habitat suitable for giant garter snake will be conducted during the snake's active season, from May 1 to October 1, so snakes can move and avoid danger.

- Clearing of vegetation will be confined to the minimal area necessary to facilitate construction activities. All giant garter snake encountered shall not be harassed, harmed, or killed and will be allowed to leave the construction area of their own volition.

- Within 48 hours before beginning construction activities, a qualified biologist will inspect areas of anticipated disturbance that are within 200 feet of suitable aquatic habitat, for the presence of giant garter snake. The construction area will be re-inspected whenever a lapse in construction activity of 2 weeks or more occurs. If a giant garter snake is encountered, all construction activities will cease in the immediate area until appropriate corrective measures have been completed or the biologist has determined that the snake will not be harmed. All giant garter snake sightings and any incidental take will be reported immediately to the CDFW by telephone at (530) 681-7134 and the USFWS by telephone at (916) 414-6600.

- Water quality shall be maintained and construction runoff into wetland areas shall be limited through the use of hay bales, filter fences, vegetative buffer strips, or other accepted equivalents. Erosion control measures will be implemented as necessary to prevent sediment and contaminants from entering adjacent aquatic habitat. However, no plastic, monofilament, jute, or similar matting to control erosion that could entangle snakes shall be placed in the project area.

- To minimize habitat disturbance during project construction, movement of heavy equipment to and from the construction site will be restricted to established roadways and haul routes, and construction equipment will be stored in established staging areas. All construction-related traffic along access roads occurring within 200 feet of aquatic habitat for giant garter snake will observe a speed limit of 15 miles per hour to avoid vehicle strikes along the road.

- To prevent the accidental entrapment of giant garter snake during construction, all excavated holes or trenches deeper than 6 inches (within 200 feet of aquatic habitat suitable for giant garter snake) will be covered at the end of each work day with plywood or similar materials. Foundation trenches or larger excavations that cannot easily be covered will be ramped (at 3:1 or lesser slope) at the end of the work day, to allow trapped animals an escape method. Before filling such holes, these areas will be thoroughly inspected for listed species by a qualified biologist. In the event that a trapped animal is

observed, construction will cease until the individual has moved out of harm's way on its own or has been relocated to an appropriate location, in coordination with USFWS, by a USFWS-approved and permitted biologist.

- After completion of project-related construction activities, any temporary fill and construction debris will be removed, and wherever feasible, disturbed areas will be restored to pre-project conditions. For any fill or debris that may be used as snake refugia (e.g., riprap), removal will occur between May 1 and October 1, before the giant garter snake inactive season; if during the snake's inactive season, the refugia will be surveyed for the presence of snakes by a qualified biologist prior to removal.

The implementation of this mitigation measure would ensure this impact on giant garter snakes remains **less than significant with mitigation incorporated**.

Mitigation Measure BIO-4: Avoid and Minimize Potential Adverse Effects to Pacific Pond Turtle During Construction

- Within 48 hours of project activities, a preconstruction survey for pacific pond turtles in the project area and adjoining areas within suitable aquatic habitats (i.e., lakes/ponds, irrigation canals/ditches) and adjacent suitable uplands shall be conducted by a qualified biologist. If non-nesting turtles are identified, a qualified biologist would relocate any turtles encountered during construction to another habitat within the Yolo Bypass Wildlife Area. If the survey identifies nest sites in or adjacent to a proposed work area, the nest site plus a 50-foot buffer would be fenced to avoid impacts to the eggs or hatchlings. Construction would be postponed at the nest site and within a 50-foot buffer area, until the young leave the nest. The construction area shall be reinspected whenever a lapse in construction activity of 2 weeks or more in suitable habitat has occurred.

- During construction, movement of heavy equipment to and from the construction site shall be restricted to established roadways and haul routes to minimize habitat disturbance, and construction equipment shall be stored in established staging areas. All construction-related traffic along access roads occurring within 200 feet of aquatic habitat suitable for pacific pond turtle shall observe a speed limit of 15 miles per hour to prevent vehicle strikes along the road.

- During construction, a qualified biologist shall be on-site to monitor construction activity within 500 feet of potential aquatic habitat, to ensure that pacific pond turtles are out of harm's way.

The implementation of this mitigation measure would reduce the impact on pacific pond turtle to **less than significant with mitigation incorporated**.

Swainson's Hawk, Burrowing Owl, and Other Raptors

The project site and surrounding areas support riparian woodland and isolated trees that could serve as nest sites for Swainson's hawk, white-tailed kite, and other tree-nesting raptors, such as big horned owl, red-tailed hawk, and American kestrel. Swainson's hawk nest locations are documented around the entire perimeter of the project area. The closest known nest locations are near the western boundary of the wildlife area, approximately 400 feet west of the construction that would occur at the "Y." Burrowing owl could live in small mammal burrows in ruderal vegetation or in higher ground along the borders of agricultural fields, and northern harrier and short-eared

owl could nest on the ground or in marsh habitats in or near the project area. Project implementation would not result in loss of foraging habitat for Swainson's hawk or other raptors.

Swainson's hawk is listed as threatened under CESA, white-tailed kite is a fully protected species, and northern harrier and burrowing owl are California species of special concern. All raptors and their active nests, including common species, are protected under Section 3503.5 of the California Fish and Game Code.

Vegetation removal, grading, and other construction activities could result in direct destruction of active Swainson's hawk, white-tailed kite, northern harrier, burrowing owl, short-eared owl, or common raptor nests if conducted during the raptor breeding season (March–August). In addition, construction activities could disturb active nests near construction areas, potentially resulting in nest abandonment by the adults and mortality of chicks and eggs. Burrowing owls need burrows at all times to survive, and displacing individuals from their burrows can result in indirect impacts such as predation, increased energetic costs, increased stress, and risks associated with having to find and compete for burrows, all of which can lead to take or reduced reproduction. The potential loss of an active nest or mortality of chicks and eggs of any of special-status bird species or common raptor species, or loss of an active owl burrow, would be **less than significant with mitigation incorporated** as follows:.

Mitigation Measure BIO-5: Avoid Loss of Swainson's Hawk and Other Raptors

To avoid and minimize potential impacts on Swainson's hawk, northern harrier, white-tailed kite, and other raptors (not including burrowing owl) in the project vicinity, the project applicant shall retain a qualified biologist to conduct preconstruction surveys.

For construction activities that need to be conducted during the breeding season (March 1 – July 31), Swainson's hawk surveys shall include all suitable nesting habitat within line of sight of construction activities within a 0.5-mile radius of the project site. Guidelines provided in *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in the Central Valley* (Swainson's Hawk Technical Advisory Committee 2000) shall be followed for surveys for Swainson's hawk.

Surveys for other nesting raptors shall be conducted within a 0.5 mile radius of the project site and no less than 14 days or more than 30 days before the beginning of construction. If no nests are found, no further avoidance and minimization measures will be required. Surveys for short-eared owl and northern harrier shall be conducted by walking transects with centerlines spaced no more than 65 feet apart to search the ground for nests.

If active Swainson's hawk or other raptor nests are identified within the project area, pre-construction activity shall cease and CDFW will be contacted. The following measures shall be implemented, as necessary, to minimize potential impacts to Swainson's Hawks and other raptors that are observed in the project area or within 1/2 mile of the project area:

- A qualified biologist will observe the subject nest(s) for at least 1 hour. Nest status shall be determined and normal nesting behaviors observed, which may be used to compare to the hawks' activities once construction begins. The results of pre-construction monitoring shall be reported to CDFW within 24 hours of each survey.

- All nest locations shall be flagged and there shall be an approved biologist at the nest site at all times during project construction work. If the biologist determines that a nesting Swainson's hawk or other raptor is significantly disturbed by project activities, to the point where nest abandonment is likely, the biologist will have the authority to immediately stop project activity and work will cease until the threat has subsided.

- Physical contact with an active nest tree shall be prohibited from the time of egg-laying to fledging. Construction personnel outside vehicles shall be restricted to greater than 660 feet from an active nest tree, except with CDFW written approval.

- No construction shall occur within 660 feet of a Swainson's hawk nest without prior written approval of CDFW, no construction shall occur prior to 0800 (8:00 AM), and shall be discontinued by 1700 (5:00 PM) each day.

- If personnel must approach closer than 660 feet of an active nest tree for more than 15 minutes while adults are brooding, the nesting adults shall be monitored by an approved biologist for stressed behavior. If stressed behavior is identified, personnel shall be removed until behavior normalizes.

- All personnel shall be out of the line of sight of the nest during breaks.

- Staging areas for equipment, materials, and work personnel lunch time shall be at a site 1/2 mile away from a nest. These areas shall be flagged and identified to all work personnel during employee orientation.

Mitigation Measure BIO-6: Avoid Loss of Burrowing Owl

To avoid and minimize potential impacts on burrowing owl, the project applicant shall retain a qualified biologist to conduct focused breeding and nonbreeding season surveys for burrowing owls in areas of suitable habitat on and within 1,500 feet of the project site. Surveys will be conducted prior to the start of construction activities and done in accordance with Appendix D of CDFW's Staff Report on Burrowing Owl Mitigation (CDFW 2012), which requires that four survey visits be conducted.

If no occupied burrows are found, no further avoidance and minimization measures will be required.

If an active burrow is found during the nonbreeding season, the project applicant will consult with CDFW regarding protection buffers to be established around the occupied burrow and maintained throughout construction. If occupied burrows are present that cannot be avoided or adequately protected with a no-disturbance buffer, a burrowing owl exclusion and relocation plan will be developed according to guidance provided in Appendix E of CDFW's Staff Report on Burrowing Owl Mitigation (CDFW 2012). Owls will be relocated outside of the impact area using passive or active methodologies developed in consultation with CDFW and may include active relocation to preserve areas if approved by CDFW and the preserve managers. No burrowing owls will be excluded from occupied burrows until the burrowing owl exclusion and relocation plan is approved by CDFW.

If an active burrow is found during the breeding season, occupied burrows will not be disturbed and will be provided with a 50 to 500 meter protective buffer unless a qualified biologist verifies through noninvasive means that either: (1) the birds have not begun egg laying, or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The appropriate size of the buffer will depend on the time of year and level of disturbance as outlined in the CDFW Staff Report (2012:9).

The implementation of these mitigation measures would ensure this impact on Swainson's hawk, burrowing owl, and other raptors remains **less than significant with mitigation incorporated**.

Other Special-Status and Protected Nesting Birds and Pallid Bat

Vegetation removal, grading, and other project construction activities could result in mortality of individuals and nest abandonment of tricolored blackbird, grasshopper sparrow, loggerhead shrike, Modesto song sparrow, purple martin, least Bell's vireo, yellow-headed blackbird and common nesting birds. Sandhill crane and mountain plover could winter in the project area, but project activities would not result in loss of winter foraging habitat for these species on a scale that would displace individuals from the wildlife area, or result in mortality of individuals. Project construction could disturb stands of cattail and bulrush marsh, blackberry brambles, willow thickets, and isolated trees, snags, and shrubs that provide potential nesting habitat for nesting birds. Trees and snags also provide potential roosting habitat for pallid bat. The nests of most bird species found in California are protected by the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code 3503. If vegetation were removed during the nesting bird season (generally late February through early September), mortality of eggs and chicks of tree nesting, ground nesting, and marsh nesting birds could result if an active nest were present. Project construction could disturb active nests near the construction area, potentially resulting in nest abandonment by the adults and mortality of chicks and eggs. Tree and snag removal within the project site has the potential to cause direct loss of pallid bat and Mexican free-tailed bat through mortality of individuals or loss of roosts through the loss of roosting habitat. The potential loss of an active nest or mortality of chicks and eggs of any special-status or protected bird species, or loss of bat roosts would be **less than significant with mitigation incorporated** as follows:

Mitigation Measure BIO-7: Avoid Loss of Special-Status and Other Protected Bird Species

If project activities occur during the nesting season (February 1 – July 31), a focused survey to identify active bird nests shall be conducted by a qualified biologist within 5 days before commencement of activities. Surveys shall include all areas of suitable nesting habitat within 300 feet of the project footprint. If a lapse in project related work of 15 days or longer occurs, another focused survey shall be performed.

If no active nests are found, no further avoidance and minimization measures will be required.

No trees, shrubs or other vegetation used by nesting birds shall be disturbed that contain active bird nests until all eggs have hatched and young birds have fledged. To avoid potential impact to tree nesting birds, trees and shrubs and other vegetation used by nesting birds that is designated for removal should be cut down during the time period of July 31 to February 1. If active nests are found during the surveys, appropriate buffers shall be established to avoid impacts. No project activity shall commence within the

buffer area until a qualified biologist, in consultation with CDFW, confirms that the nest is no longer active.

