Appendix A. Notices of Preparation and Scoping Comments

Notices of Preparation

July 9, 2001

August 2, 2001

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT

Date: July 9, 2021

To: Governor's Office of Planning and Research/State Clearinghouse Unit, Responsible Agencies, Trustee Agencies, and Interested Parties

From: Three Rivers Levee Improvement Authority

Subject: Announcement of:

1) Notice of preparation of an environmental impact report for the 500-Year Flood Protection Project
2) Scoping comments are due by 5:00 p.m. on Monday, August 9, 2021

The Three Rivers Levee Improvement Authority (TRLIA) is proposing to implement improvements to the Reclamation District (RD) 784 levee system to provide 500-year flood protection to southwest Yuba County. As lead agency under the California Environmental Quality Act (CEQA), TRLIA intends to prepare an environmental impact report (EIR), in accordance with CEQA (Public Resources Code, Section 21000 et seq.; see also Title 14 of the California Code of Regulations [CCR] Section 15163 [State CEQA Guidelines]).

TRLIA has prepared this notice of preparation (NOP) in accordance with Section 15082 of the State CEQA Guidelines to inform responsible and trustee agencies and interested parties that an EIR will be prepared. The purpose of this NOP is to provide sufficient information about the proposed project and its potential environmental impacts to allow the Governor's Office of Planning and Research, responsible and trustee agencies, and interested parties with the opportunity to provide a meaningful response related to the scope and content of the EIR.

Public Scoping Period

TRLIA will hold a 30-day public scoping period to receive written comments on this NOP and input to the EIR. A public scoping meeting will be held to brief interested parties, answer questions about the proposed project, and receive comments of agency representatives, interested parties, Native American Tribes, and the public on the EIR scope and content, including alternatives to the proposed project and potentially significant environmental impacts.

The public scoping meeting will be held from 5:30 to 6:30 p.m. on Tuesday, July 20, 2021 at the following location:

Beckwourth Room, 213 (second floor)
Yuba County One Stop
1114 Yuba Street
Marysville, CA 95901

Note: Yuba County One Stop access is currently available through the north entrance on the east side of the building. The building is accessible to persons with disabilities. Individuals needing special services will be accommodated to the best of our ability. For more information, please contact Leslie Wells at 530-749-7841 at least 48 hours before the meeting.

Access to the public scoping meeting also will be available by telephone at 213-338-8477 and via Zoom at https://zoom.us/join (meeting ID 993 5684 4286, passcode 812330). Direct access to the Zoom meeting also is available via the following link: https://downeybrand.zoom.us/j/99356844286?pwd=K0w1bGlyK2dPMVFzWVhDQXpiaFkzUT09.

Written comments concerning the EIR must be directed to the Executive Director of TRLIA at the following address or via email no later than 5:00 p.m. on Monday, August 9, 2021. All comments must include full name and address of the commentor. Please address all comments to:

Paul G. Brunner, Executive Director
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901
Telephone: 530-749-5679
Fax: 530-749-6990
Email: pbrunner@co.yuba.ca.us

Agencies that need to use the EIR when considering permits or other approvals for the proposed project should provide TRLIA with the name of the staff contact person. Comments provided by email should include the name and address of the sender. All comments received, including names and addresses, will become part of the official administrative record and may be made available to the public.

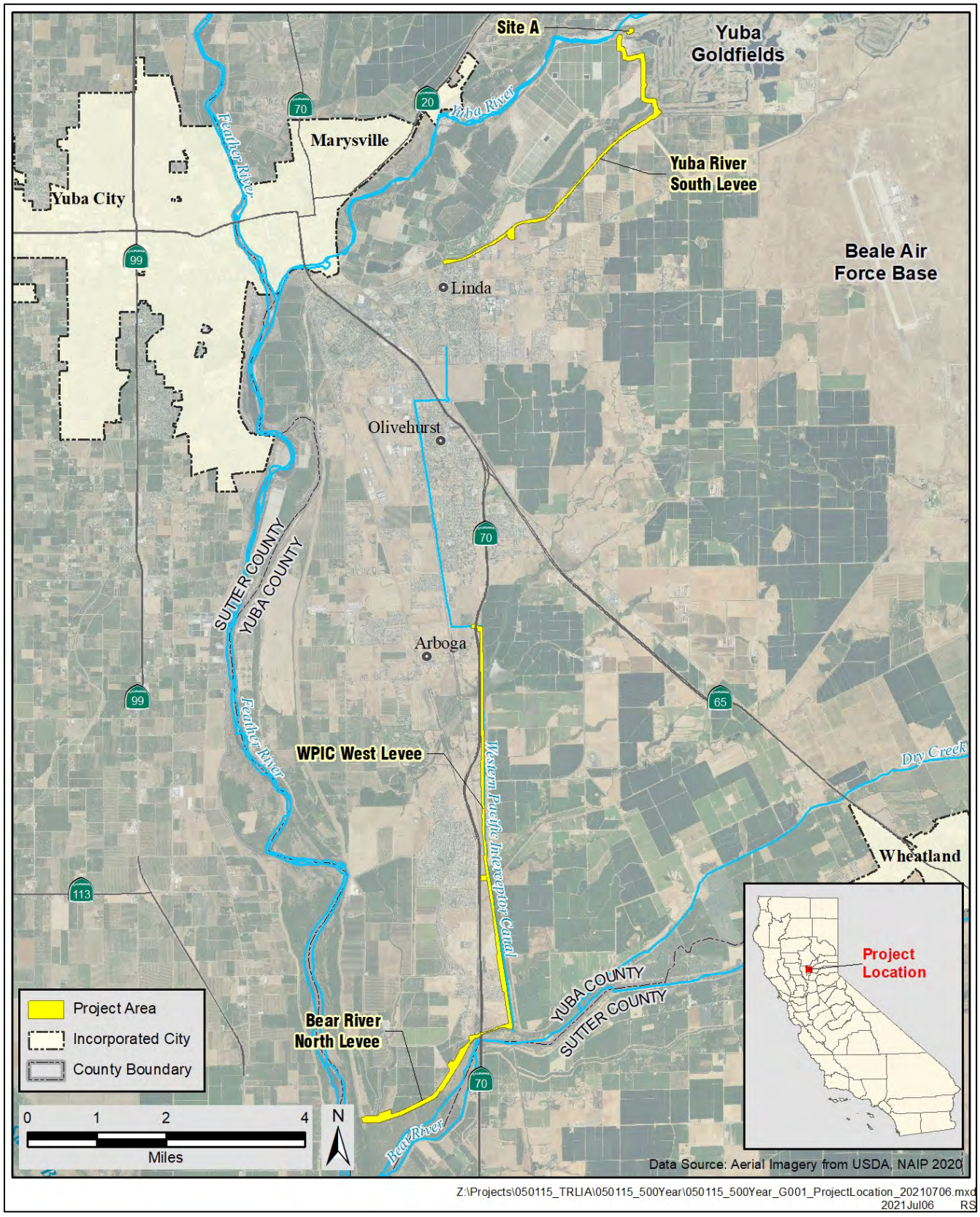
Interested parties may also provide written or oral comments on the proposed content and scope of the EIR at the public scoping meeting listed above. Those submitting comments will be automatically added to the distribution list for future notices and information about the environmental review process for the proposed project. If an interested party does not wish to submit comments on the scope and content of the EIR but would like to be added to the mailing list, they can submit contact information, including email address, with a request to be added to the mailing list at the contact above.

Project Background and Location

TRLIA is a joint powers authority comprised of Yuba County and RD 784 that was formed in 2004 to address funding and implementation of levee improvements for the RD 784 urban service area and other areas within Yuba County. The RD 784 urban service area consists of approximately 30,000 acres in southwest Yuba County, including part or all of the communities of Linda, Olivehurst, Arboga, and Plumas Lake. This service area is bounded on the north by the Yuba River, on the west by the Feather River, on the south by the Bear River, and on the east by the Western Pacific Interceptor Canal (WPIC). TRLIA has implemented a program of improvements to the RD 784 levee system to provide 200-year flood protection to properties within the RD 784 urban service area.

In support of the Yuba Water Agency's goal of providing a 500-year level of flood protection, TRLIA is reevaluating the RD 784 levee system against the 500-year design water surface elevations to determine which levee segments would not meet this level of protection and identify appropriate improvements to increase protection of those areas to the 500-year level. Based on the preliminary review, improvements may be necessary along a total of up to approximately 11 miles of existing levee segments located on the north side of the Bear River, west side of the WPIC, and south side of the Yuba River. Improvements also may include modifying and extending existing embankments in the western portion of the Yuba Goldfields (Goldfields). The project area (**Figure 1**) is located on the U.S. Geological Survey 7.5-minute Yuba City, Olivehurst, and Nicolaus quadrangles.

Figure 1 Project Area



Source: HDR, Inc. 2021, adapted by GEI Consultants, Inc. in 2021

Project Description

The proposed improvements would include raising the height of existing specified levee segments by a maximum of approximately 2 feet, depending on the location. Raises may be accomplished by adding soil fill to the levee embankment. This would also require widening the levee footprint, except in limited areas where the existing levee crown is wider than 20 feet and/or landside and waterside slopes are flatter than two horizontal (H) to one vertical (V) and 3H:1V, respectively. If a wider levee footprint is required, fill would be placed along the landside and/or waterside slope to reach the desired levee height (variable), crown width (20 feet), and landside and waterside slopes (2H:1V and 3H:1V). Along the western edge of the Goldfields, a new levee would be constructed along the alignment of an existing partial embankment. This levee would be constructed with 5H:1V landside slope, a 35-foot-wide crown, and 3H:1V waterside slope.

The additional levee height may be achieved by adding aggregate base to the levee crown on levee segments where the required levee raise is less than 0.5 foot, the existing levee crown is a minimum of 20 feet wide, and no other levee embankment work is required in or near the area of the raise. Where there is insufficient area to accommodate a widened footprint required by a levee crown raise (either soil fill or aggregate base), additional levee height may be provided by constructing a concrete parapet wall. Parapet walls are vertical space-conserving barriers constructed along the waterside levee crown hinge.

Along portions of the existing specified levee segments where seepage is a concern, remediation may include cutoff walls, landside blankets or seepage berms, or relief wells. Seepage cutoff walls are vertical walls approximately 3 feet wide and constructed of low hydraulic conductivity materials through the levee embankment and foundation to cut off potential through- and under-seepage. Relief wells are designed to relieve excessive pore pressures during high-flow events and provide a controlled discharge point for under-seepage. Relief wells and associated collection ditch and access road would be installed along the landside levee toe. Seepage berms and blankets are wide embankment structures that extend outward from the landside levee toe to extend the under-seepage path and provide additional resisting forces against high-seepage gradients.

Site A is located at an existing canal in the northwest corner of the Goldfields between a mining pond and the Yuba River channel. An embankment with landside and waterside slopes of 3H:1V and penetrated by three 60-inch culverts with gates to control flow would be installed at this location to control flows entering the Goldfields in a high-water event.

Equipment anticipated to be used during construction activities may include, but not necessarily be limited to: scrapers, graders, excavators, loaders, rollers, haul trucks, and water trucks.

Project Schedule

Project construction is proposed to be completed within the next 5 years. The project is anticipated to be constructed in a single season between April and December but could be spread over two construction seasons if construction cannot be completed in one season.

Project Alternatives

State CEQA Guidelines Section 15126.6(a) requires that an EIR describe a range of reasonable and feasible alternatives to the proposed project, or to the location of the proposed project, that are capable of attaining most project objectives while also avoiding or substantially lessening the significant environmental effects of the project, and to evaluate the comparative merits of the alternatives.

The No-Project Alternative and at least one other alternative to the proposed project that could reduce at least one potentially significant impact of the proposed project will be evaluated in the EIR in accordance with CEQA and the State CEQA Guidelines.

PROBABLE ENVIRONMENTAL EFFECTS

The environmental analysis will focus on examining the potential environmental impacts of implementing the proposed project and identifying feasible measures and alternatives that can be implemented to avoid, minimize, rectify, reduce, or compensate such impacts. The EIR will also evaluate cumulative effects of the proposed improvements when considered in conjunction with other related past, present, and reasonably foreseeable future projects.

Based on preliminary evaluations, the EIR is not anticipated to address the following resources, because there is no potential that these resources would be significantly impacted by the proposed project:

- **Energy**
  - **Wasteful, inefficient, or unnecessary consumption of energy resources.** Project implementation would not include wasteful or unnecessary consumption of energy resources, because it would be required to meet air quality and greenhouse gas emissions criteria that require the use of efficient equipment. In addition, project construction would be completed within the shortest period feasible, expected to be approximately 9 months.
  - **Conflict with or obstruct a State or local plan for renewable energy or energy efficiency.** The project would be constructed using efficient equipment and would not change operations and maintenance from existing conditions. There would be no long-term impacts to energy resources, and the project would not conflict with or obstruct renewable energy or energy efficiency plans.
- **Land Use and Planning**
  - **Physical Division of an Established Community.** Project activities would occur in rural areas and along community perimeters and would not divide any communities.
  - **Conflict with Land Use Plan, Policy, or Regulation.** Implementing the proposed project would not change the overall character of lands in the project area or vicinity and would be consistent with Yuba County land use and zoning designations.
- **Population and Housing**
  - **Inducement of substantial unplanned population growth in an area.** The project does not include housing or commercial development that would directly or indirectly induce population growth. The RD 784 service area already has 200-year flood protection. The proposed improvements would not induce growth beyond what has already been planned under the Yuba County 2030 General Plan and would not change where this growth is planned to occur.
  - **Displacement of substantial numbers of existing people or housing.** No people or housing would be permanently displaced by project implementation, and construction would be completed by local construction workers that would not need temporary housing. Project construction would occur primarily in undeveloped areas. Construction is not anticipated to require temporary displacement of residents adjacent to work areas. If 24-hour construction is

required adjacent to residences, it would be for a brief period (less than 1 week) and would not affect a substantial number of people or residences.

- **Public Services**

  - **Substantial adverse physical impacts associated with new or physically altered governmental facilities.** The project would not require any new or increased government facilities to maintain public services, acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, or other public facilities. The project would not have any or only minimal effects on existing public services.

- **Recreation**

  - **Increase in use of existing recreational facilities resulting in substantial deterioration.** The proposed project would not increase use of existing recreational facilities.

  - **Construction or expansion of recreational facilities resulting in an adverse physical effect.** The proposed project does not include recreational facilities and would not require construction or expansion of recreational facilities.

- **Wildfire**

  - **Substantial impairment of an adopted emergency response or evacuation plan.** There would be no effect on implementation of the Yuba County Emergency Operations Plan. Project construction would primarily occur in remote areas and temporary disruption of potential evacuation routes would be minimal, if any. Therefore, the proposed project would not substantially impair implementation of an emergency response or evacuation plan. Potential temporary and short-term disruption of emergency access and evacuation routes by haul truck traffic during construction will be addressed in the EIR's "Transportation" section.

  - **Exacerbation of wildfire risks.** The project would not require installation or maintenance of infrastructure that may exacerbate fire risk or result in temporary or ongoing impacts to the environment.

  - **Exposure to significant wildfire risks.** No portion of the project area is within a State or Federal responsibility area for fire protection or within a high fire hazard severity zone designated by the California Department of Forestry and Fire Protection. Standard wildfire risk reduction requirements for construction activities would be implemented during project construction, such as limiting activity on red flag days and prohibiting on-site burning. Therefore, project construction would not increase exposure of people or structures to significant wildfire risks or to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

Based on preliminary evaluations, the proposed project could have the following probable direct, indirect, and/or cumulative environmental effects:

- **Aesthetics.** Temporary changes in scenic views or visual character of the project area during construction, and potential long-term changes to aesthetics from levee modification and vegetation removal.

- **Agriculture and Forestry Resources.** Potential conversion of a small amount of farmland to accommodate levee footprint expansion.
- **Air Quality.** Temporary, short-term increases in pollutant emissions associated with construction activities.
- **Biological Resources.** Short- and long-term effects on habitat for special-status species and potential loss of a small amount of aquatic habitat and riparian vegetation.
- **Cultural Resources.** Potential disturbance or destruction of known or unknown historic or archaeological resources during construction.
- **Geology, Soils, and Paleontological Resources.** Temporary and short-term increases in erosion during construction.
- **Greenhouse Gas Emissions.** Temporary, short-term increases in greenhouse gas emissions associated with construction activities.
- **Hazards and Hazardous Materials.** Potential introduction of contaminants into water courses and exposure of construction workers to hazardous materials during construction activities.
- **Hydrology and Water Quality.** Potential construction-related impacts to water quality, short- and long-term transport of sediments and other pollutants into water courses, and effects on flood conveyance and flood control.
- **Noise.** Temporary and short-term increases in noise levels near sensitive receptors during construction.
- **Transportation.** Temporary and short-term disruption of traffic or emergency access by haul truck traffic during construction.
- **Tribal Cultural Resources.** Potential disturbance or destruction of known or unknown Tribal cultural resources during construction.

REVISED NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT

Date: August 2, 2021

To: Governor's Office of Planning and Research/State Clearinghouse Unit, Responsible Agencies, Trustee Agencies, and Interested Parties

From: Three Rivers Levee Improvement Authority

Subject: Announcement of:

1) Revised notice of preparation of an environmental impact report for the 500-year Flood Protection Project
2) Scoping comments are due by 5:00 p.m. on Wednesday, September 1, 2021

On July 9, 2021, the Three Rivers Levee Improvement Authority (TRLIA), as lead agency under the California Environmental Quality Act (CEQA), issued a notice of preparation (NOP) of an environmental impact report (EIR) for the 500-year Flood Protection Project, in accordance with Section 15082 of the State CEQA Guidelines. As indicated in the NOP, TRLIA is proposing to implement improvements to the Reclamation District (RD) 784 levee system to provide 500-year flood protection to southwest Yuba County.

Since issuing the NOP, TRLIA has added a component to the proposed project. The new component would extend the existing Western Pacific Interceptor Canal (WPIC) west levee to the north and east by constructing a new levee embankment connecting to State Route 65. This revised NOP incorporates this new project component. The July 9, 2021 NOP indicated that the 30-day public scoping period would end August 9, 2021. This revised NOP extends the scoping period to September 1, 2021. The July 20, 2021 public scoping meeting addressed all potential project components, including extension of the WPIC west levee, and an additional scoping meeting will not be held. The purpose of this NOP is to provide sufficient information about the proposed project and its potential environmental impacts to allow the Governor's Office of Planning and Research, responsible and trustee agencies, and interested parties with sufficient opportunity to provide a meaningful response related to the scope and content of the EIR. There are no changes to probable environmental impacts presented in the July 9, 2021 NOP; the only changes herein are the extended public scoping period and the revised project description adding the new project component.

Written comments concerning the EIR must be directed to the Executive Director of TRLIA at the following address or via email no later than 5:00 p.m. on Wednesday, September 1, 2021. All comments must include full name and address of the commentor. Please address all comments to:

Paul G. Brunner, Executive Director
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901
Telephone: 530-749-5679
Fax: 530-749-6990
Email: pbrunner@co.yuba.ca.us

Agencies that need to use the EIR when considering permits or other approvals for the proposed project should provide TRLIA with the name of the staff contact person. Comments provided by email should include the name and address of the sender. All comments received, including names and addresses, will become part of the official administrative record and may be made available to the public.

Interested parties submitting comments will be automatically added to the distribution list for future notices and information about the environmental review process for the proposed project. If an interested party does not wish to submit comments on the scope and content of the EIR but would like to be added to the mailing list, they can submit contact information, including email address, with a request to be added to the mailing list at the contact above.

Project Background and Location

TRLIA is a joint powers authority comprised of Yuba County and RD 784 that was formed in 2004 to address funding and implementation of levee improvements for the RD 784 urban service area and other areas within Yuba County. The RD 784 urban service area consists of approximately 30,000 acres in southwest Yuba County, including part or all of the communities of Linda, Olivehurst, Arboga, and Plumas Lake. This service area is bounded on the north by the Yuba River, on the west by the Feather River, on the south by the Bear River, and on the east by the WPIC. TRLIA has implemented a program of improvements to the RD 784 levee system to provide 200-year flood protection to properties within the RD 784 urban service area.

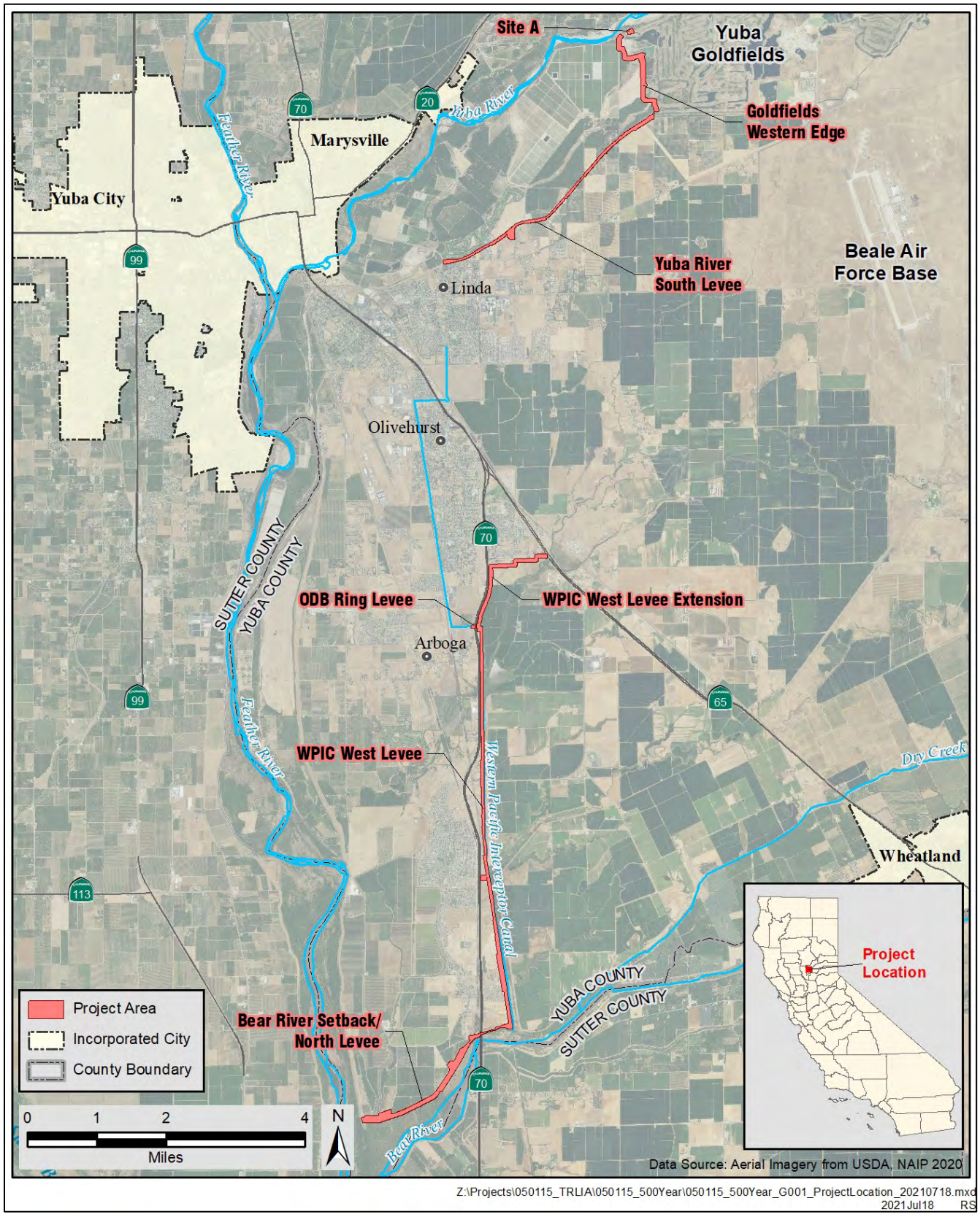
TRLIA is considering opportunities to further reduce flood risk beyond the State minimum standards and ensure the basin is adaptable to climate change. Specifically, TRLIA is reevaluating the RD 784 levee system against the 500-year design water surface elevations to determine which levee segments would not meet this level of protection and identify appropriate improvements to increase protection of those areas to the 500-year level. Based on the preliminary review, improvements may be necessary along a total of up to approximately 11 miles of existing levee segments located on the north side of the Bear River, west side of the WPIC, and south side of the Yuba River. Improvements also may include extending the WPIC west levee to the north and east and modifying and extending existing embankments in the western portion of the Yuba Goldfields (Goldfields). The project area (**Figure 1**) is located on the U.S. Geological Survey 7.5-minute Yuba City, Olivehurst, and Nicolaus quadrangles.

Project Description

The proposed improvements would include raising the height of existing specified levee segments by a maximum of approximately 2 feet, depending on the location. Raises may be accomplished by adding soil fill to the levee embankment. This would also require widening the levee footprint, except in limited areas where the existing levee crown is wider than 20 feet and/or landside and waterside slopes are flatter than two horizontal (H) to one vertical (V) and 3H:1V, respectively. If a wider levee footprint is required, fill would be placed along the landside and/or waterside slope to reach the desired levee height (variable), crown width (20 feet), and landside and waterside slopes (2H:1V and 3H:1V).

The additional levee height may be achieved by adding aggregate base to the levee crown on levee segments where the required levee raise is less than 0.5 foot, the existing levee crown is a minimum of 20 feet wide, and no other levee embankment work is required in or near the area of the raise. Where there is insufficient area to accommodate a widened footprint required by a levee crown raise (either soil fill or aggregate base), additional levee height may be provided by constructing a concrete parapet wall. Parapet walls are vertical space-conserving barriers constructed along the waterside levee crown hinge.

Figure 1 Project Area



Source: HDR, Inc. 2021, adapted by GEI Consultants, Inc. in 2021

The WPIC west levee would be extended by constructing a new levee embankment north along the east side of State Route 70, then east to State Route 65. The levee extension would be constructed with 3H:1V landside and waterside slopes and a 20-foot-wide crown. Along the western edge of the Goldfields, a new levee would be constructed along the alignment of an existing partial embankment. This levee would be constructed with 5H:1V landside slope, a 35-foot-wide crown, and 3H:1V waterside slope.

Along portions of the existing specified levee segments where seepage is a concern, remediation may include cutoff walls, landside blankets or seepage berms, or relief wells. Seepage cutoff walls are vertical walls approximately 3 feet wide and constructed of low hydraulic conductivity materials through the levee embankment and foundation to cut off potential through- and under-seepage. Relief wells are designed to relieve excessive pore pressures during high-flow events and provide a controlled discharge point for under-seepage. Relief wells and associated collection ditch and access road would be installed along the landside levee toe. Seepage berms and blankets are wide embankment structures that extend outward from the landside levee toe to extend the under-seepage path and provide additional resisting forces against high-seepage gradients.

Site A is located at an existing canal in the northwest corner of the Goldfields between a mining pond and the Yuba River channel. An embankment with landside and waterside slopes of 3H:1V and penetrated by three 60-inch culverts with gates to control flow would be installed at this location to control flows entering the Goldfields in a high-water event.

Equipment anticipated to be used during construction activities may include, but not necessarily be limited to: scrapers, graders, excavators, loaders, rollers, haul trucks, and water trucks.

Project Schedule

Project construction is proposed to be completed within the next 5 years. The project is anticipated to be constructed in a single season between April and December but could be spread over two construction seasons if construction cannot be completed in one season.

Project Alternatives

State CEQA Guidelines Section 15126.6(a) requires that an EIR describe a range of reasonable and feasible alternatives to the proposed project, or to the location of the proposed project, that are capable of attaining most project objectives while also avoiding or substantially lessening the significant environmental effects of the project, and to evaluate the comparative merits of the alternatives.

The No-Project Alternative and at least one other alternative to the proposed project that could reduce at least one potentially significant impact of the proposed project will be evaluated in the EIR in accordance with CEQA and the State CEQA Guidelines.

PROBABLE ENVIRONMENTAL EFFECTS

The environmental analysis will focus on examining the potential environmental impacts of implementing the proposed project and identifying feasible measures and alternatives that can be implemented to avoid, minimize, rectify, reduce, or compensate such impacts. The EIR will also evaluate cumulative effects of the proposed improvements when considered in conjunction with other related past, present, and reasonably foreseeable future projects.

Based on preliminary evaluations, the EIR is not anticipated to address the following resources, because there is no potential that these resources would be significantly impacted by the proposed project:

- **Energy**
  - **Wasteful, inefficient, or unnecessary consumption of energy resources.** Project implementation would not include wasteful or unnecessary consumption of energy resources, because it would be required to meet air quality and greenhouse gas emissions criteria that require the use of efficient equipment. In addition, project construction would be completed within the shortest period feasible, expected to be approximately 9 months.
  - **Conflict with or obstruct a State or local plan for renewable energy or energy efficiency.** The project would be constructed using efficient equipment and would not change operations and maintenance from existing conditions. There would be no long-term impacts to energy resources, and the project would not conflict with or obstruct renewable energy or energy efficiency plans.
- **Land Use and Planning**
  - **Physical Division of an Established Community.** Project activities would occur in rural areas and along community perimeters and would not divide any communities.
  - **Conflict with Land Use Plan, Policy, or Regulation.** Implementing the proposed project would not change the overall character of lands in the project area or vicinity and would be consistent with Yuba County land use and zoning designations.
- **Population and Housing**
  - **Inducement of substantial unplanned population growth in an area.** The project does not include housing or commercial development that would directly or indirectly induce population growth. The RD 784 service area already has 200-year flood protection. The proposed improvements would not induce growth beyond what has already been planned under the Yuba County 2030 General Plan and would not change where this growth is planned to occur.
  - **Displacement of substantial numbers of existing people or housing.** No people or housing would be permanently displaced by project implementation, and construction would be completed by local construction workers that would not need temporary housing. Project construction would occur primarily in undeveloped areas. Construction is not anticipated to require temporary displacement of residents adjacent to work areas. If 24-hour construction is required adjacent to residences, it would be for a brief period (less than 1 week) and would not affect a substantial number of people or residences.
- **Public Services**
  - **Substantial adverse physical impacts associated with new or physically altered governmental facilities.** The project would not require any new or increased government facilities to maintain public services, acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, or other public facilities. The project would not have any or only minimal effects on existing public services.

- **Recreation**

  - **Increase in use of existing recreational facilities resulting in substantial deterioration.** The proposed project would not increase use of existing recreational facilities.

  - **Construction or expansion of recreational facilities resulting in an adverse physical effect.** The proposed project does not include recreational facilities and would not require construction or expansion of recreational facilities.

- **Wildfire**

  - **Substantial impairment of an adopted emergency response or evacuation plan.** There would be no effect on implementation of the Yuba County Emergency Operations Plan. Project construction would primarily occur in remote areas and temporary disruption of potential evacuation routes would be minimal, if any. Therefore, the proposed project would not substantially impair implementation of an emergency response or evacuation plan. Potential temporary and short-term disruption of emergency access and evacuation routes by haul truck traffic during construction will be addressed in the EIR's "Transportation" section.

  - **Exacerbation of wildfire risks.** The project would not require installation or maintenance of infrastructure that may exacerbate fire risk or result in temporary or ongoing impacts to the environment.

  - **Exposure to significant wildfire risks.** No portion of the project area is within a State or Federal responsibility area for fire protection or within a high fire hazard severity zone designated by the California Department of Forestry and Fire Protection. Standard wildfire risk reduction requirements for construction activities would be implemented during project construction, such as limiting activity on red flag days and prohibiting on-site burning. Therefore, project construction would not increase exposure of people or structures to significant wildfire risks or to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

Based on preliminary evaluations, the proposed project could have the following probable direct, indirect, and/or cumulative environmental effects:

- **Aesthetics.** Temporary changes in scenic views or visual character of the project area during construction, and potential long-term changes to aesthetics from levee modification and vegetation removal.

- **Agriculture and Forestry Resources.** Potential conversion of a small amount of farmland to accommodate levee footprint expansion.

- **Air Quality.** Temporary, short-term increases in pollutant emissions associated with construction activities.

- **Biological Resources.** Short- and long-term effects on habitat for special-status species and potential loss of a small amount of aquatic habitat and riparian vegetation.

- **Cultural Resources.** Potential disturbance or destruction of known or unknown historic or archaeological resources during construction.
- **Geology, Soils, and Paleontological Resources.** Temporary and short-term increases in erosion during construction.
- **Greenhouse Gas Emissions.** Temporary, short-term increases in greenhouse gas emissions associated with construction activities.
- **Hazards and Hazardous Materials.** Potential introduction of contaminants into water courses and exposure of construction workers to hazardous materials during construction activities.
- **Hydrology and Water Quality.** Potential construction-related impacts to water quality, short- and long-term transport of sediments and other pollutants into water courses, and effects on flood conveyance and flood control.
- **Noise.** Temporary and short-term increases in noise levels near sensitive receptors during construction.
- **Transportation.** Temporary and short-term disruption of traffic or emergency access by haul truck traffic during construction.
- **Tribal Cultural Resources.** Potential disturbance or destruction of known or unknown Tribal cultural resources during construction.

Scoping Comments

California Department of Fish and Wildlife

California Department of Toxic Substances Control

Central Valley Flood Protection Board

Central Valley Regional Water Quality Control Board

Native American Heritage Commission

Yuba Water Agency

Sutter Butte Flood Control Agency

Levee District No. 1

Pioneer Law Group, LLP

George T. Kammerer, Attorney At Law

Francis Coats

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
North Central Region
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670-4599
916-358-2900
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

September 7, 2021

Paul G. Brunner
Executive Director
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901
pbrunner@co.yuba.ca.us

Subject: 500-YEAR FLOOD PROTECTION PROJECT
NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT (EIR) SCH# 2021070157

Dear Mr. Brunner:

The California Department of Fish and Wildlife (CDFW) received and reviewed the Notice of Preparation of an Environmental Impact Report (EIR) from the Three Rivers Levee Improvement Authority (TRLIA) for the 500-Year Flood Protection Project (Project) in Yuba County pursuant the California Environmental Quality Act (CEQA) statute and guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish, wildlife, plants and their habitats. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may need to exercise its own regulatory authority under the Fish and Game Code (Fish & G. Code).

CDFW ROLE

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, § 1802.). Similarly, for purposes of CEQA, CDFW provides, as available, biological expertise during public agency environmental

1 CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW may also act as a Responsible Agency under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code.

PROJECT DESCRIPTION SUMMARY

The Project is located along 11 miles of existing levee segments located on the north side of the Bear River, west side of the Western Pacific Interceptor Canal, and south side of the Yuba River, as well as existing embankments in the western portion of the Yuba Goldfields (Goldfields). The Project area is located within the Yuba City, Olivehurst, and Nicolaus U.S. Geological Survey 7.5-minute quadrangles.

The proposed Project includes raising the height of existing specified levee segments by up to two feet. This would also require widening the levee footprint, except in limited areas where the width of the levee crown and/or angle of the slopes allow otherwise. Along the western edge of the Goldfields, a new levee would be constructed along the alignment of an existing partial embankment. Levee raises may be constructed by adding soil fill to the levee embankment or aggregate base to the levee crown. Where there is insufficient area to accommodate a widened footprint, a concrete parapet wall may be constructed along the waterside levee crown hinge. Along portions of the existing specified levee segments where seepage is a concern, remediation may include cutoff walls, landside blankets or seepage berms, or relief wells. An embankment with three 60-inch gated culverts would be constructed at an existing canal in the northwest corner of the Goldfields between a mining pond and the Yuba River channel.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations presented below to assist TRLIA in adequately identifying and/or mitigating the Project's significant, or potentially significant, impacts on biological resources. The comments and recommendations are also offered to enable CDFW to adequately review and comment on the proposed Project with respect to impacts on biological resources. CDFW recommends that the forthcoming EIR address the following:

Project Description and Alternatives

The Project description should include the whole action as defined in the CEQA Guidelines § 15378 and should include appropriate detailed exhibits disclosing the Project area including temporary impacted areas such as equipment stage area, spoils areas, adjacent infrastructure development, staging areas and access and haul roads if applicable.

As required by § 15126.6 of the CEQA Guidelines, the EIR should include an appropriate range of reasonable and feasible alternatives that would attain most of the basic Project objectives and avoid or minimize significant impacts to resources under CDFW's jurisdiction.

Assessment of Biological Resources

Section 15125(c) of the CEQA Guidelines states that knowledge of the regional setting of a project is critical to the assessment of environmental impacts and that special emphasis should be placed on environmental resources that are rare or unique to the region. To enable CDFW staff to adequately review and comment on the Project, the EIR should include a complete assessment of the flora and fauna within and adjacent to the Project footprint, with emphasis on identifying rare, threatened, endangered, and other sensitive species and their associated habitats. CDFW recommends that the EIR specifically include:

1. An assessment of all habitat types located within the Project footprint, and a map that identifies the location of each habitat type. CDFW recommends that floristic, alliance- and/or association-based mapping and assessment be completed following *The Manual of California Vegetation*, second edition (Sawyer 2009). Adjoining habitat areas should also be included in this assessment where site activities could lead to direct or indirect impacts offsite. Habitat mapping at the alliance level will help establish baseline vegetation conditions.

2. A general biological inventory of the fish, amphibian, reptile, bird, and mammal species that are present or have the potential to be present within each habitat type onsite and within adjacent areas that could be affected by the Project. CDFW recommends that the California Natural Diversity Database (CNDDB), as well as previous studies performed in the area, be consulted to assess the potential presence of sensitive species and habitats. A nine United States Geologic Survey (USGS) 7.5-minute quadrangle search is recommended to determine what may occur in the region, larger if the Project area extends past one quad (see *Data Use Guidelines* on the Department webpage www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data). Please review the webpage for information on how to access the database to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code, in the vicinity of the Project. CDFW recommends that CNDDB Field Survey Forms be

completed and submitted to CNDDB to document survey results. Online forms can be obtained and submitted at: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data.

Please note that CDFW's CNDDB is not exhaustive in terms of the data it houses, nor is it an absence database. CDFW recommends that it be used as a starting point in gathering information about the *potential presence* of species within the general area of the Project site. Other sources for identification of species and habitats near or adjacent to the Project area should include, but may not be limited to, State and federal resource agency lists, California Wildlife Habitat Relationship System, California Native Plant Society Inventory, agency contacts, environmental documents for other projects in the vicinity, academics, and professional or scientific organizations.

