Public Draft Initial Study/Mitigated Negative Declaration

2018 Butte Water District Water Transfer Program

California

Butte Water District
Gridley, California

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Project Description

This Mitigated Negative Declaration (MND) for water transfers in contract year 2018[1] was prepared by Butte Water District (BWD). This MND document satisfies the requirements of the California Environmental Quality Act (CEQA) and the Governor's Office of Planning and Research regulations to implement CEQA (Sections 15000-15387 of the California Code of Regulations). This MND describes the potential direct, indirect, and cumulative effects of transferring water from willing sellers, resulting from actions taken by the sellers to make water available for transfer.

1.1 Project Introduction and Background

The proposed project is for BWD to sell up to 21,927 acre-feet (AF) of water to the participating member districts of the State Water Contractors Incorporated[2] or other South of Delta purchasers, including one or more Central Valley Project contractors (Buyers) during the 2018 irrigation season. Buyers are seeking up to approximately 300,000 AF of transfer water from various willing sellers in the Sacramento Valley during the 2018 irrigation season. Purchasing this water would lessen potential water supply shortages to these Buyers that may occur as a result of dry hydrologic conditions and regulatory restrictions on pumping in the Delta.

As a willing seller, BWD would make up to 21,927 AF of water available to Buyers by idling rice cropland (i.e., non-irrigation of farmland by voluntary participants) and/or through groundwater substitution, (i.e., using groundwater supplies instead of surface water supplies).

Water made available by crop idling and/or groundwater substitution within the boundaries of the BWD would then be retained and stored by the Department of Water Resources (DWR) for delivery to Buyers. Groundwater pumping, if

[1] Water Service Contract Year is March 1, 2018 through February 28, 2019. Sacramento River Settlement Contract Year is April 1, 2018 through October 31, 2018.

[2] The State Water Contractors, Inc. is an association of 27 public agencies that purchase water under contract from the California State Water Project. Depending on the hydrologic conditions existing in the spring of 2018, all or a portion of these agencies may elect to receive all or a portion of the water purchased. Currently, 13 members of the State Water Contractors, Inc. have expressed interest in purchasing water under BWD's possible transfer. BWD may also sell to other South of Delta purchasers, including Central Valley Project contractors, or individual State Water Project contractors, or individual persons or entities within a CVP or SWP contractor service area with appropriate approval as necessary to accomplish such a transfer.

applicable, would only occur within that portion of the BWD boundaries that lie within Sutter County.

1.1.1 Butter Water District

BWD was formed in 1956 and may divert up to 133,200 AF of water under the terms of a 1969 Agreement on Diversion from the Feather River with DWR and allocated through a 1970 Joint Operating Agreement with Richvale Irrigation District, Biggs-West Gridley Water District, and Sutter Extension Water District, known collectively as the Joint Districts. BWD's water is diverted from Thermalito Afterbay. BWD proposes to not divert a portion of its water under this one-year transfer, which would allow DWR to deliver a portion of the foregone water to Buyers through the State Water Project (SWP) and/or Central Valley Project (CVP). BWD serves surface water to approximately 16,200 acres, of which approximately 7,800 acres are used for rice production.

The 1969 Joint Water Districts Board (Joint Board) water rights settlement agreement (1969 Agreement) requires written approval from DWR before the districts can transfer water outside the service areas of the Joint Board. An agreement between DWR and the proposed water purchasers to store or transport the water through the SWP or CVP facilities may also be required to implement the transfer.

Except for fields participating in water transfers, no acreage dedicated to rice production has been fallowed or temporarily removed from farm production for improvements such as weed abatement or land leveling in the last five years. In 2014, the last year a transfer occurred, 3,266.59 acres were idled in the District due to the water transfer.

The proposed project would idle up to 20 percent of the irrigable land in BWD's service area in 2018. Idling would occur within approximately 24,508 acres of irrigable lands within the District, so up to 4,902 rice acres could be idled under this program. The accepted Evapo-Transportation Rate of Applied Water (ETAW)[3] for rice culture is 3.3 AF per acre per growing season, which is consistent with the recent ETAW rates used for water transfers in the Sacramento Valley based on crop idling of rice acreage (California Water Plan Update. Bulletin 160-05. December 2005). Thus, the water made available for transfer by reduced crop evapotranspiration for the projected idled acreage would be up to approximately 16,177 AF (4,902 acres x 3.3 AF/acre). Under the 1969 Agreement, BWD's water entitlement is subject to curtailment under certain circumstances related to dry hydrologic conditions. If BWD's