Monitoring of active nests by a qualified biologist during construction activities may be required if the activity has potential to adversely affect the nest. If construction activities cause the nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the no-disturbance buffer shall be increased until the agitated behavior ceases. The exclusionary buffer will remain in place until the chicks have fledged or as otherwise determined by a qualified biologist.

Mitigation Measure BIO-8: Avoid Loss of Special-Status Bats

A qualified biologist shall conduct a habitat assessment for bats at work sites where culverts, structures and/or trees will be removed or disturbed. The habitat assessment shall include a visual inspection of features within 50 feet of the work area for potential roosting features (bats need not be present) no more than 48 hours prior to disturbance of such features. Habitat features found during the survey shall be flagged or marked. If an active roost is found, no project activity will commence within the marked buffer areas until a qualified biologist confirms the roost is no longer active.

If any habitat features identified in the habitat assessment will be altered or disturbed by Project activities, a phased disturbance strategy shall be employed. Non-habitat trees or structural features shall be removed one day prior to removal of habitat features.

The implementation of these mitigation measures would ensure this impact on special-status birds, other nesting birds, and special-status bat species remains **less than significant with mitigation incorporated**.

Special-Status Fish and Essential Fish Habitat

Aquatic habitat (irrigation canals and ponds) in the project area has low potential to support green sturgeon, Central Valley steelhead DPS, Central Valley spring-run chinook salmon ESU, Sacramento River winter-run chinook salmon ESU, and a moderate potential to support Sacramento splittail. Ordinarily, these species would not be expected to occur in the project area; however, in wet years when the Yolo Bypass becomes inundated from the Sacramento River overflowing into the bypass at the Fremont Weir, these species can enter the bypass and potentially become stranded in canals or ponds, such as in Green's Lake, when floodwaters recede.

The aquatic and seasonal floodplain habitat in the project area are designated Pacific coast salmon EFH. These habitats can serve as fertile rearing habitat, holding habitat, and are a known migration corridor for these species. Potential project impacts could include temporary changes to local water quality and habitat quality during and after construction through substrate disturbance, sediment mobilization, increased turbidity, and release of fuels and lubricants. However, these impacts would be temporary and are not expected to result in significant losses or degradation of freshwater and downstream estuarine EFH considering their short-term and localized nature.

Spawning adults of all of these five special-status species (i.e., green sturgeon, Central Valley steelhead DPS, Central Valley spring-run chinook salmon ESU, Sacramento River winter-run chinook salmon ESU, and Sacramento splittail) are known to migrate up the Yolo Bypass in search of spawning grounds and, as a result, both adults and juveniles have low potential to occur in the irrigation canals and ponds, such as Green's Lake, after floodwaters recede. However, this project is not expected to significantly impact these species, even if they

are present in the project area, because the project would not alter or affect the success or failure of them making it out of the bypass and back to waters leading to the Sacramento River as flood waters recede. Regardless of the project, these species either successfully migrate and exit downstream towards the Sacramento River drainage or become stranded and perish over the summer as water temperatures increase and oxygen and water quality decrease to intolerable levels. The project will potentially improve these species chance of returning to the Sacramento River by raising the grade on approximately 1-mile of road along the east side of Green's Lake. This action is intended to direct and keep flood waters to the east, near the east Toe Drain, and enhance fish habitat by increasing the depth and duration of floodplain habitat. Additionally, the project would not alter the volume of water exiting the bypass, so fish species would not be subject to altered conditions during and after the project.

The project is expected to result in long-term beneficial effects on fish populations, communities, and habitat by enhancing approximately 1 mile of seasonal floodplain habitat between Green's Lake and the east Toe Drain, to the east, that on average is over a half mile wide. The enhancement should increase the depth and duration of floodplain inundation, which also increases available refugia and species productivity, which in turn increases growth and survival rates. The design features would provide long-term benefits to fish species that utilize floodplains for spawning and rearing during winter and spring. Therefore, the project would have a **less than significant** impact on special-status fish and EFH.

b) Replacement of culverts with two new bridges, the excavation of the canals and ponds, and the installation or replacement of pumps, weir boxes, culverts, and upgrading diversion structures, could result in removal of small areas of black willow thickets, a riparian habitat identified as a sensitive natural community. Riparian habitat could also be degraded or lost by hydrological alterations that increase seasonal inundation and reduce the capacity to support woody vegetation such as willows. Increasing capacity at Green's Lake and raising the berm grade along the east side could result in inundation of willow thickets, eventually leading to tree mortality and conversion from riparian woodland habitat to marsh or open water habitat. Loss or degradation of riparian habitat would be **less than significant with mitigation incorporated** as follows:

Mitigation Measure BIO-9: Restoration of Black Willow Thickets Natural Community

- Clearing of riparian (black willow thicket) vegetation will be confined to the minimal area necessary to facilitate construction activities. In addition, snags shall be retained whenever possible to retain nesting and roosting habitat.

- BMPs will be implemented while working near riparian habitats to avoid inadvertent damage to riparian vegetation to be retained. BMPs will include establishment of no-disturbance buffers around the outer edge of the riparian vegetation to prevent root and crown damage, soil compaction, and implementation of standard BMPs to reduce erosion and water quality impacts, and introduction and spread of invasive species.

- Following project completion, the acreage of black willow thicket vegetation removed or lost due to inundation or other hydrological changes shall be quantified and shall be replaced at a 2:1 ratio through riparian habitat restoration or enhancement along the project waterways, Green's Lake, or other suitable areas within the YBWA. Restoration activities shall include planting black willow and native riparian associate species in areas where hydrology is suitable to support establishment of this vegetation type.

- The project proponent shall prepare a riparian habitat restoration plan that meets the performance standard of replacing riparian habitat functions and values of the black willow thickets that were lost or removed as a result of project construction. The restoration plan shall include the following:

    - site-specific management procedures to benefit establishment and maintenance of native riparian plant species;

    - monitoring protocol, including schedule and annual report requirements (compensatory riparian habitats shall be monitored for a minimum period of three years); and

    - corrective measures if performance standards are not met.

The implementation of these mitigation measures would ensure that impacts on black willow thickets riparian habitat would remain **less than significant with mitigation incorporated**.

c) All of the canals, ditches, ponds, marshes and seasonal wetlands in the project area are potentially subject to USACE jurisdiction under Section 404 of the CWA. The black willow thickets may also meet the three criteria to qualify as jurisdictional wetlands. Replacement of culverts with two new bridges, the excavation of the canals and ponds, and the installation or replacement of pumps, weir boxes, culverts, and other water control structures, would result in work in waters of the United States, including dredging activities. The majority of impacts to waters of the United States would be temporary and would not result in permanent loss of acreage or function of waters of the United States; however, hydrological alterations resulting from proposed improvement activities could result in conversion of wetland habitat types. For example excavation and deepening of channels and ponds could result in conversion of marsh habitat to open water and conversion of willow thickets to marsh habitat. Marsh vegetation would be expected to naturally reestablish along the new shoreline of the ponds and margins of the improved channels following project completion such that there would be no long-term loss of acreage of marsh habitat. Black willow thickets may also reestablish over time; however, there would be a temporal loss of function and the full acreage lost may not reestablish without active restoration as described in Mitigation Measure BIO-9. Other construction activities, such as road improvements associated with Project Component 4 could result in minor losses of seasonal wetland habitat. Pumps, weir boxes, bridge footings, and other infrastructure constructed within the ordinary high water mark of waters of the United States constitutes fill. Loss or degradation of federally protected wetlands would be **less than significant with mitigation incorporated** as follows:

Implement Mitigation Measure BIO-9 to Compensate for Loss of Willow Thicket Wetlands

Mitigation Measure BIO-10: Compensate for Loss of Wetlands and Other Waters

- Bridge abutments shall be constructed above the Ordinary High Water Mark of existing channels.

- The project applicant shall hire a qualified wetland scientist to conduct a delineation of waters of the United States according to methods established in the USACE 1987 wetlands delineation manual and 2008 Arid West Supplement. The delineation shall map and quantify the acreage of all aquatic habitats in the project footprint, and shall be submitted to USACE for verification and jurisdictional determination.

- The project applicant shall replace or restore at a 2:1 ratio for all wetlands and other waters that would be removed as a result of project implementation including reestablishment of native emergent and aquatic vegetation.

- The project applicant shall submit a Preconstruction Notification to USACE and obtain a Nationwide Permit 27 under Section 404 of the Clean Water Act for Aquatic Habitat Restoration, Establishment, and Enhancement Activities and comply with all permit conditions.

- Wetland habitat will be restored or replaced onsite by methods agreeable to USACE, and as determined during the Section 401 and Section 404 permitting processes.

- The project applicant shall have a qualified biologist prepare a wetland mitigation plan detailing how the loss of aquatic functions will be replaced. The mitigation plan will describe a monitoring protocol, annual performance standards and final success criteria for created or restored habitats, and corrective measures to be applied if performance standards are not met.

- The mitigation habitat shall be monitored for a minimum of 5 years from completion of mitigation, or human intervention (including recontouring and grading), or until the success criteria identified in the approved mitigation plan have been met, whichever is longer.

The implementation of these mitigation measures would ensure that impacts on federally protected wetlands and other waters would remain **less than significant with mitigation incorporated**.

d) The YBWA is within the Pacific Flyway, a major north-south route for migratory birds along western North America. Large numbers of waterfowl, shorebirds, and other birds move through the area seasonally and congregate and forage in wetlands, grasslands, and agricultural fields during winter or use them as resting grounds during longer migrations from the Arctic to Central or South America. These birds are most abundant in the YBWA during fall and winter when agricultural fields and managed wetlands are inundated to increase habitat for waterfowl and shorebirds. The project is designed to improve drainage and enhance habitat for waterfowl and shorebirds, including increasing deep-water habitat for diving birds and shoreline habitat for dabbling birds. The proposed project would not eliminate winter foraging habitat for migratory birds and would not interfere with their use of the area for wintering or staging. There are no known native wildlife nursery sites in the project area. While colonial nesting birds such as great blue heron, great egret, snowy egret, and black-crowned night heron are known to forage and roost in the YBWA, no colonial rookeries have been documented in the project area or immediate surroundings.

The YBWA is known to provide habitat for a wide variety of fish including seasonal fish and fish that are year-round residents in perennial water sources. Native anadromous fish and native resident fish move through the bypass in search of spawning grounds and juveniles rear in the bypass and emigrate to the estuary as flood waters recede. Other native resident fish may move in and out of the bypass to feed but do not use it as breeding habitat. The project is expected have long-term beneficial effects on fish populations, communities, and habitat by enhancing creating new floodplain habitat, which should increase spawning and rearing by native migratory and resident fish species. The design will also widen and deepen canals and ponds, such as Green's Lake and Parker Pond, and replace old culverts with new ones and, in two cases, with new bridges, which will improve conditions for fish movement and distribution. Therefore, there would be **no impact**.

e) The proposed project is designed to enhance habitat for water birds and to potentially enhance fish habitat and to improve ecological functions of the aquatic and floodplain habitats in the project area. The proposed project actions would be implemented in conformance with regulatory requirements and applicable plans or ordinances protecting biological resources. Therefore, there would be **no impact**.

f) The project area is within the planning area of the Yolo HCP/NCCP, which is in draft form (Second Administrative Draft dated March 31, 2015) and is not an approved HCP or NCCP. The project area is identified in the current draft plan as Category 1 Public Easement and Habitat Lands. These are lands that are defined as existing protected lands with the primary management goal of ecological protection. These lands consist of predominantly natural habitat covered by irrevocable conservation mandate that precludes changes in land use that could result in degradation or loss of ecological functions. Implementing the proposed project would not change land use or result in degradation or loss of ecological functions within the YBWA and the project is designed to enhance ecological functions for shorebirds, waterfowl, and fish. Therefore, project implementation would not conflict with the current draft Yolo HCP/NCCP and would not conflict with the provisions of an adopted habitat conservation plan. Therefore, there would be **no impact**.

3.5 CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. Cultural Resources. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

AFFECTED ENVIRONMENT

Cultural resources are defined as buildings, sites, structures, or objects, each of which may have historic, architectural, archaeological, cultural, or scientific importance. Under CEQA, public agencies must consider the effects of their actions on "historical resources." CEQA defines a "historical resource" as any resource listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR). The CRHR includes resources listed in or formally determined eligible for listing in the National Register of Historic Places (NRHP). Pursuant to Public Resources Code, Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Demolition, replacement, substantial alteration, and relocation of historic properties are actions that would change the significance of an historic resource (California Code of Regulations, Title 14, 15064.5).