3. A complete and recent inventory of rare, threatened, endangered, and other sensitive species present or potentially present within the Project footprint and within offsite areas with the potential to be affected, including California Species of Special Concern and California Fully Protected Species (Fish & G. Code § 3511). Species to be addressed should include all those which meet the CEQA definition (CEQA Guidelines § 15380). The inventory should address seasonal variations in use of the Project area and should not be limited to resident species. The EIR should include the results of focused species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable. Species-specific surveys should be conducted in order to ascertain the presence of species with the potential to be directly, indirectly, on or within a reasonable distance of the Project activities. CDFW recommends the lead agency rely on survey and monitoring protocols and guidelines available at: www.wildlife.ca.gov/Conservation/Survey-Protocols. Alternative survey protocols may be warranted; justification should be provided to substantiate why an alternative protocol is necessary. Acceptable species-specific survey procedures should be developed in consultation with CDFW and the U.S. Fish and Wildlife Service, where necessary. Some aspects of the Project may warrant periodic updated surveys for certain sensitive taxa, particularly if the Project is proposed to occur over a protracted time frame, or in phases, or if surveys are completed during periods of drought or deluge.

4. A thorough, recent (within the last two years), floristic-based assessment of special-status plants and natural communities, following CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (see www.wildlife.ca.gov/Conservation/Plants).

5. Information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis on resources that are rare or unique to the region (CEQA Guidelines § 15125[c]).

Analysis of Direct, Indirect, and Cumulative Impacts to Biological Resources

The EIR should provide a thorough discussion of the Project's potential direct, indirect, and cumulative impacts on biological resources. To ensure that Project impacts on biological resources are fully analyzed, the following information should be included in the EIR:

1. The EIR should define the threshold of significance for each impact and describe the criteria used to determine whether the impacts are significant (CEQA Guidelines, § 15064, subd. (f)). The EIR must demonstrate that the significant environmental impacts of the Project were adequately investigated and discussed and it must permit the significant effects of the Project to be considered in the full environmental context.

2. A discussion of potential impacts from lighting, noise, human activity, and wildlife-human interactions created by Project activities especially those adjacent to natural areas, exotic and/or invasive species occurrences, and drainages. The EIR should address Project-related changes to drainage patterns and water quality within, upstream, and downstream of the Project site, including: volume, velocity, and frequency of existing and post-Project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-Project fate of runoff from the Project site.

3. A discussion of potential indirect Project impacts on biological resources, including resources in areas adjacent to the Project footprint, such as nearby public lands (e.g. National Forests, State Parks, etc.), open space, adjacent natural habitats, riparian ecosystems, wildlife corridors, and any designated and/or proposed reserve or mitigation lands (e.g., preserved lands associated with a Conservation or Recovery Plan, or other conserved lands).

4. A cumulative effects analysis developed as described under CEQA Guidelines section 15130. The EIR should discuss the Project's cumulative impacts to natural resources and determine if that contribution would result in a significant impact. The EIR should include a list of present, past, and probable future projects producing related impacts to biological resources or shall include a summary of the projections contained in an adopted local, regional, or statewide plan, that consider conditions contributing to a cumulative effect. The cumulative analysis shall include impact analysis of vegetation and habitat reductions within the area and their potential cumulative effects. Please include all potential direct and indirect Project-related impacts to riparian areas, wetlands, wildlife corridors or wildlife movement areas, aquatic habitats, sensitive species and/or special-status species, open space, and adjacent natural habitats in the cumulative effects analysis.

Mitigation Measures for Project Impacts to Biological Resources

The EIR should include appropriate and adequate avoidance, minimization, and/or mitigation measures for all direct, indirect, and cumulative impacts that are expected to occur as a result of the construction and long-term operation and maintenance of the Project. CDFW also recommends that the environmental documentation provide scientifically supported discussion regarding adequate avoidance, minimization, and/or mitigation measures to address the Project's significant impacts upon fish and wildlife and their habitat. For individual projects, mitigation must be roughly proportional to the level of impacts, including cumulative impacts, in accordance with the provisions of CEQA (Guidelines § § 15126.4(a)(4)(B), 15064, 15065, and 16355). In order for mitigation measures to be effective, they must be specific, enforceable, and feasible actions that will improve environmental conditions. When proposing measures to avoid, minimize, or mitigate impacts, CDFW recommends consideration of the following:

1. *Fully Protected Species*: Several Fully Protected Species (Fish & G. Code § 3511) have the potential to occur within or adjacent to the Project area, including, but not limited to: white-tailed kite (*Elanus leucurus*), American peregrine falcon (*Falco peregrinus anatum*), golden eagle (*Aquila chrysaetos*), greater sandhill crane (*Grus canadensis tabida*), bald eagle (*Haliaeetus leucocephalus leucocephalus*), California black rail (*Laterallus jamaicensis coturniculus*), and ringtail (*Bassariscus astutus*). Fully protected species may not be taken or possessed at any time. Project activities described in the EIR should be designed to completely avoid any fully protected species that have the potential to be present within or adjacent to the Project area. CDFW also recommends that the EIR fully analyze potential adverse impacts to fully protected species due to habitat modification, loss of foraging habitat, and/or interruption of migratory and breeding behaviors. CDFW recommends that the Lead Agency include in the analysis how appropriate avoidance, minimization and mitigation measures will reduce indirect impacts to fully protected species.

2. *Sensitive Plant Communities*: CDFW considers sensitive plant communities to be imperiled habitats having both local and regional significance. Plant communities, alliances, and associations with a statewide ranking of S-1, S-2, S-3, and S-4 should be considered sensitive and declining at the local and regional level. These ranks can be obtained by querying the CNDDB and are included in *The Manual of California Vegetation* (Sawyer 2009). The EIR should include measures to fully avoid and otherwise protect sensitive plant communities from Project-related direct and indirect impacts.

3. *Mitigation*: CDFW considers adverse Project-related impacts to sensitive species and habitats to be significant to both local and regional ecosystems, and the EIR should include mitigation measures for adverse Project-related impacts to these resources. Mitigation measures should emphasize avoidance and reduction of Project impacts. For unavoidable impacts, onsite habitat restoration, enhancement, or permanent protection should be evaluated and discussed in

detail. If onsite mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, offsite mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.

The EIR should include measures to perpetually protect the targeted habitat values within mitigation areas from direct and indirect adverse impacts in order to meet mitigation objectives to offset Project-induced qualitative and quantitative losses of biological values. Specific issues that should be addressed include restrictions on access, proposed land dedications, long-term monitoring and management programs, control of illegal dumping, water pollution, increased human intrusion, etc.

4. *Habitat Revegetation/Restoration Plans*: Plans for restoration and revegetation should be prepared by persons with expertise in the regional ecosystems and native plant restoration techniques. Plans should identify the assumptions used to develop the proposed restoration strategy. Each plan should include, at a minimum: (a) the location of restoration sites and assessment of appropriate reference sites; (b) the plant species to be used, sources of local propagules, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) a local seed and cuttings and planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity. Monitoring of restoration areas should extend across a sufficient time frame to ensure that the new habitat is established, self-sustaining, and capable of surviving drought.

   CDFW recommends that local onsite propagules from the Project area and nearby vicinity be collected and used for restoration purposes. Onsite seed collection should be appropriately timed to ensure the viability of the seeds when planted. Onsite vegetation mapping at the alliance and/or association level should be used to develop appropriate restoration goals and local plant palettes. Reference areas should be identified to help guide restoration efforts. Specific restoration plans should be developed for various Project components as appropriate. Restoration objectives should include protecting special habitat elements or re-creating them in areas affected by the Project. Examples may include retention of woody material, logs, snags, rocks, and brush piles. Fish and Game Code sections 1002, 1002.5 and 1003 authorize CDFW to issue permits for the take or possession of plants and wildlife for scientific, educational, and propagation purposes. Please see our website for more information on Scientific Collecting Permits at www.wildlife.ca.gov/Licensing/Scientific-Collecting#53949678-regulations-.

5. *Nesting Birds:* Please note that it is the Project proponent's responsibility to comply with all applicable laws related to nesting birds and birds of prey. Migratory non-game native bird species are protected by international treaty under the federal Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 *et seq.*). CDFW implemented the MBTA by adopting the Fish and Game Code section 3513. Fish and Game Code sections 3503, 3503.5 and 3800 provide additional protection to nongame birds, birds of prey, their nests and eggs. Sections 3503, 3503.5, and 3513 of the Fish and Game Code afford protective measures as follows: section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the Fish and Game Code or any regulation made pursuant thereto; section 3503.5 states that is it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by the Fish and Game Code or any regulation adopted pursuant thereto; and section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

   Potential habitat for nesting birds and birds of prey is present within the Project area. The Project should disclose all potential activities that may incur a direct or indirect take to nongame nesting birds within the Project footprint and its vicinity. Appropriate avoidance, minimization, and/or mitigation measures to avoid take must be included in the EIR.

   CDFW recommends that the EIR include specific avoidance and minimization measures to ensure that impacts to nesting birds or their nests do not occur. Project-specific avoidance and minimization measures may include, but not be limited to: Project phasing and timing, monitoring of Project-related noise (where applicable), sound walls, and buffers, where appropriate. The EIR should also include specific avoidance and minimization measures that will be implemented should a nest be located within the Project site. In addition to larger, protocol level survey efforts (e.g. Swainson's hawk surveys) and scientific assessments, CDFW recommends a final preconstruction survey be required no more than three (3) days prior to vegetation clearing or ground disturbance activities, as instances of nesting could be missed if surveys are conducted earlier.

6. *Moving out of Harm's Way:* The Project is anticipated to result in the clearing of natural habitats that support native species. To avoid direct mortality, the lead agency should state in the EIR a requirement for a qualified biologist with the proper handing permits be retained to be onsite prior to and during all ground- and habitat-disturbing activities. Furthermore, the EIR should describe that the qualified biologist with the proper permits may move out of harm's way special-status species or other wildlife of low or limited mobility that would otherwise be injured or killed from Project-related activities, as needed. The EIR should also

describe qualified biologist qualifications and authorities to stop work to prevent direct mortality of special-status species. CDFW recommends fish and wildlife species be allowed to move out of harm's way on their own volition, if possible, and to assist their relocation as a last resort. It should be noted that the temporary relocation of onsite wildlife does not constitute effective mitigation for habitat loss.

7. *Translocation of Species*: CDFW generally does not support the use of relocation, salvage, and/or transplantation as the sole mitigation for impacts to rare, threatened, or endangered species as these efforts are generally experimental in nature and largely unsuccessful. Therefore, the EIR should describe additional mitigation measures utilizing habitat restoration, conservation, and/or preservation, in addition to avoidance and minimization measures, if it is determined that there may be impacts to rare, threatened, or endangered species.

The EIR should incorporate mitigation performance standards that would ensure that impacts are reduced to a less-than-significant level. Mitigation measures proposed in the EIR should be made a condition of approval of the Project. Please note that obtaining a permit from CDFW by itself with no other mitigation proposal may constitute mitigation deferral. CEQA Guidelines section 15126.4, subdivision (a)(1)(B) states that formulation of mitigation measures should not be deferred until some future time. To avoid deferring mitigation in this way, the EIR should describe avoidance, minimization and mitigation measures that would be implemented should the impact occur.

California Endangered Species Act

CDFW is responsible for ensuring appropriate conservation of fish and wildlife resources including threatened, endangered, and/or candidate plant and animal species, pursuant to the CESA. CDFW recommends that a CESA Incidental Take Permit (ITP) be obtained if the Project has the potential to result in "take" (Fish & G. Code § 86 defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") of State-listed CESA species, either through construction or over the life of the Project.

CESA-listed species with the potential to occur in the area include, but are not limited to: bank swallow (*Riparia riparia*), tricolored blackbird (*Agelaius tricolor*), Swainson's hawk (*Buteo swainsoni*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), least Bell's vireo (*Vireo bellii pusillus*), Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*), and giant garter snake (*Thamnophis gigas*).

The EIR should disclose the potential of the Project to take CESA-listed species and how the impacts will be avoided, minimized, and mitigated. Please note that mitigation measures that are adequate to reduce impacts to a less-than significant level to meet CEQA requirements may not be enough for the issuance of an ITP. To issue an ITP, CDFW must demonstrate that the impacts of the authorized take will be minimized and

fully mitigated (Fish & G. Code §2081 (b)). To facilitate the issuance of an ITP, if applicable, CDFW recommends the EIR include measures to minimize and fully mitigate the impacts to any State-listed species the Project has potential to take. CDFW encourages early consultation with staff to determine appropriate measures to facilitate future permitting processes and to engage with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service to coordinate specific measures if both state and federally listed species may be present within the Project vicinity.

Native Plant Protection Act

The Native Plant Protection Act (Fish & G. Code §1900 *et seq*.) prohibits the take or possession of State-listed rare and endangered plants, including any part or product thereof, unless authorized by CDFW or in certain limited circumstances. Take of State-listed rare and/or endangered plants due to Project activities may only be permitted through an ITP or other authorization issued by CDFW pursuant to California Code of Regulations, Title 14, section 786.9 subdivision (b).

Lake and Streambed Alteration Program

The EIR should identify all perennial, intermittent, and ephemeral rivers, streams, lakes, other hydrologically connected aquatic features, and any associated biological resources/habitats present within the entire Project footprint (including utilities, access and staging areas). The environmental document should analyze all potential temporary, permanent, direct, indirect and/or cumulative impacts to the above-mentioned features and associated biological resources/habitats that may occur because of the Project. If it is determined the Project will result in significant impacts to these resources the EIR shall propose appropriate avoidance, minimization and/or mitigation measures to reduce impacts to a less-than-significant level.

Section 1602 of the Fish and Game Code requires an entity to notify CDFW prior to commencing any activity that may do one or more of the following: substantially divert or obstruct the natural flow of any river, stream or lake; substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or deposit debris, waste or other materials that could pass into any river, stream or lake. Please note that "any river, stream or lake" includes those that are episodic (i.e., those that are dry for periods of time) as well as those that are perennial (i.e., those that flow year-round). This includes ephemeral streams and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water.

If CDFW determines that the Project activities may substantially adversely affect an existing fish or wildlife resource, a Lake and Streambed Alteration (LSA) Agreement will be issued which will include reasonable measures necessary to protect the resource. CDFW's issuance of an LSA Agreement is a "project" subject to CEQA (see Pub. Resources Code 21065). To facilitate issuance of an LSA Agreement, if one is necessary, the EIR should fully identify the potential impacts to the lake, stream, or riparian resources, and provide adequate avoidance, mitigation, and monitoring and

reporting commitments. Early consultation with CDFW is recommended, since modification of the Project may avoid or reduce impacts to fish and wildlife resources.

Please note that other agencies may use specific methods and definitions to determine impacts to areas subject to their authorities. These methods and definitions often do not include all needed information for CDFW to determine the extent of fish and wildlife resources affected by activities subject to Notification under Fish and Game Code section1602. Therefore, CDFW does not recommend relying solely on methods developed specifically for delineating areas subject to other agencies' jurisdiction (such as United States Army Corps of Engineers) when mapping lakes, streams, wetlands, floodplains, riparian areas, etc. in preparation for submitting a Notification of an LSA.

The following information will be required for the processing of an LSA Notification and CDFW recommends incorporating this information into any forthcoming CEQA document(s) to avoid subsequent documentation and Project delays:

1. Mapping and quantification of lakes, streams, and associated fish and wildlife habitat (e.g., riparian habitat, freshwater wetlands, etc.) that will be temporarily and/or permanently impacted by the Project, including impacts from access and staging areas. Please include an estimate of impact to each habitat type.

2. Discussion of specific avoidance, minimization, and mitigation measures to reduce Project impacts to fish and wildlife resources to a less-than-significant level. Please refer to section 15370 of the CEQA Guidelines.

Notifications for projects involving (1) sand, gravel or rock extraction, (2) timber harvesting operations, or (3) routine maintenance operations must be submitted using paper notification forms. All other LSA Notification types must be submitted online through CDFW's Environmental Permit Information Management System (EPIMS). For more information about EPIMS, please visit https://wildlife.ca.gov/Conservation/Environmental-Review/EPIMS. More information about LSA Notifications, paper forms and fees may be found at https://www.wildlife.ca.gov/Conservation/Environmental-Review/LSA.

Consistency with the Central Valley Flood Protection Plan

The Central Valley Flood Protection Plan's (CVFPP) and the accompanying Conservation Strategy provides a comprehensive, long-term, nonregulatory approach for improving riverine and floodplain ecosystems through multi-benefit projects that provide ecological benefits while protecting public safety. The Feather River Conservation Planning Area of the Conservation Strategy overlaps the proposed Project area. Accordingly, the EIR should consider discussing how the Project's goals and objectives are consistent with the CVFPP and Conservation Strategy. More specifically, how implementation of the proposed Project will contribute to the goals of the CVFPP and the measurable objectives identified within Conservation Strategy. The primary goal of the CVFPP is to improve flood risk management, while the supporting goals are to improve operations and maintenance, promote ecosystem functions, improve

institutional support, and promote multi-benefit projects. It is essential for flood protection projects to promote ecosystem functions by integrating the recovery and restoration of key physical processes, self-sustaining ecological functions, native habitats, and species into flood management system improvements (DWR 2012). The Conservation Strategy provides more specific measurable objectives to better guide the promotion of ecosystem functions and are based on the environmental objectives of the Central Valley Flood Protection Act (California Water Code, Section 9616[a]). Flood improvement projects can contribute toward the goals and measurable objectives by increasing floodplain inundation, improving riverine geomorphic processes, and directly creating habitats such as shaded riverine aquatic cover. CDFW recommends the proposed Project consider incorporating ecosystem improvements while also providing a discussion within the EIR of how the proposed Project contributes towards the goals of not only the CVFPP but also the Conservation Strategy's measurable objectives and ultimately the Central Valley Flood Protection Act. (DWR 2016)

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database, which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be submitted online or mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov.

FILING FEES

The Project, as proposed, would have an effect on fish and wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code § 711.4; Pub. Resources Code, § 21089.)

CONCLUSION

Pursuant to Public Resources Code sections 21092 and 21092.2, CDFW requests written notification of proposed actions and pending decisions regarding the Project. Written notifications shall be directed to: California Department of Fish and Wildlife North Central Region, 1701 Nimbus Road, Rancho Cordova, CA 95670.

CDFW appreciates the opportunity to comment on the Notice of Preparation of the EIR for the 500-Year Flood Protection Project and recommends TRLIA address CDFW's comments and concerns in the forthcoming EIR. CDFW personnel are

available for consultation regarding biological resources and strategies to minimize impacts.

If you have any questions regarding the comments provided in this letter or wish to schedule a meeting and/or site visit, please contact Gabriele Quillman, Environmental Scientist at (916) 358-2955 or gabriele.quillman@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Kelley Barker
778EDA8AE45F4C9...

Kelley Barker
Environmental Program Manager

ec: Tanya Sheya, Senior Environmental Scientist (Supervisory)
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Department of Fish and Wildlife

Office of Planning and Research, State Clearinghouse, Sacramento

Literature Cited

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Gavin Newsom
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July 26, 2021

Mr. Paul Brunner
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NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE 500-YEAR FLOOD PROTECTION PROJECT – DATED JULY 9, 2021
(STATE CLEARINGHOUSE NUMBER: 2021070157)

Dear Mr. Brunner:

The Department of Toxic Substances Control (DTSC) received a Notice of Preparation of an Environmental Impact Report (EIR) for the 500-Year Flood Protection Plan (Project). The Lead Agency is receiving this notice from DTSC because the Project includes one or more of the following: groundbreaking activities, work in close proximity to a roadway, work in close proximity to mining or suspected mining or former mining activities, presence of site buildings that may require demolition or modifications, importation of backfill soil, and/or work on or in close proximity to an agricultural or former agricultural site. Additionally, activities included in the Project appear to intersect the Triangle Engineering site which is potentially contaminated with cyanide, mercury, oil containing wastes, and solvent mixtures. Information on the Triangle Engineering site can be found on DTSC's Envirostor website.

DTSC recommends that the following issues be evaluated in the EIR Hazards and Hazardous Materials section:

1. The EIR should acknowledge the potential for historic or future activities on or near the project site to result in the release of hazardous wastes/substances on the project site. In instances in which releases have occurred or may occur, further studies should be carried out to delineate the nature and extent of the contamination, and the potential threat to public health and/or the environment should be evaluated. The EIR should also identify the mechanism(s) to initiate

any required investigation and/or remediation and the government agency who will be responsible for providing appropriate regulatory oversight.

2. Refiners in the United States started adding lead compounds to gasoline in the 1920s in order to boost octane levels and improve engine performance. This practice did not officially end until 1992 when lead was banned as a fuel additive in California. Tailpipe emissions from automobiles using leaded gasoline contained lead and resulted in aerially deposited lead (ADL) being deposited in and along roadways throughout the state. ADL-contaminated soils still exist along roadsides and medians and can also be found underneath some existing road surfaces due to past construction activities. Due to the potential for ADL-contaminated soil DTSC, recommends collecting soil samples for lead analysis prior to performing any intrusive activities for the project described in the EIR.

3. If any sites within the project area or sites located within the vicinity of the project have been used or are suspected of having been used for mining activities, proper investigation for mine waste should be discussed in the EIR. DTSC recommends that any project sites with current and/or former mining operations onsite or in the project site area should be evaluated for mine waste according to DTSC's 1998 Abandoned Mine Land Mines Preliminary Assessment Handbook

4. If buildings or other structures are to be demolished on any project sites included in the proposed project, surveys should be conducted for the presence of lead-based paints or products, mercury, asbestos containing materials, and polychlorinated biphenyl caulk. Removal, demolition and disposal of any of the above-mentioned chemicals should be conducted in compliance with California environmental regulations and policies. In addition, sampling near current and/or former buildings should be conducted in accordance with DTSC's 2006 *Interim Guidance Evaluation of School Sites with Potential Contamination from Lead Based Paint, Termiticides, and Electrical Transformers*.

5. If any projects initiated as part of the proposed project require the importation of soil to backfill any excavated areas, proper sampling should be conducted to ensure that the imported soil is free of contamination. DTSC recommends the imported materials be characterized according to *DTSC's 2001 Information Advisory Clean Imported Fill Material*.

6. If any sites included as part of the proposed project have been used for agricultural, weed abatement or related activities, proper investigation for organochlorinated pesticides should be discussed in the EIR. DTSC recommends the current and former agricultural lands be evaluated in

accordance with DTSC's 2008 *Interim Guidance for Sampling Agricultural Properties (Third Revision)*.

DTSC appreciates the opportunity to comment on the EIR. Should you need any assistance with an environmental investigation, please submit a request for Lead Agency Oversight Application. Additional information regarding voluntary agreements with DTSC can be found at DTSC's Brownfield website..

If you have any questions, please contact me at (916) 255-3710 or via email at Gavin.McCreary@dtsc.ca.gov.

Sincerely,

Gavin McCreary
Project Manager
Site Evaluation and Remediation Unit
Site Mitigation and Restoration Program
Department of Toxic Substances Control

cc: (via email)

Governor's Office of Planning and Research
State Clearinghouse
State.Clearinghouse@opr.ca.gov

Mr. Dave Kereazis
Office of Planning & Environmental Analysis
Department of Toxic Substances Control
Dave.Kereazis@dtsc.ca.gov

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY **GAVIN NEWSOM,** GOVERNOR

CENTRAL VALLEY FLOOD PROTECTION BOARD
3310 El Camino Ave., Ste. 170
SACRAMENTO, CA 95821
(916) 574-0609 FAX: (916) 574-0682

September 1, 2021

Mr. Paul Brunner, Executive Director
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901
pbrunner@co.yuba.ca.us

Subject: Comments on the 500-year Flood Protection Project's Notice of Preparation of an Environmental Impact Report (SCH No. 2021070157)

Dear Mr. Brunner,

The Central Valley Flood Protection Board (Board) appreciates the opportunity to comment on the Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the proposed 500-year Flood Protection Project (proposed project). The EIR will be prepared to disclose and address potential environmental impacts associated with the proposed project. The proposed project is located in Yuba County on the north side of the Bear River, west side of the Western Pacific Interceptor Canal (WPIC), and south side of the Yuba River. Improvements also may include modifying and extending existing embankments in the western portion of the Yuba Goldfields.

Responsibility of the Central Valley Flood Protection Board

The Board is the State's regulatory agency responsible for ensuring appropriate standards are met for the construction, maintenance, and operation of the flood control system that protects life, property, and habitat in California's Central Valley. The Board serves as the State coordinator between local flood management agencies and the federal government, with the goal of providing the highest level of flood protection possible to California's Central Valley.

The Board operates under authorities as described in California Water Code (Water Code), which requires the Board to oversee future modifications or additions to facilities of the State Plan of Flood Control (SPFC). In addition, pursuant to assurances provided to the United States Army Corps of Engineers (USACE) by the Board on behalf of the State, the USACE Operation and Maintenance Manuals, Code of Federal Regulations, Title 33, § 208.10, and United States Code, Title 33, § 408, the Board is responsible for the operation and maintenance of the SPFC facilities. The USACE requires the Board to serve as the lead non-Federal sponsor for projects to improve or alter facilities of the SPFC pursuant to Code of Federal Regulations, Title 33, § 408. The State's objectives include fulfilling the USACE's expectations pursuant to the assurances provided to the USACE.

Encroachment Permit

Per California Code of Regulations, Title 23, Waters, Division 1 (Title 23), Section 6, approval by the Board is required for all proposed work or uses, including the alteration of levees within any area for which there is an Adopted Plan of Flood Control within the Board's jurisdiction. In addition, Board approval is required for all proposed encroachments within a floodway, on adjacent levees, and within any Regulated Stream identified in Title 23, Table 8.1. Specifically, Board jurisdiction includes the levee section, the waterward area between project levees, a minimum 10-foot-wide strip adjacent to the landward levee toe, the area within 30 feet from the top of bank(s) of Regulated Streams, and inside Board's Designated Floodways. Activities outside of these limits which could adversely affect Federal-State flood control facilities, as determined by Board staff, are also under the Board's jurisdiction. Permits may also be required for existing unpermitted encroachments or where it is necessary to establish the conditions normally imposed by permitting, including where responsibility for the encroachment has not been clearly established or ownership or uses have been changed. This proposed project is located within the Board's permitting authority, thereby requiring an approved Board permit.

Federal permits, including USACE Section 404 and Section 10 regulatory permits and Section 408 Permission, in conjunction with a Board permit, may be required for the proposed project. In addition to federal permits, state and local agency permits, certification, or approvals may also be required. State approvals may include, but are not limited to, California Department of Fish and Wildlife's Lake and Streamed Alteration Agreement and Regional Water Quality Control Board's Section 401 Water Quality Certification. The Applicant must obtain all authorizations that the proposed project may require.

Flood Impacts Analysis

Pursuant to Section 15 of Title 23, the Board may deny a permit if the proposed project could:

- Jeopardize directly or indirectly the physical integrity of levees or other works;
- Obstruct, divert, redirect, or raise the surface level of design floods or flows, or the lesser flows for which protection is provided;
- Cause significant adverse changes in water velocity or flow regimen;
- Impair the inspection of floodways or project works;
- Interfere with the maintenance of floodways or project works;
- Interfere with the ability to engage in flood fighting, patrolling, or other flood emergency activities;
- Increase the damaging effects of flood flows;
- Be injurious to, or interfere with, the successful execution, functioning, or operation of any adopted plan of flood control; or
- Adversely affect the State Plan of Flood Control, as defined in the Water Code.

As a responsible agency under the California Environmental Quality Act (CEQA), the Board will need to have adequate information in order to evaluate whether to issue a permit at a future date. Accordingly, please be prepared to provide specific analyses to determine if the proposed project could result in any potential impacts listed above. This includes direct impacts to facilities under construction, as well as indirect impacts from the project to surrounding facilities. This encompasses any proposed work that contemplates modifications to a SPFC Facility, Lower San Joaquin Levee District Facility, or operation of any adopted plan of flood control or the hydrology of the water ways including: increases or decreases in water surface elevation due to construction activities and encroachments; any work including dewatering and vibrations from both pile driving and heavy machinery that may destabilize the SPFC levees; and potential levee damage resulting from heavy machinery construction activities and associated haul routes. It is therefore recommended that the environmental document include a specific flood facility impacts analysis section.

Notice of Preparation Specific Comments

According to p. 2 “Based on the preliminary review, improvements may be necessary along a total of up to approximately 11 miles of existing levee segments located on the north side of the Bear River, west side of the WPIC, and south side of the Yuba River. Improvements also may include extending the WPIC west levee to the north and east and modifying and extending existing embankments in the western portion of the Yuba Goldfields (Goldfields).”

- Title 23 provides standards that govern the design and construction of projects that affect the flood control works and floodways. Board staff recommends that you review Title 23 Standards, including but not limited to Sections 115 (Dredged, Spoil, and Waste Material), 116 (Borrow and Excavation), 117 (Supplemental Borrow Standards for the Yuba River), 120 (Levees), 121 (Erosion Control), 123 (Pipelines, Conduits and Utility Lines), 126 (Fences and Gates), 131 (Vegetation), 130 (Patrol Roads and Access Ramps) and 134 (Supplemental Standards for the Yuba River-Daguerre Point Dam to Confluence with the Feather River). Any deviation (or variation) from these standards will require approval from the Board.

- The State is in the process of forming a Maintenance Area based on Reclamation District (RD) 784 declarations of inability to maintain the Horseshoe Levee. The property owners that receive flood risk reduction benefit from the Horseshoe Levee contend that RD 784 is seeking to only protect urban areas. The proposed project intends to strengthen only the west side levees of the WPIC which gives the Board concern in relation to levee superiority and inequities that arise from raising only one side of the WPIC.

- As described above, the proposed project will require a permit from the Board and the Board may deny a permit if a project increases the damaging effects of flood flows. The Board has specific concerns that the proposed project will potentially increase the damaging effects of flood flows to the east side of the WPIC levee. Without a detailed study to prove otherwise, the proposed project, when raised to

provide protection level from 200-year to 500-year on the WPIC west levee, will potentially push more flood flows toward the eastside of the WPIC levee, increasing damaging effects to the area including to the WPIC East Levee (an SPFC levee) under flood events at 200-year and above. As stated above, the Board recommends a specific flood facility impacts analysis section in the environmental document and requests that the analysis address these concerns related to the WPIC East Levee, at a minimum.

Closing

The potential risks to public safety, including increased flood risks, need to be considered when developing proposed projects that seek to modify flood control works or the hydrology of the water ways. Board staff is available to discuss any questions you have regarding the above comments. Please contact Jennifer Stewart at (916) 574-1719, or via email at Jennifer.Stewart@CVFlood.ca.gov if you have any questions.

Sincerely,

Andrea Buckley

Andrea Buckley
Environmental Services and Land Management Branch Chief

ec: Office of Planning and Research
State.Clearinghouse@opr.ca.gov

Michael C. Wright, Chief Engineer
Michael.Wright@cvflood.ca.gov

CALIFORNIA Water Boards

GAVIN NEWSOM
GOVERNOR

JARED BLUMENFELD
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

6 August 2021

Anne King
Three Rivers Levee Improvement Authority
2868 Prospect Park Drive, Suite 400
Rancho Cordova, CA 95670

COMMENTS TO REQUEST FOR REVIEW FOR THE NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, 500-YEAR FLOOD PROTECTION PROJECT, SCH#2021070157, YUBA COUNTY

Pursuant to the State Clearinghouse's 9 July 2021 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Notice of Preparation for the Draft Environmental Impact Report* for the 500-year Flood Protection Project, located in Yuba County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental

Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:
https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]
The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit
Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ. For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml

Clean Water Act Section 404 Permit
If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification
If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic

[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/

Waste Discharge Requirements – Discharges to Waters of the State

If USACE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/help/permit/

If you have questions regarding these comments, please contact me at (916) 464-4684 or Peter.Minkel2@waterboards.ca.gov.

Peter G. Minkel
Engineering Geologist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

STATE OF CALIFORNIA Gavin Newsom, Governor

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July 12, 2021

RECEIVED
JUL 20 2021
TRLIA

Paul Brunner
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901

Re: 2021070157, 500-year Flood Protection Project, Yuba County

Dear Mr. Brunner:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- **a.** A brief description of the project.
- **b.** The lead agency contact information.
- **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- **a.** Alternatives to the project.
- **b.** Recommended mitigation measures.
- **c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- **a.** Type of environmental review necessary.
- **b.** Significance of the tribal cultural resources.
- **c.** Significance of the project's impacts on tribal cultural resources.
- **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
- **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
   a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
   b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
   a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
   b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
   c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Sarah.Fonseca@nahc.ca.gov.

Sincerely,

Sarah Fonseca
Cultural Resources Analyst

cc: State Clearinghouse

STATE OF CALIFORNIA Gavin Newsom, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION

August 4, 2021

Paul Brunner
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901

Re: 2021070157, 500-Year Flood Protection Project, Yuba County

Dear Mr. Brunner:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- **a.** A brief description of the project.
- **b.** The lead agency contact information.
- **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- **a.** Alternatives to the project.
- **b.** Recommended mitigation measures.
- **c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- **a.** Type of environmental review necessary.
- **b.** Significance of the tribal cultural resources.
- **c.** Significance of the project's impacts on tribal cultural resources.
- **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
- **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

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If you have any questions or need additional information, please contact me at my email address: Katy.Sanchez@nahc.ca.gov.

Sincerely,

Katy Sanchez

Katy Sanchez
Associate Environmental Planner

cc: State Clearinghouse

530.741.5000
info@yubawater.org
yubawater.org

YUBA WATER AGENCY

September 1, 2021

Mr. Paul G. Brunner, P.E.
Executive Director
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901

RE: Notice of Preparation of an Environmental Impact Report for the 500-year Flood Protection Project

Dear Mr. Brunner:

On August 2, 2021, the Three Rivers Levee Improvement Authority (TRLIA), as lead agency under the California Environmental Quality Act (CEQA), issued a notice of preparation (NOP) of an environmental impact report (EIR) for the 500-year Flood Protection Project, in accordance with Section 15082 of the State CEQA Guidelines.

As indicated in the NOP, and at the scoping meeting held on July 20, 2021, TRLIA is proposing to provide 500-year flood protection to southwest Yuba County by implementing improvements to the Reclamation District (RD) 784 levee system in conjunction with Yuba Water Agency's (YWA) Secondary Spillway Project.

The Yuba Water Agency is supportive of the project and the flood risk reduction benefits it will bring to South Yuba County.

However, we want to be sure, and respectfully request on record that the project continues to include the Agency's secondary spillway as an element of the resulting study. Equally important, we also request the project be done in collaboration with YWA's Comprehensive Flood Study.

Because these two plans are instrumental in guiding the future of flood risk reduction in Yuba County, it is important they are done in conjunction to avoid potential contradictions. As such, Yuba Water staff and consultants are ready to work with your team to ensure our projects occur in alignment.

If you have any questions or need any other information please do not hesitate to contact me, or Ryan McNally at (530) 682-9000 or rmcnally@yubawater.org.

Sincerely,

Willie Whittlesey, General Manager
(530) 741-5026
wwhittlesey@yubawater.org

Sutter Butte Flood Control Agency
Post Office Box M
Yuba City, CA 95991
(530) 755-9859

sutterbutteflood.org

COUNTIES
Butte County
Sutter County

CITIES
City of Biggs
City of Gridley
City of Live Oak
City of Yuba City

LEVEE DISTRICTS
Levee District 1
Levee District 9

August 27, 2021

Paul G. Brunner, Executive Director
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901
pbrunner@co.yuba.ca.us

SUBJECT: Notice of Preparation of an Environmental Impact Report for the 500-year Flood Protection Project

Dear Mr. Brunner,

On July 9, 2021, the Three Rivers Levee Improvement Authority (TRLIA), as lead agency under the California Environmental Quality Act (CEQA), issued a notice of preparation (NOP) of an environmental impact report (EIR) for the 500-year Flood Protection Project, in accordance with Section 15082 of the State CEQA Guidelines. The NOP was revised and reissued on August 2, 2021.

As indicated in the NOP and at the scoping meeting held on July 20, TRLIA is proposing to provide 500-year flood protection to southwest Yuba County by implementing improvements to the Reclamation District (RD) 784 levee system in conjunction with Yuba Water Agency's (YWA) Secondary Spillway Project.

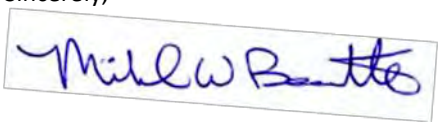
In general, the Sutter Butte Flood Control Agency (SBFCA) is supportive of the improvements proposed by YWA as part of their Secondary Spillway Project and is eager to learn more about the regional benefits and the potential for reducing peak flows along the downstream reaches of the Feather River.

SBFCA respectfully requests that the EIR for TRLIA's 500-year proposed project include a detailed hydraulic analysis which clearly demonstrates that there are no downstream adverse impacts associated with the proposed levee raises and other improvements.

SBFCA has enjoyed working closely with TRLIA as part of the Regional Flood Management Planning process and we look forward to continuing that collaborative effort as you move forward with your 500-year flood protection project.

If you have any additional questions or need any other information please do not hesitate to contact me at (530) 415-0983 or m.bessette@sutterbutteflood.org.

Sincerely,



Michael W. Bessette, P.E.
Executive Director
Sutter Butte Flood Control Agency

LEVEE DISTRICT No.1
OF SUTTER COUNTY
243 Second Street ·Yuba City, CA 95991
Office: (530) 673-2454 · E-Mail: ld1@syix.com

August 31, 2021

Paul G. Brunner, Executive Director
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901
pbrunner@co.yuba.ca.us

SUBJECT: Notice of Preparation of Environmental Impact Report for the 500-year Flood Protection Project

Dear Mr. Brunner,

Levee District 1 (LD1) submits these comments on the notice of preparation (NOP) of an environmental impact report (EIR) for Three Rivers Levee Improvement Authority's (TRLIA) 500-year Flood Protection Project (Project).

LD1 is responsible for operating and maintaining 16.11 miles of levees along the west bank of the Feather River in Sutter County, downstream of the proposed Project. LD1 facilities protect more than $7 billlion in property and 70,000 residents from flooding.