[3] ETAW is defined as the portion of the total evapotranspiration that is provided by irrigation. The portion of evapotranspiration met by precipitation occurring during the growing seasons or stored as soil moisture within the root zone before the growing season does not qualify as transferable water. ETAW values used for water transfer calculations are based upon crop water demands reflecting average rainfall and evaporative demand.

entitlement is curtailed 50 percent for the 2018 irrigation season pursuant to the 1969 Agreement, BWD will not participate in a land idling transfer; however, in the event of a lesser curtailment, it may still participate in a land idling transfer. BWD may participate in a groundwater substitution transfer for its lands located in Sutter County under any curtailment scenario.

BWD would also generate water transfer via groundwater substitution from two BWD wells located in Sutter County. One of these wells has a production capacity of approximately 4,000 gallons per minute (GPM) and the other a capacity of approximately 3,500 GPM. Both wells are powered by electric pumps. Assuming that pumping could commence on May 1, 2018, these two pumps could generate approximately 5,750 AF for transfer by September 30, 2018. BWD also owns 3 groundwater monitoring wells which are an integral part of their groundwater monitoring program. In a groundwater substitution program, groundwater is pumped and used for agricultural purposes in lieu of surface water supplies. The equivalent surface water supplies are then not diverted and are made available for transfer.

BWD could make a total of up to 21,927 AF of water available for transfer in 2018 through crop idling and groundwater pumping.

1.1.2 Project Location

The project area, from which the water for this transfer will be made available, is defined by the BWD boundaries that encompass approximately 32,300 acres in the northern Sacramento Valley in Butte and Sutter Counties (Figure 1-1). Within the BWD boundaries approximately 7,800 acres are dedicated primarily to the production of rice.

Land idled for the purpose of this transfer will be drawn from the rice acreage, to the exclusion of irrigable BWD acreage dedicated to other crops or to habitat. Up to 20 percent of the irrigable land in the BWD could be idled under this program, or 4,902 acres. Because the program will be offered to all eligible growers and it is anticipated that there will be more interest than BWD desires to offer, a wide dispersal of acreage enrolled in the program is expected and has occurred in prior years when BWD participated in a water transfer. Only cultivated rice land that is subject to seasonal, regular farming practices will be affected. Adjoining areas, non-rice land, other irrigated lands, drains, wetlands and waterfowl habitat will not be affected, as those areas will receive their normal entitlement and canals and drains will operate at normal operating capacity.