The Yolo Basin is within the ethnographic territory of the Patwin. The word "Patwin" literally means "the people" in the native tongue. Although native people did not identify themselves as Patwin, this name is used to describe a series of linguistically and culturally related groups who occupied a portion of the lower Sacramento Valley west of the Sacramento River and north of Suisun Bay. The southern group or Pooewin claimed the Yolo Basin, however, no known ethnographic village locales are within this area. Because of reoccurring seasonal flooding, the area would have most likely been used during the drier summer months (CDFG and YBF 2008).

An early settler was J. H. Glide who purchased a large portion of land in the Yolo Bypass in the 1870s. Much of this property was held by this family until 2001 (CDFG and YBF 2008).

Historic Resources Study

To determine if any resources are present within the project site boundaries, a historical resources study was conducted in support of this Initial Study (Tom Origer & Associates 2016) (Appendix B). The historic resource study included sending a request to the State of California's Native American Heritage Commission requesting information from the sacred land files and names of Native American individuals and groups that would be appropriate to contact regarding the proposed project. Letters were also sent to the Yocha Dehe Wintun Nation,

the United Auburn Indian Community of the Auburn Rancheria, and the Cortina Indian Rancheria of Wintun Indians. The Native American Heritage Commission responded via email on December 13, 2016, stating that a search of the Sacred Lands File resulted in a negative findings. No comments were received from the Tribes as of December 21, 2016.

Archival Study Findings

Archival research included a review (NWIC File No. 16-0799) of the archaeological site base maps and records, survey reports, and other materials on file at the Northwest Information Center (NWIC), Sonoma State University, Rohnert Park. Sources of information included but were not limited to the current listings of properties on the National Register of Historic Places, California Historical Landmarks, California Register of Historical Resources, and California Points of Historical Interest as listed in the Office of Historic Preservation's *Historic Property Directory* (OHP 2012).

Based on the results of the prefield research, it is possible that prehistoric and historic-period resources could be found within the study area. Prehistoric archaeological site indicators expected to be found in the region include but are not limited to: obsidian and chert flakes and chipped stone tools; grinding and mashing implements such as slabs and hand-stones, and mortars and pestles; and locally darkened midden soils containing some of the previously listed items plus fragments of bone, shellfish, and fire affected stones. Historic period site indicators generally include: fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits (e.g., wells, privy pits, dumps).

Archival research found that portions of the study area had been previously subject to cultural resources survey (Jones 2007; True and Jensen 1974). One recorded resource has been identified within the study area (Johnson 1971). The identified resource (P-57-000092) is described as a prehistoric habitation site appearing as a mound consisting of midden soil, obsidian projectile points, shell beads, and three burials. The recorded site location is approximately 250 feet away from the survey corridor near Greens Lake.

Nine additional studies have been conducted within a half-mile (Berg and Bouey 1991; Crull 2015a; Glover and Bouey 1990; Jones & Stokes Associates, Inc. 1999, 2000; Martin and Self 2004a, 2004b; Nelson and Carpenter 2000; SWCA Environmental Consultants 2006). These studies have resulted in the finding of four resources within a half mile of the study area (Bouey and Bethard 1991; Crull 2015b; Jones & Stokes Associates, Inc. 1999; Melton 1995). None of these resources have the potential to extend within the current study area.

No reported ethnographic sites are located within one mile of the survey area (Kroeber 1925, 1932). Also, a review of 19th and 20th century maps shows no buildings within the study area (De Pue & Company 1879; GLO 1867; USGS 1907, 1913, 1915, 1916, 1948, 1949, 1952, 1954, 1967, 1968, 1975a, 1975b, 1980, 1981, 1992a, 1992b).

Field Survey Findings

An intensive field survey was completed on December 13 and 16, 2016. The study area was surveyed in transects with corridors spaced 5 to 10 meters apart. Survey coverage extended 15 feet beyond the edge of the areas to be developed. Ground visibility ranged from good to poor, with vegetation and imported gravel being the primary hindrances. Hoes were used, as needed, to clear patches so that the ground surface could be inspected.

The surveyed area near the recorded location of prehistoric archaeological site P-57-000092 was thoroughly inspected but no evidence of the site was found. The likely area in which the site is located is away from the study area and currently flooded. No historical resources were observed during the course of the field survey.

a) No historic buildings were located on the site and no historical resources were observed during the course of the field survey. Therefore, the construction of the drainage improvements would not cause a substantial adverse change in the significance of a historical resource and there would be **no impact**.

b) Based on the prior disturbance of the site associated with its agricultural uses, as discussed in response to question a) above, no archaeological resources are expected to be present on the site. However, there is always the possibility excavation activities could potentially damage or destroy previously undiscovered archaeological resources. The disturbance of archaeological resources during project construction would be **less than significant with mitigation incorporated** as follows:

Mitigation Measure CUL-1: Protect Cultural Resources Discovered During Construction

The following mitigation measure shall be implemented prior to and during any ground-disturbing activities at the project site:

1. In the event that archaeological resources are discovered during construction, operations shall stop within 50 feet of the find and a qualified archaeologist shall be consulted to determine whether the resource requires further study. The project applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. The archaeologist shall make recommendations concerning appropriate measures that will be implemented to protect the resources, including but not limited to, excavation and evaluation of the finds in accordance with Section 15064.5 of the CEQA Guidelines. Cultural resources could consist of, but are not limited to, stone, bone, wood, or shell artifacts or features, including hearths. Any previously undiscovered resources found during construction within the project area should be recorded on appropriate Department of Parks and Recreation (DPR) 523 forms and evaluated for significance in terms of CEQA criteria.

The implementation of this mitigation measure would ensure this impact remains **less than significant with mitigation incorporated**.

c) The project site is flat and does not contain any unique geologic features. Based on the prior disturbance of the site associated with its agricultural uses, no paleontological resources are expected to be present. However, there is always the possibility that paleontological resources are located within the soils underlying the project site and that excavation activities could potentially damage or destroy a previously undiscovered unique paleontological resource. The disturbance of paleontological resources during project construction would be **less than significant with mitigation incorporated** as follows:

Mitigation Measure CUL-2: Protect Paleontological Resources Discovered During Construction

The following mitigation measure shall be implemented prior to and during any ground-disturbing activities associated with drainage improvement construction activities:

1. In the event a fossil is discovered during construction for the proposed project, excavations within 50 feet of the find shall be temporarily halted or delayed until the discovery is examined by a qualified paleontologist, in accordance with Society of Vertebrate Paleontology standards. CDFW shall ensure that a standard inadvertent discovery clause is included in every construction contract to inform contractors of this requirement. If the find is determined to be significant and if avoidance is not feasible, the paleontologist shall design and carry out a data recovery plan consistent with the Society of Vertebrate Paleontology standards.

The implementation of this mitigation measure would ensure this impact remains **less than significant with mitigation incorporated**.

d) Based on the prior disturbance of the site associated with its agricultural uses, no interred human remains are expected to be located on the site. However, there is always the possibility that human remains are located under the project site and that excavation activities could potentially damage or destroy previously undiscovered human remains. The disturbance of human remains during project construction would be **less than significant with mitigation incorporated** as follows:

Mitigation Measure CUL-3

The following mitigation measures shall be implemented during any ground-disturbing activities associated with construction activities:

1. In the event of the accidental discovery or recognition of any human remains, CEQA Guidelines §15064.5; Health and Safety Code §7050.5; Public Resources Code §5097.94 and §5097.98 shall be followed. If during the course of project development human remains are accidentally discovered or recognized, the following steps shall be taken:

    a. 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 if the remains are Native American and if an investigation of the cause of death is required. If the coroner determines the remains to be Native American, the coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours, and the NAHC shall identify the person or persons it believes to be the "most likely descendant" (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work within 48 hours, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98.

    b. Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the most likely descendant or on the project site in a location not subject to further subsurface disturbance:

        - The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being notified by the commission.

        - The descendant identified fails to make a recommendation.

- The landowner or his authorized representative rejects the recommendation of the descendant, and mediation by the NAHC fails to provide measures acceptable to the landowner.

The implementation of these mitigation measures would ensure this impact remains **less than significant with mitigation incorporated**.

3.6 GEOLOGY AND SOILS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. Geology and Soils. Would the project:				
a) Expose people or structures to 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 California Geological Survey 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 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, as updated), creating substantial risks to life or property?	☐	☐	☒	☐
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?	☐	☐	☐	☒

AFFECTED ENVIRONMENT

Geology

The project site is located on the west side of the Sacramento Valley, in the Great Valley geomorphic province of California. The Sacramento Valley forms the northern half of the Great Valley, which fills a northwest-trending structural depression bounded on the west by the Great Valley Fault Zone and the southern Coast Ranges, and to the east by the Sierra Nevada and the Foothills Fault Zone. Most of the surface of the Great Valley is covered with Holocene and Pleistocene-age alluvium, primarily composed of sediments from the Sierra Nevada and the Coast Ranges, which were carried by rivers and deposited on the valley floor (CDFG and YBF 2008).

The project site is underlain by Holocene-age (i.e., the last 10,000 years) Basin deposits, composed of fine-grained silt and clay, which overlay older Pleistocene-age alluvial fan deposits (Riverbank Formation) of the Sacramento River (CDFG and YBF 2008).

Soils

Six general soil associations have been identified in the Wildlife Area (Natural Resources Conservation Service 1972). A soil association is a landscape that has a distinctive proportional pattern of soil types. It normally consists of one or more major soils and at least one minor soil; it is named for the major soils. The soil association within the project site is identified as Capay-Sacramento-Clear Lake. The Natural Resources Conservation Service (NRCS) characterizes the Capay-Sacramento-Clear Lake Soil Association as "moderately well drained to poorly drained soil located on nearly level topography, characterized by silty clays and clays, and located on basin rims and in basins." These soils formed in alluvium derived from sedimentary rock under moderately good to poor drainage. In uncultivated areas the vegetation is annual grasses and forbs. Capay soils are moderately well drained, and Sacramento and Clear Lake soils are poorly drained. Minor soils of this association are the Lang, Laugenour, and Sacramento. Soils may be subject to ponding. The soils of this association are used chiefly for irrigated row crops, truck crops, field crops, dry-farmed field crops, and pasture. The soils are also used for recreation areas and as wildlife habitat. Within the project site, the specific soils are identified as "Sacramento soils, flooded" (CDFG and YBF 2008).

Topography

Historic landforms in the YBWA include the floodplains and natural levees along the Sacramento River; the historic delta and distributary channels of Putah Creek; the closed depression formations of the Putah Creek Sinks; the edge of the alluvial fan of Putah Creek extending into the Basin; and the Yolo Basin rims within and around its borders. Green's Lake within the project site appears that it could be an oxbow lake that may have been formed over time as erosion and deposits of soil changed the course of the Sacramento River and perhaps Putah Creek. Historic maps seem to depict a connection between the north fork of Putah Creek, Green's Lake, Lake Washington, and perhaps the Sacramento River (CDFG and YBF 2008).

The current topographic features and landforms within the YBWA are largely a product of human alterations to the natural system. The construction of dams (upstream in the Sacramento River watershed and in Putah Creek) and levees, management of water releases, and grading of topography for purposes of conversion to agricultural lands has resulted in substantial changes to the current topography. Primary topographic features now include human-made levees, trestles, and berms (CDFG and YBF 2008).

Liquefaction

Liquefaction is a phenomenon where loose, saturated, non-cohesive soils such as silts, sands, and gravels undergo a sudden loss of strength during earthquake shaking. Under certain circumstances, seismic ground shaking can temporarily transform an otherwise solid, granular material to a fluid state. Liquefaction is a serious hazard because buildings in areas that experience liquefaction may suddenly subside and suffer major structural damage. Liquefaction is most often triggered by seismic shaking, but it can also be caused by improper grading, landslides, or other factors. In dry soils, seismic shaking may cause soil to consolidate rather than flow, a process known as densification.

DISCUSSION

a.i) According to the California Department of Conservation (2017), the project site is not located within an Alquist-Priolo Earthquake Fault Zone and there are no known faults crossing or projecting toward the site. Therefore, ground rupture due to faulting is considered unlikely at the site and there is **no impact**.

a.ii) Ground shaking occurs as a result of energy released during faulting, which could potentially result in the damage or collapse of buildings and other structures, depending on the magnitude of the earthquake, the location of the epicenter, and the character and duration of the ground motion.

The site is located in an area of relatively low seismic potential. The closest active fault to the project site is the Dunnigan Hills Fault, located approximately 25 miles northwest. Ground motions from seismic activity can be estimated by probabilistic method at specified hazard levels. The intensity of ground shaking depends on the distance from the earthquake epicenter to the site, the magnitude of the earthquake, site soil conditions, and the characteristic of the source. Data contained in the Ground Motion Interpolator Probabilistic Seismic Hazard Assessment for the State of California (California Department of Conservation 2008) suggests there is a 10% probability that the peak horizontal acceleration experienced at the site would exceed 0.229 g (where "g" is the acceleration of gravity) in 50 years. Acceleration at 10% in 50 years ranges from about 0.1 g to over 1 g. Thus, a peak horizontal acceleration of 0.229 is considered a low hazard.