As indicated in the NOP and at the scoping meeting held on July 20, TRLIA is proposing to provide 500-year flood protection to southwest Yuba County by implementing improvements to the Reclamation District (RD) 784 levee system in conjunction with Yuba Water Agency's (YWA) Secondary Spillway Project. LD1 supports efforts to improve flood protection within the region, but improvements in one area must not increase flood risk elsewhere.

LD1 is particularly concerned about the potential significant adverse downstream effects that could occur to people and property from TRLIA's Project. At the July 20, 2021 EIR scoping meeting, TRILIA representatives stated that the EIR will analyze whether the Project will result in any flood risk to neighboring land, and that mitigation measures would be developed and adopted to address any such risk. LD1 agrees that the EIR must include a detailed hydraulic analysis which clearly demonstrates that there are no downstream adverse project-specific or cumulative impacts associated with the proposed levee raises and other improvements. LD1 would consider any increase in flood risk within LD1 from the proposed project to be a significant and adverse impact; the EIR must identify feasible mitigation, or alternatives, capable of avoiding or fully mitigating any increased flood risk within LD1.

LEVEE DISTRICT No.1
OF SUTTER COUNTY
243 Second Street · Yuba City, CA 95991
Office: (530) 673-2454 · E-Mail: ld1@syix.com

The EIR should clearly explain the assumptions and methodology used in the hydraulic analysis, and potential Project impacts should be evaluated against both existing conditions and a future baseline that accounts for the hydrologic effects of climate change. The EIR also should clearly describe the Project's relationship to the proposed New Bullards Bar Dam Secondary Spillway Project (Spillway Project). LD1 is supportive of the Spillway Project and the potential flood control benefits the facility may provide to downstream reaches of the Feather River. At the Project scoping meeting TRILIA representatives stated the Project EIR will assume that the Spillway Project, which is undergoing environmental review, has been constructed. The EIR should clarify whether Project implementation is contingent on the Spillway Project being complete. Further, the EIR must evaluate hydrologic and flood impacts without the Spillway Project in place and account for any effects of the Spillway Project in the Project's cumulative impact analysis.

If you have any questions about LD1's facilities or need any information to conduct the necessary CEQA analysis, please contact me at (530) 673-2454 or astresser@co.sutter.ca.us.

Sincerely,

Andrew Stresser
General Manager
Levee District One of Sutter County

Cc: A. Montna
A. Stevens

pioneer
law group, llp

Andrea A. Matarazzo
Partner
andrea@pioneerlawgroup.net
direct: (916) 287-9502

September 1, 2021

Via Electronic Mail

Paul G. Brunner, Executive Director
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901

Re: Notice of Preparation for the 500-year Flood Protection Project for Reclamation District 784's Levee System
SCH Number: 2021070157

Dear Mr. Brunner:

On behalf of Michael E. Rue and Rue Ranch Partnership, LLC (collectively, Rue Ranch),[1] we have reviewed the original and revised Notices of Preparation (NOP) of a draft Environmental Impact Report (EIR) issued by the Three Rivers Levee Improvement Authority (TRLIA) for its "500-year Flood Protection Project" for certain portions of the Sacramento River Flood Control Project within the bounds of Reclamation District 784 (Proposed Project) and submit the following comments.

I. INTRODUCTION

These comments concern TRLIA's analysis pursuant to the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.) of the Proposed Project's potentially significant adverse direct, indirect, and cumulative impacts to the environment, particularly agricultural resources located

[1] / Rue Ranch's property consists of several parcels within Yuba County, including Assessor's Parcel Numbers 016-070-020, 016-070-023, 016-070-026, and 016-110-010 (Rue Property). These parcels are located within the area of effect of the Proposed Project and east of what is commonly referred to as the Horseshoe Levee, located approximately 2.5 miles northeast of the confluence of the Bear River and Feather River.

within the Horseshoe Area. Reasonably foreseeable significant effects of the Proposed Project include, but are not limited to increased flood risk, depth, and reach on those lands east of the Horseshoe Levee.

The significant incremental impacts of the Proposed Project also must be assessed in the cumulative context of years of levee projects that ignored the Horseshoe Levee and the Horseshoe Area. The EIR must analyze the cumulative impacts of the Proposed Project by disclosing its impacts on the Horseshoe Area with respect to past, current, and probable future projects (including the original RD 784 levee improvements and TRLIA's 200-year levee plan) within the context of the cumulative setting. The cumulative impacts analysis must include reasonable, feasible options for mitigating or avoiding the Proposed Project's contribution to significant cumulative effects. The EIR therefore should identify alternatives and/or mitigation measures that improve the levees of the Horseshoe Area sufficient to protect the area from the increased risk of flooding due to the Proposed Project's significant cumulative impacts.

II. BACKGROUND

Broadly speaking, the Proposed Project consists of raising the height of approximately eleven miles of existing levee segments within RD 784, constructing a new levee along the western edge of the Goldfields, and extending the west bank of the existing Western Pacific Interceptor Canal (WPIC) west levee by constructing a new levee embankment. The Proposed Project will substantially alter the area's drainage patterns and will redirect flood flows, which will result in significant adverse environmental impacts.

The levee and drainage system operated and maintained by RD 784 alter the natural flow of water in the southern portion of Yuba County. Components of this system include the south bank of the Yuba River, the east bank of the Feather River, the north bank of the Bear River/Dry Creek, and the west bank of the man-made WPIC. The west bank of the WPIC acts as a dam by intercepting and redirecting water that, under natural conditions would flow east to west into the lower lying lands within Plumas Lake.[2]

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[2] / It stops waters from Hutchinson Creek, Reeds Creek, and Best Slough from following their natural course downstream and westward, and instead redirects waters from those natural channels into the WPIC channel to travel south to Bear River, which feeds the Feather River.

The Horseshoe Levee is comprised of the east bank of the WPIC, south bank of Best Slough, and north bank of the Bear River/Dry Creek. It was designed and constructed to prevent induced flooding of adjacent upgradient lands caused by artificial redirection of water by the west bank of the WPIC. These include lands within the Horseshoe Area and the Rue Property. The United States Army Corps of Engineers (USACE) has deemed the Horseshoe Levee inadequate to protect against a 100-year flood. As such, the Horseshoe Levee is not accredited by FEMA, RD 784 no longer adequately services or repairs this levee, and it is the only levee within RD 784's purview that TRLIA has not improved.

Due to the combination of the levee improvements and the decertification of Horseshoe Levee, a greater portion of the Horseshoe Area and the Rue Property are now within a designated floodplain. The purpose and effect of the Horseshoe Levee are not to benefit the lands owned by Mr. Rue, but to safeguard the public against liability for damage that would result as a by-product of the operation and maintenance of the WPIC and other works, which were designed and constructed for the benefit of Plumas Lake.

Into this mix came TRLIA, which undertook a public works project to provide 200-year flood protection in RD 784. It accomplished this task by improving all levees operated and maintained by RD 784 *except* the Horseshoe Levee. In undertaking these improvements, TRLIA has increased the flood risk to the Horseshoe Area and the Rue Property.

In other words, the Rue Property went from (1) a property that did not naturally flood; to (2) a property that became a flood risk due to the levee improvements maintained by RD 784 but was protected by the Horseshoe Levee; to (3) a property that is now within a floodplain due to the levee improvements and the failure to maintain the Horseshoe Levee.

III. SCOPE OF DRAFT EIR ANALYSIS

The Proposed Project further alters existing drainage patterns, redirects flood flows, and exacerbates the risk of flooding to the Horseshoe Area and the Rue Property, though the NOP entirely fails to acknowledge this risk. This results in several issues with the Proposed Project that must be addressed in the Draft EIR.

First, the objectives of the Proposed Project are too narrowly defined and unreasonably limit the range of potentially feasible alternatives. The stated purpose of the Proposed Project is to provide "500-year flood protection to southwest Yuba County." (NOP, p. 1.) The EIR for the Proposed Project cannot merely assume the need for a 500-year flood protection plan without analyzing alternatives that could achieve an objective level of flood protection that affords similar benefits while avoiding or substantially lessening the Proposed Project's significant adverse effects on people and property in the Horseshoe Area.

A 100- or even 200-year flood protection plan provides some measurable potential benefits and provides a statistical measure of probability of a flood event. A 500-year flood protection plan provides only speculative benefits as it is a statistically unknown measure. Here, where the existing baseline is 200-year flood protection, the Proposed Project will provide only speculative potential benefits.

This is particularly problematic within the context of the Proposed Project – TRLIA has identified a preferred alternative that would devote its limited resources to protecting against a statistically unknown measure while at the same time failing to improve the Horseshoe Levee, a project that would provide a tangible benefit – mitigating the Proposed Project's significant environmental impacts, as well as its impacts on people and property, and the significant contribution to cumulative impacts of past, current, and probable future projects. The Draft EIR for the Proposed Project must identify objectives that are not unduly narrow as to artificially constrain the range of potentially feasible alternatives. To avoid or substantially lessen the Proposed Project's reasonably foreseeable direct, indirect, and cumulative impacts, the Draft EIR should identify an alternative that includes improving the Horseshoe Levee.

Second, CEQA requires the Draft EIR for the Proposed Project to analyze the impacts it will have on the existing environment, including but not limited to impacts related to agricultural resources, hydrology and water quality, and increased flood risk in the Horseshoe Area and on the Rue Property.

The NOP's identification of probable environmental impacts states that (1) "no people or housing would be permanently displaced by project implementation"; (2) impacts of the Proposed Project to agricultural and forestry resources include "[p]otential conversion of a small amount of farmland to

accommodate levee footprint expansion"; and (3) impacts to hydrology and water quality include "effects on flood conveyance and flood control."

Both history and common-sense dictate that elevating eleven miles of levee segments and extending the existing Western Pacific Interceptor Canal (WPIC) west levee will significantly alter existing drainage patterns, redirect flood flows and increase the flood risk to these areas, which must be analyzed in the Draft EIR. This analysis must include impacts of the Proposed Project that include displacing people and/or housing within the Horseshoe Area and impacts to agricultural resources by increasing the flood risk to those resources within the Horseshoe Area. Specifically, the Draft EIR must include hydrology studies that establish the baseline flood risk for the Horseshoe Area and Rue Property and provide a detailed hydraulic analysis of the increased flood risk the Proposed Project will cause.

CEQA further requires that all feasible alternatives and mitigation measures be utilized to minimize or eliminate the Proposed Project's environmental impacts. Given the significant impacts the Proposed Project will have on the environment in the Horseshoe Area, both incrementally and cumulatively, alternatives and/or mitigation measures are appropriate in the form of improving the levees of the Horseshoe Area sufficient to withstand the increased risk of flooding there as a result of the Proposed Project.

IV. CONCLUSION

If TRLIA has any questions regarding this correspondence, please contact the undersigned. Pursuant to Public Resources Code section 21092.2, please provide us any notices issued for the Proposed Project and any further changes to the scope of that project.

Very truly yours,

PIONEER LAW GROUP, LLP

ANDREA A. MATARAZZO

AAM/KLP:jal
cc: Brian Manning

George T. Kammerer
Attorney At Law
P.O. Box 951
Rancho Murieta, CA 95683-0951

08/25/2021

Mr. Paul Brunner
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901

Via US Mail & E-Mail to
PBrunner@co.yuba.ca.us

Subject: **Notice of Preparation of Environmental Impact Report for the 500-year Flood Protection Project (Bear River Levees, Western Pacific Interceptor Canal Levee and Extension, ODB Ring Levee)**

Dear Mr. Brunner:

We submit this letter on behalf of Shady Oaks Ranch, LLC and the Gibb Family Ranch ("Landowners") directly adjacent to which properties the Three Rivers Levee Improvement Authority ("TRLIA") proposes to construct portions of the 500-year Flood Protection Project (the "Project") in which location there is a highly foreseeable, substantial likelihood of significant extensive flooding and flood damage occurring as a result of construction of the Project. Without Project design modifications and mitigation measures, these Landowners will be significantly and substantially adversely affected by TRLIA's construction and subsequent operation of the Project.

Failure to Provide Legally-Mandated Individual NOP and Advance Scoping Meeting Notice

Despite being the most-likely-to-be-adversely-affected landowners within this portion of the Project area, TRLIA never provided these Landowners with notice (for reasons TRLIA has not explained) regarding TRLIA's intention to move forward with the Project or to request affected community input upon the scope of the analysis within the Environmental Impact Report (EIR) TRLIA intends to prepare.

No notice was provided to either Shady Oaks Ranch, LLC or the Gibb Family despite a plethora of past correspondence from these same Landowners to Reclamation District (RD) 784 (TRLIA is a Joint Powers Agency comprised of Yuba County and RD 784). Two of the Directors of TRLIA are long-time members of the RD 784 Board of Trustees. These two Directors (and TRLIA itself through them) are well aware that Landowners have for over a decade expressed concerns to RD 784 that the operation and maintenance of these same facilities present significant risks of flooding these Landowners' lands for extended periods of time, greatly interfering with these Landowners' ability to farm, manage wildlife habitat, hunt, and otherwise use and enjoy these lands in the multitude of ways to which they are legally entitled.

We are mystified as to how RD 784 / TRLIA could fail to notify both Shady Oaks Ranch, LLC and the Gibb Family when TRLIA knew that they have had serious on-going concerns about maintenance and management of RD 784 / TRLIA levees which comprise the precise Project area at issue. TRLIA acknowledged providing individual written notice to many other lesser-affected landowners throughout the Project area, but not to these Landowners.

As a result, failure by TRLIA to provide these Landowners with individual written notice of the original NOP and scoping meeting date is a direct violation of CEQA Guidelines Section 15082(c)(2)(D) which mandates that, "The lead agency ***shall*** provide notice of the scoping meeting to all of the following: . . .(D) any organization or individual who has filed a written request for the notice." Clearly Landowners had requested notice of all RD 784 levee work.

TRLIA's failure to comply with this CEQA notice mandate is a defect under which this EIR may be later invalidated (Public Resources Code Section 21092.2).

Due to TRLIA's defective scoping notice to Shady Oaks Ranch, LLC and the Gibb Family, they ***were never made aware of, and as a result were deprived of their right to attend,*** **the July 20, 2021 scoping meeting** which they clearly would have attended, in order to become adequately informed about TRLIA's plans and to be able to comment in detail in person to TRLIA about the:

*** range of actions proposed;

*** range of alternatives that must be considered;

*** environmental effects of the Project;

*** methods of assessment (of alternatives, environmental effects, mitigation measures); and

***feasible mitigation measures to avoid, minimize and mitigate adverse Project impacts.

Without the chance for direct dialogue with TRLIA staff, these Landowners were deprived of a very important opportunity on July 20 for input upon the scope of the Project and its impacts.

TRLIA's failure to provide these Landowners with that essential opportunity for input on scope is likely to be quite compelling to a Court considering that these Landowners are the two most directly-affected within the entire Project area, since it is reasonably foreseeable the Project will significantly increase the strain on the Horseshoe Levee which protects these Landowners' properties, greatly increasing the likelihood of Horseshoe Levee failure as a direct result of the TRLIA Project as currently designed. TRLIA and RD 784 are both well aware of this.

Publication in a local newspaper is legally insufficient to provide adequate scoping notice.

It is especially inadequate for a project which has such clear "statewide, regional or areawide significance" (Public Resources Code (PRC) Section 21083.9 (a),(b)) because of its substantial potential to adversely affect sensitive habitats, including riparian lands, wetlands, marshes, and habitats for rare, threatened or endangered species (CEQA Guidelines Sections 15206 (b)(5); 15380), and which could also interfere with attainment of regional water quality standards (CEQA Guidelines Sections 15206 (b)(6)) as this project easily could, and also by being within 1/4 mile of a river which could well receive wild and scenic river status (CEQA Guidelines Sections 15206 (b)(4)(D)).

Furthermore, it is common practice today by lead agencies to always notify any landowners within 300-1,000 feet by individually mailing them all NOPs and scoping meeting notices.

As the two most-affected landowners within the entire Project area, ***Shady Oaks Ranch, LLC and the Gibb Family must insist that TRLIA schedule a second scoping meeting and notify them individually so that they may attend*** to ask questions and provide detailed information to TRLIA in person to ensure that TRLIA is fully aware of all key issues regarding the Project.

Range of Alternatives, Environmental Effects, Assessment Methods, Mitigation Measures

A. Range of Actions Proposed

The range of actions proposed as part of the Project need to be revised to reduce the extremely high likelihood that the Project as currently designed will result in damage to and failure of the Horseshoe Levee directly causing significant flooding of the Shady Oaks Ranch, LLC and the Gibb Family properties. Engineers have estimated that the Horseshoe Levee currently only provides 15-20 year flood "protection" to the Shady Oaks Ranch, LLC and the Gibb Family properties. Relative to the current 200-year strength of the rest of the RD 784 system, this leaves the Horseshoe Levee as the "weak link". Increasing the Western Pacific Intercepting Channel (WPIC) east levee to 500-year protection will dramatically exacerbate the situation, significantly increasing the risk of Horseshoe Levee failure and flooding.

B. Range of Alternatives That Must Be Considered

The range of alternatives for the proposed Project must include one or more alternatives which will mitigate and minimize the high likelihood of increased flood occurrences and flood durations on Landowners' properties caused directly by the proposed TRLIA Project.

C. Environmental Effects of the Project

The Shady Oaks Ranch, LLC and the Gibb Family properties include Prime Farmland soils. Under PRC Section 21061.2, a Land Evaluation and Site Assessment (LESA) analysis must be performed in order to ensure that any agricultural land productivity loss (due to more frequent and longer duration inundations caused by the Project) are quantitatively and qualitatively assessed and mitigated (PRC Section 21095(b). Furthermore, these Landowners' properties contain important upland habitat; habitat for waterfowl and shorebirds; habitat for rare, threatened and endangered species; and provide water quality treatment and greenhouse gas remediation (CO2 absorption) through their irrigated crops, wetlands and riparian vegetation. Flooding will drown these habitats, preclude their use by wildlife, and preclude their ability to perform water quality and greenhouse gas remediation functions for lengthy periods of time, if not permanently.

D. Methods of Assessment (of Alternatives, Environmental Effects, Mitigation Measures)

While agencies have latitude in determining the precise assessment methodology used, the Draft EIR must use unbiased, clearly depicted and readily understandable methods of assessment of the feasibility, costs and impacts of alternatives, environmental effects, and mitigation measures, when determining the proper scope for the analysis to be conducted in the TRLIA Project EIR.

TRLIA must assess possible effects upon the environment by analyzing "physical conditions which exist within the area and include both natural ***and man-made conditions***" (CEQA Guidelines Section 15360). (Emphasis added.)

E. Mitigation Measures to Avoid, Minimize and Mitigate Adverse Project Impacts.

It is highly foreseeable that raising the RD 784 / TRLIA levees to 500-year protection levels will create more frequent and longer duration inundations of the Shady Oaks Ranch, LLC and the Gibb Family properties. RD 784 / TRLIA's own engineering studies by MBK Engineers predict flood depths of up to seventeen (17) feet on these very properties. Raising the WPIC east levee increases the risk even more that the Horseshoe Levee will fail and flood the Shady Oaks Ranch, LLC and the Gibb Family properties. Damage from this Project-induced flooding is expected to be extensive, including damage to or loss of the Gibb Family's home and various other outbuildings on their property, the drowning death of Gibb Family cattle and other livestock, as well as scour damage and sand, soil and toxic debris deposition in cultivated farm fields, pastures, drainage ditches, roads, house backyards, and the overtopping, contamination and destruction of drinking water wells and irrigation wells, among other damage.

To adequately mitigate this foreseeable damage, TRLIA will need to incorporate into the Project and certify in the EIR a detailed set of mitigation measures that mitigate and reduce to less than significant levels the highly-foreseeable environmental impacts of significantly greater and longer duration high-water flows, flood risks and inevitable flooding caused by the Project.

Proposed mitigation measures for adoption within the Draft EIR should include:

1. Integration into the TRLIA Project and TRLIA's assumption of all responsibility to repair and maintain the Horseshoe Levee against failure due to increased stresses on the Horseshoe Levee caused by the Project.

3. TRLIA's assessment of the urban and urbanizing areas west of the WPIC to pay for the costs of mitigating the risks to the Horseshoe Levee in perpetuity since the existing urban and urbanizing areas of RD 784 are the ultimate beneficiaries of a fully integrated, stable and properly functioning WPIC floodwater diversion system (**which system includes *both the west and east levees***).

In summary, Shady Oaks Ranch, LLC and the Gibb Family must insist that:

1. RD 784 / TRLIA schedule a second scoping meeting and notify these Landowners individually so that they may attend in person to ask questions and provide detailed information to TRLIA to ensure that TRLIA is fully aware of all major key issues regarding the Project.

2. RD 784 / TRLIA modify the Project design to incorporate the mitigation measures described herein, to offset and mitigate to less than significant levels all of the adverse environmental, operational and other effects of the Project upon the Shady Oaks Ranch, LLC and the Gibb Family properties as explained in this letter.

Thank you for addressing and remedying all of these important concerns in the Project EIR.

Very truly yours,

George T. Kammerer, Attorney at Law

cc: Shady Oaks Ranch, LLC
David and Rebecca Gibb
Michael Rue, Rue Farms
Anne King

George T. Kammerer
Attorney At Law
P.O. Box 951
Rancho Murieta, CA 95683-0951

09/27/2021

Mr. Paul Brunner, Executive Director
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901

Via US Mail & E-Mail to
PBrunner@co.yuba.ca.us

Subject: **Notice of Preparation (NOP) of Environmental Impact Report for the 500-year Flood Protection Project (Bear River Levees, Western Pacific Interceptor Canal Levee and Extension, ODB Ring Levee)**

Dear Mr. Brunner:

As we stated in our 08/25/21 NOP scoping comment letter to you, we also submit today's letter on behalf of Shady Oaks Ranch, LLC and the Gibb Family Ranch ("Landowners") directly adjacent to which properties the Three Rivers Levee Improvement Authority ("TRLIA") proposes to construct portions of the 500-year Flood Protection Project (the "Project") in which location there is a highly foreseeable, substantial likelihood of significant extensive flooding and flood damage occurring as a direct result of construction of the Project. Without Project design modifications and binding mitigation measures, these Landowners will be significantly and substantially adversely affected by TRLIA's construction and subsequent operation of the Project.

Thank you for extending the NOP scoping period for the Draft Environmental Impact Report ("DEIR") to meet with these Landowners, myself, and adjacent landowner, Michael Rue and his counsel, Brian Manning, on Monday 09/27/21 at TRLIA's office along with TRLIA EIR consultant, Anne King.

We thank you for your personal assurances in our 09/27/21 meeting that, in your words, "the TRLIA Project will not make flood conditions worse for the Horseshoe Levee and the adjacent landowners who depend on it for protection." We appreciate that you repeated these assurances at least three times during our meeting. We believe that you were sincere in doing so. However, we know you are retiring from TRLIA at the end of 2021, and so we will need these assurances contained within binding written enforceable conditions within the Project description / design and within binding mitigation measures within the Project and Project EIR Mitigation and Monitoring Program ("MMRP").

Our clients, the Landowners, along with Michael Rue and his counsel, share the serious concerns expressed also by the Central Valley Flood Protection Board ("CVFPC") in its 09/01/21 TRLIA Project NOP comment letter in which the CVFPB clearly states:

"The property owners that receive flood risk reduction benefit from the Horseshoe Levee contend that RD 784 is seeking to only protect urban areas. The proposed project intends to strengthen only the west side levees of the WPIC which gives the Board concern in relation to levee superiority and inequities that arise from raising only one side of the WPIC." (CVFPB 09/01/21 letter, page 3, "Notice of Preparation Specific Comments", second bullet comment.)

"As described above, the proposed project will require a permit from the Board and the Board may deny a permit if a project increases the damaging effects of flood flows. The Board has specific concerns that

the proposed project will potentially increase the damaging effects of flood flows to the east side of the WPIC levee. Without a detailed study to prove otherwise, the proposed project when raised to provide protection level from 200-year to 500-year on the WPIC west levee, will potentially push more flood flows toward the eastside of the WPIC levee, increasing damaging effects to the area including to the WPIC East Levee (an SPFC levee) under flood events at 200-year and above. As stated above, the Board recommends a specific flood facility impacts analysis section in the environmental document and requests that the analysis address these concerns related to the WPIC East Levee at a minimum." (CVFPB 09/01/21 letter, page 3, "Notice of Preparation Specific Comments", third bullet comment.)

The CVFPB letter validates and verifies the Landowners' contentions as expressed in the Landowners' 08/25/21 NOP comment letter to TRLIA and again in the Landowners' 09/27/21 NOP scoping meeting discussions and verbal comments to TRLIA, that, specifically:

A. The WPIC East Levee (Horseshoe Levee) is part of the same integrated WPIC flood water diversion system along with the WPIC West Levee over which TRLIA must ensure that both levees are maintained and operated in conjunction with each other so as not to worsen flood risks and flood damage to Landowners; and,

B. The 500-Year Project improvements to the WPIC West Levee, as currently designed, raise serious concerns in relation to levee superiority and inequities that arise from raising only one side of the WPIC and will potentially push more flood flows toward the eastside of the WPIC levee, increasing damaging effects to the area including to the WPIC East Levee under flood events at 200-year and above.

Precisely the concerns the Landowners expressed to TRLIA, and have expressed to RD 784 for years.

Furthermore, it is the lands located to the west of the WPIC West Levee which derive all or the majority of the benefit of the flood protections provided by the WPIC East Levee and WPIC West Levee, which westerly lands should bear all or the majority of the cost of constructing and maintaining any measures necessary to protect lands east of the WPIC East Levee from increased flood risks.

At the end of the day, to adequately minimize and mitigate these risks, the TRLIA 500-Year Project must:

1. Integrate into the TRLIA Project, TRLIA's assumption of all responsibility to repair and maintain the WPIC East Levee (Horseshoe Levee) against damage and failure in perpetuity due to increased stresses on the WPIC East Levee caused by the overall TRLIA Project.

2. Modify the TRLIA Project design and incorporate mitigation measures to offset and mitigate to less than significant levels all of the adverse construction, operations and other effects of the Project upon lands east of the Horseshoe Levee, including the Shady Oaks Ranch, LLC and the Gibb Family properties, including, but not limited to:

a. Replacing and upsizing all through-levee drainage conduits with new, effective, drainage conduit improvements along the full reach of the WPIC East Levee; and

b. Analyzing and quantifying all flows, including increases in flows, as a result of the WPIC north extension in the vicinity of the Olivehurst Detention Basin (ODB) and / or flows from other Project improvements and any other foreseeable future extensions or expansions of Project facilities.

3. Financially assess urban and urbanizing areas west of the WPIC West Levee to pay for most of the costs of mitigating the risks to the WPIC East Levee (Horseshoe Levee) in perpetuity since the

existing urban and urbanizing areas of RD 784 to the west are the ultimate beneficiaries of a fully integrated, stable and properly functioning WPIC floodwater diversion system (requiring *both WPIC West and WPIC East Levees functioning together* in order to protect urban lands west of the WPIC West levee).

Additionally, the Landowners reiterate their serious concerns expressed numerous times in recent years to RD 784 and to TRLIA, that MBK Engineers should NOT be the TRLIA Project engineers to make any hydraulic or other analyses in relation to the WPIC East Levee or WPIC West Levee in regards to potential impacts upon Shady Oaks Ranch, LLC and the Gibb Family properties.

MBK has a serious conflict of interest after performing work in the past for RD 784 which erroneously concluded that the only properties "protected" by the WPIC East Levee (Horseshoe Levee) are the "Horseshoe Area properties", including the Shady Oaks Ranch, LLC and the Gibb Family properties, which as the CVFPB verified in its 09/01/21 NOP comment letter to TRLIA, is a factually incorrect conclusion by MBK because the WPIC system is comprised of both the WPIC West and WPIC East Levee (Horseshoe Levee), the integrity of both of which is essential to protect the urban and urbanizing areas to the west of the WPIC West Levee.

Furthermore, MBK Engineers prepared a Technical Memorandum dated 03/25/20 for RD 784 for RD 784's use in its benefit assessment determination which used grossly inappropriate methodology raising serious questions about MBK's objectivity and credibility to serve as TRLIA's engineer on the TRLIA 500-Year Project.

TRLIA's Project engineers who will be conducting any hydraulic or other water flow analyses going forward for TRLIA must be absolutely objective and 100% free of any influence from past engineering opinions on related matters or any work history for any other parties (RD 784) with a stake in the outcome of any TRLIA 500-Year Project analyses. MBK Engineers is unable to meet those tests.

For the TRLIA 500-Year Project flood facility impacts analysis section of the DEIR (mandated for inclusion in the DEIR by the CVFPB) to have any legal or technical credibility, all analyses related to the WPIC East Levee must be performed by another engineering firm other than MBK Engineers.

We will consider the DEIR to be flawed and legally inadequate if it relies upon any MBK Engineers' analyses related to the WPIC East Levee (Horseshoe Levee) or any drainage flows affecting in any way the WPIC East Levee (Horseshoe Levee).

Thank you for modifying the scope of the TRLIA 500-Year Project as requested herein and for including binding mitigation measures in the DEIR and MMRP which will fully mitigate Project drainage flow impacts to the WPIC East Levee (Horseshoe Levee) and to Shady Oaks Ranch, LLC and the Gibb Family properties to less than significant levels, and for engaging a different Project engineer than MBK.

Cordially,

George T. Kammerer, Attorney At Law

cc: Shady Oaks Ranch, LLC
Gibb Family
Michael Rue
Brian Manning, Esq.
CVFPB Board

From: Francis Coats <fecoats@msn.com>
Sent: Tuesday, August 3, 2021 8:26 AM
To: Brunner, Paul <PBrunner@CO.YUBA.CA.US>
Subject: Comment Notice of Preparation; 500 year Flood Protection Project; Western Pacific Interceptor Canal

1) Revised notice of preparation of an environmental impact report for the 500-year Flood Protection Project
2) Scoping comments are due by 5:00 p.m. on Wednesday, September 1, 2021

Comment on notice of preparation of environmental impact report on the 500-year Flood Protection Project; Western Pacific Interceptor Canal.

Please assure that the possible effect of the project on recreation, including access to and use of the waters nearby for fishing and other recreational purposes, is considered; and that to the extent feasible, interference with access to and use of these waters is avoided.

The project involves building or improving levee along a long stretch of waterway, the Western Pacific Interceptor Canal, an installation whose purpose and function is to intercept the natural flow of other waterways and divert the water into an artificial canal – protecting other lands for farming and development. The canal may be artificial, but the water is not. The installation or improvement of a levee, with its incidental roads, ditches, fences and gates, almost certainly will affect public access to and use of the canal. The EIR must discuss the manner and degree to which access and use will be affected, and discuss feasible alternatives and mitigation matters.

The public has a right to be on navigable waters including their temporarily dry banks below ordinary high-water mark and there engage in recreational activities. For these purposes “navigable” means susceptible to navigation even if only in non-motorized small craft. The Western Pacific Interceptor Canal meets these criteria.

The public has a right to be on state-owned land to fish; and to be on land owned by the state after November 8, 1910, and sold or transferred thereafter to fish (see section 25, article I, California Constitution and California v. San Luis Obispo Sportsman's Assn., 22 Cal. 3d 440, 584 P.2d 1088, 149 Cal. Rptr. 482, 1978 Cal. LEXIS 297, 9 ELR 20012, 22 Cal. 3d 440, 584 P.2d 1088, 149 Cal. Rptr. 482, 1978 Cal. LEXIS 297, 9 ELR 20012). If the reservation in the public of the absolute right to fish is omitted from the express words of the grant, it will be incorporated by the court (see Forestier v. Johnson, 164 Cal. 24 [127 Pac. 156]; Boone v. Kingsbury, (1928) 206 Cal. 148, 273 P. 797, 1928 Cal. LEXIS 463, 206 Cal. 148, 273 P. 797, 1928 Cal. LEXIS 463).

And, land owned by a California city, county, or other local agency is state-owned land (see Vagim v. Board of Supervisors, 230 Cal. App. 2d 286, 40 Cal. Rptr. 760, 1964 Cal. App. LEXIS 871, 230 Cal. App. 2d 286, 40 Cal. Rptr. 760, 1964 Cal. App. LEXIS 871). County of Marin v. Superior Court (1960) 53 Cal. 2d 633, 638-639; San Miguel Consolidated Fire District v. Davis (1994) 25 Cal.App. 4th 134).

Please consider and discuss in your documents the possible effect of the project on public access to and use of waters for fishing and other recreational purposes; and so far as feasible avoid adversely affecting these interests.