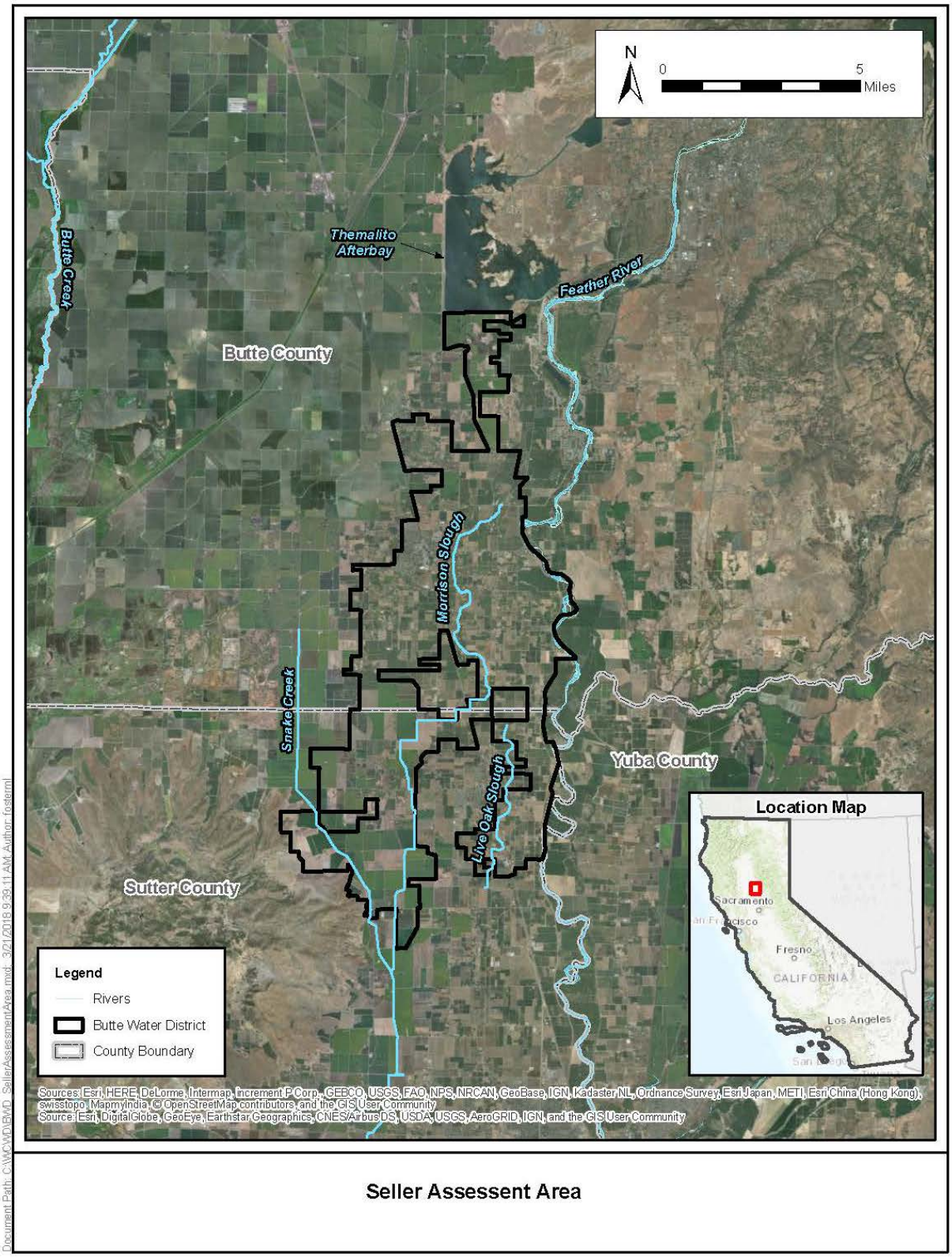

Figure 1-1 Project Location

BWD's proposed transfer will fully comply with *DRAFT Technical Information for Preparing Water Transfer Proposals* (Reclamation and DWR 2015), as applicable to land idling and groundwater substitution transfers, including as applicable monitoring and reporting for groundwater conditions before, during and after the transfer period.

1.2 Water Availability and Transfer

No new construction or improvements by BWD, Buyers, or DWR would be necessary for the production and transfer of this water.

Water that would not be diverted would be available for transfer to Buyers through SWP facilities operated by DWR, including Lake Oroville, or transferred by DWR to CVP facilities. Water would accrue in storage on the basis of estimates of the amount of water that would have been consumed on the idled land but for the program. That is, the water that would have been either consumed in the process of crop use for idled lands or applied to crops that will receive groundwater substitution supplies, would be available for transfer.

The portion of applied water, which would have normally returned to the Feather/Sacramento River system as tailwater or groundwater discharge to surface waters, would remain available for instream use and diversion by others and would not be transferred.

As the ETAW for rice culture in the Sacramento Valley is calculated at 3.3 AF per acre per growing season, each acre of idled rice production will make available for transfer 3.3 AF of water throughout the growing season. The maximum quantity of water that could be made available under this program by crop idling would be 16,177 AF (4,902 acres X 3.3 AF/acre).

The typical growing season for rice in California is May through September. The potential ETAW demand across these months is shown in Table 1-1 with the corresponding water production expectations based on BWDs providing the maximum amount of transfer water from fallowing 20 percent of their acreage.

The proposed project would extract up to 5,750 AF of groundwater from two BWD production wells. These wells have approximate production capacities of 3,500 GPM and 4,000 GPM respectively. BWD also owns three groundwater monitoring wells and uses these wells to monitor groundwater levels in the vicinity of the production wells to ensure that no substantial depletion of groundwater supplies occurs as a result of groundwater production. BWD has operated these wells in the past at similar production rates and, consistent with extensive monitoring and reporting for such past usage, BWD observed no substantial impacts on groundwater levels, groundwater supplies, or impacts to third parties. BWD does not anticipate any adverse impacts resulting from substantial depletion of groundwater supplies or interference with groundwater recharge resulting in a net deficit in aquifer volume or lowering of local

groundwater table level. BWD will collect data from the three monitoring wells during the production period (May through September) and will cease operation of the production wells if monitoring data indicate any significant depletion of groundwater levels or if claims of third party impacts are substantiated. Consistent with a monitoring and reporting program established under *DRAFT Technical Information for Preparing Water Transfer Proposals* (Reclamation and DWR 2015), BWD will maintain a process to receive, consider and act on any third party impact claims, including reducing or terminating pumping in the event of third party impact.