Because the project's activities are limited to constructing drainage improvements within existing drainage channels, adding materials to existing gravel roadways, and installing elevated water pumps. These activities would not create seismic hazards within the YBWA. Also, the project area would not be subject to strong ground shaking. Therefore, the proposed project would not result in loss, injury or death due to strong ground shaking and there is **no impact**.

a.iii) Liquefaction is a process by which water-saturated materials (including soil, sediment, and certain types of volcanic deposits) lose strength and may fail during strong ground shaking. Liquefaction occurs when a granular material is transformed from a solid state into a liquefied state as a result of increased pore-water pressure. Liquefaction is most commonly induced by strong ground shaking associated with earthquakes.

The factors known to influence liquefaction potential include grain size, relative density, groundwater conditions, effective confining pressures, and intensity and duration of ground shaking. Loose, saturated, near-surface, cohesionless soils exhibit the highest liquefaction potential, while dense, cohesionless soils and cohesive soils exhibit low to negligible liquefaction potential.

Although the project site does have a shallow groundwater table (3 to 5 feet below the ground surface), soils at the project site are moderately stable, and potential sources of seismic activity are 25 miles away. Therefore, sediments underlying the project site can be expected to have a relatively low liquefaction potential. This impact would be considered **less than significant**.

a.iv) The project site is located on a flat site and no steep slopes are located in the project vicinity. Therefore, there is no potential for a landslide at the site and **no impact** would occur.

b) The project site consists of flat agricultural land and managed wetlands. The project site soil types are characterized as having none to only a slight erosion hazard (NRCS 1972), and the flat topography of the site would minimize the potential for wind erosion. However, construction activities would involve excavating, moving, filling, and temporary stockpiling soil in the project site. Grading and construction activities would remove vegetative cover and expose site soils to erosion via wind and surface water runoff. Because construction would disturb one acre or more of land, CDFW would be required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit Order 2009-0009-DWQ or 2009-0009-DWQ General Permit). Dischargers subject to the Construction General Permit Order must develop and implement a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP is required to include a site map and description of construction activities and to identify the Best Management Practices (BMPs) that would be employed to prevent soil erosion and discharge of other construction-related pollutants (e.g., petroleum products, solvents, paints, cement) that could contaminate nearby water resources. A monitoring program is generally required to ensure that BMPs are implemented according to the SWPPP and are effective at controlling discharges of stormwater-related pollutants. The SWPPP is required to be downloaded to the State Water Resources Control Board SMARTS database prior to the onset of any soil disturbance activities. Compliance with the Construction General Permit Order requirements would ensure that the proposed project would not result in substantial soil erosion or loss of topsoil and this impact would be **less than significant**.

c) As discussed in response a) above, the project site is located in an area of relatively low seismic potential and ground motion resulting from faults in the region is expected to be low. Therefore, the project would not be subject to lateral spreading or collapse. The project site is flat and would not be subject to landslides. The soils on the site have a relatively low liquefaction potential due to their clay content and the distance to the nearest active fault. Therefore, the project site would not be exposed to liquefaction. The proposed project includes drainage improvements that would include excavation activities in existing ditches and ponds within the YBWA to expand the drainage systems conveyance capacity. However, these excavation activities would not be expected to create steep slopes or unstable soil conditions. Therefore, the project would not be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and this impact is considered **less than significant.**

d) Expansive soils, also known as shrink-swell soils, refer to the potential of soil to expand when wet and contract when dry. Expansive soils are of concern when constructing buildings because the soils have the potential to damage building foundations. The proposed project is limited to drainage improvements within the YBWA. Although some swelling and shrinkage of the clay soils within the project site could occur, the project components are not anticipated to be affected because the drainage channels being modified are perennially inundated. Because the soils within these channels do not experience wetting and drying cycles, they do not experience the associated shrinking and swelling cycles. Therefore, the soils on the site would not be expected to create substantial risks to life or property. This impact is **less than significant**.

e) The project would not include components that would require the use of septic tanks or alternative wastewater disposal systems, such as restroom facilities. Therefore, there would be **no impact**.

3.7 GREENHOUSE GAS EMISSIONS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. 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?	☐	☐	☒	☐

AFFECTED ENVIRONMENT

Greenhouse gases (GHG) are gases that trap heat in the atmosphere. These gases are emitted by both natural processes and human activities. The accumulation of GHG in the atmosphere regulates the earth's temperature. Without natural GHG, the Earth's surface would be approximately 61 degrees Fahrenheit cooler (IPCC 2007). However, scientific studies have determined that the combustion of fossil fuels (coal, petroleum, natural gas, etc.) for human activities, such as electricity production and vehicle use, has elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations. The increase in atmospheric concentrations of GHG has resulted in more heat being held within the atmosphere, which is the accepted explanation for Global Climate Change.

Global Warming Potentials (GWPs) are one type of simplified index (based upon radiative properties) that can be used to estimate the potential future impacts of emissions of various gases. GWP is based on a number of factors, including the heat-absorbing ability of each gas relative to that of carbon dioxide, as well as the decay rate of each gas relative to that of carbon dioxide. Common GHG components include water vapor, carbon dioxide, methane, nitrous dioxide, chlorofluorocarbons, hydro-fluorocarbons, perfluorocarbons, sulfur hexafluoride, and ozone.

The Intergovernmental Panel on Climate Change (IPCC) *Climate Change 2007* (IPCC 2007) report indicates that the average global temperature is likely to increase between 3.6 and 8.1 degrees Fahrenheit by the year 2100, with larger increases possible but not likely. Temperature increases are expected to vary widely in specific locations depending on a variety of factors. The increase in temperature is expected to lead to higher temperature extremes, a larger variability in precipitation leading to increased flooding and droughts, ocean acidification from increased carbon content, and rising sea levels.

Observations of climate change in California include an increase in average annual air temperatures, a change in the trend toward more rain than snow, a change in runoff timing, an increase in extreme heat events, a decrease in winter chill times, a rise in sea level, and warmer conditions at higher elevations (Kadir et al. 2013; California Department of Water Resources 2015). Changes in climatic and environmental conditions can also strongly affect terrestrial, marine, and freshwater biological systems. Climate risk in the Sacramento River Hydrologic Region, within which the project area is located, includes stress on ecosystems and species resulting from increased

temperatures, reduced reliability of water supplies caused by decreased snowpack storage, greater flood risks, and decreased water quality (California Department of Water Resources 2015).

The project site is located within Yolo County and is regulated by the Yolo-Solano Air Quality Management District (YSAQMD). As discussed in Section 3.4 - Air Quality of this Initial Study, the YSAQMD has established thresholds for criteria pollutants. However, the YSAQMD has not formally adopted GHG emission thresholds. Yolo County has adopted a Climate Action Plan (CAP) that provides the context for evaluating GHG impacts (AECOM et al. 2011). Action CO-A118 of the CAP establishes GHG significance thresholds for projects within the County. This Action states that:

> "Impacts associated with GHG emissions from projects that are consistent with the General Plan, fall within the assumptions of the General Plan EIR, consistent with the CAP, and not exempt from CEQA are determined to be less than significant or mitigated to a less-than-significant level, and further CEQA analysis for this area of impact is generally not required."

DISCUSSION

a) The proposed project construction would generate GHG emissions during project construction associated with construction equipment operations and vehicle trips to the site. Following construction, the proposed drainage improvements would not be expected to generate GHG emissions, with the exception of the electrical consumption associated with operation of the two new water pumps.

According to the GHG threshold included in the CAP, projects that fall within the assumptions of the General Plan EIR and are consistent with the CAP, are determined to be less than significant and further CEQA analysis is generally not required (AECOM et al. 2011). Therefore, the growth projections included in the Yolo County CAP were used to determine if these emissions would be considered significant.

The CAP identifies population and employment growth projections for the years 2020 and 2030 for the unincorporated communities and areas within the County. Based on these projections, the CAP calculated the additional GHG emissions that new development would create in 2030 by growth area and identified measures to reduce these emissions (AECOM et al. 2011).

For the proposed project, construction would not increase the population base or increase long term employment. Therefore, the proposed project would not contribute to the projected growth identified in the CAP. The proposed project is consistent with the open space land use designation for the project site, is consistent with the CAP and falls within the General Plan EIR growth assumptions. Therefore, the proposed project would not generate GHG emission, either directly or indirectly, that would have a significant impact on the environment. This impact is **less than significant**.

b) Yolo County's approach to developing their CAP growth projections for GHG emissions was to identify the emission levels for which projected development would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move towards climate stabilization. If a project would generate substantial GHG emissions that were not included in the CAP growth projections, it would be considered to contribute substantially to a cumulative impact, and would be considered significant.

Thus, if a project is consistent with the CAP growth projections, it stands to reason that the project would not substantially conflict with existing California legislation adopted to reduce statewide GHG emissions.

As discussed in response to question a) above, project construction would not increase the population base or increase long term employment within the County. The proposed project would be consistent with the open space land use designation for the project site, would be consistent with the CAP, and would fall within the General Plan EIR growth assumptions. Therefore, the proposed project would not be expected to conflict with any applicable plan, policy or regulation of an agency adopted for reducing the emissions of GHG. This impact would be **less than significant**.

3.8 HAZARDS AND HAZARDOUS MATERIALS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. Hazards and 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/or 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 for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

AFFECTED ENVIRONMENT

According to the California Department of Toxic Substances Control Envirostor website, the project site is not on a list of hazardous materials sites. The nearest identified contamination site is located approximately 1.1 miles directly east of the project site at 3961 Channel Drive in West Sacramento. Identified as a Union Chemical site, soil contamination was caused by the storage of hazardous waste with sulfuric acid being the contaminant of concern. In 1983, a cleanup action was initiated that included removing 25 cubic yards of contaminated soil. The site cleanup was certified at that time (DTSC 2017).

DISCUSSION

a) Construction and operation of the proposed project would involve the routine transport and handling of hazardous substances such as oil, diesel fuels, lubricants, solvents, etc. Handling and transport of these materials could result in the exposure of workers to hazardous materials. In addition, if spilled, these substances could pose a risk to the environment and to human health.

The use, handling, and storage of hazardous materials is regulated by both the Federal Occupational Safety and Health Administration (Fed/OSHA) and the California Occupational Safety and Health Administration (Cal/OSHA). Cal/OSHA is responsible for developing and enforcing workplace safety regulations. Both federal and State laws include special provisions/training in safe methods for handling any type of hazardous substance. These strict regulations ensure that potential hazards associated with construction and operational activities do not create a significant hazard to the public. As discussed in Section 3.9, Hydrology and Water Quality, CDFW would be required to implement a SWPPP and BMPs that would minimize the potential for construction-related spills of hazardous materials and would provide for appropriate and immediate cleanup of spills, if any were to occur. With the compliance with existing regulations and the requirements of the project's SWPPP and BMPs, the proposed project would not be anticipated to create a significant hazard to the public or the environmental through the routine transport, use, or disposal of hazardous materials and this impact would be considered **less than significant**.

b) Similar to the analysis of question a) above, any handling, transporting, use, or disposal of hazardous or potentially hazardous materials would be required to comply with all applicable federal, state, and local agencies and regulations. Both short-term construction and long-term operation of the project would be required to adhere to the policies and programs set forth by applicable regulatory agencies. This compliance would minimize the potential for the accidental release of hazardous materials into the environment. Therefore, the project would not be expected to create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions. This impact would be considered **less than significant**.

c) No existing or proposed schools are located within 0.25 mile of the project site. The closest school to the project site is Bridgeway Island Elementary School, located 1.8 miles directly east (3255 Half Moon Bay Circle, West Sacramento) in the Washington Unified School District. Therefore, **no impact** would occur related to emissions or handling of hazardous materials within one-quarter mile of an existing or proposed school.

d) As described above, the California Department of Toxic Substances Control Envirostor website did not identify any record of hazardous materials contamination on the project site. The nearest identified contamination site is located approximately 1.1 miles directly east of the project site at 3961 Channel Drive in West Sacramento. Identified as a Union Chemical site, soil contamination was caused by the storage of hazardous waste with sulfuric acid being the contaminant of concern. In 1983, a cleanup action was initiated that included removing 25 cubic yards of contaminated soil. The site cleanup was certified at that time (DTSC 2017). Therefore, the proposed project would not create a significant hazard to the public or the environment because the nearest contamination source is located over a mile from the site and the contamination was removed in 1983. Therefore, **no impact** would occur related to listed hazardous materials sites.

e) The nearest airport to the project site is the California Highway Patrol Academy Airport, which is located approximately 2.75 miles northeast of the project site. Because the project site is located more than 2 miles from

this private airport, the proposed drainage improvements would not be expected to have any effect on its operations.