Sincerely, Francis E. Coats; 3392 Caminito Avenue, Yuba City, CA 95991; fecoats@msn.com; (530) 701-6116

Sent from Mail for Windows 10

Appendix B. Anticipated Construction Equipment Use for Each Project Component

Goldfields West Levee Equipment and Work Durations

Construction Phase	Equipment Type	Use Duration (percent of phase)	Estimated Phase Duration
Phase 1 Clearing and Grubbing	(3) 5-cy Front End Loader	100%	10 Days
	(20) Pickup Truck	100%	
	(2) Water Truck	100%	
	(3) End Dump Truck	100%	
Phase 2 Stripping	(4) Scraper	100%	15 Days
	(2) Water Truck	100%	
	(20) Pickup Truck	100%	
	(1) D-6 Dozer	100%	
Phase 3 Levee Reconstruction	(30) End Dump Truck	100%	90 Days
	(4) Motor Grader	20%	
	(2) D-6 Dozer	100%	
	(4) Vibratory Roller	100%	
	(20) Pickup Truck	100%	
	(3) Water Truck	100%	
Phase 4 Levee Resurfacing	(4) Bottom Dump Truck	100%	10 Days
	(1) Motor Grader	20%	
	(1) Vibratory Roller	100%	
	(1) D-6 Dozer	100%	
	(20) Pickup Truck	100%	
	(2) Water Truck	100%	
Phase 5 Hydroseeding	(1) Hydroseeding Truck	100%	11 Days
	(10) Pickup Truck	100%	
Phase 6 Demobilization and Site Cleanup	(2) Haul Truck	100%	7 Days
	(10) Pickup Truck	100%	
	(1) Loader	100%	

Notes: cy = cubic yard
Sources: Project equipment needs estimated by HDR, Inc. and GEI Consultants, Inc. in 2021

Yuba River South Levee Equipment and Work Durations

Construction Phase	Anticipated Equipment Type	Use Duration (percent of phase)	Estimated Phase Duration
Phase 1 Clearing and Grubbing	(2) 5-cy Front End Loader	100%	5 Days
	(20) Pickup Truck	100%	
	(2) Water Truck	100%	
	(2) End Dump Truck	100%	
Phase 2 Stripping	(2) D5 Dozer	100%	15 Days
	(2) Water Truck	100%	
	(2) 5 CY Front End Loader	100%	
	(20) Pickup Truck	100%	
	(10) End Dump Truck	100%	
Phase 3 Levee Degrade for Cutoff Wall	(2) 3.5-cy Excavator	100%	25 Days
	(3) D6 Dozer	100%	
	(2) Water Truck	100%	
	(20) Pickup Truck	100%	
	(5) End Dump Truck	50%	
Phase 4 Cutoff Wall Construction	(1) 3.5-cy Long Reach Excavator	100%	45 Days
	(2) D6 Dozer	100%	
	(1) Extended Boom Pallet Loader	100%	
	(2) 300-Kilowat Generator	100%	
	(2) Slurry Pump	100%	
	(20) Pickup Truck	100%	
	(10) Haul Truck	50%	
Phase 5 Levee Reconstruction	(3) D6 Dozer	100%	35 Days
	(2) 5 CY Front End Loader	100%	
	(4) Motor Grader	100%	
	(4) Vibratory Roller	100%	
	(30) Bottom Dump Truck	100%	
	(20) Pickup Truck	100%	
	(2) Water Truck	100%	
Phase 6 Levee Resurfacing	(4) Bottom Dump Truck	100%	10 Days
	(1) Motor Grader	20%	
	(1) Vibratory Roller	100%	
	(1) D6 Dozer	100%	
	(2) Water Truck	100%	
	(20) Pickup Truck	100%	
Phase 7 Hydroseeding	(1) Hydroseeding Truck	100%	7 Days
	(10) Pickup Truck	100%	
Phase 8 Demobilization and Site Cleanup	(2) Haul Truck	100%	7 Days
	(10) Pickup Truck	100%	
	(1) Loader	100%	

Notes: cy = cubic yard
Sources: Project equipment needs estimated by HDR, Inc. and GEI Consultants, Inc. in 2021

Feather River East Levee Equipment and Work Durations

Construction Phase	Anticipated Equipment Type	Use Duration (percent of phase)	Estimated Phase Duration
Phase 1 Clearing and Grubbing	No clearing and grubbing needed		
Phase 2 Stripping	(1) D6 Dozer	100%	5 Days
	(1) Water Truck	100%	
	(1) 5-cy Front End Loader	100%	
	(10) Pickup Truck	100%	
	(5) End Dump Truck	100%	
Phase 3 Levee Degrade for Cutoff Wall	(2) 3.5-cy Excavator	100%	15 Days
	(2) D6 Dozer	100%	
	(2) Water Truck	100%	
	(10) Pickup Truck	100%	
	(10) End Dump Truck	50%	
Phase 4 Cutoff Wall Construction	(1) 3.5-cy Long Reach Excavator	100%	60 Days
	(1) 3.5-cy Excavator	100%	
	(2) D6 Dozer	100%	
	(1) Extended Boom Pallet Loader	100%	
	(2) 300-Kilowat Generator	100%	
	(2) Slurry Pump	100%	
	(20) Pickup Truck	100%	
	(10) Haul Truck	50%	
Phase 5 Levee Reconstruction	(2) D6 Dozer	100%	15 Days
	(2) 5-cy Front End Loader	100%	
	(2) Motor Grader	100%	
	(2) Sheepsfoot Compactor	100%	
	(10) Bottom Dump Truck	100%	
	(20) Pickup Truck	100%	
	(2) Water Truck	100%	
Phase 6 Levee Resurfacing	(4) Bottom Dump Truck	100%	5 Days
	(1) Motor Grader	20%	
	(1) Vibratory Roller	100%	
	(1) D6 Dozer	100%	
	(10) Pickup Truck	100%	
	(1) Water Truck	100%	
	(20) Pickup Truck	100%	
Phase 7 Hydroseeding	(1) Hydroseeding Truck	100%	5 Days
	(10) Pickup Truck	100%	
Phase 8 Demobilization and Site Cleanup	(2) Haul Truck	100%	7 Days
	(10) Pickup Truck	100%	
	(1) Loader	100%	

Notes: cy = cubic yard
Sources: Project equipment needs estimated by HDR, Inc. and GEI Consultants, Inc. in 2021

Bear River Setback Levee Equipment and Work Durations

Construction Phase	Anticipated Equipment Type	Use Duration (percent of phase)	Estimated Work Duration
Phase 1 Clearing and Grubbing	None Needed		
Phase 2 Stripping	(1) D-6 Dozer	100%	2 Days
	(1) Water Truck	100%	
	(1) 5-cy Front End Loader	100%	
	(5) Pickup Truck	100%	
	(2) End Dump Truck	100%	
Phase 3 Seepage Berm	(1) D-6 Dozer	50%	5 Days
	(1) 5-cy Front End Loader	100%	
	(1) Motor Grader	50%	
	(1) Vibratory Roller	100%	
	(5) Bottom Dump Truck	100%	
	(10) Pickup Truck	100%	
	(1) Water Truck	100%	
Phase 4 Hydroseeding	(1) Hydroseeding Truck	100%	1 Day
	(2) Pickup Truck	100%	
Phase 6 Demobilization and Site Cleanup	(2) Haul Truck	100%	2 Days
	(3) Pickup Truck	100%	
	(1) Loader	100%	

Notes: cy = cubic yard
Sources: Project equipment needs estimated by HDR, Inc. and GEI Consultants, Inc. in 2021

Bear River North Levee Equipment and Work Durations

Construction Phase	Anticipated Equipment Type	Use Duration (percent of phase)	Estimated Work Duration
Phase 1 Clearing and Grubbing	(2) 5-cy Front End Loader	100%	5 days
	(20) Pickup Truck	100%	
	(2) Water Truck	100%	
	(2) End Dump Truck	100%	
Phase 2 Stripping	(2) D-6 Dozer	100%	10 Days
	(2) Water Truck	100%	
	(2) 5-cy Front End Loader	100%	
	(20) Pickup Truck	100%	
	(10) End Dump Truck	100%	
Phase 3 Levee Reconstruction and Seepage Remediation	(3) D-6 Dozer	50%	20 Days
	(2) 5-cy Front End Loader	100%	
	(4) Motor Grader	50%	
	(4) Vibratory Roller	100%	
	(25) Bottom Dump Truck	100%	
	(20) Pickup Truck	100%	
	(2) Water Truck	100%	
Phase 4 Levee Resurfacing	(3) Bottom Dump Truck	100%	5 Days
	(1) Motor Grader	20%	
	(1) Vibratory Roller	100%	
	(1) D-6 Dozer	100%	
	(20) Pickup Truck	100%	
	(2) Water Truck	100%	
Phase 5 Hydroseeding	(1) Hydroseeding Truck	100%	5 Days
	(5) Pickup Truck	100%	
Phase 6 Demobilization and Site Cleanup	(2) Haul Truck	100%	7 Days
	(12) Pickup Truck	100%	
	(1) Loader	100%	

Notes: cy = cubic yard
Sources: Project equipment needs estimated by HDR, Inc. and GEI Consultants, Inc. in 2021

WPIC West Levee (existing) and ODB Equipment and Work Durations

Construction Phase	Anticipated Equipment Type	Use Duration (percent of phase)	Estimated Work Duration
Phase 1 Clearing and Grubbing	(2) 5-cy Front End Loader	100%	15 Days
	(20) Pickup Truck	100%	
	(2) Water Truck	100%	
	(5) End Dump Truck	100%	
Phase 2 Stripping	(2) D-6 Dozer	100%	30 Days
	(2) Water Truck	100%	
	(2) 5-cy Front End Loader	100%	
	(20) Pickup Truck	100%	
	(20) End Dump Truck	100%	
Phase 3 Levee Reconstruction	(4) D-6 Dozer	100%	80 Days
	(4) 5-cy Front End Loader	100%	
	(4) Motor Grader	100%	
	(4) Vibratory Roller	50%	
	(45) Bottom Dump Truck	100%	
	(20) Pickup Truck	100%	
	(3) Water Truck	100%	
Phase 4 Levee Resurfacing	(5) Bottom Dump Truck	100%	25 Days
	(1) Motor Grader	20%	
	(1) Vibratory Roller	100%	
	(1) D-6 Dozer	100%	
	(20) Pickup Truck	100%	
	(2) Water Truck	100%	
Phase 5 Hydroseeding	(2) Hydroseeding Truck	100%	12 Days
	(10) Pickup Truck	100%	
Phase 6 Demobilization and Site Cleanup	(2) Haul Truck	100%	7 Days
	(10) Pickup Truck	100%	
	(1) Loader	100%	

Notes: cy = cubic yard
Sources: Project equipment needs estimated by HDR, Inc. and GEI Consultants, Inc. in 2021

WPIC Extension Levee Equipment and Work Durations

Construction Phase	Equipment Type	Duration of Use (percent of phase)	Estimated Work Duration
Phase 1 Clearing and Grubbing	(3) 5-cy Front End Loader	100%	10 Days
	(20) Pickup Truck	100%	
	(2) Water Truck	100%	
	(3) End Dump Truck	100%	
Phase 2 Stripping	(2) Scrapers	100%	4 Days
	(2) Water Trucks	100%	
	(20) Pickup Truck	100%	
	(1) D-6 Dozer	100%	
Phase 3 Levee Construction	(37) End Dump Truck	100%	120 Days
	(4) Motor Grader	20%	
	(2) D-6 Dozer	100%	
	(4) Vibratory Roller	100%	
	(20) Pickup Truck	100%	
	(3) Water Truck	100%	
Phase 4 Levee Surfacing	(4) Bottom Dump Truck	100%	10 Days
	(4) Motor Grader	20%	
	(1) Vibratory Roller	100%	
	(1) D-6 Dozer	100%	
	(20) Pickup Truck	100%	
	(2) Water Truck	100%	
Phase 5 Hydroseeding	(2) Hydroseeding Truck	100%	12 Days
	(10) Pickup Truck	100%	
Phase 6 Demobilization and Site Cleanup	(2) Haul Truck	100%	7 Days
	(20) Pickup Truck	100%	
	(1) Loader	100%	

Notes: cy = cubic yard
Sources: Project equipment needs estimated by HDR, Inc. and GEI Consultants, Inc. in 2021

Appendix C. Air Quality and Greenhouse Gas Emissions Modeling Report

KD Anderson & Associates, Inc.
Transportation Engineers

November 22, 2021

Ms. Anne King
Project Manager
GEI Consultants, Inc.
2868 Prospect Park Drive, Suite 400
Rancho Cordova, CA 95670

Subject: ***Three Rivers Levee Improvement Authority – 500-Year Flood Protection Project – Emissions Modeling Analysis***

Dear Ms. King:

On behalf of KD Anderson & Associates (KDA), I am pleased to submit this report on air pollutant emissions analysis of the Three Rivers Levee Improvement Authority (TRLIA) 500-Year Flood Protection (500-Year) Project.

PROJECT UNDERSTANDING

TRLIA is proposing to implement improvements to the Reclamation District (RD) 784 levee system to reduce flood risk, ensure the system is adaptable to climate change and to address levee superiority issues that have resulted from incremental construction of the levee system. The following is our understanding of the TRLIA 500-Year Project.

Location

The TRLIA 500-Year Project is located in southwestern Yuba County, California. The location of the project is shown in the enclosed figure. In the northern portion of the project area, activities may occur along the western edge of the Goldfields and along the Yuba River South Levee east of Simpson Lane. In the southern portion of the project area, activities may occur along the Bear River North Levee and Bear River Setback Levee (between the Feather River East Levee and the Western Pacific Interceptor Canal [WPIC] West Levee), and along and north of the WPIC West Levee and Olivehurst Detention Basin (ODB) Ring Levee.

Background

TRLIA, a joint powers agency, was established in 2004 by the County of Yuba and Reclamation District (RD) 784 to finance and construct levee improvements in south Yuba County, California. The RD 784 service area is bounded on the north by the Yuba River, on the west by the Feather River, on the south by the Bear River, and on the east by the WPIC. Since 2005, TRLIA has completed improvements to the RD 784 levee system to provide 200-year flood protection. Levees that have been improved or constructed include:

- Yuba River South Levee
- Bear River North Levee and Bear River Setback Levee
- Feather River East Levee and Feather River Setback Levee
- WPIC West Levee
- ODB Ring Levee
- Goldfields 200-year Levee

TRLIA has reevaluated the RD 784 levee system against the 500-year design water surface elevations (DWSE) to determine which levee segments would not meet this level of protection and identify appropriate improvements to increase protection of those areas to the 500-year level, ensure the levee system is adaptable to climate change, and address levee superiority issues. Based on the results of this evaluation, TRLIA proposes to implement improvements along segments totaling up to approximately 10 miles of the following existing levees:

- Yuba River South Levee (approximately 2 miles)
- Feather River East Levee (approximately 1.25 miles)
- Bear River Setback Levee and Bear River North Levee (approximately 1 mile)
- WPIC West Levee (approximately 5.9 miles)
- ODB Ring Levee (approximately 300 feet)

Improvements along these existing levees would include raising the levees by up to approximately 2 feet to provide 3 feet of freeboard above the DWSE and constructing cutoff walls, seepage berms, landside blankets, and/or relief well systems to address levee under-seepage issues in specific locations.

The proposed project also includes extending the WPIC West Levee by approximately 1.8 miles to the north and east by constructing a new levee embankment along the east side of State Route (SR) 70 and south side of Olivehurst to connect to SR 65. In addition, approximately 1 mile of existing embankment along the western edge of the Goldfields would be raised.

Components

For the air quality analysis presented in this letter report, the TRLIA 500-Year Project was divided into the following six components:

- Component #1 - Gold Fields West Levee
- Component #2 - Yuba River South Levee
- Component #3 - Feather River East Levee
- Component #4 - Bear River North Levee & Setback
- Component #5 - WPIC West Levee and ODB
- Component #6 - WPIC Extension Levee

The scheduling of project-related construction activity is uncertain. This uncertainty is described in more detail in the following *Construction Schedule* section of this report. Because of this uncertainty, each of the above-listed six project components was analyzed separately. In the future, as the scheduling of project-related construction activity becomes more certain, the results of the analysis presented in this letter report can be aggregated if multiple components are scheduled to be constructed at the same time. Alternatively, the results can be used separately if the scheduling of a component does not overlap with other components.

Component Phases

The construction of each project component would proceed through several phases. As a simple example, different phases could include clearing and preparing a site for construction activity, constructing project features, and cleaning-up after completion of construction activity. The various phases of construction activity would each involve differing types and amounts of activity and equipment, resulting in differing levels of air pollutant emissions. As a result, the analysis presented in this letter report evaluated each phase separately. The following lists the phases analyzed for each project component:

Component #1 Gold Fields West Levee

- Phase 1 - Clearing & Grubbing
- Phase 2 - Stripping
- Phase 3 - Levee Reconstruction
- Phase 4 - Levee Resurfacing
- Phase 5 - Hydroseeding
- Phase 6 - Demobilization and Site Cleanup

Component #2 Yuba River South Levee

- Phase 1 - Clearing & Grubbing
- Phase 2 - Stripping
- Phase 3 - Levee Degrade for Cutoff Wall
- Phase 4 - Cutoff Wall Construction
- Phase 5 - Levee Reconstruction
- Phase 6 - Levee Resurfacing
- Phase 7 - Hydroseeding
- Phase 8 - Demobilization and Site Cleanup

Component #3 Feather River East Levee

- Phase 1 - Clearing & Grubbing
- Phase 2 - Stripping
- Phase 3 - Levee Degrade for Cutoff Wall
- Phase 4 - Cutoff Wall Construction
- Phase 5 - Levee Reconstruction
- Phase 6 - Levee Resurfacing
- Phase 7 - Hydroseeding
- Phase 8 - Demobilization and Site Cleanup

Component #4 Bear River North Levee & Setback

- Phase 1 - Clearing & Grubbing
- Phase 2 - Stripping
- Phase 3 - Levee Reconstruction & Seepage Remediation (North Levee Phase 3)
- Phase 3 - Seepage Berm (Setback Levee Phase 3)
- Phase 4 - Levee Resurfacing
- Phase 5 - Hydroseeding
- Phase 6 - Demobilization and Site Cleanup

Component #5 WPIC West Levee and ODB

- Phase 1 - Clearing & Grubbing
- Phase 2 - Stripping
- Phase 3 - Levee Reconstruction
- Phase 4 - Levee Resurfacing
- Phase 5 - Hydroseeding
- Phase 6 - Demobilization and Site Cleanup

Component #6 WPIC Extension Levee

- Phase 1 - Clearing & Grubbing
- Phase 2 - Stripping
- Phase 3 - Levee Reconstruction
- Phase 4 - Levee Resurfacing
- Phase 5 - Hydroseeding
- Phase 6 - Demobilization and Site Cleanup

As noted earlier with project components, the scheduling of construction activity phases is uncertain. Because of this uncertainty, each of the above-listed component phases was analyzed separately. In the future, if individual phases of different component are scheduled to occur concurrently, the results of the analysis presented in this letter report can be aggregated.

Alternatively, the results for each phase can be used separately if the scheduling of a phase results in the construction activity occurring separate from other phases.

CONSTRUCTION ACTIVITY AND METHODS

As described above, the TRLIA 500-Year Project would involve several different types of improvements. Some of the project components involve types of improvements different from other components. Three general types of improvements are included in the proposed project:

- levee raising,
- levee embankment extensions, and
- seepage remediation.

The following is a brief summary of types of improvements included in the TRLIA 500-Year Project.

Levee Raising

Freeboard requirements on existing levee segments that do not provide adequate freeboard to meet project objectives would be met by raising the height of specified levee segments by a maximum of approximately 2 feet, depending on the location. Raises could be accomplished by three methods: 1) adding aggregate base to the levee embankment, 2) adding soil fill to the levee embankment, or 3) constructing a parapet wall on the levee crown. Each of these potential levee raising methods is described below.

Aggregate Base Levee Raises. To limit levee disturbance, aggregate base would be added to the levee crown on existing segments where the required levee raise is less than approximately 0.5 foot, the existing levee crown is a minimum of 20 feet wide, and no other levee embankment work is required in or near the area of the raise. In areas where the existing levee crown is less than 20 feet wide, aggregate-filled geocells would be used to avoid expanding the levee footprint and minimize reduction in levee crown width.

Soil Fill Levee Raises. Soil fill levee raises would require widening the levee footprint, except in limited areas where the existing levee crown is wider than 20 feet and/or landside and waterside slopes are flatter than two horizontal (H) to one vertical (V) and 3H:1V, respectively. If a wider levee footprint is required, soil fill at given locations would be placed either completely on the landside slope or completely on the waterside slope to the extent feasible to limit levee embankment disturbance and allow for more efficient embankment construction methods. If possible, fill would be placed landside to limit hydraulic impacts.

Parapet Wall Levee Raises. If it is determined that there is insufficient area to accommodate a widened footprint required by raising the WPIC West Levee, additional levee height may be provided by constructing a concrete parapet wall. Parapet walls are vertical space-conserving

barriers constructed along the waterside levee crown hinge. Parapet walls generally do not require additional right-of-way because they have a small footprint. However, they are not a preferred method because they limit access to the waterside levee slope and increase the difficulty in performing maintenance inspections and may need to be removed to construct future levee repairs or improvements.

Levee Embankment Extensions

The WPIC West Levee would be extended by constructing a new levee embankment north along the east side of SR 70, then east along the south side of Olivehurst to SR 65. The extension would begin north of the existing ODB drain and tie into the existing SR 70 and SR 65 embankments. It would be constructed with 3H:1V landside and waterside slopes and a 20-foot-wide crown. Except for the tie-ins, the levee extension would be constructed outside of the existing Caltrans ROW and would avoid existing residential structures. Existing Pacific Gas and Electric Company transmission towers along the east side of SR 70 also would be avoided. Existing farm access roads and ditches would be rerouted. A portion of the existing drainage ditch at the west side of SR 65 would be filled and a gravity pipe outfall with positive closure valves would be installed.

Along the western edge of the Goldfields, a new levee would be constructed along the alignment of an existing mine tailing embankment. This levee would be constructed with 5H:1V landside slope, a 35-foot-wide crown, and 3H:1V waterside slope.

Seepage Remediation

Along portions of existing specified levee segments where seepage is a concern, remediation would include 1) cutoff walls, 2) relief wells, or 3) seepage berms or landside blankets. Each of these potential remediation methods is described below.

Cutoff Wall. Seepage cutoff walls are vertical walls approximately 3 feet wide and constructed of low hydraulic conductivity materials through the levee embankment and foundation to cut off potential through- and under-seepage. To be effective for under seepage, cutoff walls usually tie into an impervious sublayer. Cutoff walls typically require no additional permanent levee footprint, but the levee must be temporarily taken out of service and degraded to prevent hydraulic fracturing and provide a sufficiently wide working surface.

Before beginning cutoff wall construction, existing aggregate surfacing and topsoil layers would be stripped. Where feasible, stripped materials would be stockpiled for reuse. The levee crown would then be degraded by approximately one-third of its overall height. Levee degrade material would be side cast landside and waterside of the levee to establish the working surface. A 3-foot-wide trench would be excavated through the center of the levee and filled with bentonite-slurry to keep the trench sidewalls from caving in during excavation. Material excavated from the trench would be mixed, adjacent to the trench, with bentonite slurry and dry bentonite in appropriate proportions and then placed back in the excavated trench.

After cutoff wall settlement (typically 21 days) the levee embankment would be reconstructed to its original conditions. Aggregate base would then be placed along the levee crown and on levee access ramps, and disturbed areas would be hydroseeded.

Relief Wells. Relief wells are designed, based on the foundation soils in which they are installed, to relieve excessive pore pressures during high-flow events and provide a controlled discharge point for under-seepage.

Before beginning relief well construction, existing topsoil layers would be stripped. Where feasible, stripped materials would be stockpiled for reuse. Truck-mounted drills rigs would be used to drill pilot holes at relief well locations. Soil samples would be collected from pilot holes and sent to a lab for testing. Pilot holes would be grouted in accordance with local, State, and Federal requirements. Test results from soil samples would be used to finalize designs (relief well screen depths and filter pack).

Relief wells would be installed through pervious layers to approximate depths between 50 and 70 feet. Relief wells are typically 16 inches in diameter and include 6- to 8-inch-diameter casings. The area between the drilled hole and casing is filled with a gravel pack suitable for the foundation soils. Precast concrete manholes with traffic-rated lids would be installed at the tops of the relief wells. Discharge pipes (precast concrete) would be installed from each relief well to an existing concrete-lined relief well ditch that would convey discharge to a location away from the levee. An existing gravel access road along the relief well system allows for operation, maintenance, and inspections.

Seepage Berms and Landside Blanket. Seepage berms and blankets are wide embankment structures that extend outward from the landside levee toe to extend the under-seepage path and provide additional resisting forces against high-seepage gradients. They extend the under-seepage path and control exit gradients near the landside toe by providing additional confining pressure.

Before beginning seepage berm or blanket construction, areas to receive fill would be stripped to remove the topsoil layer. Where feasible, stripped materials would be stockpiled for reuse. Fill would then be placed from the levee landside toe through the full width of the seepage berm or blanket. The seepage berms would be 50 feet wide and 5 feet high at the levee toe, tapering to 3 feet high at the outer edge. The seepage blanket would be 60 feet wide and a maximum of approximately 5 feet high. Stripped topsoil would be re-placed on top of the constructed seepage berm and blanket, and disturbed areas would be hydroseeded.

Construction Schedule

Due to uncertainties regarding the timing of available funding, the exact construction schedule for the TRLIA 500-Year Project is not known at this time. However, work is anticipated to be completed in the 2023 to 2026 timeframe. The project is anticipated to be constructed over a 1-

to 3-year period and during up to an approximately 9-month period (April through December) of each construction year.

Work, including equipment operation, is anticipated to occur up to 14 hours per day, 6 days a week (Monday through Saturday) and between the hours of 6 a.m. and 8 p.m. However, equipment operation within 500 feet of occupied residences would be limited to 7 a.m. to 7 p.m. Equipment maintenance could occur on Sunday. If deemed necessary to complete construction before the beginning of the flood season, Feather River East Levee cutoff wall construction activities may occur on up to a 24-hour basis.

Material Needs, Sources, Transport, and Disposal

Fill material for the levee and clay core would be obtained from either an off-site borrow source(s) or from excess material obtained from project excavations. The construction contractor would be required to obtain any off-site borrow materials, which may be imported to the project site from in or near the Yuba City, Olivehurst, and Linda areas, within approximately 15 to 30 miles of the relevant work area. Other materials, such as aggregate base, concrete, culverts, and gates, would be obtained from off-site commercial sources within approximately 15 to 30 miles of the relevant work area. The enclosed **Table 1** lists the maximum estimated material import and export quantities for all project components

Before primary construction activities begin, up to approximately 170 acres along the levees and other work areas would be cleared and grubbed to remove debris, rubble, trash, and other deleterious items; excess materials would be removed from the project site and taken to appropriate commercial waste or recycling facilities. The area of clearing and grubbing corresponds to the area of project-related soil disturbance, and the amounts for each project component are shown in the enclosed **Table 2**.

Construction Equipment

The enclosed **Table 3** through **Table 9** summarize the types and amount of equipment anticipated to be used during each project component and construction phase. The tables also show the estimated duration of each phase. The values shown in **Table 3** through **Table 9** were used in the air quality analysis presented in this letter report. The construction contractors may use different equipment or more or less equipment, based on the construction schedule, the contractors' capabilities, and equipment availability.

METHODOLOGY

In the *Indirect Source Review Guidelines*, the Feather River Air Quality Management District (FRAQMD) notes,

> "The District recommends the Roadway Construction Emissions Model to calculate emissions from linear construction projects, such as new roadways, road widening, and levee projects. This model is available to download at: http://www.airquality.org/ceqa/index.shtml."

KDA applied the Road Construction Emissions Model to analyze the effects of the TRLIA 500-Year Project on criteria pollutant air quality emissions and greenhouse gas (GHG) emissions. A detailed description of the model may be found at the Sacramento Metropolitan Air Quality Management District internet website (http://www.airquality.org/Residents/CEQA-Land-Use-Planning/CEQA-Guidance-Tools). The Road Construction Emissions Model output reports are enclosed.

Road Construction Emissions Model Phase Names

The Road Construction Emissions Model software is limited in the number of construction phases that can be analyzed in an individual model run, and is limited in the names that can be applied to phases. In particular, the names of phases in the model cannot be modified.

Twelve runs of the Road Construction Emissions Model were used to analyze the TRLIA 500-Year Project. Two runs of the model were used to analyze each of the six project components.

Because the names of construction phases in the Road Construction Emissions Model cannot be modified, the names of TRLIA 500-Year Project construction phases do not appear in the enclosed model output reports. To facilitate review of the model output reports, the enclosed **Table 10** presents a correspondence table. The table shows the TRLIA 500-Year Project component and phase name in the left column, and the Road Construction Emissions Model run number and phase name in the right column.

SIGNIFICANCE THRESHOLDS

The following is a description of thresholds applied in this letter report to determine the significance of air quality impacts.

Criteria Pollutant Emissions

In the *Indirect Source Review Guidelines*, the FRAQMD recommends significance thresholds for construction-related emissions of nitrogen oxides (NO_x), reactive organic gases (ROG), and particulate matter less than 10 microns in diameter (PM_{10}). These types of emissions are referred to as criteria pollutant emissions.

For both NO_x and ROG, the FRAQMD recommends a significance threshold of "25 lbs/day multiplied by the project length, not to exceed 4.5 tons/year". The FRAQMD further notes, "NO_x and ROG Construction emissions may be averaged over the life of the project, but may not exceed 4.5 tons/year". In this report,

- NO_x and ROG emissions were calculated for each project component in pounds per day (ppd), averaged over the duration of the construction period for that component. The project component is considered to have a significant impact if the average daily value for either NO_x or ROG exceeds 25 ppd.

- The sum of NO_x and ROG emissions over the entire construction period for each project component were also calculated. It is not known if each project component would be completed in a single calendar year. However, based on the estimated work durations shown in **Table 3** through **Table 9**, the project component with the longest total work duration (Component #6 - WPIC Extension Levee) would have a duration of 169 days. Because the total duration of each project component could occur within a single year, a project component is considered to have a significant impact if the total emissions exceeds the threshold of 4.5 tons per year (tpy).

For PM_{10}, the FRAQMD recommends a significance threshold of 80 ppd. The project is considered to have a significant impact if emissions exceed 80 ppd during the construction period.

Greenhouse Gas Emissions

In the *Indirect Source Review Guidelines*, the FRAQMD notes,

> "Air districts have traditionally provided guidance to local lead agencies on evaluating and addressing air pollution impacts from projects subject to CEQA. Recognizing the need for a common platform of information and tools to support decision makers as they establish policies and programs for GHG and CEQA, the California Air Pollution Control Officers Association has prepared a white paper reviewing policy choices, analytical tools, and mitigation strategies. This white paper, entitled 'CEQA and Climate Change' is available at http://www.capcoa.org/. The District recommends the use of this white paper by local lead agencies."

The California Air Pollution Control Officers Association (CAPCOA) document *CEQA and Climate Change* notes,

> "Although construction activity has been addressed in the analytical methodologies and mitigation chapters, this paper does not discuss whether any of the threshold approaches adequately addresses impacts from construction activity.

> More study is needed to make this assessment or to develop separate thresholds for construction activity. The focus of this paper is the long-term adverse operational impacts of land use development."

In *CEQA and Climate Change* CAPCOA identifies a guideline of 900 metric tons per year of carbon dioxide equivalent (MT/yr CO_2e) emissions as a conservative threshold for requiring further analysis and mitigation. While CAPCOA does not directly recommend use of this guideline to construction activity, because the FRAQMD recommends use of *CEQA and Climate Change*, and because the 900 MT CO_2e is a conservative threshold, this threshold is applied in this letter report. As noted above in the *Criteria Pollutant Emissions* section of this letter report, it is not known if each project component would be completed in a single calendar year. However, because the total duration of each project component could occur within a single year, a project component is considered to have a significant impact on GHG emission if the project component emissions exceeds the threshold of 900 MT/yr of CO_2e.

RESULTS

The results of the Road Construction Emissions Model emissions analysis are shown in the enclosed **Table 11** through **Table 22**. Two tables are shown for each of the six project components. One table is for criteria pollutant emissions. The second table is for GHG emissions. The following is a summary of the air quality analysis for each of the six project components.

Component #1 - Gold Fields West Levee

Criteria Pollutant Emissions. As shown in **Table 11**, project-related daily emissions of NO_x averaged over the project component construction period would be 142.83 ppd, which is greater than the 25 ppd significance threshold presented in the *Significance Thresholds* section of this letter report. Emissions of NO_x for the entire project component would be 10.21 tons, which is greater than the 4.5 tpy threshold. Because NO_x emissions would exceed the 25 ppd and the 4.5 tpy thresholds, this impact is considered significant.

Project-related daily emissions of ROG averaged over the project component construction period would be 15.66 ppd, which is less than the 25 ppd significance threshold. Emissions of ROG for the entire project component would be 1.12 tons, which is less than the 4.5 tpy threshold. Because ROG emissions would not exceed the 25 ppd and the 4.5 tpy thresholds, this impact is considered less than significant.

The maximum daily emissions of PM_{10} during the project component construction period would be 22.51 ppd, which is less than the 80 ppd significance threshold. Because PM_{10} emissions would not exceed the 80 ppd threshold, this impact is considered less than significant.

Greenhouse Gas Emissions. As shown in **Table 12**, project-related GHG emissions are forecasted to be 2,164.66 MT of CO_2e for the project component construction period, which is greater than the 900 MT/yr CO_2e significance threshold. As a result, the project's impact on GHG emissions is considered to be significant.

Component #2 - Yuba River South Levee

Criteria Pollutant Emissions. As shown in **Table 13**, project-related daily emissions of NO_x averaged over the project component construction period would be 83.89 ppd, which is greater than the 25 ppd significance threshold presented in the *Significance Thresholds* section of this letter report. Emissions of NO_x for the entire project component would be 6.25 tons, which is greater than the 4.5 tpy threshold. Because NO_x emissions would exceed the 25 ppd and the 4.5 tpy thresholds, this impact is considered significant.

Project-related daily emissions of ROG averaged over the project component construction period would be 9.60 ppd, which is less than the 25 ppd significance threshold. Emissions of ROG for the entire project component would be 0.71 tons, which is less than the 4.5 tpy threshold. Because ROG emissions would not exceed the 25 ppd and the 4.5 tpy thresholds, this impact is considered less than significant.

The maximum daily emissions of PM_{10} during the project component construction period would be 34.81 ppd, which is less than the 80 ppd significance threshold. Because PM_{10} emissions would not exceed the 80 ppd threshold, this impact is considered less than significant.

Greenhouse Gas Emissions. As shown in **Table 14**, project-related GHG emissions are forecasted to be 1,425.37 MT of CO_2e for the project component construction period, which is greater than the 900 MT/yr CO_2e significance threshold. As a result, the project's impact on GHG emissions is considered to be significant.

Component #3 - Feather River East Levee

Criteria Pollutant Emissions. As shown in **Table 15**, project-related daily emissions of NO_x averaged over the project component construction period would be 71.46 ppd, which is greater than the 25 ppd significance threshold presented in the *Significance Thresholds* section of this letter report. Emissions of NO_x for the entire project component would be 4.00 tons, which is less than the 4.5 tpy threshold. Because NO_x emissions would exceed the 25 ppd threshold, this impact is considered significant.

Project-related daily emissions of ROG averaged over the project component construction period would be 8.46 ppd, which is less than the 25 ppd significance threshold. Emissions of ROG for the entire project component would be 0.47 tons, which is less than the 4.5 tpy threshold. Because ROG emissions would not exceed the 25 ppd and the 4.5 tpy thresholds, this impact is considered less than significant.

The maximum daily emissions of PM_{10} during the project component construction period would be 104.74 ppd, which is greater than the 80 ppd significance threshold. Because PM_{10} emissions would exceed the 80 ppd threshold, this impact is considered significant.

Greenhouse Gas Emissions. As shown in **Table 16**, project-related GHG emissions are forecasted to be 921.13 MT of CO_2e for the project component construction period, which is greater than the 900 MT/yr CO_2e significance threshold. As a result, the project's impact on GHG emissions is considered to be significant.

Component #4 - Bear River North Levee & Setback

Criteria Pollutant Emissions. As shown in **Table 17**, project-related daily emissions of NO_x averaged over the project component construction period would be 86.43 ppd, which is greater than the 25 ppd significance threshold presented in the *Significance Thresholds* section of this letter report. Emissions of NO_x for the entire project component would be 2.46 tons, which is less than the 4.5 tpy threshold. Because NO_x emissions would exceed the 25 ppd threshold, this impact is considered significant.

Project-related daily emissions of ROG averaged over the project component construction period would be 9.25 ppd, which is less than the 25 ppd significance threshold. Emissions of ROG for the entire project component would be 0.26 tons, which is less than the 4.5 tpy threshold. Because ROG emissions would not exceed the 25 ppd and the 4.5 tpy thresholds, this impact is considered less than significant.

The maximum daily emissions of PM_{10} during the project component construction period would be 32.79 ppd, which is less than the 80 ppd significance threshold. Because PM_{10} emissions would not exceed the 80 ppd threshold, this impact is considered less than significant.

Greenhouse Gas Emissions. As shown in **Table 18**, project-related GHG emissions are forecasted to be 652.52 MT of CO_2e for the project component construction period, which is less than the 900 MT/yr CO_2e significance threshold. As a result, the project's impact on GHG emissions is considered to be less than significant.

Component #5 - WPIC West Levee and ODB

Criteria Pollutant Emissions. As shown in **Table 19**, project-related daily emissions of NO_x averaged over the project component construction period would be 134.70 ppd, which is greater than the 25 ppd significance threshold presented in the *Significance Thresholds* section of this letter report. Emissions of NO_x for the entire project component would be 11.38 tons, which is greater than the 4.5 tpy threshold. Because NO_x emissions would exceed the 25 ppd and the 4.5 tpy thresholds, this impact is considered significant.

Project-related daily emissions of ROG averaged over the project component construction period would be 13.69 ppd, which is less than the 25 ppd significance threshold. Emissions of ROG for the entire project component would be 1.16 tons, which is less than the 4.5 tpy threshold. Because ROG emissions would not exceed the 25 ppd and the 4.5 tpy thresholds, this impact is considered less than significant.

The maximum daily emissions of PM_{10} during the project component construction period would be 104.51 ppd, which is greater than the 80 ppd significance threshold. Because PM_{10} emissions would exceed the 80 ppd threshold, this impact is considered significant.

Greenhouse Gas Emissions. As shown in **Table 20**, project-related GHG emissions are forecasted to be 3,165.25 MT of CO_2e for the project component construction period, which is greater than the 900 MT/yr CO_2e significance threshold. As a result, the project's impact on GHG emissions is considered to be significant.

Component #6 - WPIC Extension Levee

Criteria Pollutant Emissions. As shown in **Table 21**, project-related daily emissions of NO_x averaged over the project component construction period would be 147.94 ppd, which is greater than the 25 ppd significance threshold presented in the *Significance Thresholds* section of this letter report. Emissions of NO_x for the entire project component would be 12.06 tons, which is greater than the 4.5 tpy threshold. Because NO_x emissions would exceed the 25 ppd and the 4.5 tpy thresholds, this impact is considered significant.

Project-related daily emissions of ROG averaged over the project component construction period would be 14.53 ppd, which is less than the 25 ppd significance threshold. Emissions of ROG for the entire project component would be 1.18 tons, which is less than the 4.5 tpy threshold. Because ROG emissions would not exceed the 25 ppd and the 4.5 tpy thresholds, this impact is considered less than significant.

The maximum daily emissions of PM_{10} during the project component construction period would be 83.75 ppd, which is greater than the 80 ppd significance threshold. Because PM_{10} emissions would exceed the 80 ppd threshold, this impact is considered significant.

Greenhouse Gas Emissions. As shown in **Table 22**, project-related GHG emissions are forecasted to be 3,546.57 MT of CO_2e for the project component construction period, which is greater than the 900 MT/yr CO_2e significance threshold. As a result, the project's impact on GHG emissions is considered to be significant.

CLOSING

Thank you for providing KDA with the opportunity to provide GEI Consultants with air pollutant emissions analysis services on the TRLIA 500-Year Flood Protection Project. Please let me know if you have any questions about this report.

Sincerely,

KD Anderson & Associates, Inc.

Wayne Shijo
Project Manager

enclosures

KDA

Project Location

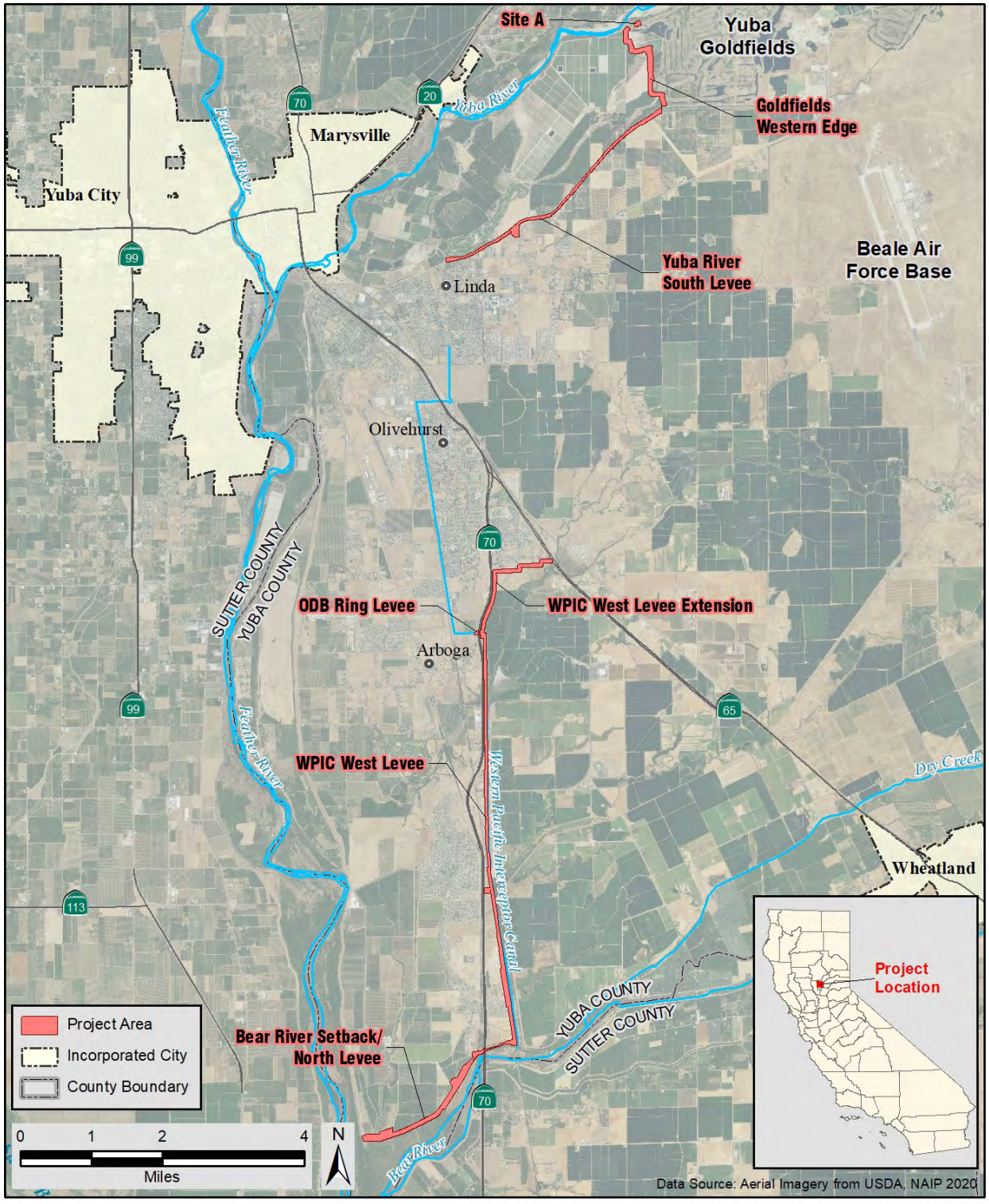

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Table 1. TRLIA 500-Year Project - Material Quantity Import and Export

	Component #1 Goldfields West Levee				Component #2 Yuba River South Levee				Component #3 Feather River East Levee				Component #4 - Bear River Setback and North Levees				Component #5 WPIC West and ODB Levees				Component #6 WPIC West Levee Extension			
Phase Name	**Phase**	**Days**	**Cubic Yards**	**CY per Day**	**Phase**	**Days**	**Cubic Yards**	**CY per Day**	**Phase**	**Days**	**Cubic Yards**	**CY per Day**	**Phase**	**Days**	**Cubic Yards**	**CY per Day**	**Phase**	**Days**	**Cubic Yards**	**CY per Day**	**Phase**	**Days**	**Cubic Yards**	**CY per Day**
Clearing & Grubbing (Export)	1	10	10,000	1,000	1	5	1,750	350	1	5	0	0	1	5	294	59	1	10	2,000	200	1	10	10,000	1,000
Stripping (Export)	2	15	15,000	1,000	2	15	5,250	350	2	15	0	0	2	12	706	59	2	30	6,000	200	2	4	4,000	1,000
Levee Reconstruction	3	90	193,000	2,144	5	35	8,500	243	5	15	0	0	3 (Levee)	20	32,000	1,600	3	80	320,000	4,000	3	120	435,000	3,625
Seepage Berm													3 (Setback)	5	14,500	2,900								
Levee Resurfacing	4	10	4,615	462	6	10	6,154	615	6	5	2,308	462	4	5	2,308	462	4	25	16,154	646	4	10	5,769	577

Note: Import/export distance assumed to be up to 30 miles one-way, except for Goldfields fill and aggregate, which would be up to 5 miles one-way.
Excess and unsuitable material for export distributed between Clearing & Grubbing and Stripping based on number of days.
Clearing & Grubbing and Stripping are for export. All other amounts are for import.