Table 1-1. Water Production Schedule

	May	June	July	August	September	Total
ETAW in Percent	15	22	24	24	15	
Water Production from Crop Idling (in AF)	2,426.5	3,558.9	3,882.5	3,882.6	2426.6	16,177
Water Production from Groundwater Pumping (in AF)	1,150	1,150	1,150	1,150	1,150	5,750
Total Production For Transfer in 2018 (in AF)						21,927

An objective in planning a groundwater substitution transfer is to ensure that groundwater levels recover to their seasonal high levels before transfers begin. Groundwater levels generally recover at the expense of streamflow, but the changes in streamflow are primarily during the wet season, when losses to streamflow minimally affect other legal users of water. For the purposes of this MND, the streamflow losses are estimated to be 13 percent of the groundwater pumped to make surface water available for transfer. The quantity of surface water available for transfer would be reduced by these estimated streamflow losses.

During the implementation of the proposed project, water transferred by BWD would be deemed transferred at the BWD's points of diversion on the Thermalito Afterbay and custody would then transfer to Buyers. As the operator of the SWP, depending on the hydrologic and regulatory conditions controlling SWP operations, DWR may be able to utilize Lake Oroville storage to facilitate the transfer during periods when Delta conditions prevent export of the transfer water. DWR would make every effort to use Lake Oroville to regulate the water in a manner which would allow for delivery of the water through the Sacramento-San Joaquin Delta, for export through the Banks or Jones Delta Pumping Plants for ultimate delivery to Buyers.

When exporting water from the Delta, DWR must comply with all current State and federal regulatory requirements in effect at the time of the export pumping, including numerous environmental standards, laws, biological opinions, interim or final court orders, and regulations relating to Delta inflow and outflow, Delta water quality, fish protection, environmental needs, water rights, and the needs

of other legal users, including legal in-basin demands. These requirements include applicable SWRCB orders, Army Corps of Engineers (Corps) permits, Biological Opinions and other regulatory constraints including any relevant judicial orders in effect at the time of the operation. They have established water quality and flow requirements and limits on the rate of export of water that can be pumped by the state and federal pumping plants. The proposed project does not increase Delta export rates beyond permitted limits.

Recent regulatory restrictions have been imposed on SWP and CVP operations that significantly reduce exports from the Delta. These restrictions include the United States Fish & Wildlife Service (USFWS) Biological Opinion for delta smelt issued in December 2008. In February 2009, additional restrictions were included in the California Department of Fish and Wildlife (CDFW) Incidental Take Permit for longfin smelt and National Marine Fisheries Service (NMFS) Biological Opinion for anadromous fisheries and marine mammal species issued in June 2009. These restrictions are, in the view of the regulatory agencies, necessary to minimize the effects of pumping on fisheries populations currently and in the future in order to prevent jeopardy and protect listed fish species and habitat. The biological opinions and permits for these listed species include requirements that improve Delta aquatic habitat through export restrictions, changes in Delta flows, and land-based projects to restore fish habitat. In addition, requirements include improvements in handling of fish salvaged at the fish protection facilities and other measures to improve fish survival. Such requirements also improve the Delta ecosystem and provide benefits to other fish besides those listed under the state and federal endangered species acts. Litigation over the biological opinions resulted in federal district court decisions in 2010 and 2011 invalidating the USFWS Biological Opinion and NMFS Biological Opinion, respectively, but recent Ninth Circuit Court decisions partially reversed the district court decisions on these Biological Opinions, and upheld them. The SWP and CVP will be operated under these Biological Opinions until any new biological opinions are completed.

Operational restrictions likely will continue until long-term solutions to the problems in the Delta are implemented. These regulatory restrictions and hydrologic conditions substantially limit SWP operations during specific periods of the year. The current transfer period at Banks Pumping Plant (SWP) and Jones Pumping Plant (CVP) is typically limited to July through September. Additional restrictions could further limit either or both pumping plants' capacity for export of transfer water.

As a requirement for transfers, carriage water (a portion of the transfer that is not diverted in the Delta and becomes Delta outflow) will be used to maintain water quality in the Delta for through-Delta transfers. DWR estimates that approximately 20 to 30 percent of the water transferred through the Delta would be necessary to enable the maintenance of water quality standards, which are based largely upon the total amount of water moving through the Bay-Delta system. Therefore, this transfer could yield up to approximately 14,826 AF

(21,927 AF less 13 percent streamflow losses for groundwater substitution transfers minus 30 percent carriage water losses) to Buyers. At the end of the irrigation season, the amount of carriage water actually required is calculated by DWR. Depending upon the hydrologic year type and other operational constraints, the actual amount of carriage water assessed for the transfer may vary somewhat from this estimate.