The proposed project is located 7.5 miles south of the Sacramento International Airport runways. The proposed Green's Lake modifications associated with Project Component 2 are located within the Secondary Approach Area of the Sacramento International Airport Land Use Compatibility Plan (SACOG 2013). The Secondary Approach Area includes locations where aircraft regularly fly below 3,000 feet. Local agencies are required to record overflight notifications as a condition of discretionary approval for residential land use developments within these Secondary Approach Areas. The proposed project does not include any proposed residential uses. Therefore, there is **no impact**.

f) The project site is not located within the vicinity of a private airstrip. Therefore, there is **no impact**.

g) The project does not include any components that would impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The YBWA does not currently contain any hard surface roadways or emergency access routes. The proposed project includes drainage improvements that would be expected to improve overall access within the YBWA by reducing internal roadway flooding. These improvements include raising some existing internal roadways to improve access following flood events. These improvements would enhance emergency vehicle access and emergency evacuation of visitors. Therefore, the project would not impair implementation or physically interfere with an adopted emergency response plan or emergency evacuation plan and there would be **no impact**.

h) The project site is located in an established wildlife area that includes predominantly rice lands and managed wetlands within a low fire hazard area. The proposed project includes installing drainage improvements that would improve the ability of the land managers to manage water within the YBWA. The proposed project does not include any new building structures or other project components that would generate significant fire hazards. For these reasons, the proposed project would not expose people or structures to significant risk of loss, injury, or death involving wildland fires. Therefore, **no impact** associated with wildland fires would occur.

3.9 HYDROLOGY AND WATER QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. Hydrology and Water Quality. Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?	☐	☒	☐	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?	☐	☐	☒	☐
e) 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?	☐	☒	☐	☐
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Result in inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

AFFECTED ENVIRONMENT

The proposed project is within the Sacramento River Hydrologic Region. The Sacramento River Hydrologic Region encompasses an area of approximately 17.4 million acres (27,200 square miles) and contains all, or large portions, of Modoc, Siskiyou, Lassen, Shasta, Tehama, Glenn, Plumas, Butte, Colusa, Sutter, Yuba, Sierra, Nevada, Placer, Sacramento, El Dorado, Yolo, Solano, Lake, and Napa counties (California Department of Water Resources 2003a). Most of Northern California is located in the Sacramento River Hydrologic Region, which

encompasses several watersheds of various sizes. The hydrology of the Sacramento River is dominated by the Mediterranean climate of the region with wet winters, dry summers, and long multi-year periods of extreme wet and drought conditions.

Operation of the Yolo Bypass

The Yolo Bypass provides a direct path from the confluence of the Sacramento and Feather Rivers and the Sutter Bypass to the Sacramento-San Joaquin River Delta. Flow is diverted from the Sacramento River into the Bypass when the stage exceeds 33.5 feet (corresponding to 56,000 cfs at Verona). Diversion of the majority of Sacramento River, Sutter Bypass, and Feather River floodwaters to the Yolo Bypass from Fremont Weir controls Sacramento River flood stages at Verona. During large flood events, 80% of the Sacramento River flows are diverted into the Bypass.

In high flow years, additional water can enter the Bypass via the Sacramento Weir. This weir is controlled so that flow can be released once the Sacramento River stage at Sacramento's I Street Bridge reaches 27.5 feet (corresponding to 98,000 cfs). Because the design flood capacity of the American River (115,000 cfs) is 5,000 cfs higher than that of the Sacramento River channel past downtown Sacramento, the Sacramento Weir is a critical component of the project to keep flood control project runoff at safe water levels. During large flood events, approximately 15% of the flow from the American River can pass upstream on the Sacramento River and enter the Sacramento Bypass (California Department of Water Resources 2003).

Once water has entered the Bypass it accumulates in the lower eastern side in the area occupied by the Tule Canal (from one mile south of the Fremont Weir to Interstate 80) and the Toe Drain (from Interstate 80 to Liberty Island). These constructed channels lie adjacent to the flood levees on the eastern boundary of the Bypass and collect water from the west side tributaries, primarily Knights Landing, Cache Creek, Willow Slough, and Putah Creek. Water leaves the Yolo Bypass either via the Toe Drain or Liberty Cut at Prospect Slough via Shag Slough or over the southern end of Liberty Island to Cache Slough (CDFG and YBF 2008).

Groundwater Basin

The YBWA is contained within the Sacramento Valley Groundwater Basin. Within this Groundwater Basin, the project site is located on the eastern edge of the Yolo Subbasin as mapped in DWR Groundwater Bulletin 118.

The Yolo Subbasin is located primarily within Yolo County, bounded on the east by the Sacramento River, on the west by the Coast Range, on the north by Cache Creek, and on the south by Putah Creek. The Subbasin slopes gently from west to east with elevations ranging from 400 feet in the west to near sea level on the eastern edge. The hydrogeologic formations relevant to the Yolo Bypass include flood basin deposits and recent stream channel deposits. The flood basin deposits consist of silts and clays and are generally between 100–150 feet thick with low permeability. The recent stream channel deposits consist of unconsolidated silt, fine- to medium-grained sand, gravel and cobbles (embedded in finer material) and are generally up to 150 feet thick with high permeability.

The subsurface flow within this Yolo Subbasin is obstructed from east to west by an anticlinal ridge oriented northwest to southeast. Subsurface outflow sometimes moves from the Yolo Subbasin into the Solano Subbasin to the south. Subsurface flow may also move beneath the Sacramento River to exchange with the South and North American River Subbasins.

Groundwater levels are impacted by periods of drought due to increased pumping and less surface water recharge, but recover quickly during wet years. Long term trends do not indicate any substantial decline, with the exception of localized pumping depressions in the vicinity of Davis, Woodland, and the Dunnigan/Zamora areas (CDFG and YBF 2008).

Surface Water Quality

The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region (Basin Plan) (Central Valley Regional Water Quality Control Board 2011) describes beneficial uses for the Yolo Bypass as including irrigation, stock watering, water contact and noncontact recreation, warm freshwater habitat, cold freshwater habitat, warm and cold fish migration; warm fish spawning; and wildlife habitat.

Section 303(d) of the federal Clean Water Act (CWA) established the total maximum daily load (TMDL) process to assist in guiding the application of State water quality standards. Section 303(d) requires states to identify streams in which water quality is impaired (i.e., affected by the presence of pollutants or contaminants) and to establish the TMDL, which is the maximum quantity of a particular contaminant that a waterbody can assimilate without experiencing adverse effects. The Tule Canal is listed as an impaired waterbody owing to the presence and level of boron, *Escherichia coli* (*E. coli*), fecal coliforms, and salinity.

Mercury is also a persistent sediment-bound contaminant that is present in the Yolo Bypass. Mercury sources include tributary inflows from upstream watersheds, atmospheric deposition, urban runoff, dredging activities, and municipal and industrial wastewater. The most toxic form of mercury is methylmercury because of chemical properties that allow the organometallic to be accumulated and magnified in fish and wildlife. Through the activities of sulfate reducing bacteria, methylmercury is produced in surficial sediments. Enhanced methylmercury production has been documented in newly flooded fields or fields that have been rewetted (Heim et al. 2010).

The Central Valley Water Quality Control Board determined in 1990 that the Delta was impaired because fish had elevated levels of mercury that posed a risk for human and wildlife consumers. In response, the Board finalized the Sacramento-San Joaquin Delta Estuary TMDL for Methylmercury (Delta Mercury TMDL) on October 20, 2011.

The Delta Mercury TMDL includes two phases. Phase 1 spans from October 20, 2011 through the Phase I Delta Mercury Control Program Review, expected to be by October 20, 2020. Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control methylmercury. Phase 1 includes provisions for: implementing pollution minimization programs and interim mass limits for inorganic (total) mercury point sources in the Delta and Yolo Bypass; controlling sediment-bound mercury in the Delta and Yolo Bypass that may become methylated in agricultural lands, wetland, and open-water habitats; and reducing total mercury loading to San Francisco Bay, as required by the Water Quality Control Plan for the San Francisco Bay Basin. Phase 1 also includes: the development of upstream mercury control programs for major tributaries; the development and implementation of a mercury exposure reduction program to protect humans; and the development of a mercury offset program.

Phase 2 begins after Phase 1 and ends in 2030. During Phase 2, dischargers shall implement methylmercury control programs and continue inorganic (total) mercury reduction programs. Compliance monitoring and implementation of upstream control programs also shall occur in Phase 2 (Central Valley Regional Water Quality Control Board 2011).

Groundwater Quality

Groundwater quality in the subbasin is characterized as a calcium magnesium or magnesium bicarbonate type (California Department of Water Resources 2003b). Total dissolved solids (TDS) values range from 120 to 1,220 milligrams per liter (mg/L), averaging 391 mg/L. Local impairments include high TDS, boron, and nitrates (California Department of Water Resources 2003b).

DISCUSSION

a) The project site soil types are characterized as having none to only a slight erosion hazard (NRCS 1972), and the flat topography of the site would minimize the potential for wind erosion. However, construction activities would involve excavating, moving, filling, and temporary stockpiling soil in the project site. Grading and construction activities would remove vegetative cover and expose site soils to erosion via wind and surface water runoff that could transport sediments into local drainages. Also, accidental spills of fluids or fuels from construction vehicles and equipment, or miscellaneous construction materials and debris, could be mobilized and transported off-site in overland flow. These contaminant sources could degrade the water quality of receiving water bodies (i.e., the Toe Drain and Sacramento-San Joaquin Delta), potentially resulting in a violation of water quality standards. These impacts would be **less than significant with mitigation incorporated**.

The two new water pumps proposed to be installed and the relocated water pump would increase the acreage of lands that could be irrigated on the project site including managed wetlands and agricultural fields. Because methylmercury production has been documented in newly flooded fields or fields that have been rewetted (Heim et al. 2010), the increased irrigation acreage associated with the proposed project has the potential to affect methylmercury production in the Yolo Bypass. Any project that has the potential to affect methylmercury production in the Yolo Bypass would be subject to the requirements of the Delta Mercury TMDL. Although it cannot be determined without conducting detailed studies whether the increased irrigation associated with project implementation would increase methylmercury production in the Yolo Bypass, this Initial Study conservatively considers this impact to be **less than significant with mitigation incorporated** as follows:

Mitigation Measure HYD-1: Develop SWPPP

CDFW shall obtain coverage for the proposed project under the National Pollution Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, as amended) prior to any soil disturbance activities.

A storm water pollution prevention plan (SWPPP) shall be prepared by a Qualified SWPPP Developer (QSD) for the proposed project that complies with this Construction General Permit. The SWPPP shall be downloaded to the California Water Resources Control Board SMARTS database prior to the onset of any soil disturbance activities. All construction contractors shall retain a copy of the QSD-approved SWPPP on the construction site. At a minimum, the SWPPP shall identify and specify:

- the use of erosion and sediment-control Best Management Practices (BMPs) as determined by the QSD;
- the use of non-structural BMPs such as project scheduling;
- the means of waste disposal;
- the implementation of approved local plans, non-storm water-management controls, permanent post-construction BMPs, and inspection and maintenance responsibilities;
- the pollutants that are likely to be used during construction that could be present in storm water drainage and non-storm water discharges, and other types of materials used for equipment operation;
- spill prevention and contingency measures, including measures to prevent or clean up spills of hazardous waste and of hazardous materials used for equipment operation, and emergency procedures for responding to spills;
- personnel training requirements and procedures that will be used to ensure that workers are aware of permit requirements and proper installation methods for BMPs specified in the SWPPP;
- the appropriate personnel responsible for supervisory duties related to implementation of the SWPPP;
- the designated risk level of the project as determined by a QSD;
- the monitoring and reporting requirements associated with the project's risk level; and
- the non-visual pollutant monitoring program.

CDFW will continue to comply with the methylmercury control programs within the YBWA consistent with the requirements identified in Phase 2 of the Delta Mercury TMDL including the implementation of all applicable BMPs.

The implementation of these mitigation measures would ensure these impacts remain **less than significant with mitigation incorporated**.

b) The proposed project would not include the use of groundwater resources and would not include any components that would interfere with groundwater recharge. The two new water pumps proposed to be installed and the relocated water pump would increase the acreage of irrigated lands on the project site including managed wetlands and agricultural fields. These pumps would be supplied through existing surface water that is available within the YBWA's drainage canal system. Increasing the acreage of irrigated lands would likely increase groundwater recharge within the local area. Therefore, the proposed project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. There would be **no impact**.

c) The project proposes to alter the YBWA drainage system to improve water supply and drainage management. This includes expanding culvert and channel capacities to minimize the potential for drainage flows to back up and overflow existing drainage channels. As discussed in response to question a) above, construction

activities would remove vegetative cover and expose site soils to erosion via wind and surface water runoff that could transport sediments into local drainages. This impact would be **less than significant with mitigation incorporated** and CDFW would be required to implement Mitigation Measure HYD-1.