Table 2. TRLIA 500-Year Project - Area of Ground Disturbance

Project Component	Ground Disturbance (in Acres)
1 Goldfields West Levee	15
2 Yuba River South Levee	16
3 Feather River East Levee	13
4 (Part) Bear River North Levee	11
4 (Part) Bear River Setback	1
5 WPIC West Levee and ODB Ring Levee	72
6 WPIC Extension Levee	32

Table 3. Component #1 - Gold Fields West Levee
Anticipated Equipment and Estimated Work Durations

Construction Phase	Equipment Type	Duration of Use (percent of phase)	Estimated Work Duration
Phase 1 Clearing & Grubbing	(3) 5CY Front End Loaders	100%	10 Days
	(20) Pickup Trucks	100%	
	(2) Water Trucks	100%	
	(3) End Dump Trucks	100%	
Phase 2 Stripping	(4) Scrapers	100%	15 Days
	(2) Water Trucks	100%	
	(20) Pickup Trucks	100%	
	(1) D-6 Dozer	100%	
Phase 3 Levee Reconstruction	(30) End Dump Trucks	100%	90 Days
	(4) Motor Graders	20%	
	(10) D-6 Dozer	100%	
	(4) Vibratory Rollers	100%	
	(20) Pickup Trucks	100%	
	(3) Water Trucks	100%	
Phase 4 Levee Resurfacing	(4) Bottom Dump	100%	10 Days
	(1) Motor Graders	20%	
	(1) Vibratory Rollers	100%	
	(1) D-6 Dozer	100%	
	(20) Pickup Trucks	100%	
	(2) Water Trucks	100%	
Phase 5 Hydroseeding	(1)Hydroseeding Truck	100%	11 Days
	(10) Pickup Trucks	100%	
Phase 6 Demobilization and Site Cleanup	(2) Haul Trucks	100%	7 Days
	(10) Pickup Trucks	100%	
	(1) Loader	100%	

Table 4. Component #2 - Yuba River South Levee
Anticipated Equipment and Estimated Work Durations

Construction Phase	Equipment Type	Duration of Use (percent of phase)	Estimated Work Duration
Phase 1 Clearing & Grubbing	(2) 5 CY Front End Loaders	100%	5 Days
	(20) Pickup Trucks	100%	
	(2) Water Trucks	100%	
	(2) End Dump Trucks	50%	
Phase 2 Stripping	(2) D5 Dozers	100%	15 Days
	(2) Water Truck	100%	
	(2) 5 CY Front End Loaders	100%	
	(20) Pickup Trucks	100%	
	(10) End Dump Trucks	100%	
Phase 3 Levee Degrade for Cutoff Wall	(2) 3.5 CY Excavators	100%	25 Days
	(3) D6 Dozers	100%	
	(2) Water Trucks	100%	
	(20) Pickup Trucks	100%	
	(5) Haul Trucks	50%	
Phase 4 Cutoff Wall Construction	(1) 3.5 CY Long Reach Excavator	100%	45 Days
	(2) D6 Dozer	100%	
	(1) Extended Boom Pallet Loader	100%	
	(2) 300-Kilowat Generators	100%	
	(2) Slurry Pumps	100%	
	(20) Pickup Trucks	100%	
	(10) Haul Trucks	50%	
Phase 5 Levee Reconstruction	(3) D6 Dozer	100%	35 Days
	(2) 5CY Front End Loaders	100%	
	(4) Motor Grader	100%	
	(4) Vibratory Rollers	100%	
	(10) Haul Trucks	100%	
	(20) Pickup Trucks	100%	
	(2) Water Trucks	100%	

Table 4 (Continued). Component #2 - Yuba River South Levee Anticipated Equipment and Estimated Work Durations

Construction Phase	Equipment Type	Duration of Use (percent of phase)	Estimated Work Duration
Phase 6 Levee Resurfacing	(4) Bottom Dump Trucks	100%	10 Days
	(1) Motor Grader	20%	
	(1) Vibratory Roller	100%	
	(1) D6 Dozer	100%	
	(20) Pickup Trucks	100%	
	(2) Water Truck	100%	
	(20) Pickup Trucks	100%	
Phase 7 Hydroseeding	(1) Hydroseeding Truck	100%	7 Days
	(10) Pickup Trucks	100%	
Phase 8 Demobilization and Site Cleanup	(2) Haul Trucks	100%	7 Days
	(10) Pickup Trucks	100%	
	(1) Loader	100%	

Table 5. Component #3 - Feather River East Levee
Anticipated Equipment and Estimated Work Durations

Construction Phase	Equipment Type	Duration of Use (percent of phase)	Estimated Work Duration
Phase 1 Clearing & Grubbing	No clearing and grubbing needed		
Phase 2 Stripping	(1) D6 Dozer	100%	5 Days
	(1) Water Truck	100%	
	(1) 5 CY Front End Loader	100%	
	(10) Pickup Trucks	100%	
	(5) End Dump Trucks	100%	
Phase 3 Levee Degrade for Cutoff Wall	(2) 3.5 CY Excavators	100%	15 Days
	(2) D6 Dozers	100%	
	(2) Water Trucks	100%	
	(10) Pickup Trucks	100%	
	(10) End Dump Trucks	50%	
Phase 4 Cutoff Wall Construction	(1) 3.5 CY Long Reach Excavator	100%	60 Days
	(1) 3.5 CY Excavator	100%	
	(2) D6 Dozers	100%	
	(1) Extended Boom Pallet Loader	100%	
	(2) 300-Kilowat Generators	100%	
	(2) Slurry Pumps	100%	
	(20) Pickup Trucks	100%	
	(10) Haul Trucks	50%	
Phase 5 Levee Reconstruction	(2) D6 Dozers	100%	15 Days
	(2) 5 CY Front End Loaders	100%	
	(2) Motor Graders	100%	
	(2) Sheepsfoot Compactors	100%	
	(10) Bottom Dump Trucks	100%	
	(20) Pickup Trucks	100%	
	(2) Water Trucks	100%	

Table 5 (Continued). Component #3 - Feather River East Levee Anticipated Equipment and Estimated Work Durations

Construction Phase	Equipment Type	Duration of Use (percent of phase)	Estimated Work Duration
Phase 6 Levee Resurfacing	(4) Bottom Dump Trucks	100%	5 Days
	(1) Motor Grader	20%	
	(1) Vibratory Roller	100%	
	(1) D6 Dozer	100%	
	(10) Pickup Trucks	100%	
	(1) Water Truck	100%	
	(20) Pickup Trucks	100%	
Phase 7 Hydroseeding	(1) Hydroseeding Truck	100%	5 Days
	(10) Pickup Trucks	100%	
Phase 8 Demobilization and Site Cleanup	(2) Haul Trucks	100%	7 Days
	(10) Pickup Trucks	100%	
	(1) Loader	100%	

Table 6. Component #4 (Part) - Bear River North Levee
Anticipated Equipment and Estimated Work Durations

Construction Phase	Equipment Type	Duration of Use (percent of phase)	Estimated Work Duration
Phase 1 Clearing & Grubbing	(2) 5CY Front End Loaders	100%	5 days
	(20) Pickup Trucks	100%	
	(2) Water Trucks	100%	
	(2) End Dump Trucks	100%	
Phase 2 Stripping	(2) D-6 Dozer	100%	10 Days
	(2) Water Trucks	100%	
	(2) 5CY Front End Loaders	100%	
	(20) Pickup Trucks	100%	
	(10) End Dump Trucks	100%	
Phase 3 Levee Reconstruction and Seepage Remediation	(3) D-6 Dozer	50%	20 Days
	(2) 5CY Front End Loaders	100%	
	(4) Motor Graders	50%	
	(4) Vibratory Rollers	100%	
	(25) Bottom Dump	100%	
	(20) Pickup Trucks	100%	
	(2) Water Trucks	100%	
Phase 4 Levee Resurfacing	(3) Bottom Dump	100%	5 Days
	(1) Motor Graders	20%	
	(1) Vibratory Rollers	100%	
	(1) D-6 Dozer	100%	
	(20) Pickup Trucks	100%	
	(2) Water Trucks	100%	
Phase 5 Hydroseeding	(1)Hydroseeding Truck	100%	5 Days
	(5) Pickup Trucks	100%	
Phase 6 Demobilization and Site Cleanup	(2) Haul Trucks	100%	7 Days
	(10) Pickup Trucks	100%	
	(1) Loader	100%	

Table 7. Component #4 (Part) - Bear River Setback Levee
Anticipated Equipment and Estimated Work Durations

Construction Phase	Equipment Type	Duration of Use (percent of phase)	Estimated Work Duration
Phase 1 Clearing & Grubbing	None Needed		
Phase 2 Stripping	(1) D-6 Dozer	100%	2 Days
	(1) Water Truck	100%	
	(1) 5CY Front End Loader	100%	
	(5) Pickup Trucks	100%	
	(2) End Dump Trucks	100%	
Phase 3 Seepage Berm	(1) D-6 Dozer	50%	5 Days
	(1) 5CY Front End Loader	100%	
	(1) Motor Grader	50%	
	(1) Vibratory Roller	100%	
	(5) Bottom Dump Trucks	100%	
	(10) Pickup Trucks	100%	
	(1) Water Truck	100%	
Phase 4 Hydroseeding	(1) Hydroseeding Truck	100%	1 Day
	(2) Pickup Trucks	100%	
Phase 6 Demobilization and Site Cleanup	(2) Haul Trucks	100%	2 Days
	(3) Pickup Trucks	100%	
	(1) Loader	100%	

Table 8. Component #5 - WPIC West Levee and ODB Anticipated Equipment and Estimated Work Durations

Construction Phase	Equipment Type	Duration of Use (percent of phase)	Estimated Work Duration
Phase 1 Clearing & Grubbing	(2) 5CY Front End Loaders	100%	15 Days
	(20) Pickup Trucks	100%	
	(2) Water Trucks	100%	
	(5) End Dump Trucks	100%	
Phase 2 Stripping	(2) D-6 Dozer	100%	30 Days
	(2) Water Trucks	100%	
	(2) 5CY Front End Loaders	100%	
	(20) Pickup Trucks	100%	
	(20) End Dump Trucks	100%	
Phase 3 Levee Reconstruction	(4) D-6 Dozer	100%	80 Days
	(4) 5CY Front End Loaders	100%	
	(4) Motor Graders	100%	
	(4) Vibratory Rollers	50%	
	(45) Bottom Dump	100%	
	(20) Pickup Trucks	100%	
	(3) Water Trucks	100%	
Phase 4 Levee Resurfacing	(5) Bottom Dump	100%	25 Days
	(1) Motor Graders	20%	
	(1) Vibratory Rollers	100%	
	(1) D-6 Dozer	100%	
	(20) Pickup Trucks	100%	
	(2) Water Trucks	100%	
Phase 5 Hydroseeding	(2) Hydroseeding Truck	100%	12 Days
	(10) Pickup Trucks	100%	
Phase 6 Demobilization and Site Cleanup	(2) Haul Trucks	100%	7 Days
	(10) Pickup Trucks	100%	
	(1) Loader	100%	

Table 9. Component #6 - WPIC Extension Levee
Anticipated Equipment and Estimated Work Durations

Construction Phase	Equipment Type	Duration of Use (percent of phase)	Estimated Work Duration
Phase 1 Clearing & Grubbing	(3) 5CY Front End Loaders	100%	10 Days
	(20) Pickup Trucks	100%	
	(2) Water Trucks	100%	
	(3) End Dump Trucks	100%	
Phase 2 Stripping	(2) Scrapers	100%	4 Days
	(2) Water Trucks	100%	
	(20) Pickup Trucks	100%	
	(1) D-6 Dozer	100%	
Phase 3 Levee Reconstruction	(37) End Dump Trucks	100%	120 Days
	(4) Motor Graders	20%	
	(2) D-6 Dozer	100%	
	(4) Vibratory Rollers	100%	
	(20) Pickup Trucks	100%	
	(3) Water Trucks	100%	
Phase 4 Levee Resurfacing	(4) Bottom Dump	100%	10 Days
	(4) Motor Graders	20%	
	(1) Vibratory Rollers	100%	
	(1) D-6 Dozer	100%	
	(20) Pickup Trucks	100%	
	(2) Water Trucks	100%	
Phase 5 Hydroseeding	(2) Hydroseeding Truck	100%	12 Days
	(10) Pickup Trucks	100%	
Phase 6 Demobilization and Site Cleanup	(2) Haul Trucks	100%	7 Days
	(10) Pickup Trucks	100%	
	(1) Loader	100%	

Table 10. TRLIA 500-Year Project and Road Construction Emissions Model Phase Correspondence Table

TRLIA 500-Year Project Components and Phases		Road Construction Emissions Model Run Number and Phase	
Component #1 Gold Fields West Levee			
Phase 1	Clearing & Grubbing	Run 1	Grubbing / Land Clearing
Phase 2	Stripping		Grading / Excavation
Phase 3	Levee Reconstruction		Drainage / Utility / Sub-Grade
Phase 4	Levee Resurfacing		Paving
Phase 5	Hydroseeding	Run 2	Grubbing / Land Clearing
Phase 6	Demobilization and Site Cleanup		Grading / Excavation
Component #2 Yuba River South Levee			
Phase 1	Clearing & Grubbing	Run 3	Grubbing / Land Clearing
Phase 2	Stripping		Grading / Excavation
Phase 3	Levee Degrade for Cutoff Wall		Drainage / Utility / Sub-Grade
Phase 4	Cutoff Wall Construction		Paving
Phase 5	Levee Reconstruction	Run 4	Grubbing / Land Clearing
Phase 6	Levee Resurfacing		Grading / Excavation
Phase 7	Hydroseeding		Drainage / Utility / Sub-Grade
Phase 8	Demobilization and Site Cleanup		Paving

Table 10 (Continued). TRLIA 500-Year Project and Road Construction Emissions Model Phase Correspondence Table

TRLIA 500-Year Project Components and Phases		Road Construction Emissions Model Run Number and Phase	
Component #3 Feather River East Levee			
Phase 1	Clearing & Grubbing	Run 5	Grubbing / Land Clearing
Phase 2	Stripping		Grading / Excavation
Phase 3	Levee Degrade for Cutoff Wall		Drainage / Utility / Sub-Grade
Phase 4	Cutoff Wall Construction		Paving
Phase 5	Levee Reconstruction	Run 6	Grubbing / Land Clearing
Phase 6	Levee Resurfacing		Grading / Excavation
Phase 7	Hydroseeding		Drainage / Utility / Sub-Grade
Phase 8	Demobilization and Site Cleanup		Paving
Component #4 Bear River North Levee & Setback			
Phase 1	Clearing & Grubbing	Run 7	Grubbing / Land Clearing
Phase 2	Stripping		Grading / Excavation
Phase 3	Levee Reconstruction & Seepage Remediation (North Levee Phase 3)		Drainage / Utility / Sub-Grade
Phase 3	Seepage Berm (Setback Levee Phase 3)		Paving
Phase 4	Levee Resurfacing	Run 8	Grubbing / Land Clearing
Phase 5	Hydroseeding (Phase 4 of Setback Levee?)		Grading / Excavation
Phase 6	Demobilization and Site Cleanup		Drainage / Utility / Sub-Grade

Table 10 (Continued). TRLIA 500-Year Project and Road Construction Emissions Model Phase Correspondence Table

TRLIA 500-Year Project Components and Phases		Road Construction Emissions Model Run Number and Phase	
Component #5 WPIC West Levee and ODB			
Phase 1	Clearing & Grubbing	Run 9	Grubbing / Land Clearing
Phase 2	Stripping		Grading / Excavation
Phase 3	Levee Reconstruction		Drainage / Utility / Sub-Grade
Phase 4	Levee Resurfacing		Paving
Phase 5	Hydroseeding	Run 10	Grubbing / Land Clearing
Phase 6	Demobilization and Site Cleanup		Grading / Excavation
Component #6 WPIC Extension Levee			
Phase 1	Clearing & Grubbing	Run 11	Grubbing / Land Clearing
Phase 2	Stripping		Grading / Excavation
Phase 3	Levee Reconstruction		Drainage / Utility / Sub-Grade
Phase 4	Levee Resurfacing		Paving
Phase 5	Hydroseeding	Run 12	Grubbing / Land Clearing
Phase 6	Demobilization and Site Cleanup		Grading / Excavation

Table 11. TRLIA 500-Year Project Component 1 Gold Fields West Levee Criteria Pollutant Emissions

Emissions and Time Period	Phase 1 Clearing and Grubbing	Phase 2 Stripping	Phase 3 Levee Reconstruction	Phase 4 Levee Resurfacing	Phase 5 Hydroseeding	Phase 6 Demobilization and Site Cleanup	Total Construction Period
NO_x in ppd	64.06	93.41	192.46	61.89	23.17	26.83	
ROG in ppd	6.66	9.26	21.17	7.30	2.91	3.34	
PM_{10} in ppd	18.36	14.41	11.88	3.36	15.31	22.51	
Length of Phase in Days	10	15	90	10	11	7	143
NO_x in Pounds for Phase Period	640.60	1,401.15	17,321.40	618.90	254.87	187.81	20,424.73
NO_x in Tons for Phase Period	0.32	0.70	8.66	0.31	0.13	0.09	10.21
ROG in Pounds for Phase Period	66.60	138.90	1,905.30	73.00	32.01	23.38	2,239.19
ROG in Tons for Phase Period	0.03	0.07	0.95	0.04	0.02	0.01	1.12

NO_x in ppd Averaged Over the Construction Period	142.83
NO_x Significance Threshold in ppd Averaged Over the Construction Period	25
Significant Impact? (Average Daily NO_x Exceeds 25 ppd?)	Yes
Significant Impact? (Total Construction Period NO_x Exceeds 4.5 tons per year?)	Yes
ROG in ppd Averaged Over the Construction Period	15.66
ROG Significance Threshold in ppd Averaged Over the Construction Period	25
Significant Impact? (Average Daily ROG Exceeds 25 ppd?)	No
Significant Impact? (Total Construction Period ROG Exceeds 4.5 tons per year?)	No
Maximum PM_{10} in ppd for the Construction Period	22.51
PM_{10} Significance Threshold in ppd	80
Significant Impact?	No

Notes: "NO_x" = nitrogen oxides. "ROG" = reactive organic gases.
"PM10" = inhalable particulate matter less than 10 microns diameter. "ppd" = pounds per day.

Table 12. TRLIA 500-Year Project - Component 1 Gold Fields West Levee
Greenhouse Gas Emissions

Component Phase	Metric Tons of Carbon Dioxide Equivalent Emissions During Component Phase
Phase 1 - Clearing and Grubbing	95.81
Phase 2 - Stripping	171.88
Phase 3 - Levee Reconstruction	1,764.75
Phase 4 - Levee Resurfacing	75.12
Phase 5 - Hydroseeing	33.04
Phase 6 - Demobilization and Site Cleanup	24.06
Total for Component	2,164.66
Significance Threshold	900
Significant Impact?	Yes

Table 13. TRLIA 500-Year Project Component 2 Yuba River South Levee Criteria Pollutant Emissions

Emissions and Time Period	Phase 1 Clearing and Grubbing	Phase 2 Stripping	Phase 3 Levee Degrade for Cutoff Wall	Phase 4 Cutoff Wall Construction	Phase 5 Levee Reconstruction	Phase 6 Levee Resurfacing	Phase 7 Hydroseeding	Phase 8 Demobilization and Site Cleanup	Total Construction Period
NO_x in ppd	51.67	84.90	72.54	81.01	116.13	109.41	23.17	26.83	
ROG in ppd	5.91	9.68	8.43	9.65	12.57	12.64	2.91	3.34	
PM_{10} in ppd	34.81	15.53	9.83	4.33	10.82	21.93	24.31	1.51	
Length of Phase in Days	5	15	25	45	35	10	7	7	149
NO_x in Pounds for Phase Period	258.35	1,273.50	1,813.50	3,645.45	4,064.55	1,094.10	162.19	187.81	12,499.45
NO_x in Tons for Phase Period	0.13	0.64	0.91	1.82	2.03	0.55	0.08	0.09	6.25
ROG in Pounds for Phase Period	29.55	145.20	210.75	434.25	439.95	126.40	20.37	23.38	1,429.85
ROG in Tons for Phase Period	0.01	0.07	0.11	0.22	0.22	0.06	0.01	0.01	0.71

NO_x in ppd Averaged Over the Construction Period	83.89
NO_x Significance Threshold in ppd Averaged Over the Construction Period	25
Significant Impact? (Average Daily NO_x Exceeds 25 ppd?)	Yes
Significant Impact? (Total Construction Period NO_x Exceeds 4.5 tons per year?)	Yes
ROG in ppd Averaged Over the Construction Period	9.60
ROG Significance Threshold in ppd Averaged Over the Construction Period	25
Significant Impact? (Average Daily ROG Exceeds 25 ppd?)	No
Significant Impact? (Total Construction Period ROG Exceeds 4.5 tons per year?)	No
Maximum PM_{10} in ppd for the Construction Period	34.81
PM_{10} Significance Threshold in ppd	80
Significant Impact?	No

Notes: "NO_x" = nitrogen oxides. "ROG" = reactive organic gases.
"PM10" = inhalable particulate matter less than 10 microns diameter. "ppd" = pounds per day.

Table 14. TRLIA 500-Year Project - Component 2 Yuba River South Levee Greenhouse Gas Emissions

Component Phase	Metric Tons of Carbon Dioxide Equivalent Emissions During Component Phase
Phase 1 - Clearing and Grubbing	35.77
Phase 2 - Stripping	156.04
Phase 3 - Levee Degrade for Cutoff Wall	199.16
Phase 4 - Cutoff Wall Construction	414.85
Phase 5 - Levee Reconstruction	430.37
Phase 6 - Levee Resurfacing	144.09
Phase 7 - Hydroseeing	21.03
Phase 8 - Demobilization and Site Cleanup	24.06
Total for Component	1,425.37
Significance Threshold	900
Significant Impact?	Yes

Table 15 TRLIA 500-Year Project Component 3 Feather River East Levee Criteria Pollutant Emissions

Emissions and Time Period	Phase 1 Clearing and Grubbing	Phase 2 Stripping	Phase 3 Levee Degrade for Cutoff Wall	Phase 4 Cutoff Wall Construction	Phase 5 Levee Reconstruction	Phase 6 Levee Resurfacing	Phase 7 Hydroseeding	Phase 8 Demobilization and Site Cleanup	Total Construction Period
NO_x in ppd	0.00	40.59	49.61	82.57	91.03	86.59	23.17	26.83	
ROG in ppd	0.00	4.83	5.75	9.85	10.52	9.98	2.91	3.34	
PM_{10} in ppd	40.00	42.20	102.62	4.41	104.74	19.68	26.31	1.51	
Length of Phase in Days	0	5	15	60	15	5	5	7	112
NO_x in Pounds for Phase Period	0.00	202.95	744.15	4,954.20	1,365.45	432.95	115.85	187.81	8,003.36
NO_x in Tons for Phase Period	0.00	0.10	0.37	2.48	0.68	0.22	0.06	0.09	4.00
ROG in Pounds for Phase Period	0.00	24.15	86.25	591.00	157.80	49.90	14.55	23.38	947.03
ROG in Tons for Phase Period	0.00	0.01	0.04	0.30	0.08	0.02	0.01	0.01	0.47

NO_x in ppd Averaged Over the Construction Period	71.46
NO_x Significance Threshold in ppd Averaged Over the Construction Period	25
Significant Impact? (Average Daily NO_x Exceeds 25 ppd?)	Yes
Significant Impact? (Total Construction Period NO_x Exceeds 4.5 tons per year?)	No
ROG in ppd Averaged Over the Construction Period	8.46
ROG Significance Threshold in ppd Averaged Over the Construction Period	25
Significant Impact? (Average Daily ROG Exceeds 25 ppd?)	No
Significant Impact? (Total Construction Period ROG Exceeds 4.5 tons per year?)	No
Maximum PM_{10} in ppd for the Construction Period	104.74
PM_{10} Significance Threshold in ppd	80
Significant Impact?	Yes

Notes: "NO_x" = nitrogen oxides. "ROG" = reactive organic gases.
"PM10" = inhalable particulate matter less than 10 microns diameter. "ppd" = pounds per day.

Table 16. TRLIA 500-Year Project - Component 3 Feather River East Levee Greenhouse Gas Emissions

Component Phase	Metric Tons of Carbon Dioxide Equivalent Emissions During Component Phase
Phase 1 - Clearing and Grubbing	0.00
Phase 2 - Stripping	23.62
Phase 3 - Levee Degrade for Cutoff Wall	82.80
Phase 4 - Cutoff Wall Construction	567.67
Phase 5 - Levee Reconstruction	151.76
Phase 6 - Levee Resurfacing	56.20
Phase 7 - Hydroseeing	15.02
Phase 8 - Demobilization and Site Cleanup	24.06
Total for Component	921.13
Significance Threshold	900
Significant Impact?	Yes

Table 17. TRLIA 500-Year Project Component 4 Bear River North Levee & Bear River Setback Levee Criteria Pollutant Emissions

Emissions and Time Period	Phase 1 Clearing and Grubbing	Phase 2 Stripping	Phase 3 Levee Reconstruction & Seepage Remediation (North Levee Phase 3)	Phase 3 Seepage Berm (Setback Levee Phase 3)	Phase 4 Levee Resurfacing	Phase 5 Hydroseeding	Phase 6 Demobilization and Site Cleanup	Total Construction Period
NO_x in ppd	50.67	86.79	141.57	70.99	67.46	13.91	30.33	
ROG in ppd	6.15	10.19	14.85	5.11	7.38	1.75	3.77	
PM_{10} in ppd	24.82	15.68	13.29	3.28	25.51	32.79	27.70	
Length of Phase in Days	5	10	20	5	5	5	7	57
NO_x in Pounds for Phase Period	253.35	867.90	2,831.40	354.95	337.30	69.55	212.31	4,926.76
NO_x in Tons for Phase Period	0.13	0.43	1.42	0.18	0.17	0.03	0.11	2.46
ROG in Pounds for Phase Period	30.75	101.90	297.00	25.55	36.90	8.75	26.39	527.24
ROG in Tons for Phase Period	0.02	0.05	0.15	0.01	0.02	0.00	0.01	0.26

NO_x in ppd Averaged Over the Construction Period	86.43
NO_x Significance Threshold in ppd Averaged Over the Construction Period	25
Significant Impact? (Average Daily NO_x Exceeds 25 ppd?)	Yes
Significant Impact? (Total Construction Period NO_x Exceeds 4.5 tons per year?)	No
ROG in ppd Averaged Over the Construction Period	9.25
ROG Significance Threshold in ppd Averaged Over the Construction Period	25
Significant Impact? (Average Daily ROG Exceeds 25 ppd?)	No
Significant Impact? (Total Construction Period ROG Exceeds 4.5 tons per year?)	No
Maximum PM_{10} in ppd for the Construction Period	32.79
PM_{10} Significance Threshold in ppd	80
Significant Impact?	No

Notes: "NO_x" = nitrogen oxides. "ROG" = reactive organic gases.
"PM10" = inhalable particulate matter less than 10 microns diameter. "ppd" = pounds per day.

Table 18. TRLIA 500-Year Project - Component 4 Bear River North Levee and Bear River Setback Levee Greenhouse Gas Emissions

Component Phase	Metric Tons of Carbon Dioxide Equivalent Emissions During Component Phase
Phase 1 - Clearing and Grubbing	33.08
Phase 2 - Stripping	101.55
Phase 3 - Levee Reconstruction & Seepage Remediation (North Levee Phase 3)	375.84
Phase 3 - Seepage Berm (Setback Levee Phase 3)	63.10
Phase 4 - Levee Resurfacing	42.77
Phase 5 - Hydroseeing	9.05
Phase 6 - Demobilization and Site Cleanup	27.13
Total for Component	652.52
Significance Threshold	900
Significant Impact?	No

Table 19. TRLIA 500-Year Project Component 5 WPIC West Levee & ODB Ring Levee Criteria Pollutant Emissions

Emissions and Time Period	Phase 1 Clearing and Grubbing	Phase 2 Stripping	Phase 3 Levee Reconstruction	Phase 4 Levee Resurfacing	Phase 5 Hydroseeding	Phase 6 Demobilization and Site Cleanup	Total Construction Period
NO_x in ppd	58.44	66.40	220.98	69.06	25.27	26.83	
ROG in ppd	6.96	7.55	21.65	7.55	3.17	3.34	
PM_{10} in ppd	51.23	27.52	20.18	3.66	61.43	104.51	
Length of Phase in Days	15	30	80	25	12	7	169
NO_x in Pounds for Phase Period	876.60	1,992.00	17,678.40	1,726.50	303.24	187.81	22,764.55
NO_x in Tons for Phase Period	0.44	1.00	8.84	0.86	0.15	0.09	11.38
ROG in Pounds for Phase Period	104.40	226.50	1,732.00	188.75	38.04	23.38	2,313.07
ROG in Tons for Phase Period	0.05	0.11	0.87	0.09	0.02	0.01	1.16

NO_x in ppd Averaged Over the Construction Period	134.70
NO_x Significance Threshold in ppd Averaged Over the Construction Period	25
Significant Impact? (Average Daily NO_x Exceeds 25 ppd?)	Yes
Significant Impact? (Total Construction Period NO_x Exceeds 4.5 tons per year?)	Yes
ROG in ppd Averaged Over the Construction Period	13.69
ROG Significance Threshold in ppd Averaged Over the Construction Period	25
Significant Impact? (Average Daily ROG Exceeds 25 ppd?)	No
Significant Impact? (Total Construction Period ROG Exceeds 4.5 tons per year?)	No
Maximum PM_{10} in ppd for the Construction Period	104.51
PM_{10} Significance Threshold in ppd	80
Significant Impact?	Yes

Notes: "NO_x" = nitrogen oxides. "ROG" = reactive organic gases.
"PM10" = inhalable particulate matter less than 10 microns diameter. "ppd" = pounds per day.

Table 20. TRLIA 500-Year Project - Component 5 WPIC West Levee and ODB Ring Levee Greenhouse Gas Emissions

Component Phase	Metric Tons of Carbon Dioxide Equivalent Emissions During Component Phase
Phase 1 - Clearing and Grubbing	117.21
Phase 2 - Stripping	233.69
Phase 3 - Levee Reconstruction	2,518.92
Phase 4 - Levee Resurfacing	232.09
Phase 5 - Hydroseeing	39.28
Phase 6 - Demobilization and Site Cleanup	24.06
Total for Component	3,165.25
Significance Threshold	900
Significant Impact?	Yes

Table 21. TRLIA 500-Year Project Component 6 WPIC Extension Levee Criteria Pollutant Emissions

Emissions and Time Period	Phase 1 Clearing and Grubbing	Phase 2 Stripping	Phase 3 Levee Reconstruction	Phase 4 Levee Resurfacing	Phase 5 Hydroseeding	Phase 6 Demobilization and Site Cleanup	Total Construction Period
NO_x in ppd	64.06	76.82	183.15	69.67	25.27	26.83	
ROG in ppd	6.66	7.67	17.78	7.58	3.17	3.34	
PM_{10} in ppd	35.36	83.75	12.29	3.63	28.43	47.51	
Length of Phase in Days	10	4	120	10	12	7	163
NO_x in Pounds for Phase Period	640.60	307.28	21,978.00	696.70	303.24	187.81	24,113.63
NO_x in Tons for Phase Period	0.32	0.15	10.99	0.35	0.15	0.09	12.06
ROG in Pounds for Phase Period	66.60	30.68	2,133.60	75.80	38.04	23.38	2,368.10
ROG in Tons for Phase Period	0.03	0.02	1.07	0.04	0.02	0.01	1.18

NO_x in ppd Averaged Over the Construction Period	147.94
NO_x Significance Threshold in ppd Averaged Over the Construction Period	25
Significant Impact? (Average Daily NO_x Exceeds 25 ppd?)	Yes
Significant Impact? (Total Construction Period NO_x Exceeds 4.5 tons per year?)	Yes
ROG in ppd Averaged Over the Construction Period	14.53
ROG Significance Threshold in ppd Averaged Over the Construction Period	25
Significant Impact? (Average Daily ROG Exceeds 25 ppd?)	No
Significant Impact? (Total Construction Period ROG Exceeds 4.5 tons per year?)	No
Maximum PM_{10} in ppd for the Construction Period	83.75
PM_{10} Significance Threshold in ppd	80
Significant Impact?	Yes

Notes: "NO_x" = nitrogen oxides. "ROG" = reactive organic gases.
"PM10" = inhalable particulate matter less than 10 microns diameter. "ppd" = pounds per day.