1.2.1 Use of Water by Buyers

It is contemplated that the Buyers will be required to purchase the water by approximately April 20, 2018. If the water is purchased, Buyers would take delivery of this water in a manner physically identical to their typical SWP or CVP deliveries. One buyer may take 100 percent of the water BWD makes available or a group of buyers may share on a pro-rata basis. The transfer water would provide additional resource options to Buyers to mitigate potential dry-year water shortage conditions in 2018. This water would represent backfilling of a shortfall of water normally and historically received into Buyers' service areas. Currently, the allocation to SWP contractors is 20 percent of their requested Table A amounts and 20 percent to agricultural CVP suppliers located South of the Delta. Accordingly, any water transferred under the proposed project would not represent a dependable long-term increase in supply. As such, no adverse Project-specific impacts to Buyers' service areas due to the proposed transfer would occur.

1.3 Environmental Setting

1.3.1 Aesthetics

The BWD service area is primarily agricultural in nature, with Highway 99 running from north to south. Views in the region from most major roadways and scenic routes are of agricultural fields, planted orchards or urban landscapes, with the Sutter Buttes in the background. The mix of orchard and row crop types, fallow fields, rice, and other irrigated crops and dry fields create the visual character for most of the project area. Gridley, Live Oak, and Biggs break up the farmland that dominates the views, creating some nighttime light sources.

1.3.2 Air Quality

Air quality in California is regulated by the U.S. Environmental Protection Agency (USEPA), the California Air Resources Board (CARB), and locally by Air Quality Management Districts (AQMDs). The following air districts regulate air quality within the project study area:

- Butte County AQMD

- Feather River AQMD

In the Sacramento Valley Air Basin, ozone (O_3), inhalable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$) are pollutants of concern because ambient concentrations of these pollutants exceed the California Ambient Air Quality Standards (CAAQS). Additionally, ambient O_3 and $PM_{2.5}$ concentrations exceed the National Ambient Air Quality Standards (NAAQS), while PM_{10} and carbon monoxide (CO) concentrations recently attained the NAAQS and are designated maintenance. Table 1-2 summarizes the attainment status for Butte and Sutter counties, located in the Sacramento Valley.

The Sacramento Valley Air Basin is bounded by the North Coast Ranges on the west and the Northern Sierra Nevada Mountains on the east, forming a bowl-shaped valley. The Sacramento Valley has a Mediterranean climate, which is characterized by hot dry summers and mild rainy winters.

Most of the sellers' service area supports agricultural land uses. Crop cycles, including land preparation and harvest, contribute to pollutant emissions, primarily particulate matter. Groundwater pumping with diesel and natural gas-fueled engines also emits air pollutants through exhaust. The primary pollutants emitted by diesel pumps are nitrogen oxides (NOx), volatile organic compounds (VOC), CO, PM_{10}, and $PM_{2.5}$; NOx and VOCs are precursors to O_3 formation.

Table 1-2. State and Federal Attainment Status

County	O_3 CAAQS	$PM_{2.5}$ CAAQS	PM_{10} CAAQS	O_3 NAAQS[1]	$PM_{2.5}$ NAAQS	PM_{10} NAAQS	CO NAAQS
Butte	N	N	N	N[6]	A	N	M
Sutter	N-T [2,5]	A	N	N [3,4]	M	A	A

Source: 17 California Code of Regulations §60200-60210; 40 CFR 81; CARB 2017a; USEPA 2017a

Notes:

[1] 8-hour O_3 NAAQS was modified in October 2015, but area designations are still pending; the area designations in the table are for the 2008 standard. States have one year after promulgation of a new NAAQS to submit to the USEPA a list of all areas in the state that should be designated as nonattainment. The USEPA subsequently has two years from the date of the standard revision to promulgate the new area designations (42 USC 7407(d)).

[2] Nonattainment/transitional areas are defined as those areas that during a single calendar year, the State standards were not exceeded more than three times at any monitoring location within the area

[3] The Sacramento Metro nonattainment area for Sutter County is defined as the "portion south of a line connecting the northern border of Yolo County to the southwestern tip of Yuba County and continuing along the southern Yuba County border to Placer County" (40 CFR 81.305)

[4] 8-hour O_3 classification = severe

[5] Based on 2014 to 2016 monitoring data, Sutter County is proposed to be redesignated as a nonattainment area for the O3 CAAQS (CARB 2017b).