Implementation of this mitigation measure would ensure that the drainage system changes do not result in substantial on- or off-site erosion or siltation. This would make these impacts **less than significant with mitigation incorporated**.

d) As discussed under question c) above, the proposed project would alter the YBWA drainage system to improve water supply and drainage management. This includes expanding culvert and channel capacities to minimize the potential for drainage flows to back up and overflow existing drainage channels. Discharges from the project site flow into the Toe Drain, which flows into the Sacramento-San Joaquin Delta. Flows in the Toe Drain are tidally influenced, which dictates the rate at which flows from the YBWA discharge into the Toe Drain. Therefore, when the Toe Drain has capacity to accommodate flows from the YBWA (i.e., during low tides), drainage water within the YBWA quickly flows into the Toe Drain. When tides are high, the rate of discharge into the Toe Drain decreases. Because the tide and operation of the Lisbon Weir generally dictate the rate of flow into the Toe Drain from the YBWA, implementation of the proposed project would not be expected to cause the Toe Drain to exceed its capacity. Therefore, the proposed project is not anticipated to substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding. This impact would be **less than significant**.

e) The proposed project is designed to increase the capacity of the drainage system within the YBWA. As discussed under question d) above, discharges from the project site flow into the Toe Drain, which flows into the Sacramento-San Joaquin Delta. Flows in the Toe Drain are tidally influenced, which dictates the rate at which flows from the YBWA discharge into the Toe Drain. Therefore, when the Toe Drain has capacity to accommodate flows from the YBWA (i.e., during low tides), drainage water within the YBWA quickly flows into the Toe Drain. When tides are high, the rate of discharge into the Toe Drain decreases. Because the tide and operation of the Lisbon Weir generally dictate the rate of flow into the Toe Drain from the YBWA, implementation of the proposed project would not be expected to cause the Toe Drain to exceed its capacity. Therefore, the proposed project is not anticipated to contribute runoff that would exceed the capacity of the existing onsite or offsite storm water drainage system.

Grading and construction activities would remove vegetative cover and expose site soils to erosion via wind and surface water runoff that could transport sediments into local drainages. Also, accidental spills of fluids or fuels from construction vehicles and equipment, or miscellaneous construction materials and debris, could be mobilized and transported off-site in overland flow. These contaminant sources could pollute runoff from the site. This impact would be **less than significant with mitigation incorporated** and CDFW would be required to implement Mitigation Measure HYD-1.

Implementation of this mitigation measure would ensure that the drainage system changes do not result in substantial additional sources of polluted runoff. This would make these impacts **less than significant with mitigation incorporated**.

f) As discussed in response to question a) above, construction activities would remove vegetative cover and expose site soils to erosion via wind and surface water runoff that could transport sediments into local drainages.

Also, contaminant sources could degrade the water quality of receiving water bodies. This impact would be **less than significant with mitigation incorporated** and CDFW would be required to implement Mitigation Measure HYD-1.

Implementation of this mitigation measure would ensure that the water quality impacts of the proposed project are appropriately minimized. This would make these impacts **less than significant with mitigation incorporated**.

g) Although the project is located within a 100-year floodplain (Zone AE), as designated by the Federal Emergency Management Agency (FEMA) (Federal Emergency Management Agency 2012), no housing is located within or near the project site and the project does not propose the development of any housing. There is **no impact**.

h) The project includes the implementation of a number of drainage improvements within the Yolo Bypass. In addition to excavating drainage channels, these improvements include installation of two con-span bridges that would cross the South Davis Drain. These bridges would substantially improve the drainage capacity of the South Davis Drain at the two road crossings and would be designed to be inundated during flood flows in the Yolo Bypass. The bridges would be low profile and would not be expected to impede or redirect flood flows within the Bypass.

The project also includes two new water pumps and a relocated water pump. Consistent with current pump design, these pumps would be placed on metal platforms elevated above flood stages. The metal structures on which the platforms would rest would be designed to accommodate flood flows. They would not be expected to impede or redirect these flows. Therefore, there is **no impact**.

i) The project site is located within a 100-year floodplain and includes improvements to the drainage system within this floodplain to accelerate drainage off of the managed wetlands and agricultural fields after flood events. The limited structures proposed to be installed within the drainage system, including two con-span bridges and two new elevated water pumps, would not have a measurable effect on the water surface elevations within the Yolo Bypass during flood events due to their small size. In addition, permission for the installation of these improvements would be required to be obtained from the Central Valley Flood Protection Board through their encroachment permit process. This permitting process would be expected to confirm that the proposed project would have no effect on water surface elevations within the Yolo Bypass during flood events. Therefore, the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving flooding and this impact would be considered **less than significant**.

j) The project site is located within a 100-year floodplain and is inundated during large storm events. However, the project area is not subject to seiche, tsunami, or mudflow events. Therefore, there would be **no impact**.

3.10 LAND USE AND PLANNING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X. Land Use and Planning. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

AFFECTED ENVIRONMENT

The project site is located within the YBWA, which is owned by CDFW. The YBWA is managed consistent with the YBWA Land Management Plan, which was prepared in June 2008. No established communities are located within or directly adjacent to the project site. The land use and zoning designations for the project site are Open Space (OS) and Public Open Space (POS), respectively. The southern portion of the project site is also located within a Delta Protection Overlay (DPO) zone (County of Yolo 2009).

DISCUSSION

a) The project includes drainage improvements within the YBWA. The construction of these improvements would have no effect on an established community. Therefore, there is **no impact**.

b) The proposed drainage improvements would be consistent with the YBWA Land Management Plan. These improvements would also be consistent with the land use and zoning designations for the site including the Delta Protection Overlay Zone. Therefore, there is **no impact**.

c) The project site is located within the boundary of a Draft Yolo Habitat Conservation Plan and Natural Community Conservation Plan. However, this plan has not yet been adopted. Until the plan is adopted, an assessment of whether the proposed drainage improvements conflict with the plan cannot be conducted. Because an adopted Yolo Habitat Conservation Plan and Natural Community Conservation Plan is not currently in place, the proposed project would not conflict with any such plan and there is **no impact**.

3.11 MINERAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. 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?	☐	☐	☐	☒

AFFECTED ENVIRONMENT

The primary mineral resources in Yolo County are mined aggregate and natural gas (County of Yolo 2009). Sand and gravel mining takes place primarily in the Cache Creek area of the County, approximately 10 miles to the northwest. No aggregate resource zones are located in, or near, the project site. However, a natural gas field is identified under the Yolo Bypass western levee that extends under portions of Project Components 1 and 3, as identified in Figure CO-5 on page CO-44 of the 2030 Countywide General Plan (County of Yolo 2009). No mineral resource recovery plans or efforts are located within the immediate vicinity of the project site.

DISCUSSION

a) The project site does not contain known aggregate resource zones of value to the region or residents of the state. The site does include an identified natural gas field, which generally parallels the northern portion of the Yolo Bypass western levee extending south from Interstate 80. However, the proposed drainage improvements would have no effect on this natural gas field and would not result in the loss of availability of this resource. There is **no impact**.

b) The project site includes an identified natural gas field underlying the western portion of the project site, as delineated in the 2030 Countywide General Plan (2009). However, the proposed drainage improvements would have no effect on this natural gas field and would not result in the loss of availability of this resource. There is **no impact**.

3.12 **NOISE**

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. Noise. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
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 expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

AFFECTED ENVIRONMENT

Table 6 identifies typical A-weighted sound levels and was used to estimate ambient noise levels within the project vicinity. The ambient noise levels at the northern portions of the proposed project are elevated due to traffic noise from Interstate 80 dominating the local noise environment. Other noise sources on the site include farm equipment, wildlife, visitors and hunters, and overhead aircraft.

The project site is substantially separated from any sensitive noise receptors due to its location within the YBWA and the Yolo Bypass, which has levees to the east and west. The nearest residences are located 1.1 miles directly to the east within the Southport area of the City of West Sacramento. Noise generated from the project site is blocked by the Yolo Bypass east side levee at these residences.

Noise regulations and ordinances typically establish allowable noise levels for different land uses and define exempt noise activities. The *2030 Countywide General Plan* (County of Yolo 2009) includes the Governor's Office of Planning and Research noise compatibility guidelines by land use category. For existing residential uses, noise exposure of up to 60 dB is considered normally acceptable and noise exposure from 60 to 70 dB is considered conditionally acceptable. For agricultural uses, noise exposure of as much as 75 dB is considered normally acceptable, and noise exposure from 75 to 80 dB is considered conditionally acceptable.

Table 6 Typical A-Weighted Sound Levels

Common Outdoor Activities	Sound Levels (dBA)	Common Indoor Activities
	110	Rock bank
Jet flyover at 1,000 feet		
	100	
Gas lawnmower at 3 feet		
	90	
Diesel truck at 50 mph at 50 feet		Food blender at 3 feet
	80	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower at 100 feet	70	Vacuum cleaner at 3 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60	
		Large business office
Quiet urban area, daytime	50	Dishwasher in next room
Quiet urban area, nighttime	40	Theater, large conference room (background)
Quiet suburban area, nighttime		
	30	Library
Quiet rural area, nighttime		Bedroom at night, concert hall (background)
	20	
		Broadcast/recording studio
Rustling leaves	10	
	0	

Source: Caltrans 2013
Note: dBA = A-weighted decibel

The Health and Safety Element of the *2030 Countywide General Plan* includes a Noise section (County of Yolo 2009). The plan's noise compatibility goal is to protect people from the harmful effects of excessive noise and recommends adopting a comprehensive noise ordinance that includes standards for construction equipment and noise-emitting construction activities. Yolo County has not yet adopted a noise ordinance.

Table 7 identifies the typical noise levels generated from construction equipment that may be used at the site. The maximum sound levels (L_{max}) measured during monitoring at 50 feet are provided in addition to the typical acoustical use factors. The acoustical use factor is the percentage of time each piece of construction equipment is assumed to be operating at full power (i.e., its noisiest condition) during construction and is used to estimate the equivalent continuous sound level (L_{eq}) values from L_{max} values.

Table 7 Typical Construction Noise Levels

Equipment	Typical L_{max} Noise Level at 50 Feet (dBA)	Acoustical Use Factor	L_{eq} Noise Level at 50 Feet (dBA)
Backhoe	78	40	76
Bulldozer	82	40	81
Chainsaw	84	20	80
Compactor	83	20	76
Compressor (air)	78	40	76
Crane	81	16	80
Dump truck	76	40	80
Excavator	81	40	81
Front end loader	79	40	75
Generator	73	50	67
Grader	85	40	81
Pump	81	50	74
Scraper	84	40	81
Tractor	84	40	80
Vibratory pile driver	101	20	90

Source: Federal Highway Administration 2006

Note: dBA = A-weighted decibel, L_{eq} = equivalent sound level (Specification 721.560), L_{max} = maximum sound levels (Federal Highway Administration 2006)

DISCUSSION

a) Construction activities associated with the proposed project could result in the temporary elevation of noise levels within the YBWA and surrounding areas. Construction noise impacts typically occur when construction activities take place during noise-sensitive times of the day (e.g., early morning, evening, or nighttime hours), when construction activities occur immediately adjacent to noise sensitive land uses, or when construction durations last over extended periods of time.

Although construction activities may briefly or occasionally serve to elevate ambient noise levels at adjoining land uses, these impacts would generally be limited to the temporary demolition and site preparation and grading periods. Construction would be expected to occur between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, and would extend over a single construction season. Therefore, construction activities would not occur during noise-sensitive times of the day and would not occur for an extended period of time. Also, because the project site is located within a designated wildlife area and is surrounded by agricultural uses, construction activities would not occur adjacent to noise sensitive land uses.

The two pieces of construction equipment estimated to generate the highest noise levels at the site include bulldozers and graders. Both of these pieces of equipment are estimated to generate peak noise levels of 81 dBA (average A-weighted noise level at 50 feet). Although vibratory pile drivers can generate higher noise levels, they are not anticipated to be used in project construction.