Table 22. TRLIA 500-Year Project - Component 6 WPIC Extension Levee Greenhouse Gas Emissions

Component Phase	Metric Tons of Carbon Dioxide Equivalent Emissions During Component Phase
Phase 1 - Clearing and Grubbing	95.81
Phase 2 - Stripping	40.29
Phase 3 - Levee Reconstruction	3,256.78
Phase 4 - Levee Resurfacing	90.35
Phase 5 - Hydroseeing	39.28
Phase 6 - Demobilization and Site Cleanup	24.06
Total for Component	3,546.57
Significance Threshold	900
Significant Impact?	Yes

Road Construction Emissions Model
Output Report for
Run #1 - Component #1 – Part #1 -
Gold Fields West Levee

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> TRLIA 500-Yr Proj - Run 1 Comp 1 Gold Fields Part 1

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	6.66	97.59	64.06	18.36	3.36	15.00	5.96	2.84	3.12	0.21	20,685.49	4.48	1.09	21,121.48
Grading/Excavation	9.26	107.19	93.41	14.41	4.41	10.00	5.88	3.80	2.08	0.25	24,780.94	5.81	1.12	25,261.13
Drainage/Utilities/Sub-Grade	21.17	236.18	192.46	11.88	9.88	2.00	9.25	8.83	0.42	0.44	42,685.06	12.28	0.79	43,228.61
Paving	7.30	98.81	61.89	3.36	3.36	0.00	2.99	2.99	0.00	0.17	16,360.38	4.76	0.28	16,561.41
Maximum (pounds/day)	21.17	236.18	192.46	18.36	9.88	15.00	9.25	8.83	3.12	0.44	42,685.06	12.28	1.12	43,228.61
Total (tons/construction project)	1.09	12.41	9.99	0.75	0.51	0.24	0.50	0.46	0.05	0.02	2,291.91	0.64	0.05	2,323.16

Notes:

Project Start Year ->	2023
Project Length (months) ->	5
Total Project Area (acres) ->	15
Maximum Area Disturbed/Day (acres) ->	2
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	1000	0	1,500	0	1,320	80
Grading/Excavation	1,000	0	1,500	0	1,280	80
Drainage/Utilities/Sub-Grade	2,144	0	540	0	3,400	120
Paving	462	0	120	0	1,360	80

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> TRLIA 500-Yr Proj - Run 1 Comp 1 Gold Fields Part 1

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.03	0.49	0.32	0.09	0.02	0.08	0.03	0.01	0.02	0.00	103.43	0.02	0.01	95.81
Grading/Excavation	0.07	0.80	0.70	0.11	0.03	0.08	0.04	0.03	0.02	0.00	185.86	0.04	0.01	171.88
Drainage/Utilities/Sub-Grade	0.95	10.63	8.66	0.53	0.44	0.09	0.42	0.40	0.02	0.02	1,920.83	0.55	0.04	1,764.75
Paving	0.04	0.49	0.31	0.02	0.02	0.00	0.01	0.01	0.00	0.00	81.80	0.02	0.00	75.12
Maximum (tons/phase)	0.95	10.63	8.66	0.53	0.44	0.09	0.42	0.40	0.02	0.02	1920.83	0.55	0.04	1,764.75
Total (tons/construction project)	1.09	12.41	9.99	0.75	0.51	0.24	0.50	0.46	0.05	0.02	2291.91	0.64	0.05	2,107.56

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Output Report for
Run #2 - Component #1 – Part #2 -
Gold Fields West Levee

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> TRLIA 500-Yr Proj - Run 2 Comp 1 Gold Fields Part 2				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Pounds)	**ROG (lbs/day)**	**CO (lbs/day)**	**NOx (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM2.5 (lbs/day)**	**PM2.5 (lbs/day)**	**PM2.5 (lbs/day)**	**SOx (lbs/day)**	**CO2 (lbs/day)**	**CH4 (lbs/day)**	**N2O (lbs/day)**	**CO2e (lbs/day)**
Grubbing/Land Clearing	2.91	42.63	23.17	15.31	1.31	14.00	4.09	1.17	2.91	0.07	6,552.84	2.00	0.07	6,622.41
Grading/Excavation	3.34	48.90	26.83	22.51	1.51	21.00	5.72	1.35	4.37	0.08	7,499.04	2.28	0.08	7,578.57
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (pounds/day)	3.34	48.90	26.83	22.51	1.51	21.00	5.72	1.35	4.37	0.08	7,499.04	2.28	0.08	7,578.57
Total (tons/construction project)	0.03	0.41	0.22	0.16	0.01	0.15	0.04	0.01	0.03	0.00	62.29	0.02	0.00	62.95

Notes:

Project Start Year ->	2023
Project Length (months) ->	1
Total Project Area (acres) ->	15
Maximum Area Disturbed/Day (acres) ->	2
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	560	0
Grading/Excavation	0	0	0	0	680	0
Drainage/Utilities/Sub-Grade	0	0	0	0	0	0
Paving	0	0	0	0	0	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> TRLIA 500-Yr Proj - Run 2 Comp 1 Gold Fields Part 2				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	**ROG (tons/phase)**	**CO (tons/phase)**	**NOx (tons/phase)**	**PM10 (tons/phase)**	**PM10 (tons/phase)**	**PM10 (tons/phase)**	**PM2.5 (tons/phase)**	**PM2.5 (tons/phase)**	**PM2.5 (tons/phase)**	**SOx (tons/phase)**	**CO2 (tons/phase)**	**CH4 (tons/phase)**	**N2O (tons/phase)**	**CO2e (MT/phase)**
Grubbing/Land Clearing	0.02	0.23	0.13	0.08	0.01	0.08	0.02	0.01	0.02	0.00	36.04	0.01	0.00	33.04
Grading/Excavation	0.01	0.17	0.09	0.08	0.01	0.07	0.02	0.00	0.02	0.00	26.25	0.01	0.00	24.06
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (tons/phase)	0.02	0.23	0.13	0.08	0.01	0.08	0.02	0.01	0.02	0.00	36.04	0.01	0.00	33.04
Total (tons/construction project)	0.03	0.41	0.22	0.16	0.01	0.15	0.04	0.01	0.03	0.00	62.29	0.02	0.00	57.11

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Output Report for
Run #3 - Component #2 - Part #1 -
Yuba River South Levee

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> TRLIA 500-Yr Proj - Run 3 Comp 2 Yuba River Part 1

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	5.91	86.62	51.67	34.81	2.81	32.00	9.11	2.45	6.66	0.16	15,521.64	4.02	0.50	15,771.30
Grading/Excavation	9.68	127.95	84.90	15.53	4.53	11.00	6.29	4.01	2.29	0.23	22,609.13	6.19	0.57	22,934.10
Drainage/Utilities/Sub-Grade	8.43	103.70	72.54	9.83	3.83	6.00	4.69	3.45	1.25	0.18	17,367.41	5.22	0.22	17,562.83
Paving	9.65	124.33	81.01	4.33	4.33	0.00	3.94	3.94	0.00	0.21	20,128.93	5.46	0.20	20,324.19
Maximum (pounds/day)	9.68	127.95	84.90	34.81	4.53	32.00	9.11	4.01	6.66	0.23	22,609.13	6.19	0.57	22,934.10
Total (tons/construction project)	0.41	5.27	3.50	0.42	0.19	0.24	0.22	0.17	0.05	0.01	878.37	0.24	0.01	888.26

Notes:

Project Start Year ->	2023
Project Length (months) ->	3
Total Project Area (acres) ->	16
Maximum Area Disturbed/Day (acres) ->	3
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	350	0	540	0	1,160	80
Grading/Excavation	350	0	540	0	1,720	80
Drainage/Utilities/Sub-Grade	0	0	0	0	1,400	80
Paving	0	0	0	0	1,680	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> TRLIA 500-Yr Proj - Run 3 Comp 2 Yuba River Part 1

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.22	0.13	0.09	0.01	0.08	0.02	0.01	0.02	0.00	38.80	0.01	0.00	35.77
Grading/Excavation	0.07	0.96	0.64	0.12	0.03	0.08	0.05	0.03	0.02	0.00	169.57	0.05	0.00	156.04
Drainage/Utilities/Sub-Grade	0.11	1.30	0.91	0.12	0.05	0.08	0.06	0.04	0.02	0.00	217.09	0.07	0.00	199.16
Paving	0.22	2.80	1.82	0.10	0.10	0.00	0.09	0.09	0.00	0.00	452.90	0.12	0.00	414.85
Maximum (tons/phase)	0.22	2.80	1.82	0.12	0.10	0.08	0.09	0.09	0.02	0.00	452.90	0.12	0.00	414.85
Total (tons/construction project)	0.41	5.27	3.50	0.42	0.19	0.24	0.22	0.17	0.05	0.01	878.37	0.24	0.01	805.83

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Output Report for
Run #4 - Component #2 - Part #2 -
Yuba River South Levee

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> TRLIA 500-Yr Proj - Run 4 Comp 2 Yuba River Part 2

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	12.57	146.12	116.13	10.82	5.82	5.00	6.22	5.18	1.04	0.27	26,760.30	7.62	0.53	27,108.68
Grading/Excavation	12.64	176.92	109.41	21.93	5.93	16.00	8.54	5.21	3.33	0.32	31,295.99	8.39	0.88	31,766.69
Drainage/Utilities/Sub-Grade	2.91	42.63	23.17	24.31	1.31	23.00	5.96	1.17	4.78	0.07	6,552.84	2.00	0.07	6,622.41
Paving	3.34	48.90	26.83	1.51	1.51	0.00	1.35	1.35	0.00	0.08	7,499.04	2.28	0.08	7,578.57
Maximum (pounds/day)	12.64	176.92	116.13	24.31	5.93	23.00	8.54	5.21	4.78	0.32	31,295.99	8.39	0.88	31,766.69
Total (tons/construction project)	0.31	3.76	2.75	0.39	0.14	0.25	0.18	0.13	0.05	0.01	673.97	0.19	0.01	682.94

Notes:

Project Start Year ->	2023
Project Length (months) ->	2
Total Project Area (acres) ->	16
Maximum Area Disturbed/Day (acres) ->	2
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	243	0	390	0	2,160	80
Grading/Excavation	615	0	930	0	2,320	80
Drainage/Utilities/Sub-Grade	0	0	0	0	560	0
Paving	0	0	0	0	680	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> TRLIA 500-Yr Proj - Run 4 Comp 2 Yuba River Part 2

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.22	2.56	2.03	0.19	0.10	0.09	0.11	0.09	0.02	0.00	468.31	0.13	0.01	430.37
Grading/Excavation	0.06	0.88	0.55	0.11	0.03	0.08	0.04	0.03	0.02	0.00	156.48	0.04	0.00	144.09
Drainage/Utilities/Sub-Grade	0.01	0.15	0.08	0.09	0.00	0.08	0.02	0.00	0.02	0.00	22.93	0.01	0.00	21.03
Paving	0.01	0.17	0.09	0.01	0.01	0.00	0.00	0.00	0.00	0.00	26.25	0.01	0.00	24.06
Maximum (tons/phase)	0.22	2.56	2.03	0.19	0.10	0.09	0.11	0.09	0.02	0.00	468.31	0.13	0.01	430.37
Total (tons/construction project)	0.31	3.76	2.75	0.39	0.14	0.25	0.18	0.13	0.05	0.01	673.97	0.19	0.01	619.56

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Output Report for
Run #5 - Component #3 - Part #1 -
Feather River East Levee

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> TRLIA 500-Yr Proj - Run 5 Comp 3 Feather River Part 1

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.00	0.00	0.00	40.00	0.00	40.00	8.32	0.00	8.32	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	4.83	63.78	40.59	42.20	2.20	40.00	10.29	1.97	8.32	0.11	10,297.87	3.09	0.13	10,412.64
Drainage/Utilities/Sub-Grade	5.75	71.39	49.61	102.62	2.62	100.00	23.15	2.35	20.80	0.12	12,031.38	3.59	0.16	12,170.13
Paving	9.85	127.68	82.57	4.41	4.41	0.00	4.01	4.01	0.00	0.21	20,657.35	5.62	0.20	20,858.23
Maximum (pounds/day)	9.85	127.68	82.57	102.62	4.41	100.00	23.15	4.01	20.80	0.21	20,657.35	5.62	0.20	20,858.23
Total (tons/construction project)	0.35	4.53	2.95	1.01	0.16	0.85	0.32	0.14	0.18	0.01	735.70	0.20	0.01	743.05

Notes:

Project Start Year ->	2023
Project Length (months) ->	3
Total Project Area (acres) ->	13
Maximum Area Disturbed/Day (acres) ->	10
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	0	0
Grading/Excavation	0	0	0	0	880	40
Drainage/Utilities/Sub-Grade	0	0	0	0	960	80
Paving	0	0	0	0	1,720	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> TRLIA 500-Yr Proj - Run 5 Comp 3 Feather River Part 1

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.01	0.16	0.10	0.11	0.01	0.10	0.03	0.00	0.02	0.00	25.74	0.01	0.00	23.62
Drainage/Utilities/Sub-Grade	0.04	0.54	0.37	0.77	0.02	0.75	0.17	0.02	0.16	0.00	90.24	0.03	0.00	82.80
Paving	0.30	3.83	2.48	0.13	0.13	0.00	0.12	0.12	0.00	0.01	619.72	0.17	0.01	567.67
Maximum (tons/phase)	0.30	3.83	2.48	0.77	0.13	0.75	0.17	0.12	0.16	0.01	619.72	0.17	0.01	567.67
Total (tons/construction project)	0.35	4.53	2.95	1.01	0.16	0.85	0.32	0.14	0.18	0.01	735.70	0.20	0.01	674.09

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Output Report for
Run #6 - Component #3 - Part #2 -
Feather River East Levee

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> TRLIA 500-Yr Proj - Run 6 Comp 3 Feather River Part 2

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	10.52	131.74	91.03	104.74	4.74	100.00	25.05	4.25	20.80	0.23	22,059.68	6.61	0.27	22,304.28
Grading/Excavation	9.98	138.00	86.59	19.68	4.68	15.00	7.24	4.12	3.12	0.25	24,414.23	6.58	0.67	24,777.55
Drainage/Utilities/Sub-Grade	2.91	42.63	23.17	26.31	1.31	25.00	6.37	1.17	5.20	0.07	6,552.84	2.00	0.07	6,622.41
Paving	3.34	48.90	26.83	1.51	1.51	0.00	1.35	1.35	0.00	0.08	7,499.04	2.28	0.08	7,578.57
Maximum (pounds/day)	10.52	138.00	91.03	104.74	4.74	100.00	25.05	4.25	20.80	0.25	24,414.23	6.61	0.67	24,777.55
Total (tons/construction project)	0.12	1.61	1.05	0.91	0.06	0.85	0.23	0.05	0.18	0.00	269.11	0.08	0.00	272.31

Notes:

Project Start Year ->	2023
Project Length (months) ->	1
Total Project Area (acres) ->	13
Maximum Area Disturbed/Day (acres) ->	10
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	1,920	80
Grading/Excavation	462	0	720	0	1,840	40
Drainage/Utilities/Sub-Grade	0	0	0	0	560	0
Paving	0	0	0	0	680	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> TRLIA 500-Yr Proj - Run 6 Comp 3 Feather River Part 2

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.08	0.99	0.68	0.79	0.04	0.75	0.19	0.03	0.16	0.00	165.45	0.05	0.00	151.76
Grading/Excavation	0.02	0.35	0.22	0.05	0.01	0.04	0.02	0.01	0.01	0.00	61.04	0.02	0.00	56.20
Drainage/Utilities/Sub-Grade	0.01	0.11	0.06	0.07	0.00	0.06	0.02	0.00	0.01	0.00	16.38	0.00	0.00	15.02
Paving	0.01	0.17	0.09	0.01	0.01	0.00	0.00	0.00	0.00	0.00	26.25	0.01	0.00	24.06
Maximum (tons/phase)	0.08	0.99	0.68	0.79	0.04	0.75	0.19	0.03	0.16	0.00	165.45	0.05	0.00	151.76
Total (tons/construction project)	0.12	1.61	1.05	0.91	0.06	0.85	0.23	0.05	0.18	0.00	269.11	0.08	0.00	247.04

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Output Report for
Run #7 - Component #4 - Part #1 -
Bear River North Levee & Setback

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> TRLIA 500-Yr Proj - Run 7 Comp 4 Bear River Part 1

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	6.15	90.07	50.67	24.82	2.82	22.00	7.08	2.51	4.58	0.15	14,408.22	4.20	0.24	14,584.42
Grading/Excavation	10.19	134.10	86.79	15.68	4.68	11.00	6.47	4.18	2.29	0.23	22,124.85	6.52	0.34	22,388.51
Drainage/Utilities/Sub-Grade	14.85	197.62	141.57	13.29	7.29	6.00	7.52	6.27	1.25	0.41	40,657.57	9.54	1.79	41,428.84
Paving	5.11	68.90	70.99	3.28	3.28	0.00	2.44	2.44	0.00	0.26	26,934.17	3.16	2.71	27,821.63
Maximum (pounds/day)	14.85	197.62	141.57	24.82	7.29	22.00	7.52	6.27	4.58	0.41	40,657.57	9.54	2.71	41,428.84
Total (tons/construction project)	0.23	3.04	2.15	0.28	0.11	0.17	0.13	0.10	0.04	0.01	620.56	0.15	0.03	632.25

Notes:

Project Start Year ->	2023
Project Length (months) ->	2
Total Project Area (acres) ->	12
Maximum Area Disturbed/Day (acres) ->	2
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	59	0	90	0	1,200	80
Grading/Excavation	59	0	90	0	1,800	120
Drainage/Utilities/Sub-Grade	1,600	0	2,400	0	2,760	80
Paving	2,900	0	4,350	0	920	40

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> TRLIA 500-Yr Proj - Run 7 Comp 4 Bear River Part 1

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.02	0.23	0.13	0.06	0.01	0.06	0.02	0.01	0.01	0.00	36.02	0.01	0.00	33.08
Grading/Excavation	0.05	0.67	0.43	0.08	0.02	0.06	0.03	0.02	0.01	0.00	110.62	0.03	0.00	101.55
Drainage/Utilities/Sub-Grade	0.15	1.98	1.42	0.13	0.07	0.06	0.08	0.06	0.01	0.00	406.58	0.10	0.02	375.84
Paving	0.01	0.17	0.18	0.01	0.01	0.00	0.01	0.01	0.00	0.00	67.34	0.01	0.01	63.10
Maximum (tons/phase)	0.15	1.98	1.42	0.13	0.07	0.06	0.08	0.06	0.01	0.00	406.58	0.10	0.02	375.84
Total (tons/construction project)	0.23	3.04	2.15	0.28	0.11	0.17	0.13	0.10	0.04	0.01	620.56	0.15	0.03	573.57

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Output Report for
Run #8 - Component #4 - Part #2 -
Bear River North Levee & Setback

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> TRLIA 500-Yr Proj - Run 8 Comp 4 Bear River Part 2

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	7.38	96.85	67.46	25.51	3.51	22.00	7.64	3.06	4.58	0.19	18,553.62	4.74	0.63	18,860.22
Grading/Excavation	1.75	25.64	13.91	32.79	0.79	32.00	7.36	0.71	6.66	0.04	3,948.69	1.20	0.04	3,990.57
Drainage/Utilities/Sub-Grade	3.77	55.18	30.33	27.70	1.70	26.00	6.94	1.53	5.41	0.09	8,454.65	2.57	0.09	8,544.33
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (pounds/day)	7.38	96.85	67.46	32.79	3.51	32.00	7.64	3.06	6.66	0.19	18,553.62	4.74	0.63	18,860.22
Total (tons/construction project)	0.04	0.50	0.31	0.24	0.02	0.23	0.06	0.01	0.05	0.00	85.85	0.02	0.00	87.03

Notes:

Project Start Year ->	2023
Project Length (months) ->	1
Total Project Area (acres) ->	12
Maximum Area Disturbed/Day (acres) ->	3
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	462	0	720	0	1,320	80
Grading/Excavation	0	0	0	0	360	0
Drainage/Utilities/Sub-Grade	0	0	0	0	760	0
Paving	0	0	0	0	0	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> TRLIA 500-Yr Proj - Run 8 Comp 4 Bear River Part 2

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.02	0.24	0.17	0.06	0.01	0.06	0.02	0.01	0.01	0.00	46.38	0.01	0.00	42.77
Grading/Excavation	0.00	0.06	0.03	0.08	0.00	0.08	0.02	0.00	0.02	0.00	9.87	0.00	0.00	9.05
Drainage/Utilities/Sub-Grade	0.01	0.19	0.11	0.10	0.01	0.09	0.02	0.01	0.02	0.00	29.59	0.01	0.00	27.13
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (tons/phase)	0.02	0.24	0.17	0.10	0.01	0.09	0.02	0.01	0.02	0.00	46.38	0.01	0.00	42.77
Total (tons/construction project)	0.04	0.50	0.31	0.24	0.02	0.23	0.06	0.01	0.05	0.00	85.85	0.02	0.00	78.96

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Output Report for
Run #9 - Component #5 - Part #1 -
WPIC West Levee and ODB

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> TRLIA 500-Yr Proj - Run 9 Comp 5 WPIC West & ODB Part 1

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	6.96	101.90	58.44	51.23	3.23	48.00	12.84	2.85	9.98	0.17	16,994.50	4.74	0.38	17,226.92
Grading/Excavation	7.55	96.74	66.40	27.52	3.52	24.00	8.12	3.13	4.99	0.17	16,941.15	4.73	0.38	17,173.06
Drainage/Utilities/Sub-Grade	21.65	285.30	220.98	20.18	11.18	9.00	11.22	9.35	1.87	0.68	67,856.45	13.64	4.09	69,415.16
Paving	7.55	103.08	69.06	3.66	3.66	0.00	3.17	3.17	0.00	0.20	20,106.91	4.91	0.80	20,467.01
Maximum (pounds/day)	21.65	285.30	220.98	51.23	11.18	48.00	12.84	9.35	9.98	0.68	67,856.45	13.64	4.09	69,415.16
Total (tons/construction project)	1.13	14.92	11.14	1.65	0.57	1.08	0.71	0.48	0.22	0.03	3,347.17	0.71	0.18	3,419.24

Notes:

Project Start Year ->	2023
Project Length (months) ->	6
Total Project Area (acres) ->	72
Maximum Area Disturbed/Day (acres) ->	5
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	200	0	300	0	1,360	80
Grading/Excavation	200	0	300	0	1,320	80
Drainage/Utilities/Sub-Grade	4,000	0	6,000	0	3,960	120
Paving	646	0	990	0	1,360	80

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> TRLIA 500-Yr Proj - Run 9 Comp 5 WPIC West & ODB Part 1

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.05	0.76	0.44	0.38	0.02	0.36	0.10	0.02	0.07	0.00	127.46	0.04	0.00	117.21
Grading/Excavation	0.11	1.45	1.00	0.41	0.05	0.36	0.12	0.05	0.07	0.00	254.12	0.07	0.01	233.69
Drainage/Utilities/Sub-Grade	0.87	11.41	8.84	0.81	0.45	0.36	0.45	0.37	0.07	0.03	2,714.26	0.55	0.16	2,518.92
Paving	0.09	1.29	0.86	0.05	0.05	0.00	0.04	0.04	0.00	0.00	251.34	0.06	0.01	232.09
Maximum (tons/phase)	0.87	11.41	8.84	0.81	0.45	0.36	0.45	0.37	0.07	0.03	2714.26	0.55	0.16	2,518.92
Total (tons/construction project)	1.13	14.92	11.14	1.65	0.57	1.08	0.71	0.48	0.22	0.03	3347.17	0.71	0.18	3,101.92

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Output Report for
Run #10 - Component #5 - Part #2 -
WPIC West Levee and ODB

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> TRLIA 500-Yr Proj - Run 10 Comp 5 WPIC West & ODB Part 2

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	3.17	46.48	25.27	61.43	1.43	60.00	13.76	1.28	12.48	0.07	7,140.83	2.18	0.07	7,216.66
Grading/Excavation	3.34	48.90	26.83	104.51	1.51	103.00	22.78	1.35	21.42	0.08	7,499.04	2.28	0.08	7,578.57
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (pounds/day)	3.34	48.90	26.83	104.51	1.51	103.00	22.78	1.35	21.42	0.08	7,499.04	2.28	0.08	7,578.57
Total (tons/construction project)	0.03	0.45	0.25	0.73	0.01	0.72	0.16	0.01	0.15	0.00	69.09	0.02	0.00	69.82

Notes:

Project Start Year ->	2023
Project Length (months) ->	1
Total Project Area (acres) ->	72
Maximum Area Disturbed/Day (acres) ->	10
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	600	0
Grading/Excavation	0	0	0	0	680	0
Drainage/Utilities/Sub-Grade	0	0	0	0	0	0
Paving	0	0	0	0	0	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> TRLIA 500-Yr Proj - Run 10 Comp 5 WPIC West & ODB Part 2

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.02	0.28	0.15	0.37	0.01	0.36	0.08	0.01	0.07	0.00	42.84	0.01	0.00	39.28
Grading/Excavation	0.01	0.17	0.09	0.37	0.01	0.36	0.08	0.00	0.07	0.00	26.25	0.01	0.00	24.06
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (tons/phase)	0.02	0.28	0.15	0.37	0.01	0.36	0.08	0.01	0.07	0.00	42.84	0.01	0.00	39.28
Total (tons/construction project)	0.03	0.45	0.25	0.73	0.01	0.72	0.16	0.01	0.15	0.00	69.09	0.02	0.00	63.34

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Output Report for
Run #11 - Component #6 - Part #1 -
WPIC Extension Levee

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> TRLIA 500-Yr Proj - Run 11 Comp 6 WPIC Extension Levee Part 1

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	6.66	97.59	64.06	35.36	3.36	32.00	9.49	2.84	6.66	0.21	20,685.49	4.48	1.09	21,121.48
Grading/Excavation	7.67	94.63	76.82	83.75	3.75	80.00	19.84	3.20	16.64	0.22	21,755.74	4.86	1.09	22,203.56
Drainage/Utilities/Sub-Grade	17.78	241.56	183.15	12.29	9.29	3.00	8.34	7.72	0.62	0.59	58,447.29	11.41	3.69	59,832.40
Paving	7.58	100.50	69.67	3.63	3.63	0.00	3.16	3.16	0.00	0.20	19,580.58	4.88	0.72	19,918.63
Maximum (pounds/day)	17.78	241.56	183.15	83.75	9.29	80.00	19.84	7.72	16.64	0.59	58,447.29	11.41	3.69	59,832.40
Total (tons/construction project)	1.15	15.67	11.81	1.10	0.60	0.50	0.60	0.50	0.10	0.04	3,751.68	0.74	0.23	3,839.55

Notes:

Project Start Year ->	2023
Project Length (months) ->	5
Total Project Area (acres) ->	32
Maximum Area Disturbed/Day (acres) ->	8
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	1000	0	1,500	0	1,320	80
Grading/Excavation	1,000	0	1,500	0	1,160	80
Drainage/Utilities/Sub-Grade	3,625	0	5,460	0	3,200	120
Paving	577	0	870	0	1,360	80

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> TRLIA 500-Yr Proj - Run 11 Comp 6 WPIC Extension Levee Part 1

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.03	0.49	0.32	0.18	0.02	0.16	0.05	0.01	0.03	0.00	103.43	0.02	0.01	95.81
Grading/Excavation	0.02	0.19	0.15	0.17	0.01	0.16	0.04	0.01	0.03	0.00	43.51	0.01	0.00	40.29
Drainage/Utilities/Sub-Grade	1.07	14.49	10.99	0.74	0.56	0.18	0.50	0.46	0.04	0.04	3,506.84	0.68	0.22	3,256.78
Paving	0.04	0.50	0.35	0.02	0.02	0.00	0.02	0.02	0.00	0.00	97.90	0.02	0.00	90.35
Maximum (tons/phase)	1.07	14.49	10.99	0.74	0.56	0.18	0.50	0.46	0.04	0.04	3506.84	0.68	0.22	3,256.78
Total (tons/construction project)	1.15	15.67	11.81	1.10	0.60	0.50	0.60	0.50	0.10	0.04	3751.68	0.74	0.23	3,483.22

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Output Report for
Run #12 - Component #6 - Part #2 -
WPIC Extension Levee

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> TRLIA 500-Yr Proj - Run 12 Comp 6 WPIC Extension Levee Part 2				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Pounds)	**ROG (lbs/day)**	**CO (lbs/day)**	**NOx (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM2.5 (lbs/day)**	**PM2.5 (lbs/day)**	**PM2.5 (lbs/day)**	**SOx (lbs/day)**	**CO2 (lbs/day)**	**CH4 (lbs/day)**	**N2O (lbs/day)**	**CO2e (lbs/day)**
Grubbing/Land Clearing	3.17	46.48	25.27	28.43	1.43	27.00	6.90	1.28	5.62	0.07	7,140.83	2.18	0.07	7,216.66
Grading/Excavation	3.34	48.90	26.83	47.51	1.51	46.00	10.92	1.35	9.57	0.08	7,499.04	2.28	0.08	7,578.57
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (pounds/day)	3.34	48.90	26.83	47.51	1.51	46.00	10.92	1.35	9.57	0.08	7,499.04	2.28	0.08	7,578.57
Total (tons/construction project)	0.03	0.45	0.25	0.34	0.01	0.32	0.08	0.01	0.07	0.00	69.09	0.02	0.00	69.82

Notes:

Project Start Year ->	2023
Project Length (months) ->	1
Total Project Area (acres) ->	32
Maximum Area Disturbed/Day (acres) ->	5
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	600	0
Grading/Excavation	0	0	0	0	680	0
Drainage/Utilities/Sub-Grade	0	0	0	0	0	0
Paving	0	0	0	0	0	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> TRLIA 500-Yr Proj - Run 12 Comp 6 WPIC Extension Levee Part 2				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	**ROG (tons/phase)**	**CO (tons/phase)**	**NOx (tons/phase)**	**PM10 (tons/phase)**	**PM10 (tons/phase)**	**PM10 (tons/phase)**	**PM2.5 (tons/phase)**	**PM2.5 (tons/phase)**	**PM2.5 (tons/phase)**	**SOx (tons/phase)**	**CO2 (tons/phase)**	**CH4 (tons/phase)**	**N2O (tons/phase)**	**CO2e (MT/phase)**
Grubbing/Land Clearing	0.02	0.28	0.15	0.17	0.01	0.16	0.04	0.01	0.03	0.00	42.84	0.01	0.00	39.28
Grading/Excavation	0.01	0.17	0.09	0.17	0.01	0.16	0.04	0.00	0.03	0.00	26.25	0.01	0.00	24.06
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (tons/phase)	0.02	0.28	0.15	0.17	0.01	0.16	0.04	0.01	0.03	0.00	42.84	0.01	0.00	39.28
Total (tons/construction project)	0.03	0.45	0.25	0.34	0.01	0.32	0.08	0.01	0.07	0.00	69.09	0.02	0.00	63.34

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Appendix D. Special-status Species Lists

California Native Plant Society

California Natural Diversity Database

U.S. Fish and Wildlife Service

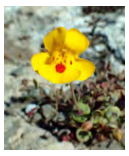
Inventory of Rare and Endangered Plants of California

California Native Plant Society

Search Results

21 matches found. Click on scientific name for details

Search Criteria: Quad is one of
[**3912125:3912135:3912134:3912124:3912115:3912114:3812185:3812184:3812175:3812174:3912126:3912116:3812186:3812176**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Astragalus pauperculus	depauperate milk-vetch	Fabaceae	annual herb	Mar-Jun	None	None	G4	S4	4.3	 ©2012 Tim Kellison
Astragalus tener var. *ferrisiae*	Ferris' milk-vetch	Fabaceae	annual herb	Apr-May	None	None	G2T1	S1	1B.1	No Photo Available
Azolla microphylla	Mexican mosquito fern	Azollaceae	annual/perennial herb	Aug	None	None	G5	S4	4.2	No Photo Available
Brodiaea rosea ssp. *vallicola*	valley brodiaea	Themidaceae	perennial bulbiferous herb	Apr-May(Jun)	None	None	G5T3	S3	4.2	 © 2011 Steven Perry
Brodiaea sierrae	Sierra foothills brodiaea	Themidaceae	perennial bulbiferous herb	May-Aug	None	None	G3	S3	4.3	 © 2006 George W. Hartwell
Cryptantha rostellata	red-stemmed cryptantha	Boraginaceae	annual herb	Apr-Jun	None	None	G4	S3	4.2	No Photo Available
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	None	None	G2?	S2?	1B.2	No Photo Available
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	None	None	GU	S2	2B.2	No Photo Available
Erythranthe glaucescens	shield-bracted monkeyflower	Phrymaceae	annual herb	Feb-Aug(Sep)	None	None	G3G4	S3S4	4.3	 Neal Kramer 2020
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	None	CE	G2	S2	1B.2	 ©2004 Carol W. Witham

Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	 © 2017 John Doyen
Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	 © 2020 Steven Perry
Juncus leiospermus var. *ahartii*	Ahart's dwarf rush	Juncaceae	annual herb	Mar-May	None	None	G2T1	S1	1B.2	 © 2004 Carol W. Witham
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	No Photo Available
Leptosiphon acicularis	bristly leptosiphon	Polemoniaceae	annual herb	Apr-Jul	None	None	G4?	S4?	4.2	 © 2007 Len Blumin
Monardella venosa	veiny monardella	Lamiaceae	annual herb	May-Jul	None	None	G1	S1	1B.1	No Photo Available
Navarretia leucocephala ssp. *bakeri*	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	G4T2	S2	1B.1	No Photo Available
Paronychia ahartii	Ahart's paronychia	Caryophyllaceae	annual herb	Feb-Jun	None	None	G3	S3	1B.1	No Photo Available
Pseudobahia bahiifolia	Hartweg's golden sunburst	Asteraceae	annual herb	Mar-Apr	FE	CE	G1	S1	1B.1	No Photo Available
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	No Photo Available
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	None	None	G2	S2	1B.2	No Photo Available

Showing 1 to 21 of 21 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2022. Inventory of Rare and Endangered Plants of California (online edition, v9-01 1.0). Website https://www.rareplants.cnps.org [accessed 8 January 2022].

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Honcut (3912135) OR Loma Rica (3912134) OR Sutter (3912126) OR Yuba City (3912125) OR Browns Valley (3912124) OR Gilsizer Slough (3912116) OR Olivehurst (3912115) OR Wheatland (3912114) OR Sutter Causeway (3812186) OR Nicolaus (3812185) OR Sheridan (3812184) OR Knights Landing (3812176) OR Verona (3812175) OR Pleasant Grove (3812174))
 AND Taxonomic Group IS (Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes)

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Astragalus tener var. ferrisiae Ferris' milk-vetch	PDFAB0F8R3	None	None	G2T1	S1	1B.1
Delphinium recurvatum recurved larkspur	PDRAN0B1J0	None	None	G2?	S2?	1B.2
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Gratiola heterosepala Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	G2	S2	1B.2
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2
Juncus leiospermus var. ahartii Ahart's dwarf rush	PMJUN011L1	None	None	G2T1	S1	1B.2
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Monardella venosa veiny monardella	PDLAM18082	None	None	G1	S1	1B.1
Navarretia leucocephala ssp. bakeri Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
Paronychia ahartii Ahart's paronychia	PDCAR0L0V0	None	None	G3	S3	1B.1
Pseudobahia bahiifolia Hartweg's golden sunburst	PDAST7P010	Endangered	Endangered	G1	S1	1B.1
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
Symphyotrichum lentum Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2

Record Count: 13

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Honcut (3912135) OR Loma Rica (3912134) OR Sutter (3912126) OR Yuba City (3912125) OR Browns Valley (3912124) OR Gilsizer Slough (3912116) OR Olivehurst (3912115) OR Wheatland (3912114) OR Sutter Causeway (3812186) OR Nicolaus (3812185) OR Sheridan (3812184) OR Knights Landing (3812176) OR Verona (3812175) OR Pleasant Grove (3812174))
 AND Taxonomic Group IS (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects)

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
Anthicus antiochensis Antioch Dunes anthicid beetle	IICOL49020	None	None	G1	S1	
Anthicus sacramento Sacramento anthicid beetle	IICOL49010	None	None	G1	S1	
Antrozous pallidus pallid bat	AMACC10010	None	None	G4	S3	SSC
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Branchinecta conservatio Conservancy fairy shrimp	ICBRA03010	Endangered	None	G2	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Branta hutchinsii leucopareia cackling (=Aleutian Canada) goose	ABNJB05035	Delisted	None	G5T3	S3	WL
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Charadrius montanus mountain plover	ABNNB03100	None	None	G3	S2S3	SSC
Cicindela hirticollis abrupta Sacramento Valley tiger beetle	IICOL02106	None	None	G5TH	SH	
Circus hudsonius northern harrier	ABNKC11011	None	None	G5	S3	SSC
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S3	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Erethizon dorsatum North American porcupine	AMAFJ01010	None	None	G5	S3	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Lasiurus blossevillii western red bat	AMACC05060	None	None	G4	S3	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G3G4	S4	
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Melospiza melodia song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
Nycticorax nycticorax black-crowned night heron	ABNGA11010	None	None	G5	S4	
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Oncorhynchus tshawytscha pop. 11 chinook salmon - Central Valley spring-run ESU	AFCHA0205L	Threatened	Threatened	G5T1T2Q	S2	
Pogonichthys macrolepidotus Sacramento splittail	AFCJB34020	None	None	GNR	S3	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Spea hammondii western spadefoot	AAABF02020	None	None	G2G3	S3	SSC
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
Thaleichthys pacificus eulachon	AFCHB04010	Threatened	None	G5	S2	
Thamnophis gigas giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	

Record Count: 33

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: December 05, 2021
Consultation Code: 08ESMF00-2022-SLI-0504
Event Code: 08ESMF00-2022-E-01501
Project Name: TRLIA 500-year Flood Protection Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to

utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2022-SLI-0504
Event Code: Some(08ESMF00-2022-E-01501)
Project Name: TRLIA 500-year Flood Protection Project
Project Type: ** OTHER **
Project Description: The project would improve approximately 10 total miles of existing levee segments and construct two new levee segments totaling approximately 3 miles.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@39.049297949999996,-121.54072448917267,14z

Counties: Sutter and Yuba counties, California

Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Hartweg's Golden Sunburst *Pseudobahia bahiifolia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1704	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Appendix E. Hydraulic Impact Analysis Technical Memorandum

MBK ENGINEERS
Water Resources ◆ Flood Control ◆ Water Rights

TECHNICAL MEMORANDUM

DATE: January 13, 2022 (Revised 1-17-2022)

PREPARED BY: Michael Archer, P.E.

REVIEWED BY: Patrick Ho, P.E.

SUBJECT: Three Rivers Levee Improvement Authority 500-year Project Hydraulic Impact Analysis

Purpose

The Three Rivers Levee Improvement Authority (TRLIA) has developed a proposed project with the goal of providing a 500-year (1/500 Annual Exceedance Probability [AEP]) level of protection for the TRLIA service area. A hydraulic impact analysis has been made to evaluate the potential effects of the proposed project on flood stages and flows throughout the affected system. The analysis follows "Ground Rules" (see Appendix A) that were jointly developed by TRLIA and the Central Valley Flood Protection Board (CVFPB).

The TRLIA service area is bounded by the Yuba River on the north, the Feather River to the south, the Bear River to the south, and the Western Pacific Interceptor Canal (WPIC) to the east. The TRLIA levee system is shown in Figure 1.

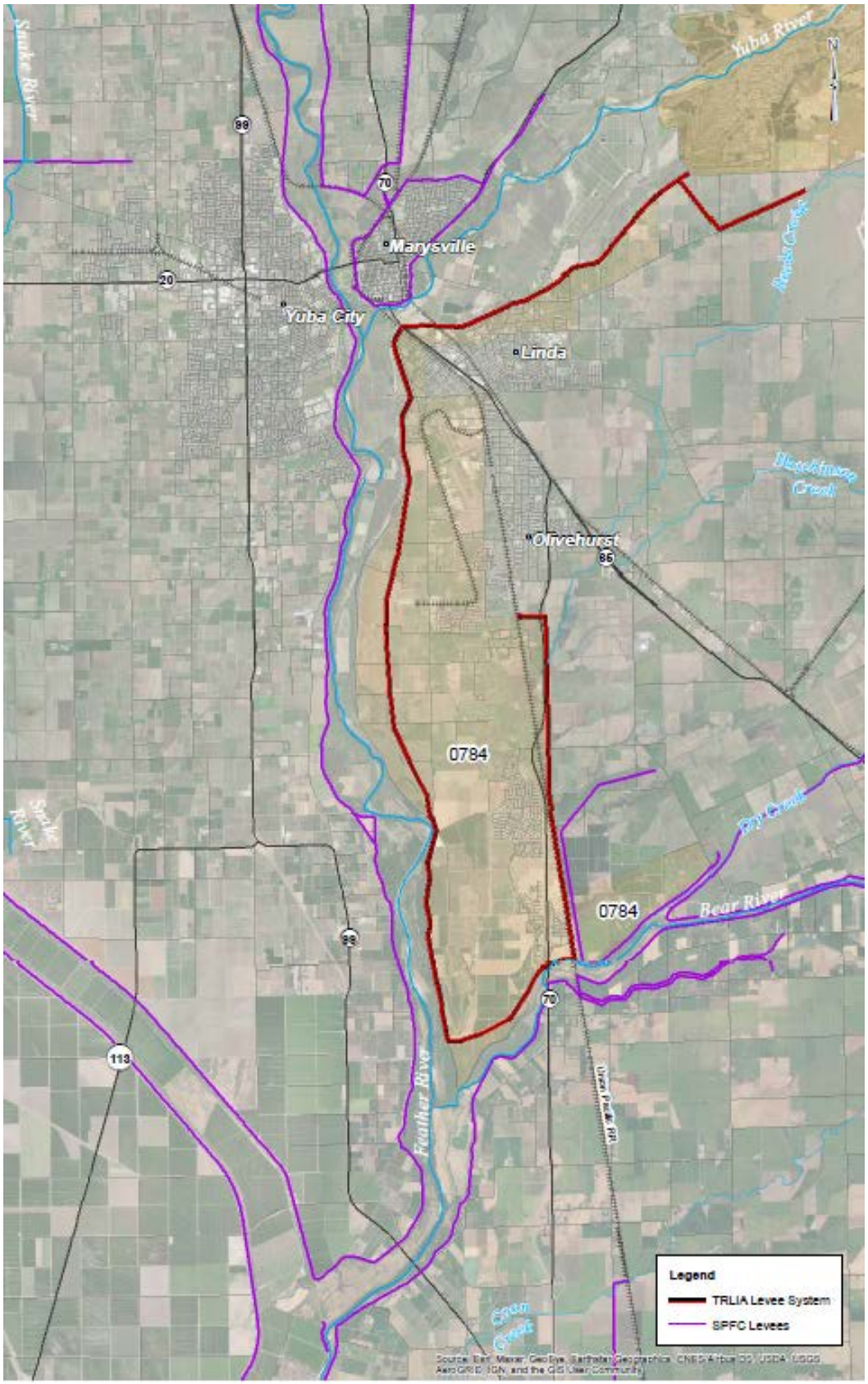

Figure 1. TRLIA Levee System

TRLIA 500-year Project (Proposed Project)

The proposed TRLIA 500-year Project includes the following features, which are shown in Figure 2:

- Goldfields West Levee
  - 5,035 feet of levee embankment on west boundary of Goldfields.
- Yuba River South Levee Raise
  - 2,100 feet of levee raise, with maximum raise of about 0.3 feet.
  - 1,100 feet of levee raise, with maximum raise of about 1.4 feet.
  - 1,500 feet of levee raise, with maximum raise of about 0.5 feet.
  - 2,900 feet of levee raise, with maximum raise of about 0.8 feet.
- Feather River East Levee Raise
  - 2,600 feet of levee raise, with maximum raise of about 0.5 feet.
- Bear River North Levee Raise
  - 4,050 feet of levee raise, with maximum raise of about 1.1 feet.
- WPIC West Levee Raise
  - 31,160 feet of levee raise, with maximum raise of about 1.9 feet.
  - Includes waterside fill due to raise.
- WPIC West Levee Extension
  - 9,500 feet of new levee embankment.

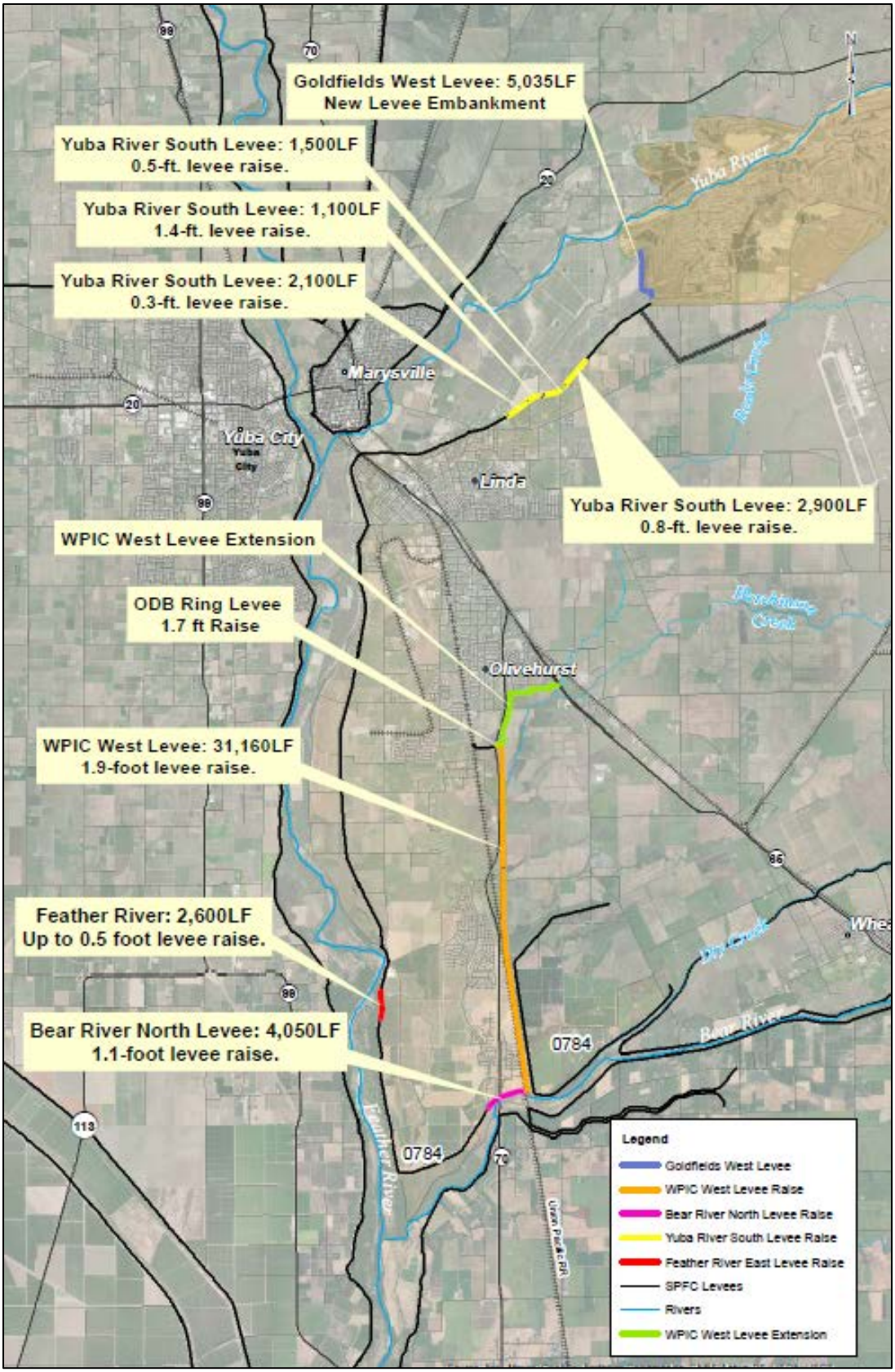

Figure 2. TRLIA Proposed Project Features

Study Scenarios

In addition to the Proposed Project, the hydraulic impacts of three other scenarios have been evaluated. The study scenarios are summarized in Table 1. The impacts of the study scenarios are determined relative to a baseline pre-project condition, representing existing conditions.

The analysis includes a Without TRLIA scenario for the purpose of quantifying the effect of the TRLIA program to date. The Without TRLIA scenario has the following TRLIA projects removed:

- Bear River North Levee Setback
- Feather River East Levee Setback
- Goldfields Improvements
- 100-year Goldfields embankment (MBK Engineers, 2014)
- Hallwood Side Channel Project Phases 1, 2, 3, and 4 (cbec eco engineering, 2017)
- North Training Wall Project Phase 1(MBK Engineers, 2021a) and (Wood Rodgers, 2021)
- 200-year Goldfields Setback Levee (MBK Engineers, 2019)
- Bear River RD 817 Setback Levee (MBK Engineers, 2021b)

Table 1. Study Scenarios

	Scenario					
Component	**Without TRLIA**	**Pre-Project (2020)**	**Proposed Project**	**Alternative 1**	**Alternative 2**	**Future Cumulative**
Operations						
Forecasted Coordination Operations (2005)	✓	✓	✓	✓	✓	
Forecast Informed Reservoir Operations (FIRO)						✓
New Bullards Bar Atmospheric River Control Spillway						✓
System Modifications (Levee Alignments and Height)						
Shanghai Bend Setback Levee (SPK 1998)	✓	✓	✓	✓	✓	✓
Bear River North Levee Setback (TRLIA 2006)		✓	✓	✓	✓	✓
Star Bend Setback Levee (LD1 2009)	✓	✓	✓	✓	✓	✓
Feather River East Levee Setback (TRLIA 2010)		✓	✓	✓	✓	✓
TRLIA Goldfields Improvements (2011)		✓	✓	✓	✓	✓
TRLIA 100-Year Goldfields embankment (2015)		✓	✓	✓	✓	✓
Hallwood Side Channel Project Phases 1,2,3, and 4 (2020)		✓	✓	✓	✓	✓
TRLIA North Training Wall Project Phase 1 (2020)		✓	✓	✓	✓	✓
200-year Goldfields Setback Levee (TRLIA 2020)		✓	✓	✓	✓	✓
Bear River Setback Levee (RD 817 2021)		✓	✓	✓	✓	✓
TRLIA 500-Year Project Features						
Goldfields West Levee			✓	✓		✓
Yuba River South Levee Raise			✓	✓	✓	✓
Feather River East Levee Raise			✓	✓	✓	✓
Bear River North Levee Raise			✓	✓	✓	✓
WPIC West Levee Raise			✓	✓	✓	✓
WPIC West Levee Extension			✓		✓	✓
Other Future Regional Projects						
TRLIA North Training Wall Project Phase 2						✓

Hydraulic Model

The analysis made use of two HEC-RAS 5.0.7 hydraulic models:

1. Feather River Model (MBK Engineers, 2021c)
2. Bear River Model (MBK Engineers, 2021d)

The Feather River Model was developed by MBK from the Central Valley Floodplain Evaluation and Delineation (CVFED) TO34 Sacramento River Basin HEC-RAS model, MBK version 201908. The Bear River Model was subsequently developed from the Feather River Model.

Feather River Model

The Feather River Model domain consists of the following river reaches and associated flood plains:

- Feather River below Oroville Dam
- Yuba River starting about 4 miles above Daguerre Point Dam
- Bear River and tributaries below Camp Far West Dam
- Sutter Bypass starting near the town of Meridian
- Sacramento River from Knights Landing to Verona
- Yolo Bypass above Interstate Highway 5

A schematic of the Feather River Model is shown in Figure 3.

The model is primarily made up of one-dimensional (1-D) elements, but uses a two-dimensional (2-D) flow area for the Yuba River and its confluence with the Feather River.

Bear River Model

The Bear River Model is a stand-alone version of the Bear River and tributaries as modeled in the Feather River Model. The separate Bear River Model was developed and used so that the Central Valley Hydrology Study (CVHS) Task 8 Ungaged Watershed hydrologic data could be used for the Bear River watershed. The Task 8 hydrology has not been synchronized with the system-wide CVHS hydrologic data, making it necessary to do a separate evaluation of the Bear River watershed. A schematic of the Bear River is shown in Figure 4.

The Without TRLIA scenario does not include the Bear River Setback Levee, unlike all the other scenarios. With the addition of the Bear River Setback Levee, the Bear River cross sections downstream of river station 1.434 are influenced by the Feather River. Since the Bear River Model does not include the Feather River, a separate version for the with-setback levee condition was developed, with the downstream boundary at river station 1.434. The downstream boundary configuration for the with and without Bear River Levee Setback models is shown in Figure 5.

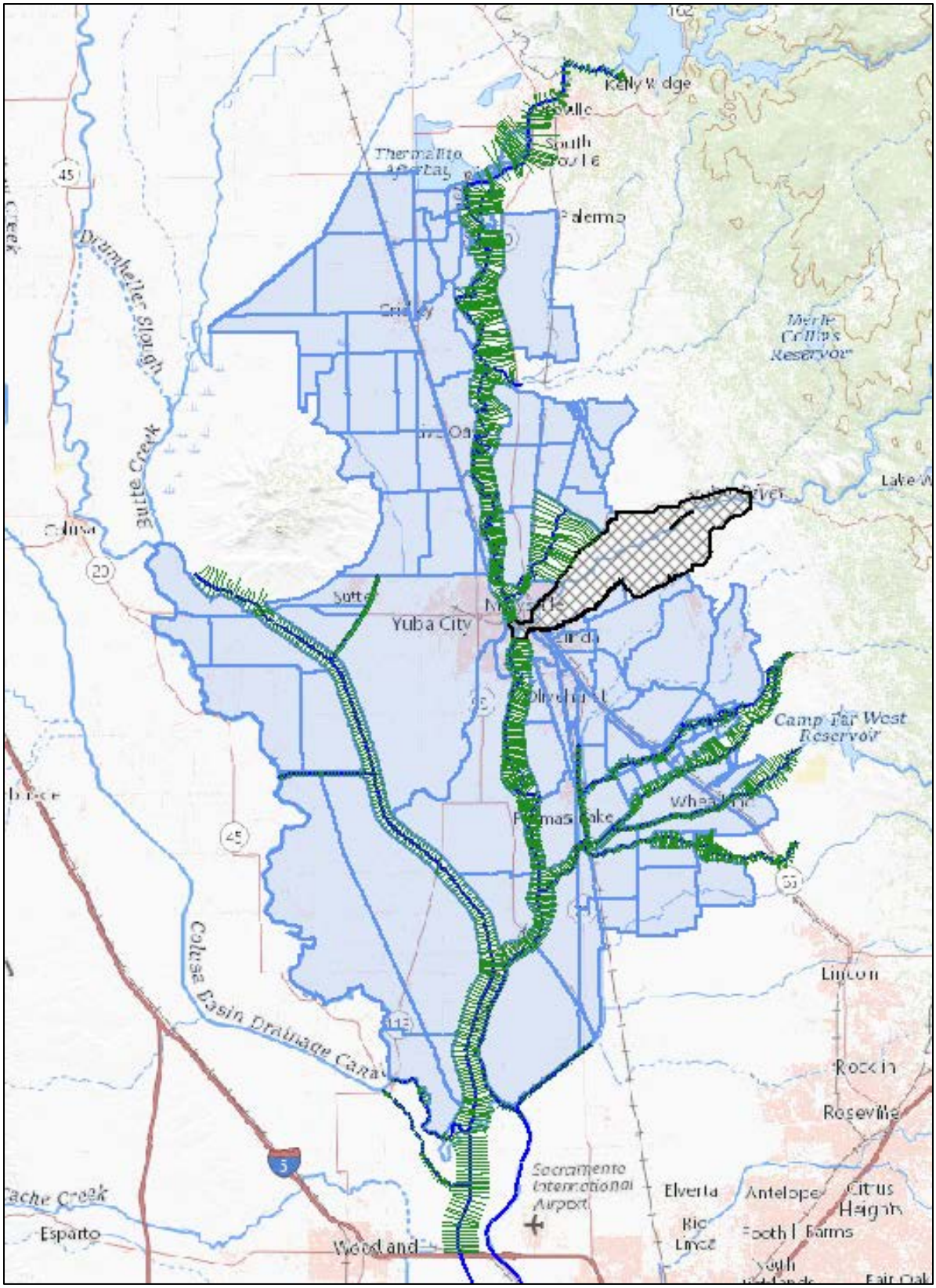

Figure 3. Feather River Model Schematic

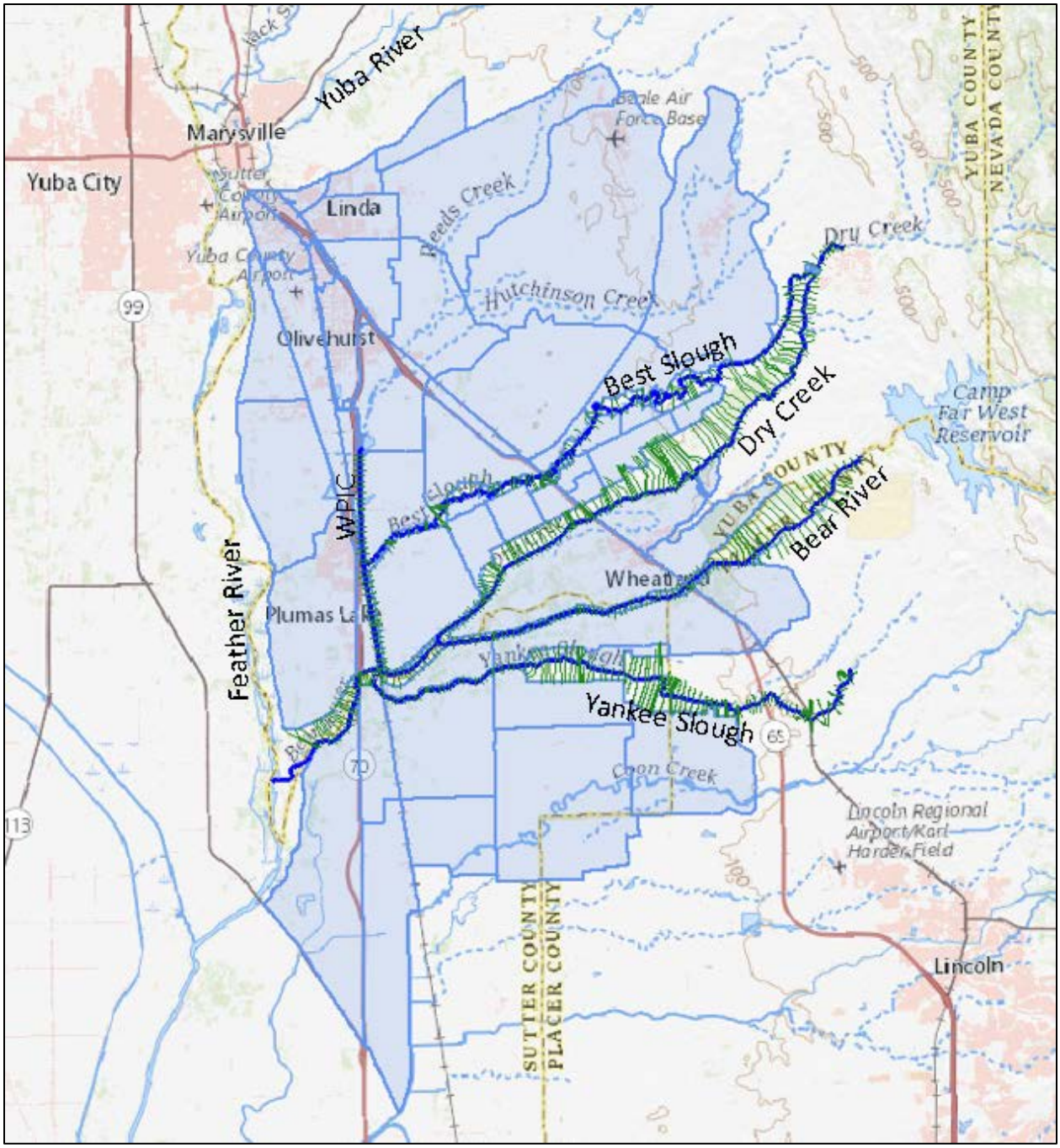

Figure 4. Bear River Model Schematic

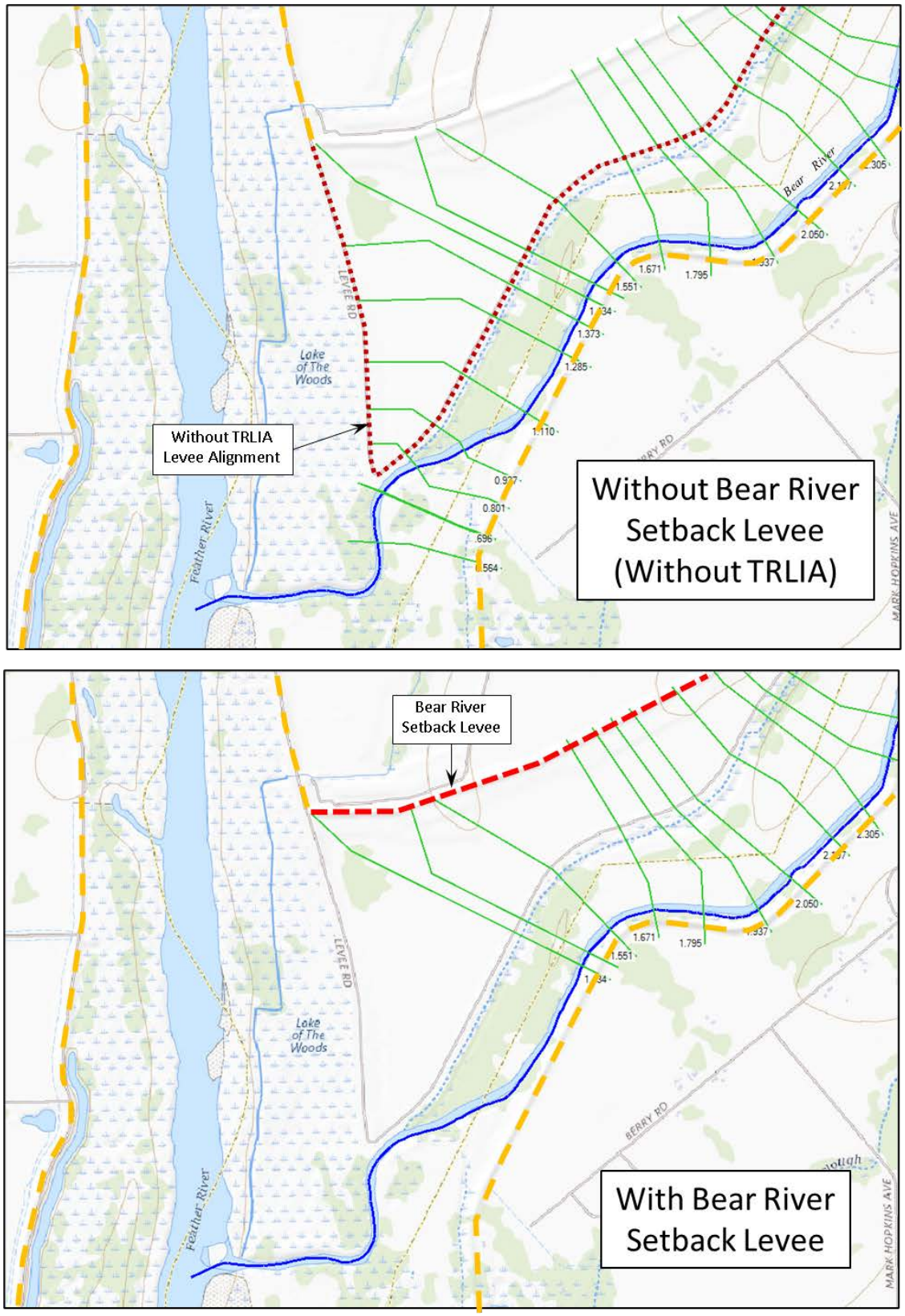

Figure 5. Bear River Model Schematic at Downstream Boundary

Hydrology

In accordance with the study ground rules, the hydraulic impacts of the study scenarios were evaluated for the following flood events:

- 1/50 AEP
- 1/100 AEP
- 1/200 AEP
- 1/500 AEP

Central Valley Hydrology Study procedures and data were used for this analysis. The CVHS, which was commissioned by the California Department of Water Resources (DWR) and prepared by the U.S. Army Corps of Engineers (USACE)[1] defines a procedure in which a scaled flood event with a pattern based on a historical flood event is selected to represent the flood of a specific frequency, at a specific location. This specific location is also referred to as the "centering" of the flood event. MBK Engineers, following the CVHS event selection procedure, determined that three flood centerings would need to be evaluated for the study area (MBK Engineers, 2021e):

1. Feather River
2. Yuba River
3. Bear River

The Yuba River centering hydrology, as per CVHS procedures, is not valid for application downstream of the Yuba River.

The CVHS hydrologic input data is available for four historical flood patterns: 1956, 1965, 1986, and 1997, and scale factors ranging from 10% to 260% with a minimum increment of 5%.

The CVHS flood events determined to represent the centerings and AEPs needed for this analysis are summarized in Table 2. The peak water surface elevation (WSE) for a given AEP is the maximum of the peak WSE's computed for the three flood centerings.

[1] (USACE, 2015),

Table 2. CVHS Flood Patterns and Scaling Factors

Centering	AEP	CVHS Pattern	CVHS Scale Factor			
			Feather R.	Yuba R.	Bear R.	Sacramento R. & Sutter Bypass
Feather River (FEA)	1/50	1956	120%	120%	120%	120%
	1/100	1997	85%	85%	85%	85%
	1/200	1997	105%	105%	105%	105%
	1/500	1997	130%	130%	130%	115%
Yuba River (YUB)	1/50	1956	100%	125%	na	na
	1/100	1956	150%	150%	na	na
	1/200	1956	170%	180%	na	na
	1/500	1956	170%	220%	na	na
Bear River (BEA)	1/50	1986	85%	85%	85%	85%
	1/100	1986	100%	100%	100%	100%
	1/200	1986	110%	110%	110%	110%
	1/500	1986	130%	130%	130%	130%

To supplement the basic hydrologic data, CVHS, under what is referred to as Task 8, developed detailed HEC-HMS rainfall-runoff models of several ungaged watersheds, including the Bear River. The Task 8 hydrologic data for the Bear River watershed consists only of the following N-year data on a generic time scale: 10-year, 50-year, 100-year, 200-year, and 500-year. Task 8 hydrologic data for the Bear River watershed on the defined CVHS flood patterns and scale factors is not available. Because of this, the Task 8 hydrologic data, as available, cannot be used in the Feather River Model. The study ground rules specify the use of the CVHS Task 8 hydrology for the Bear River watershed, necessitating the development and use of the separate Bear River Model. The MBK CVHS event selection analysis determined the Bear River Task 8 N-year hydrologic data to be used in the Feather River centering simulations with the Bear River Model. These are summarized in Table 3. As previously noted, the Yuba River centering is not applicable downstream of the Yuba River, therefore only the Bear River centering and Feather River centering flood events were simulated with the Bear River Model.

Table 3. Bear River Task 8 Hydrology Application for Feather River and Yuba River Centerings

Centering	AEP	Task 8 Data Recurrence Interval	
		Target	Use
Feather River	1/50	27-year	50-year
	1/100	26-year	50-year
	1/200	63-year	50-year
	1/500	201-year	200-year

The Bear River Model simulations used output from the Feather River Model to define the downstream boundary conditions. As previously noted, the Task 8 hydrologic data has not been synchronized with the CVHS hydrologic data used in the Feather River Model. Therefore, the downstream boundary condition used in Bear River Model simulations is a constant stage, equal to the peak stage from the Feather River Model simulation of the same flood event.

Levee Performance

The study ground rules specify the following levee performance criteria:

- Project and non-project levees fail when overtopped
- Yuba River Training levee fails when overtopped

Potential levee breach locations are entered into a HEC-RAS model with a specified trigger, either a point in time or a water surface elevation, a final width, and a formation time. Locations of potential levee overtopping, and thereby potential levee failures, were determined using simulations made without included levee breaches. The breach trigger for each potential breach was the water surface elevation equal to the top of levee elevation at that location. Following criteria developed for CVFED hydraulic analyses, a final width equal to 50 times the depth of water on the levee was used. The time of formation was based on a rate of 7 feet per minute, which was based on the USACE analysis for the Lower San Joaquin River Feasibility Study (USACE, 2017).

Based on this process, 28 potential levee breach locations were selected. The locations and corresponding breach parameters are summarized in Table 4.

Table 4. Potential Levee Breach Locations and Parameters

No.	River	Lateral Structure	Bank	Trigger Elevation (ft, NAVD88)	Final Width (ft)	Formation Time (hours)
1	Bear River	BEA R04, RS 14.697	Right	118.4	420	1.0
2	Bear River	BEA R01, RS 4.053	Right	61.7	440	1.0
3	Bear River	BEA R01, RS 3.435	Right	60.3	520	1.2
4	Best Slough	BES R01, RS 1.997	Right	60.0	130	0.3
5	Best Slough	BES R01, RS 1.459	Right	58.9	180	0.4
6	Best Slough	BES R01, RS 0.851	Right	59.2	510	1.2
7	Feather River	FEA R01, RS 90.442	Left	56.6	930	2.2
8	Feather River	FEA R01, RS 87.764	Left	50.6	780	1.9
9	Natomas Cross Canal	NAT R01, RS 2.371	Right	44.5	1,230	2.9
10	Natomas Cross Canal	NAT R01, RS 1.009	Right	42.7	1,140	2.7
11	Natomas Cross Canal	NAT R01, RS 0.665	Right	44.4	1,220	2.9
12	Sacramento River	SAC R11, RS 90.001	Right	44.7	490	1.2
13	Sacramento River	SAC R11, RS 87.602	Left	44.0	550	1.3
14	Sacramento River	SAC R11, RS 87.101	Right	44.0	650	1.5
15	Sacramento River	SAC R11, RS 86.802	Left	43.9	500	1.2
16	Sacramento River	SAC R11, RS 86.401	Right	43.8	790	1.9
17	Sacramento River	SAC R11, RS 84.889	Right	44.3	470	1.1
18	Sutter Bypass	SUB R01, RS 67.058	Left	52.3	1,120	2.7
19	Sutter Bypass	SUB R01, RS 66.457	Right	52.2	1,110	2.6
20	Sutter Bypass	SUB R01, RS 57.698	Left [a]	45.2	760	1.8
21	Wadsworth Canal	WAD R01, RS 1.259	Right	58.1	760	1.8
22	Wadsworth Canal	WAD R01, RS 1.258	Left	58.2	660	1.6
23	WPIC	WPI R02, RS 4.628	Left	58.0	350	0.8
21	WPIC	WPI R02, RS 3.998	Left	58.1	230	0.5

No.	River	Lateral Structure	Bank	Trigger Elevation (ft, NAVD88)	Final Width (ft)	Formation Time (hours)
25	WPIC	WPI R02, RS 3.38	Left	58.2	290	0.7
26	WPIC	WPI R02, RS 3.134	Left	58.7	320	0.8
27	Training Levee	Training Levee 1	na	95.6	430	1.0
28	Training Levee	Training_Levee_2	na	97.0	350	0.8

[a] Location is on right bank of Sacramento River downstream of the Fremont Weir, however, as modeled, is on the left bank of the SUB R01 river reach.

For additional information, the hydraulic impacts were also determined for a condition in which levees are assumed to act like a weir, and not fail if overtopped.

Results

The effects of the study scenarios on the peak WSE's are presented for the 19 index locations shown in Figure 6. The effects relative to the Pre-Project baseline, for the condition in which levees fail if overtopped, are provided in Table 5 through Table 8. The effects for the condition in which levees overtop without failing are provided in Table 9 through Table 13. The results of both levee failure conditions are similar. The Proposed Project, Alternative 1, and Alternative 2 have little effect, less than 0.05 feet for the most part, in the 1/50 AEP and 1/100 AEP flood event, with Alternative 2 also having little effect in the 1/200 AEP and 1/500 AEP flood events. The effect of the Goldfields West Levee, which is not in Alternative 2, can be seen on the Yuba River in the Proposed Project and Alternative 1 in the 1/200 AEP and 1/500 AEP. In the 1/200 AEP there is a significant decrease in the peak WSE along the Yuba River south levee with a larger, but still less than 0.1 feet, increase at the north levee. In the 1/500 AEP the decrease in the WSE at the south levee is smaller, about 0.2 feet, but the increase at the north levee has increased to a little under 0.2 feet. In all flood events, the Future Cumulative scenario show significant WSE reductions throughout the study area, due almost entirely to the operation changes under the Forecast Informed Reservoir Operations (FIRO) program.

As previously noted, a "Without TRLIA" scenario was also simulated for the purpose of quantifying the cumulative effects of the TRLIA program to date. The effects of the TRLIA program to date are summarized in Table 13 for the "with levee failures" condition, and in Table 14 for the "without levee failures" condition.

Figure 6. Results Index Point Location Map

Table 5. Impacts on Pre-Project Maximum Water Surface Elevations, 1/50 AEP Flood Event
Levees Fail if Overtopped

Index Point	Location	Maximum Water Surface Elevation (feet, NAVD88)					Change from Pre-Project (feet)			
		Pre-Project	Proposed Project	Alternative 1	Alternative 2	Future Cumulative	Proposed Project	Alternative 1	Alternative 2	Future Cumulative
1	Feather River at RM 117.055 (RD 10)	79.24	79.24	79.24	79.24	75.76	0	0	0	-3.48
2	Feather River at Yuba City (Bridge Street)	73.13	73.13	73.13	73.13	71.25	0	0	0	-1.88
3	Feather River at Boyd's Landing	63.38	63.38	63.38	63.38	61.57	0	0	0	-1.81
4	Feather River below Bear River	53.62	53.62	53.62	53.62	52.36	0	0	0	-1.26
5	Feather River at Sutter Bypass	48.51	48.51	48.51	48.51	47.62	0	0	0	-0.89
6	Jack Slough at UPRR	74.36	74.36	74.36	74.36	72.01	0	0	0	-2.35
7	Yuba River at North Training Wall	110.78	110.78	110.78	110.78	110.39	0	0	0	-0.39
8	Goldfields 200-year Levee	dry[2]	dry	dry	dry	dry	dry	dry	dry	dry
9	Yuba River North Levee at Walnut Ave.	dry	dry	dry	dry	dry	dry	dry	dry	dry
10	Yuba River North Levee at Marysville North Levee	dry	dry	dry	dry	dry	dry	dry	dry	dry
11	Yuba River North Levee at Simpson Lane	74.01	74.01	74.01	74.01	73.12	0	0	0	-0.89
12	Yuba River South Levee at Dantoni Road (RD 784)	dry	dry	dry	dry	dry	dry	dry	dry	dry
13	Yuba River South Levee at Simpson Lane (RD 784)	74.29	74.29	74.29	74.29	73.57	0	0	0	-0.72
14	Dry Creek at Hwy 65	76.12	76.12	76.11	76.12	76.11	0	-0.01	0	-0.01
15	Bear River at Hwy 65	96.36	96.36	96.36	96.36	96.36	0	0	0	0
16	Bear River at Dry Creek	66.10	66.10	66.10	66.10	66.08	0	0	0	-0.02
17	Bear River at WPIC	58.86	58.86	58.86	58.86	58.62	0	0	0	-0.24
18	WPIC at Reeds Creek	59.25	59.28	59.27	59.28	59.10	+0.03	+0.02	+0.03	-0.15
19	WPIC at Best Slough	58.87	58.89	58.88	58.89	58.68	+0.02	+0.01	+0.02	-0.19

[2] In this table, "dry" means the location of the index point was not flooded for that scenario.

Table 6. Impacts on Pre-Project Maximum Water Surface Elevations, 1/100 AEP Flood Event
Levees Fail if Overtopped

Index Point	Location	Maximum Water Surface Elevation (feet, NAVD88)					Change from Pre-Project (feet)			
		Pre-Project	Proposed Project	Alternative 1	Alternative 2	Future Cumulative	Proposed Project	Alternative 1	Alternative 2	Future Cumulative
1	Feather River at RM 117.055 (RD 10)	79.69	79.69	79.69	79.69	77.66	0	0	0	-2.03
2	Feather River at Yuba City (Bridge Street)	74.09	74.09	74.09	74.09	72.95	0	0	0	-1.14
3	Feather River at Boyd's Landing	64.33	64.33	64.33	64.33	63.57	0	0	0	-0.76
4	Feather River below Bear River	54.20	54.20	54.20	54.20	53.51	0	0	0	-0.69
5	Feather River at Sutter Bypass	48.64	48.64	48.64	48.64	48.16	0	0	0	-0.48
6	Jack Slough at UPRR	75.25	75.24	75.25	75.24	73.79	-0.01	0	-0.01	-1.46
7	Yuba River at North Training Wall	112.51	112.51	112.51	112.51	112.15	0	0	0	-0.36
8	Goldfields 200-year Levee	dry[3]	dry	dry	dry	dry	dry	dry	dry	dry
9	Yuba River North Levee at Walnut Ave.	87.99	88.02	88.02	87.99	87.48	+0.03	+0.03	0	-0.51
10	Yuba River North Levee at Marysville North Levee	dry	dry	dry	dry	dry	dry	dry	dry	dry
11	Yuba River North Levee at Simpson Lane	75.18	75.18	75.18	75.18	74.76	0	0	0	-0.42
12	Yuba River South Levee at Dantoni Road (RD 784)	79.29	dry	dry	79.29	dry	-0.78	-0.78	0	-0.78
13	Yuba River South Levee at Simpson Lane (RD 784)	76.18	76.17	76.17	76.18	75.73	-0.01	-0.01	0	-0.45
14	Dry Creek at Hwy 65	76.56	76.56	76.56	76.56	76.56	0	0	0	0
15	Bear River at Hwy 65	97.71	97.71	97.71	97.71	97.71	0	0	0	0
16	Bear River at Dry Creek	66.88	66.89	66.89	66.89	66.88	+0.01	+0.01	+0.01	0
17	Bear River at WPIC	59.63	59.63	59.63	59.63	59.56	0	0	0	-0.07
18	WPIC at Reeds Creek	59.94	59.97	59.97	59.97	59.90	+0.03	+0.03	+0.03	-0.04
19	WPIC at Best Slough	59.69	59.71	59.71	59.71	59.63	+0.02	+0.02	+0.02	-0.06

[3] In this table, "dry" means the location of the index point was not flooded for that scenario.