When bulldozers and graders are operated together in combination with other equipment at the site, noise levels of as high as 87 dBA at 50 feet can be generated. Sound intensity diminishes as distance from the source increases. The sound drop-off rate (attenuation) is 6 dBA per doubling of the distance (California Department of Transportation 2013). At this drop-off rate, the highest sound level projected to be generated within the project area (i.e., 87 dBA) would drop below 50 dBA at the nearest residences to the east located within the Southport residential area of the City of West Sacramento. This noise level would be further attenuated by the Yolo Bypass eastern levee and the Deep Water Ship Channel eastern levee, which are both located between the YBWA and the Southport residential area. These projected noise levels would be below the ambient noise level within this neighborhood.

Truck trips on County Road 32A and Chiles Road would generate temporary increases in noise levels along these roadways. However, the project is not expected to generate substantial truck trips and any trips that are generated would only be expected to occur for a single construction season. Therefore, truck trips on local roadways would not be expected to generate significant noise impacts.

Following project construction, the proposed drainage improvements would not be expected to generate noise levels in excess of established standards for agricultural uses. The two new water pumps would generate minor noise levels when operating but these pumps would be located substantially distant from any sensitive receptors. For these reasons, the proposed project would not be expected to generate noise levels in excess of applicable standards and this impact would be **less than significant**.

b) Construction of the proposed project would generate some groundborne vibration associated with trucks accessing the site and excavation activities. However, this ground borne vibration would be consistent with typical construction activities in the region and would not be considered excessive. Also, no structures are located within the project vicinity that would be exposed to the vibrations. Therefore, these construction activities would not be expected to expose people to excessive groundborne vibration or noise.

Following construction, the site activities would not substantially differ from those that currently occur at the site. Thus, operation of the project would not expose people to excessive groundborne vibration or groundborne noise levels. This impact is **less than significant**.

c) Following construction, the site activities would not substantially differ from those that currently occur at the site. Although two new water pumps would be operated on the site, these pumps are distant from any sensitive receptors. Therefore, a substantial permanent increase in ambient noise levels would not be anticipated with project implementation and this impact would be **less than significant**.

d) Construction of the proposed project could result in the temporary elevation of noise levels at the project site and surrounding areas. Although construction activities may briefly or occasionally serve to elevate ambient noise levels in the project vicinity, these impacts would be limited to the single construction season and would have a negligible effect on surrounding land uses. Following construction, the site activities would not

substantially differ from those that currently occur at the site. Although two new water pumps would be operated on the site, these pumps are distant from any sensitive receptors. Therefore, there would not be a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. This impact is **less than significant**.

e) The proposed project is located 7.5 miles south of the Sacramento International Airport runways and the proposed Green's Lake modifications associated with Project Component 2 are located within the Secondary Approach Area of the Sacramento International Airport Land Use Compatibility Plan (SACOG 2013). The Secondary Approach Area includes locations where aircraft regularly fly below 3,000 feet. Although aircraft flying at this elevation can be heard from the ground, the noise levels generated by these aircraft within the YBWA would not be expected to expose construction workers to excessive noise levels. Therefore, there is **no impact**.

f) The nearest private airport to the project site is the California Highway Patrol Academy Airport, which is located approximately 2.75 miles northeast of the project site. Because the project site is located more than 2 miles from this private airport, the noise levels generated by aircraft from this airport within the YBWA would not be expected to expose construction workers to excessive noise levels. Therefore, there is **no impact**.

3.13 POPULATION AND HOUSING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. Population and Housing. Would the project:				
a) Induce substantial 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 homes, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

AFFECTED ENVIRONMENT

The project site is located within the YBWA, which is located within the flood zone of the Yolo Bypass. No housing is located within the immediate vicinity of the proposed project. The nearest residences are located 1.1 miles directly to the east within the Southport area of the City of West Sacramento.

DISCUSSION

a) The proposed project includes drainage improvements within the YBWA. The proposed project would not include any uses that would induce substantial population growth. The proposed project is located within the flood zone of the Yolo Bypass and no residential housing is permitted within this area. Implementation of the proposed project would have no effect on residential development and would not either directly or indirectly induce substantial population growth in Yolo County. There is **no impact**.

b) The proposed project would not result in the demolition of any homes and does not include any components that would result in the displacement of any homes or create the need for replacement housing. There is **no impact**.

c) Similar to the response to question b) above, the proposed project would not result in the displacement of homes, and there are no people currently living on the project site who would be displaced by the project. There is **no impact**.

3.14 PUBLIC SERVICES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. Public Services. Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

AFFECTED ENVIRONMENT

Fire protection within the project area is provided by the East Davis Fire Protection District (CDFG and YBF 2008) and law enforcement is provided by the Yolo County Sheriff's Department (County of Yolo 2009). No schools or parks are locating within the project vicinity. The project site is located within the YBWA, which is a publicly-owned facility.

DISCUSSION

a) The proposed drainage improvements and associated temporary increase in construction vehicles on local roads would not interfere with emergency access and would not prevent fire protection or law enforcement personnel from maintaining acceptable service ratios or response times in the vicinity of the project area. Sufficient vehicle capacity is available on both Chiles Road and County Road 32 to accommodate the project's additional construction vehicle trips without contributing substantially to vehicle delays on the local roadway network. The proposed project would not increase the County's population base and would not increase demands on the local school system or park facilities.

Because the proposed project would temporarily increase human activities within a designated wildlife area, there is the potential that the risk of wildland fires and accidents could increase during the construction period. However, the construction contractor would be required to comply with applicable health and safety procedures that are intended to minimize the potential for fires and accidents. Also, the availability of construction equipment on the site could assist in fire suppression, if necessary. Therefore, the proposed project would not be expected to substantially increase the demand for fire protection services. The implementation of drainage improvements would not be expected to increase the demand for police protection services. The proposed project would not result in the need for new or physically altered fire protection, police, school, or park facilities in Yolo County.

Although the proposed project would alter the drainage system within the YBWA, which is a publicly-owned facility, these changes would not be expected to result in substantial adverse physical impacts, as described throughout this Initial Study. Therefore, there would be **no impact**.

3.15 RECREATION

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. Recreation. Would the project:				
a) 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) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

AFFECTED ENVIRONMENT

The YBWA is regularly used for hunting, fishing, walking, hiking, wildlife viewing, nature photography, and a broad range of environmental education activities. A trail and road network present in the YBWA supports these activities. The YBWA is managed by CDFW with education programs and public outreach provided by the Yolo Basin Foundation. This partnership was memorialized in June of 1997 when the two organizations signed a Memorandum of Understanding (MOU) with CDFW recognizing their long-term partnership to provide public outreach and educational programs. The MOU allows the Yolo Basin Foundation to use CDFW facilities as a base for programs related to the YBWA (CDFG and YBF 2008).

Environmental Education And Interpretive Programs

Environmental education and interpretive programs for school children and the general public are a regular component of the YBWA's existing public use activities. The Yolo Basin Foundation and CDFW collaborate in managing and staffing environmental education and interpretation programs including the Discover the Flyway program, Marsh Madness Youth Days, Nature Bowl, public tours, docent program, Flyway Nights lecture series, California Duck Days, Project Wet, and other workshops. Yolo Basin Foundation is the primary organization for developing, establishing, and acquiring funding for YBWA's education and interpretation programs. CDFW provides facilities, staff support, and expertise towards the education program in its shared role with the Yolo Basin Foundation (CDFG and YBF 2008).

Hunting

Hunting is one of the main forms of recreation currently available within the YBWA. Waterfowl and pheasant hunting are the most popular, however, visitors also participate in hunting of other upland game species including dove. Duck blinds are maintained at the YBWA for waterfowl hunting. Hunters are allowed to use shotguns and archery for hunting (CDFG and YBF 2008).

Fishing

Fishing is also popular and several opportunities are provided within the YBWA. Primary game species present include sturgeon, catfish, black bass, and striped bass. Primary fishing locations include the Toe Drain and along Putah Creek near the Los Rios Check Dam. Access can be obtained through parking Lot F (Toe Drain) and Lot G (Putah Creek). The Toe Drain can also be reached from outside the YBWA on the West Sacramento (east) side of the drain (CDFG and YBF 2008).

Wildlife Viewing

Many species of birds and mammals may be observed in the YBWA. Visitors may see a multitude of birds of prey, shorebirds, waterfowl and other migratory birds with over 200 known species having been identified within the area. Typical species include ibis, pelicans, cormorants, great blue herons, orioles, blue grosbeaks, and western kingbirds. Mammals that can be seen in the area include coyotes, raccoons, gray fox, mule deer, beaver, mink, and river otters. The extensive water system maintained on the YBWA also harbors large numbers of fish, amphibians, and invertebrates. Public wildlife viewing is currently allowed along the existing auto tour route and along existing open trails as well as through scheduled tours and educational programs. Wildlife viewing is also permitted within designated hunting areas during non-hunting seasons (CDFG and YBF 2008).

DISCUSSION

a) The proposed project would improve the ability of wetland managers and farmers to manage drainage within the YBWA and reduce localized flooding. For the "Y" and Rice Corner road crossings along the South Davis Drain, the existing undersized culverts result in flooding of the access road during and after storm events. This flooding restricts access to the YBWA for recreational users. The proposed improvements would be expected to reduce this flooding by removing the culverts and replacing them with con-span bridges. By reducing the access road flooding, the proposed project would be expected to increase the number of days when the YBWA would be accessible for recreational users. This increased accessibility could increase the recreational use of the YBWA but would have no effect of the type of recreational uses that would occur. Also, because the proposed project would not change the overall demand for recreational uses, the increased accessibility may result in recreational demand being spread over a larger number of days rather than increasing total usage. Therefore, the proposed project would not be expected to increase the use of recreational facilities such that substantial physical deterioration would occur and **no impact** would be expected.

b) The project would not include any recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment. As described above, the proposed project would not be expected to increase the use of recreational facilities such that substantial physical deterioration would occur and **no impact** would be expected.

3.16 TRANSPORTATION/TRAFFIC

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. Transportation/Traffic. Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

AFFECTED ENVIRONMENT

Access to the YBWA is provided to Interstate 80 eastbound travelers by way of the Chiles Road offramp approximately 1.8 miles east the City of Davis' eastern boundary. Access for westbound travelers is provided by way of the County Road 32A offramp approximately 3.5 miles west of the City of West Sacramento's western boundary. County Road 32A extends east and then south under Interstate 80, at which point it connects with Chiles Road. Chiles Road continues southwest for approximately 450 feet to its intersection with the YBWA access road. The gravel access road extends southeast for approximately 300 feet to the top of the Yolo Bypass western levee. At this point the gravel access road turns north and then east down the western levee into the YBWA.

Nine miles of gravel roads are currently available for public use on the YBWA when the area is not inundated by flood flows. The gravel roads lead to nine parking lots (identified as lots A through I) that allow access to the hiking trails and hunting sites in the YBWA. All roads within the YBWA are currently maintained by CDFW. Approximately 10 miles of gravel roads on the southern portion of the YBWA (identified as the Tule Ranch area)

also provide access to several duck clubs located south of the YBWA. These duck clubs and local landowners are responsible for the maintenance of these roads.

The California Department of Transportation Traffic Operations Program reports annual average daily traffic (AADT) volumes on interstates and state highways in California. The AADT volumes on Interstate 80 at interchanges in the project vicinity are provided in Table 8.

Table 8 2015 State Highway Traffic Volumes in the Project Vicinity

State Highway	Location/Interchange	Annual Average Daily Traffic Volume (AADT)	
		West	East
Interstate 80	Mace Boulevard	131,300	142,200
Interstate 80	County Road 32/Chiles Road	142,200	147,400
Interstate 80	West Capitol Avenue	147,400	154,800
Source: Caltrans 2017a			

DISCUSSION

a) Project construction activities would cause a temporary traffic increase on local roadways. Construction trucks and workers would typically travel to the project site via Interstate 80, County Road 32A, and/or Chiles Road During project construction, a peak of up to 20 trucks are anticipated to access the site on a daily basis to deliver construction equipment and supplies. This would represent 40 daily truck trips (2 one-way trips per day x 20 trucks). The type of trucks accessing the site would depend upon the materials being delivered and would range from medium to large 4-to-8 axle trucks and semi-tractor trailers. Truck deliveries to the site would typically occur during non-peak periods in order to minimize travel times. Following the initial period of several weeks delivering building materials and supplies to the site, far fewer trucks would be accessing the site daily.

The soil materials excavated from drainage channels are proposed to be placed on roads or adjacent to the channels. Therefore, no soil would be imported or exported from the site.