Table 7. Impacts on Pre-Project Maximum Water Surface Elevations, 1/200 AEP Flood Event
Levees Fail if Overtopped

Index Point	Location	Maximum Water Surface Elevation (feet, NAVD88)					Change from Pre-Project (feet)			
		Pre-Project	Proposed Project	Alternative 1	Alternative 2	Future Cumulative	Proposed Project	Alternative 1	Alternative 2	Future Cumulative
1	Feather River at RM 117.055 (RD 10)	80.01	80.01	80.01	80.01	80.01	0	0	0	0
2	Feather River at Yuba City (Bridge Street)	75.16	75.17	75.17	75.16	74.31	+0.01	+0.01	0	-0.85
3	Feather River at Boyd's Landing	65.63	65.64	65.64	65.63	64.79	+0.01	+0.01	0	-0.84
4	Feather River below Bear River	55.52	55.52	55.52	55.52	54.81	0	0	0	-0.71
5	Feather River at Sutter Bypass	49.83	49.83	49.83	49.83	49.78	0	0	0	-0.05
6	Jack Slough at UPRR	76.11	76.11	76.11	76.11	75.41	0	0	0	-0.70
7	Yuba River at North Training Wall	113.98	113.99	113.99	113.98	112.39	+0.01	+0.01	0	-1.59
8	Goldfields 200-year Levee	dry[4]	dry	dry	dry	dry	dry	dry	dry	dry
9	Yuba River North Levee at Walnut Ave.	89.81	89.89	89.89	89.81	87.70	+0.08	+0.08	0	-2.11
10	Yuba River North Levee at Marysville North Levee	dry	dry	dry	dry	dry	dry	dry	dry	dry
11	Yuba River North Levee at Simpson Lane	76.37	76.37	76.37	76.37	75.24	0	0	0	-1.13
12	Yuba River South Levee at Dantoni Road (RD 784)	80.10	78.75	78.75	80.10	dry	-1.35	-1.35	0	-1.59
13	Yuba River South Levee at Simpson Lane (RD 784)	77.65	77.62	77.62	77.65	75.73	-0.03	-0.03	0	-1.92
14	Dry Creek at Hwy 65	76.98	76.98	76.98	76.98	76.98	0	0	0	0
15	Bear River at Hwy 65	99.02	99.02	99.02	99.02	99.02	0	0	0	0
16	Bear River at Dry Creek	67.67	67.67	67.67	67.67	67.67	0	0	0	0
17	Bear River at WPIC	60.30	60.31	60.31	60.31	60.31	+0.01	+0.01	+0.01	+0.01
18	WPIC at Reeds Creek	60.58	60.61	60.60	60.61	60.61	+0.03	+0.02	+0.03	+0.03
19	WPIC at Best Slough	60.37	60.40	60.39	60.40	60.40	+0.03	+0.02	+0.03	+0.03

[4] In this table, "dry" means the location of the index point was not flooded for that scenario.

Table 8. Impacts on Pre-Project Maximum Water Surface Elevations, 1/500 AEP Flood Event
Levees Fail if Overtopped

Index Point	Location	Maximum Water Surface Elevation (feet, NAVD88)					Change from Pre-Project (feet)			
		Pre-Project	Proposed Project	Alternative 1	Alternative 2	Future Cumulative	Proposed Project	Alternative 1	Alternative 2	Future Cumulative
1	Feather River at RM 117.055 (RD 10)	85.98	85.98	85.98	85.98	84.94	0	0	0	-1.04
2	Feather River at Yuba City (Bridge Street)	78.92	78.92	78.92	78.92	78.11	0	0	0	-0.81
3	Feather River at Boyd's Landing	69.54	69.54	69.54	69.54	68.69	0	0	0	-0.85
4	Feather River below Bear River	58.36	58.36	58.36	58.36	57.75	0	0	0	-0.61
5	Feather River at Sutter Bypass	50.93	50.92	50.92	50.92	50.62	-0.01	-0.01	-0.01	-0.31
6	Jack Slough at UPRR	80.55	80.55	80.55	80.55	79.61	0	0	0	-0.94
7	Yuba River at North Training Wall	117.64	117.65	117.65	117.64	116.81	+0.01	+0.01	0	-0.83
8	Goldfields 200-year Levee	85.62	85.65	85.65	85.62	dry[5]	+0.03	+0.03	0	-6.53
9	Yuba River North Levee at Walnut Ave.	91.37	91.57	91.57	91.37	90.68	+0.20	+0.20	0	-0.69
10	Yuba River North Levee at Marysville North Levee	83.65	83.71	83.71	83.65	81.09	+0.06	+0.06	0	-2.56
11	Yuba River North Levee at Simpson Lane	79.53	79.54	79.54	79.53	78.64	+0.01	+0.01	0	-0.89
12	Yuba River South Levee at Dantoni Road (RD 784)	83.79	83.64	83.64	83.79	82.87	-0.15	-0.15	0	-0.92
13	Yuba River South Levee at Simpson Lane (RD 784)	81.28	81.25	81.25	81.28	79.99	-0.03	-0.03	0	-1.29
14	Dry Creek at Hwy 65	77.47	77.47	77.47	77.47	77.47	0	0	0	0
15	Bear River at Hwy 65	99.02	99.02	99.02	99.02	99.02	0	0	0	0
16	Bear River at Dry Creek	68.04	68.05	68.04	68.05	68.01	+0.01	0	+0.01	-0.03
17	Bear River at WPIC	61.88	61.88	61.88	61.88	61.58	0	0	0	-0.30
18	WPIC at Reeds Creek	62.09	62.11	62.10	62.11	61.81	+0.02	+0.01	+0.02	-0.28
19	WPIC at Best Slough	61.99	62.00	62.00	62.00	61.69	+0.01	+0.01	+0.01	-0.30

[5] In this table, "dry" means the location of the index point was not flooded for that scenario.

Table 9. Impacts on Pre-Project Maximum Water Surface Elevations, 1/50 AEP Flood Event
Levees Overtop Without Failing

Index Point	Location	Maximum Water Surface Elevation (feet, NAVD88)					Change from Pre-Project (feet)			
		Pre-Project	Proposed Project	Alternative 1	Alternative 2	Future Cumulative	Proposed Project	Alternative 1	Alternative 2	Future Cumulative
1	Feather River at RM 117.055 (RD 10)	79.23	79.23	79.23	79.23	75.76	0	0	0	-3.47
2	Feather River at Yuba City (Bridge Street)	73.11	73.11	73.11	73.11	71.24	0	0	0	-1.87
3	Feather River at Boyd's Landing	63.37	63.37	63.37	63.37	61.57	0	0	0	-1.80
4	Feather River below Bear River	53.62	53.62	53.62	53.62	52.36	0	0	0	-1.26
5	Feather River at Sutter Bypass	48.50	48.50	48.50	48.50	47.62	0	0	0	-0.88
6	Jack Slough at UPRR	74.34	74.34	74.34	74.34	72.00	0	0	0	-2.34
7	Yuba River at North Training Wall	110.78	110.78	110.78	110.78	110.39	0	0	0	-0.39
8	Goldfields 200-year Levee	dry[6]	dry	dry	dry	dry	dry	dry	dry	dry
9	Yuba River North Levee at Walnut Ave.	dry	dry	dry	dry	dry	dry	dry	dry	dry
10	Yuba River North Levee at Marysville North Levee	dry	dry	dry	dry	dry	dry	dry	dry	dry
11	Yuba River North Levee at Simpson Lane	74.00	74.00	74.00	74.00	73.14	0	0	0	-0.86
12	Yuba River South Levee at Dantoni Road (RD 784)	dry	dry	dry	dry	dry	dry	dry	dry	dry
13	Yuba River South Levee at Simpson Lane (RD 784)	74.28	74.28	74.28	74.28	73.57	0	0	0	-0.71
14	Dry Creek at Hwy 65	76.11	76.11	76.11	76.11	76.12	0	0	0	+0.01
15	Bear River at Hwy 65	96.36	96.36	96.36	96.36	96.36	0	0	0	0
16	Bear River at Dry Creek	66.11	66.11	66.11	66.11	66.10	0	0	0	-0.01
17	Bear River at WPIC	58.98	58.98	58.98	58.98	58.78	0	0	0	-0.20
18	WPIC at Reeds Creek	59.79	59.83	59.82	59.83	59.67	+0.04	+0.03	+0.04	-0.12
19	WPIC at Best Slough	59.00	59.01	59.01	59.01	58.81	+0.01	+0.01	+0.01	-0.19

[6] In this table, "dry" means the location of the index point was not flooded for that scenario.

Table 10. Impacts on Pre-Project Maximum Water Surface Elevations, 1/100 AEP Flood Event
Levees Overtop Without Failing

Index Point	Location	Maximum Water Surface Elevation (feet, NAVD88)					Change from Pre-Project (feet)			
		Pre-Project	Proposed Project	Alternative 1	Alternative 2	Future Cumulative	Proposed Project	Alternative 1	Alternative 2	Future Cumulative
1	Feather River at RM 117.055 (RD 10)	79.68	79.68	79.68	79.68	77.67	0	0	0	-2.01
2	Feather River at Yuba City (Bridge Street)	74.11	74.08	74.11	74.08	72.91	-0.03	0	-0.03	-1.20
3	Feather River at Boyd's Landing	64.35	64.33	64.35	64.33	63.55	-0.02	0	-0.02	-0.80
4	Feather River below Bear River	54.28	54.27	54.28	54.28	53.58	-0.01	0	0	-0.70
5	Feather River at Sutter Bypass	48.83	48.82	48.82	48.82	48.19	-0.01	-0.01	-0.01	-0.64
6	Jack Slough at UPRR	75.25	75.22	75.25	75.23	73.81	-0.03	0	-0.02	-1.44
7	Yuba River at North Training Wall	112.51	112.51	112.51	112.51	112.15	0	0	0	-0.36
8	Goldfields 200-year Levee	dry[7]	dry	dry	dry	dry	dry	dry	dry	dry
9	Yuba River North Levee at Walnut Ave.	87.99	88.02	88.02	87.99	87.48	+0.03	+0.03	0	-0.51
10	Yuba River North Levee at Marysville North Levee	dry	dry	dry	dry	dry	dry	dry	dry	dry
11	Yuba River North Levee at Simpson Lane	75.16	75.16	75.16	75.16	74.74	0	0	0	-0.42
12	Yuba River South Levee at Dantoni Road (RD 784)	79.29	dry	dry	79.29	dry	-0.78	-0.78	0	-0.78
13	Yuba River South Levee at Simpson Lane (RD 784)	76.17	76.16	76.16	76.17	75.71	-0.01	-0.01	0	-0.46
14	Dry Creek at Hwy 65	76.56	76.56	76.56	76.56	76.56	0	0	0	0
15	Bear River at Hwy 65	97.71	97.71	97.71	97.71	97.71	0	0	0	0
16	Bear River at Dry Creek	66.89	66.89	66.89	66.89	66.89	0	0	0	0
17	Bear River at WPIC	59.60	59.60	59.60	59.60	59.55	0	0	0	-0.05
18	WPIC at Reeds Creek	60.32	60.35	60.35	60.35	60.32	+0.03	+0.03	+0.03	0
19	WPIC at Best Slough	59.55	59.56	59.56	59.56	59.52	+0.01	+0.01	+0.01	-0.03

[7] In this table, "dry" means the location of the index point was not flooded for that scenario.

Table 11. Impacts on Pre-Project Maximum Water Surface Elevations, 1/200 AEP Flood Event
Levees Overtop Without Failing

Index Point	Location	Maximum Water Surface Elevation (feet, NAVD88)					Change from Pre-Project (feet)			
		Pre-Project	Proposed Project	Alternative 1	Alternative 2	Future Cumulative	Proposed Project	Alternative 1	Alternative 2	Future Cumulative
1	Feather River at RM 117.055 (RD 10)	80.00	80.01	80.00	80.01	80.01	+0.01	0	+0.01	+0.01
2	Feather River at Yuba City (Bridge Street)	75.17	75.18	75.17	75.18	74.31	+0.01	0	+0.01	-0.86
3	Feather River at Boyd's Landing	65.65	65.67	65.65	65.66	64.85	+0.02	0	+0.01	-0.80
4	Feather River below Bear River	55.57	55.58	55.58	55.58	54.73	+0.01	+0.01	+0.01	-0.84
5	Feather River at Sutter Bypass	50.00	50.00	50.00	50.00	49.73	0	0	0	-0.27
6	Jack Slough at UPRR	76.11	76.13	76.11	76.12	75.41	+0.02	0	+0.01	-0.70
7	Yuba River at North Training Wall	113.98	113.99	113.99	113.98	112.39	+0.01	+0.01	0	-1.59
8	Goldfields 200-year Levee	dry[8]	dry	dry	dry	dry	dry	dry	dry	dry
9	Yuba River North Levee at Walnut Ave.	89.81	89.89	89.89	89.81	87.70	+0.08	+0.08	0	-2.11
10	Yuba River North Levee at Marysville North Levee	dry	dry	dry	dry	dry	dry	dry	dry	dry
11	Yuba River North Levee at Simpson Lane	76.36	76.36	76.39	76.36	75.23	0	+0.03	0	-1.13
12	Yuba River South Levee at Dantoni Road (RD 784)	80.10	78.75	78.75	80.10	dry	-1.35	-1.35	0	-1.59
13	Yuba River South Levee at Simpson Lane (RD 784)	77.65	77.61	77.63	77.65	75.72	-0.04	-0.02	0	-1.93
14	Dry Creek at Hwy 65	76.98	76.98	76.98	76.98	76.98	0	0	0	0
15	Bear River at Hwy 65	99.02	99.02	99.02	99.02	99.02	0	0	0	0
16	Bear River at Dry Creek	67.66	67.66	67.66	67.66	67.66	0	0	0	0
17	Bear River at WPIC	60.09	60.12	60.11	60.12	60.12	+0.03	+0.02	+0.03	+0.03
18	WPIC at Reeds Creek	60.66	60.69	60.69	60.69	60.69	+0.03	+0.03	+0.03	+0.03
19	WPIC at Best Slough	60.14	60.18	60.18	60.18	60.18	+0.04	+0.04	+0.04	+0.04

[8] In this table, "dry" means the location of the index point was not flooded for that scenario.

Table 12. Impacts on Pre-Project Maximum Water Surface Elevations, 1/500 AEP Flood Event
Levees Overtop Without Failing

Index Point	Location	Maximum Water Surface Elevation (feet, NAVD88)					Change from Pre-Project (feet)			
		Pre-Project	Proposed Project	Alternative 1	Alternative 2	Future Cumulative	Proposed Project	Alternative 1	Alternative 2	Future Cumulative
1	Feather River at RM 117.055 (RD 10)	86.00	86.00	86.00	86.00	84.95	0	0	0	-1.05
2	Feather River at Yuba City (Bridge Street)	78.96	78.96	78.96	78.96	78.12	0	0	0	-0.84
3	Feather River at Boyd's Landing	69.71	69.71	69.71	69.71	68.84	0	0	0	-0.87
4	Feather River below Bear River	59.23	59.23	59.23	59.23	58.58	0	0	0	-0.65
5	Feather River at Sutter Bypass	53.00	53.00	53.00	53.00	52.55	0	0	0	-0.45
6	Jack Slough at UPRR	80.60	80.60	80.60	80.60	79.63	0	0	0	-0.97
7	Yuba River at North Training Wall	117.65	117.65	117.65	117.65	116.82	0	0	0	-0.83
8	Goldfields 200-year Levee	85.68	85.72	85.72	85.68	dry[9]	+0.04	+0.04	0	-6.59
9	Yuba River North Levee at Walnut Ave.	92.35	92.50	92.50	92.35	91.81	+0.15	+0.15	0	-0.54
10	Yuba River North Levee at Marysville North Levee	84.02	84.07	84.07	84.02	83.24	+0.05	+0.05	0	-0.78
11	Yuba River North Levee at Simpson Lane	79.56	79.56	79.56	79.56	78.64	0	0	0	-0.92
12	Yuba River South Levee at Dantoni Road (RD 784)	83.12	82.92	82.92	83.12	81.67	-0.20	-0.20	0	-1.45
13	Yuba River South Levee at Simpson Lane (RD 784)	81.16	81.14	81.14	81.16	79.71	-0.02	-0.02	0	-1.45
14	Dry Creek at Hwy 65	77.47	77.47	77.47	77.47	77.47	0	0	0	0
15	Bear River at Hwy 65	100.51	100.51	100.51	100.51	100.51	0	0	0	0
16	Bear River at Dry Creek	68.78	68.78	68.78	68.78	68.75	0	0	0	-0.03
17	Bear River at WPIC	61.88	61.89	61.88	61.89	61.55	+0.01	0	+0.01	-0.33
18	WPIC at Reeds Creek	62.10	62.12	62.11	62.12	61.77	+0.02	+0.01	+0.02	-0.33
19	WPIC at Best Slough	61.99	62.01	62.00	62.01	61.65	+0.02	+0.01	+0.02	-0.34

[9] In this table, "dry" means the location of the index point was not flooded for that scenario.

Table 13. Effect of TRLIA Program on Maximum Water Surface Elevations
Levees Fail if Overtopped

Index Point	Location	1/50 AEP			1/100 AEP			1/200 AEP			1/500 AEP		
		Maximum WSE (feet, NAVD88)		Change (feet)	Maximum WSE (feet, NAVD88)		Change (feet)	Maximum WSE (feet, NAVD88)		Change (feet)	Maximum WSE (feet, NAVD88)		Change (feet)
		Without TRLIA	Pre-Project (With TRLIA)		Without TRLIA	Pre-Project (With TRLIA)		Without TRLIA	Pre-Project (With TRLIA)		Without TRLIA	Pre-Project (With TRLIA)	
1	Feather River at RM 117.055 (RD 10)	79.74	79.24	-0.50	80.12	79.69	-0.43	80.54	80.01	-0.53	86.86	85.98	-0.88
2	Feather River at Yuba City (Bridge Street)	74.31	73.13	-1.18	75.34	74.09	-1.25	76.61	75.16	-1.45	80.81	78.92	-1.89
3	Feather River at Boyd's Landing	65.00	63.38	-1.62	65.96	64.33	-1.63	67.29	65.63	-1.66	71.10	69.54	-1.56
4	Feather River below Bear River	53.58	53.62	+0.04	54.11	54.20	+0.09	55.38	55.52	+0.14	57.70	58.36	+0.66
5	Feather River at Sutter Bypass	48.47	48.51	+0.04	48.61	48.64	+0.03	49.83	49.83	0	50.53	50.93	+0.40
6	Jack Slough at UPRR	75.38	74.36	-1.02	76.30	75.25	-1.05	77.37	76.11	-1.26	82.19	80.55	-1.64
7	Yuba River at North Training Wall	111.41	110.78	-0.63	113.41	112.51	-0.90	115.14	113.98	-1.16	119.09	117.64	-1.45
8	Goldfields 200-year Levee	dry[10]	dry	dry	82.18	dry	-3.09	82.59	dry	-3.50	83.24	85.62	+2.38
9	Yuba River North Levee at Walnut Ave.	dry	dry	dry	87.76	87.99	+0.23	89.75	89.81	+0.06	91.68	91.37	-0.31
10	Yuba River North Levee at Marysville North Levee	dry	dry	dry	dry	dry	dry	dry	dry	dry	84.14	83.65	-0.49
11	Yuba River North Levee at Simpson Lane	74.89	74.01	-0.88	76.09	75.18	-0.91	77.52	76.37	-1.15	81.11	79.53	-1.58
12	Yuba River South Levee at Dantoni Road (RD 784)	79.98	dry	-1.47	80.42	79.29	-1.13	80.68	80.10	-0.58	83.97	83.79	-0.18
13	Yuba River South Levee at Simpson Lane (RD 784)	75.19	74.29	-0.90	76.91	76.18	-0.73	78.34	77.65	-0.69	82.04	81.28	-0.76
14	Dry Creek at Hwy 65	76.11	76.12	+0.01	76.56	76.56	0	76.98	76.98	0	77.47	77.47	0
15	Bear River at Hwy 65	96.36	96.36	0	97.71	97.71	0	99.02	99.02	0	99.02	99.02	0
16	Bear River at Dry Creek	66.15	66.10	-0.05	66.95	66.88	-0.07	67.77	67.67	-0.10	68.16	68.04	-0.12
17	Bear River at WPIC	59.71	58.86	-0.85	60.61	59.63	-0.98	61.46	60.30	-1.16	62.14	61.88	-0.26
18	WPIC at Reeds Creek	59.99	59.25	-0.74	60.84	59.94	-0.90	61.63	60.58	-1.05	62.31	62.09	-0.22
19	WPIC at Best Slough	59.77	58.87	-0.90	60.68	59.69	-0.99	61.52	60.37	-1.15	62.17	61.99	-0.18

[10] In this table, "dry" means the location of the index point was not flooded for that scenario.

Table 14. Effect of TRLIA Program on Maximum Water Surface Elevations
Levees Overtop Without Failing

Index Point	Location	1/50 AEP			1/100 AEP			1/200 AEP			1/500 AEP		
		Maximum WSE (feet, NAVD88)		Change (feet)	Maximum WSE (feet, NAVD88)		Change (feet)	Maximum WSE (feet, NAVD88)		Change (feet)	Maximum WSE (feet, NAVD88)		Change (feet)
		Without TRLIA	Pre-Project (With TRLIA)		Without TRLIA	Pre-Project (With TRLIA)		Without TRLIA	Pre-Project (With TRLIA)		Without TRLIA	Pre-Project (With TRLIA)	
1	Feather River at RM 117.055 (RD 10)	79.73	79.23	-0.50	80.13	79.68	-0.45	80.54	80.00	-0.54	86.89	86.00	-0.89
2	Feather River at Yuba City (Bridge Street)	74.29	73.11	-1.18	75.32	74.11	-1.21	76.57	75.17	-1.40	80.85	78.96	-1.89
3	Feather River at Boyd's Landing	64.99	63.37	-1.62	65.94	64.35	-1.59	67.27	65.65	-1.62	71.33	69.71	-1.62
4	Feather River below Bear River	53.57	53.62	+0.05	54.15	54.28	+0.13	55.37	55.57	+0.20	58.94	59.23	+0.29
5	Feather River at Sutter Bypass	48.47	48.50	+0.03	48.77	48.83	+0.06	49.89	50.00	+0.11	52.82	53.00	+0.18
6	Jack Slough at UPRR	75.36	74.34	-1.02	76.29	75.25	-1.04	77.34	76.11	-1.23	82.24	80.60	-1.64
7	Yuba River at North Training Wall	111.41	110.78	-0.63	113.41	112.51	-0.90	115.14	113.98	-1.16	119.09	117.65	-1.44
8	Goldfields 200-year Levee	dry[11]	dry	dry	82.18	dry	-3.09	82.59	dry	-3.50	83.27	85.68	+2.41
9	Yuba River North Levee at Walnut Ave.	dry	dry	dry	87.76	87.99	+0.23	89.75	89.81	+0.06	92.57	92.35	-0.22
10	Yuba River North Levee at Marysville North Levee	dry	dry	dry	dry	dry	dry	dry	dry	dry	84.45	84.02	-0.43
11	Yuba River North Levee at Simpson Lane	74.88	74.00	-0.88	76.06	75.16	-0.90	77.50	76.36	-1.14	81.13	79.56	-1.57
12	Yuba River South Levee at Dantoni Road (RD 784)	79.98	dry	-1.47	80.42	79.29	-1.13	80.68	80.10	-0.58	83.41	83.12	-0.29
13	Yuba River South Levee at Simpson Lane (RD 784)	75.19	74.28	-0.91	76.89	76.17	-0.72	78.32	77.65	-0.67	81.96	81.16	-0.80
14	Dry Creek at Hwy 65	76.11	76.11	0	76.56	76.56	0	76.98	76.98	0	77.47	77.47	0
15	Bear River at Hwy 65	96.36	96.36	0	97.71	97.71	0	99.02	99.02	0	100.51	100.51	0
16	Bear River at Dry Creek	66.17	66.11	-0.06	66.94	66.89	-0.05	67.74	67.66	-0.08	68.88	68.78	-0.10
17	Bear River at WPIC	59.71	58.98	-0.73	60.43	59.60	-0.83	61.34	60.09	-1.25	62.67	61.88	-0.79
18	WPIC at Reeds Creek	60.15	59.79	-0.36	60.72	60.32	-0.40	61.53	60.66	-0.87	62.86	62.10	-0.76
19	WPIC at Best Slough	59.64	59.00	-0.64	60.49	59.55	-0.94	61.40	60.14	-1.26	62.75	61.99	-0.76

[11] In this table, "dry" means the location of the index point was not flooded for that scenario.

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Appendix A

TRLIA 500-year Project Hydraulic Impact Analysis Ground Rules

Ground Rules for TRLIA 500-Year Project Hydraulic Impact Analysis

Hydraulic Impact Determination

Type:

1. Deterministic
   1.1. Measured relative to a Without Project Condition (2020)

2. Impacts measured at discrete index points
   2.1. Changes to peak water surface elevations
   2.2. Changes to peak flows

Hydrology

Source:

1. CVHS

Flood events:

1. 1/50 AEP
2. 1/100 AEP
3. 1/200 AEP
4. 1/500 AEP

Centerings:

1. Feather River below Yuba River
2. Yuba River
3. Bear River (BRR3 Index Point)
   3.1. Use CVHS Task 8 Hydrologic inputs with computed n-year stage at the mouth of the Bear River
   3.2. Use standalone Bear/Dry/WPIC hydraulic model.

CVHS Flood Events:

- MBK CVHS Event Selection Analysis

Scenarios

The scenarios to be configured and simulated are tabulated in Table 1.

Table 1

	Scenarios					
	Pre-TRLIA Program	Without Project (2020)	Preferred Alternative	Alt. 1	Alt. 2	Future Cumulative
Hydrologic						
NBB/Oroville						
Forecasted Coordination Operations (2005)	✓	✓	✓	✓	✓	
Forecast Informed Reservoir Operations (FIRO)						✓
New Bullards Bar Secondary Spillway						✓
System Modifications (Levee Alignments and Height)						
RD 784 Levee alignments in 2000 (Feather River east levee and Bear River north levee)	✓					
Shanghai Bend Setback Levee (SPK 1998)	✓	✓	✓	✓	✓	✓
Bear River North Levee Setback (TRLIA 2006)		✓	✓	✓	✓	✓
Star Bend Setback Levee (LD1 2009)	✓	✓	✓	✓	✓	✓
Feather River East Levee Setback (TRLIA 2010)		✓	✓	✓	✓	✓
TRLIA Goldfields Improvements (2011)		✓	✓	✓	✓	✓
TRLIA 100-Year Goldfields embankment (2015)		✓	✓	✓	✓	✓
Hallwood Side Channel Project Phases 1,2,3, and 4 (2020)		✓	✓	✓	✓	✓
TRLIA North Training Wall Project Phase 1 (2020)		✓	✓	✓	✓	✓
Yuba Goldfields Setback Levee (TRLIA 2020)		✓	✓	✓	✓	✓
Bear River Setback Levee (RD 817 2021)		✓	✓	✓	✓	✓

	Scenarios					
TRLIA 500-Year Project Features	Pre-TRLIA Program	Without Project (2020)	Preferred Alternative	Alt. 1	Alt. 2	Future Cumulative
Goldfields West Levee			✓	✓		✓
Yuba River South Levee Raise			✓	✓	✓	✓
Feather River East Levee Raise			✓	✓	✓	✓
Bear River North Levee Raise			✓	✓	✓	✓
WPIC West Levee Raise			✓	✓	✓	✓
WPIC West Levee Extension			✓		✓	✓
Other Future Regional Projects						
TRLIA North Training Wall Project Phase 2						✓

Assumptions

Levee performance

- Project and non-project levees fail when overtopped
- Yuba River Training levee fails when overtopped

Levee heights

- Maximum of existing top of levee or SRFCP minimum top of levee (1957 Profile)

Appendix F. Noise Monitoring and Modeling Results

Noise Monitoring Results

Noise Modeling Results

Ambient Noise Monitoring Results

Site #1: Casa Mia Mobile Home Park

Start Time	Measurement Time	Leq	Calculation for average Leq	LE	Lmax	Lmin	Ly	LN1	LN2	LN3	LN4	LN5	Over	Under
9/10/2021 9:52	00d 00:05:00.0	42.5	17782.7941	67.3	52.6	36.2	-.-	51.7	47.1	38.7	37.1	36.6	----	-----
9/10/2021 9:57	00d 00:05:00.0	45	31622.7766	69.8	53.4	37.2	-.-	52.1	48.4	43.3	39.2	37.6	----	-----
9/10/2021 10:02	00d 00:03:24.3	41.4	13803.84265	64.5	51	37.8	-.-	50	42.8	39.9	38.2	37.9	----	-----
9/10/2021 10:05	00d 00:01:46.2	42.8	19054.60718	63.1	47.7	38.2	-.-	47.5	45.2	41.9	39.2	38.2	----	-----
			49.15209931		53.4									

Site #2: Residence on Griffith Avenue

Start Time	Measurement Time	Leq	Calculation for average Leq	LE	Lmax	Lmin	Ly	LN1	LN2	LN3	LN4	LN5	Over	Under
9/10/2021 10:17	00d 00:05:00.0	41.2	13182.56739	66	51.8	33.7	-.-	50.9	44.5	38	35.5	34.1	----	-----
9/10/2021 10:22	00d 00:05:00.0	38.7	7413.102413	63.5	47.8	33.7	-.-	45.3	41.2	37.3	34.6	33.1	----	-----
9/10/2021 10:27	00d 00:05:00.0	37.4	5495.408739	62.2	47.5	32.9	-.-	46.7	39.4	35.7	33.9	32.9	----	-----
9/10/2021 10:32	00d 00:00:02.1	34.5	2818.382931	37.7	35	34	-.-	35.1	35.1	35.1	33.8	33.8	----	-----
			44.61040002		51.8									

Site #3: Residence on Mage Avenue

Start Time	Measurement Time	Leq	Calculation for average Leq	LE	Lmax	Lmin	Ly	LN1	LN2	LN3	LN4	LN5	Over	Under
9/10/2021 10:57	00d 00:05:00.0	53.9	245470.8916	78.7	61.9	44.4	-.-	61.2	57.4	51.9	48.2	45.3	----	-----
9/10/2021 11:02	00d 00:05:00.0	55.3	338844.1561	80.1	64.9	48.8	-.-	63.6	57.7	53.8	50.8	49.3	----	-----
9/10/2021 11:07	00d 00:05:00.0	49.1	81283.05162	73.9	57.5	38.9	-.-	55.8	52.7	47.2	41.3	39	----	-----
9/10/2021 11:12	00d 00:01:11.5	47	50118.72336	65.6	51.2	41.5	-.-	51.5	49.4	46.5	42.6	41.2	----	-----
			58.54741225		64.9									

Site #4: Residence on Old Marysville Road

Start Time	Measurement Time	Leq	Calculation for average Leq	LE	Lmax	Lmin	Ly	LN1	LN2	LN3	LN4	LN5	Over	Under
9/10/2021 11:24	00d 00:05:00.0	60.2	1047128.548	85	74.7	40.1	-.-	72.9	63.1	48	42.1	40.3	----	-----
9/10/2021 11:29	00d 00:05:00.0	46.1	40738.02778	70.9	55.7	38.6	-.-	55.4	49.7	43.1	40	38.8	----	-----
9/10/2021 11:34	00d 00:05:00.0	52.2	165958.6907	77	69.1	39.9	-.-	67	52.7	46.8	42.3	40.3	----	-----
9/10/2021 11:39	00d 00:01:03.0	47	50118.72336	65	55	41	-.-	56	49.5	45.7	42.3	40.8	----	-----
			61.15258937		74.7									

Site #5: Residence on Feather Ridge Drive

Start Time	Measurement Time	Leq	Calculation for average Leq	LE	Lmax	Lmin	Ly	LN1	LN2	LN3	LN4	LN5	Over	Under
9/10/2021 12:19	00d 00:05:00.0	45.8	38018.93963	70.6	64.5	32.2	-.-	61.5	42.3	36.6	34.4	33	----	-----
9/10/2021 12:24	00d 00:05:00.0	41.4	13803.84265	66.2	60.2	31.2	-.-	55.3	39.8	33.6	31.9	31.1	----	-----
9/10/2021 12:29	00d 00:05:00.0	45.2	33113.11215	70	61.7	31.2	-.-	59.7	47.8	34.5	32	31.1	----	-----
9/10/2021 12:34	00d 00:00:37.0	41.6	14454.39771	57.3	44.4	38.5	-.-	44.8	44	41.3	38.9	38	----	-----
			49.97343967		64.5									

Site #6: Residence on Dos Rios Court

Start Time	Measurement Time	Leq	Calculation for average Leq	LE	Lmax	Lmin	Ly	LN1	LN2	LN3	LN4	LN5	Over	Under
9/10/2021 12:56	00d 00:05:00.0	50.9	123026.8771	75.7	63.1	45.1	-.-	62.3	51.9	48.5	46.8	45	----	-----
9/10/2021 13:01	00d 00:05:00.0	59.7	933254.3008	84.5	74.3	43.8	-.-	73.3	62.6	49.3	46.3	44.4	----	-----
9/10/2021 13:06	00d 00:05:00.0	49.2	83176.37711	74	60.6	45	-.-	55	50.3	48.5	46.7	45.5	----	-----
9/10/2021 13:11	00d 00:00:21.1	48	63095.73445	61.3	50.1	46.3	-.-	50.3	49.3	47.8	46.5	46.3	----	-----
			60.80104331		74.3									

Construction Noise Modeling Results

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/23/2021

Case Description:

		---- Receptor #1 ----		
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Casa Mia Residence	Residential	49.1	49.1	49.1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	52.8	0
Dozer	No	40		81.7	52.8	0
Dozer	No	40		81.7	52.8	0
Front End Loader	No	40		79.1	52.8	0
Generator	No	50		80.6	52.8	0
Generator	No	50		80.6	52.8	0
Pumps	No	50		80.9	52.8	0
Pumps	No	50		80.9	52.8	0
Pickup Truck	No	40		75	52.8	0
Pickup Truck	No	40		75	52.8	0
Dump Truck	No	40		76.5	52.8	0
Dump Truck	No	40		76.5	52.8	0

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		80.2	76.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		81.2	77.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		81.2	77.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader		78.6	74.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator		80.2	77.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator		80.2	77.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps		80.5	77.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps		80.5	77.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck		74.5	70.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck		74.5	70.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck		76	72	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck		76	72	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	81.2	86.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/23/2021
Case Description:

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Griffith Avenue Residence	Residential	44.6	44.6	44.6

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	105.6	0
Dozer	No	40		81.7	105.6	0
Front End Loader	No	40		79.1	105.6	0
Front End Loader	No	40		79.1	105.6	0
Grader	No	40	85		105.6	0
Grader	No	40	85		105.6	0
Roller	No	20		80	105.6	0
Roller	No	20		80	105.6	0
Dump Truck	No	40		76.5	105.6	0
Dump Truck	No	40		76.5	105.6	0
Pickup Truck	No	40		75	105.6	0
Pickup Truck	No	40		75	105.6	0
Pickup Truck	No	40		75	105.6	0

Results

Equipment	Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Dozer	75.2	71.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	75.2	71.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	72.6	68.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	72.6	68.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	78.5	74.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	78.5	74.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	73.5	66.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	73.5	66.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	70	66	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	70	66	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	68.5	64.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	68.5	64.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	68.5	64.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	78.5	80.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/23/2021
Case Description:

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Mage Avenue Residence	Residential	58.5	58.5	58.5

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dump Truck	No	40		76.5	58.6	0
Dump Truck	No	40		76.5	58.6	0
Grader	No	40	85		58.6	0
Grader	No	40	85		58.6	0
Dozer	No	40		81.7	58.6	0
Dozer	No	40		81.7	58.6	0
Roller	No	20		80	58.6	0
Roller	No	20		80	58.6	0
Pickup Truck	No	40		75	58.6	0
Pickup Truck	No	40		75	58.6	0
Pickup Truck	No	40		75	58.6	0

		Results Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dump Truck		75.1	71.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck		75.1	71.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader		83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader		83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		80.3	76.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		80.3	76.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		78.6	71.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		78.6	71.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck		73.6	69.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck		73.6	69.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck		73.6	69.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	83.6	85.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/23/2021
Case Description:

---- Receptor #4 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Old Marysville Road Residence	Residential	61.1	61.1	61.1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	58.6	0
Dozer	No	40		81.7	58.6	0
Front End Loader	No	40		79.1	58.6	0
Front End Loader	No	40		79.1	58.6	0
Grader	No	40	85		58.6	0
Grader	No	40	85		58.6	0
Roller	No	20		80	58.6	0
Roller	No	20		80	58.6	0
Dump Truck	No	40		76.5	58.6	0
Dump Truck	No	40		76.5	58.6	0
Pickup Truck	No	40		75	58.6	0
Pickup Truck	No	40		75	58.6	0
Pickup Truck	No	40		75	58.6	0

Results

Equipment	Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Dozer	80.3	76.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	80.3	76.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	77.7	73.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	77.7	73.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	78.6	71.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	78.6	71.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	75.1	71.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	75.1	71.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	73.6	69.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	73.6	69.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	73.6	69.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	83.6	86	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/23/2021
Case Description:

---- Receptor #5 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Feather Ridge Drive Residence	Residential	49.9	49.9	49.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	264	0
Dozer	No	40		81.7	264	0
Front End Loader	No	40		79.1	264	0
Front End Loader	No	40		79.1	264	0
Grader	No	40	85		264	0
Grader	No	40	85		264	0
Roller	No	20		80	264	0
Roller	No	20		80	264	0
Dump Truck	No	40		76.5	264	0
Dump Truck	No	40		76.5	264	0
Pickup Truck	No	40		75	264	0
Pickup Truck	No	40		75	264	0
Pickup Truck	No	40		75	264	0

Results

Equipment	Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Dozer	67.2	63.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	67.2	63.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	64.7	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	64.7	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	70.5	66.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	70.5	66.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	65.5	58.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	65.5	58.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	62	58	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	62	58	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	60.5	56.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	60.5	56.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	60.5	56.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	70.5	72.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/23/2021
Case Description:

---- Receptor #6 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Dos Rios Court Residence	Residential	49.9	49.9	49.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	158.4	0
Dozer	No	40		81.7	158.4	0
Front End Loader	No	40		79.1	158.4	0
Front End Loader	No	40		79.1	158.4	0
Grader	No	40	85		158.4	0
Grader	No	40	85		158.4	0
Roller	No	20		80	158.4	0
Roller	No	20		80	158.4	0
Dump Truck	No	40		76.5	158.4	0
Dump Truck	No	40		76.5	158.4	0
Pickup Truck	No	40		75	158.4	0
Pickup Truck	No	40		75	158.4	0
Pickup Truck	No	40		75	158.4	0

Results

Equipment	Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Dozer	71.7	67.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	71.7	67.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	69.1	65.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	69.1	65.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	75	71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	75	71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	70	63	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	70	63	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	66.4	62.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	66.4	62.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	65	61	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	65	61	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	65	61	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	75	77.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.