Construction workers accessing the site would generate daily vehicle trips; however, construction workers would typically arrive at the site before 7:00 am and depart by 3:30 pm, outside of the peak-hour traffic periods. The project would be expected to require approximately 10 construction workers during peak construction activities, which would generate 20 daily vehicle trips, assuming no carpooling and no offsite trips during the work day. In reality, some carpooling and offsite trips could occur, although they would likely offset each other. For the reasons discussed above, the majority of the vehicle trips generated by the proposed project would occur outside of the peak hours for the local roadway network. Typically 10 percent of the daily traffic volumes occur during peak commute periods. For this project, that would represent 6 additional peak hour vehicle trips (40 construction truck trips plus 20 worker trips). Also, because the construction activities are anticipated to be completed within a single construction season, the increase in vehicle traffic accessing the site would be transitory.

The project would have no effect on the transit, bicycle, and pedestrian network and is not anticipated to have any effect on mobility in the project vicinity.

Therefore, the temporary increase in vehicle traffic during construction would not be expected to conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit. Therefore, this impact is **less than significant**.

b) As stated in the response to question a) above, the temporary increase in vehicle traffic during construction would not be expected to interfere with any plans, ordinances, or policies that address performance of the circulation system. Therefore, the temporary increase in vehicle traffic during construction would not be expected to conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways. This impact is **less than significant**.

c) The project does not include any components that would affect air traffic patterns, and thus would not be expected to adversely affect air traffic safety. There is **no impact**.

d) The project would not include hazardous design features, such as sharp curves or dangerous intersections, or create hazardous conditions by introducing incompatible uses. The installation of the two con-span bridges across the South Davis Drain would slightly realign the gravel roadway. However, these realignments would be minor and the bridges are designed to accommodate two-way traffic and include railings to prevent vehicles from driving off of the edges of the bridges. Signage identifying the bridges is also proposed to be installed. In addition, raising some existing internal roadways would reduce the potential for vehicles to drive through flooded roadway segments. Therefore, no design hazards would be anticipated with project implementation. There is **no impact**.

e) The project does not include any components that would restrict emergency access. The YBWA does not currently contain any hard surface roadways or emergency access routes. The proposed project includes drainage improvements that would be expected to improve overall access within the YBWA by reducing internal roadway flooding. These improvements include raising some existing internal roadways to improve access following flood events. These improvements would enhance emergency vehicle access and emergency evacuation of visitors. Therefore, the project would not result in inadequate emergency access and there would be **no impact**.

f) The project would not include any features that would affect or alter existing facilities nor interfere with construction of any future planned facilities for alternative modes of transportation (i.e., bus turnouts, bicycle lanes, etc.). There is **no impact**.

3.17 TRIBAL CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. Tribal Cultural Resources. Would the project:				
a) Would the project cause a substantial adverse change in the significance of a Tribal Cultural Resource as defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
1. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☐	☒
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☐	☒

AFFECTED ENVIRONMENT

Tribal cultural resources are defined in Public Resources Code Section 21074 as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following: 1) included or determined to be eligible for inclusion in the California Register of Historic Resources (CRHR); or 2) included in a local register of historical resources. Tribal cultural resources are also resources determined by the lead agency (i.e., CDFW), in its discretion and supported by substantial evidence, to be significant pursuant to statutory criteria. In applying these criteria to this determination, the lead agency is required to consider the significance of the resource to a California Native American tribe.

The CRHR includes resources listed in or formally determined eligible for listing in the National Register of Historic Places (NRHP). Pursuant to Public Resources Code, Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Demolition, replacement, substantial alteration, and relocation of historic properties are actions that would change the significance of an historic resource (California Code of Regulations, Title 14, Section 15064.5).

In accordance with Public Resources Code, Section 21080.3.1 and the CDFW's Tribal Communication and Consultation Policy (2014), CDFW notified tribes identified by the Native American Heritage Commission as being traditionally and culturally affiliated with the project area, including tribes that have requested in writing notification from the CDFW. CDFW sent notification letters on March 22, 2017 to the following tribes: Federated Indians of Graton Rancheria, United Auburn Indian Community of the Auburn Rancheria, Cortina Indian Rancheria of Wintun Indians, and Yocha Dehe Wintun Nation. The notification letters to these tribes included a brief description of the project and its location, the CDFW contact information, and notification that the tribe had 30 days to request consultation pursuant to Public Resources Code, Section 21080.3.1. As of the release of this Initial Study, CDFW receive a response from the Federated Indians of Graton Rancheria stating they had no comments on the project and a response from the Yocha Dehe Wintun Nation requesting consultation. CDFW has initiated the consultation process with the Yocha Dehe Wintun Nation.

The project site contains agricultural lands and managed wetlands within the floodplain of the Yolo Bypass. The long history of agricultural land management within the Yolo Bypass combined with regular flood inundation has disturbed these lands. As discussed in Section 3.5, Cultural Resources of this Initial Study, the project site does not include any cultural resources included in the CRHR or in a local register of historical resources. No evidence of historic buildings, sites, structures or objects is present on the project site or in the project vicinity.

DISCUSSION

a.1) As discussed in Section 3.5, Cultural Resources, the project site does not include any cultural resources that are included or determined to be eligible for inclusion in the CRHR or that are included in a local register of historical resources. The project site has been substantially disturbed by the long history of agricultural operations within the Yolo Bypass, which has included the existing drainage system construction and the leveling of the land to facilitate rapid field drainage. In addition, the site is exposed to regular flooding associated with winter and spring flows derived from the west side tributaries to the Yolo Bypass and Sacramento River flows that overtop the Fremont Weir and/or the Sacramento Weir. Due to the prior agricultural and flood inundation disturbance of the site and the lack of eligible resources, the proposed project would not be expected to cause a substantial adverse change in the significance of a Tribal Cultural Resource and there would be **no impact**.

a.2) Based on the prior disturbance of the site associated with its agricultural uses and regular flood inundation, as discussed in response to question a.1) above, no archaeological resources are expected to be present on the site. In addition, the construction of the proposed drainage improvements would primarily be limited to existing drainage ditches and ponds. Cultural resources would typically be substantially degraded or washed away within these wet environments. Therefore, the proposed project would not be expected to cause an adverse change in the significance of a Tribal Cultural Resource and there would be **no impact**.

3.18 UTILITIES AND SERVICE SYSTEMS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. Utilities and Service Systems. Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	☐	☐	☒	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

AFFECTED ENVIRONMENT

Water

Water delivery and management in the YBWA is largely dictated by existing water rights, delivery and easement agreements, and infrastructure. The delivery system is a complex system of canals, ditches, pumps including elevated pumps and control gates. The primary sources of irrigation water for the YBWA are the east side Toe Drain and Putah Creek.

CDFW has a riparian right to pump from the east side Toe Drain. This is accomplished at several pump stations. Other farmers in the area also receive irrigation water from the same source. In addition to the Toe Drain, CDFW also has a riparian right on Putah Creek.

The Toe Drain pool is tidal water that is trapped behind the Lisbon Weir; it also includes limited amounts of drainage water from the Willow Slough Bypass and the Tule Canal. The Lisbon Weir maintains the water level in this pool.

The Lisbon Weir is located approximately 6.75 miles south of Interstate 80 along the east levee of the Yolo Bypass. The Lisbon Weir has existed in one form or another for several decades. It currently consists of a porous rock berm and series of flap gates that pass water north during high tides and trap this water at low tide.

Water is diverted from the Toe Drain and Putah Creek into the YBWA using existing pump stations within the Toe Drain and Putah Creek. Water also enters the YBWA directly from Putah Creek via the Putah Creek Check Dam. The dam is typically operated from April through the end of November. This water flows by gravity to different portions of the YBWA (CDFG and YBF 2008).

Wastewater

The YBWA receives urban storm water runoff and wastewater treatment facility discharges from the University of California Davis campus and the cities of Woodland and Davis but the project site does not include any restroom or wastewater treatment facilities (CDFG and YBF 2008).

Solid Waste

The Yolo County Central Landfill, which is located approximately 3.5 miles to the northwest of the Yolo Bypass Wildlife Area at 44090 County Road 28H, provides solid waste disposal services within the county.

DISCUSSION

a) The proposed project does not include any components that would contribute to the exceedance of the wastewater treatment requirements of the Central Valley Regional Water Quality Control Board. Therefore, there is **no impact**.

b) The proposed project would not include the construction of new wastewater treatment facilities or the expansion of existing facilities. The proposed project includes drainage improvements within the YBWA that would enhance the area's existing water management, would reduce localized flooding, and would accelerate drainage from the site into the Toe Drain. Once in the Toe Drain, the drainage water would flow south into the Sacramento-San Joaquin Delta. No water or wastewater treatment facilities are located along the Toe Drain and the proposed drainage improvements would not require the construction of new or expansion of existing water or wastewater treatment facilities and no adverse environmental impacts would occur. Therefore, there would be **no impact**.

c) The proposed project includes drainage improvements within the YBWA. The impacts of these improvements are evaluated throughout this Initial Study. Because the proposed drainage improvements are anticipated to enhance the area's existing water management, reduce localized flooding, and accelerate drainage into the Toe Drain, they would not require or result in the construction of new storm water drainage facilities, other than those included in the project design, or require or result in the additional expansion of existing facilities. Therefore, there would be **no impact**.

d) The proposed project would include the installation of pump stations that would be used to irrigate agricultural fields and managed wetlands. CDFW has a riparian right to pump water from the east side Toe Drain and to use this water for irrigation purposes within the YBWA. The Toe Drain contains pooled tidal water that is trapped behind the Lisbon Weir. It also includes limited amounts of drainage water from the Willow Slough

Bypass and the Tule Canal. In addition to the Toe Drain, CDFW also has a riparian right on Putah Creek. Water from these sources would be delivered to the three project pumps via the existing and improved drainage system within the YBWA. The proposed improvements to Green's Lake are anticipated to enhance the water storage capacity of the lake and to improve the ability to access that stored water during the irrigation season. For these reasons, sufficient water supplies would be available to serve the project from existing entitlements and resources and new or expanded water entitlements would not be necessary. This impact is **less than significant**.

e) The YBWA is not served by a wastewater treatment provider and the proposed project would have no effect on wastewater treatment providers. Also, the proposed improvements would not result in additional wastewater generation. Therefore, the proposed project would not result in a wastewater treatment provider determining that inadequate capacity is available to serve the proposed project's demands. There would be **no impact**.

f) The proposed project includes the construction of drainage improvements, which would generate some construction and demolition debris. However, this debris would be negligible as materials excavated during project construction would be applied to the existing roadways within the YBWA and would not be exported from the site. Therefore, the proposed project would have a negligible effect on the permitted capacity of the Yolo County Central Landfill or any other landfills in the region. There would be **no impact**.

g) The proposed project would not be expected to generate significant volumes of solid waste and would be required by law to comply with federal and state statutes and regulations related to solid waste. Therefore, there would be **no impact**.

3.19 MANDATORY FINDINGS OF SIGNIFICANCE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. Mandatory Findings of Significance.				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Authority: Public Resources Code Sections 21083, 21083.5.
Reference: Government Code Sections 65088.4.
Public Resources Code Sections 21080, 21083.5, 21095; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

DISCUSSION

a) Adverse effects on environmental quality, including impacts to air quality, biological resources, cultural resources, and hydrology and water quality are identified in the preceding sections of this Initial Study. As detailed in this document, based on the ability of the identified mitigation measures to reduce potential impacts to less-than-significant levels, the proposed project's impacts would be considered **less than significant with mitigation incorporated**.

b) CEQA Guidelines Section 15355(b) defines cumulative impacts as those resulting from closely related past, present, and reasonably foreseeable projects. CEQA Guidelines Section 15125(a) also defines the analytical baseline as the conditions on the ground at the time that the Initial Study is prepared. Impacts of past projects are generally considered as part of these baseline conditions. A number of projects are planned or approved in and around the project area. These include the following projects: Fremont Weir Adult Fish Passage Modification Project, Lower Elkhorn Basin Levee Setback Project, Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project, Wallace Weir Fish Rescue Project, Lisbon Weir Fish Passage Project, Tule Canal Agricultural Road Crossing #4 Improvements, and North Bay Aqueduct Alternate Intake Project.

The proposed project is intended to enhance CDFW's ability to manage wetland resources and agricultural operations within the YBWA. The proposed project would be compatible with the present and reasonably foreseeable projects identified above, as these projects are primarily focused on restoring and enhancing habitat within the Yolo Bypass and they would be constructed in areas that are not immediately adjacent to the proposed project. Also, the proposed project would improve CDFW's ability to manage additional water associated with upstream projects that may enter the Yolo Bypass and the YBWA. Given the limited and localized impacts anticipated with project implementation and the fact that the mitigation measures identified in this Initial Study would reduce project impacts to less-than-significant levels, the proposed project would not contribute substantively to any cumulative adverse environmental impacts. Cumulative impacts are **less than significant**.

c) As discussed in this Initial Study, implementation of the proposed project would not result in health risks or substantial emissions of air pollutants. Trustee

This impact is **less than significant with mitigation incorporated**.

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