[6] 8-hour O_3 classification = marginal

Key:

A = attainment (background air quality in the region is less than (has attained) the ambient air quality standards)

CO = carbon monoxide

M = maintenance (area formerly exceeded the ambient air quality standards (i.e., was designated nonattainment), but has since attained the standards)

N = nonattainment (background air quality exceeds the ambient air quality standards)

N-T = nonattainment/transitional (a subcategory of nonattainment where an area is close to attainment, has only two days exceeding standards, and is projected to meet standards within three years)

O_3 = ozone

PM_{10} = inhalable particulate matter

$PM_{2.5}$ = fine particulate matter
U = unclassified/attainment (area does not have enough monitors to determine the background concentrations; treated the same as attainment)

1.3.3 Biological Resources

The project area includes the Sacramento and Feather River watersheds. Natural communities associated with the Sacramento and Feather rivers include valley/foothill riparian and natural seasonal wetland. Valley/foothill riparian natural community generally occurs along river and stream corridors on the east side of the Sacramento valley. Trees typically associated with the valley/foothill riparian natural community include willows, Fremont cottonwood (*Populus fremontii*), valley oak (*Quercus lobata*), and western sycamore (*Platanus racemosa*). Many species of birds, mammals, reptiles, and amphibians depend on riparian habitats, such as woodpeckers, warblers, flycatchers, owls, and raptors. Other wildlife species that use riparian habitats include western fence lizard (*Sceloporus occidentalis*), Pacific tree frog (*Pseudacris regilla*), western toad (*Anaxyrus boreas*), bullfrog (*Rana catesbeiana*), western skink (*Eumeces skiltonianus*), western whiptail (*Cnemidophorus tigris*), southern alligator lizard (*Elgaria multicarinata*), racer (*Coluber constrictor*), gopher snake (*Pituophis catenifer*), king snake (*Lampropeltis* sp.), garter snake (*Thamnophis* sp.), northern Pacific rattlesnake (*Crotalus oreganus oreganus*), opossum (*Didelphis virginiana*), black-tailed jackrabbit (*Lepus californicus*), western gray squirrel (*Sciurus griseus*), ringtail (*Bassariscus astutus*), river otter (*Lontra canadensis*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), beaver (*Castor canadensis*), mule deer (*Odocoileus hemionus*), and a number of bat species. Wetland natural communities support many species of waterfowl, such as mallard (*Anas platyrhynchos*), northern pintail (*Anas acuta*), American widgeon (*Anas americana*), and Canada goose (*Branta canadensis*), and a variety of wading birds and shorebirds.

In the Sacramento Valley, seasonally flooded agriculture, in particular rice fields, provide important foraging habitat for a variety of wildlife species. There are approximately 500,000 acres of rice fields in the Sacramento Valley which, along with natural wetlands, support millions of waterfowl along the Pacific Flyway (California Rice Commission 2011). Flooded agriculture within the Sacramento Valley accounts for approximately 57 percent of food resources available to waterfowl (Petrie and Petrick 2010). Rice fields also provide foraging, resting, breeding, and wintering habitat for shorebirds and wading birds, and foraging habitat for raptors. These habitats are also important for foraging, refuge, and dispersal for reptiles, amphibians, and mammals.

Special-status wildlife species with potential to occur in the project area are listed in Appendix A. As described in the appendix, five species have potential to be affected by rice idling and are further evaluated in Chapter 3. This includes the following species: giant garter snake (GGS) (*Thamnophis gigas*),

greater sandhill crane (*Grus canadensis tabida*), black tern (*Chlidonias niger*), tricolored blackbird (*Agelaius tricolor*), and western pond turtle (*Actinemys marmorata*). The following listings apply to the above species under the Federal and California Endangered Species Acts (ESA).

- GGS – listed as threatened under the Federal and California ESAs (CDFW 2017). Table 1-3 below summarizes recorded observation of GGS within the seller counties. There have been no known occurrences of GGS in BWD's service area since 2014.

- Greater Sandhill Crane – listed as threatened under the California ESA and is fully protected under the California Fish and Game Code (CDFW 2015; CDFW 2017). There have been no recorded observations of greater sandhill crane in BWD's service area.

- Black Tern – listed as a State Species of Concern (CDFW 2018). There have been no recorded observations of black tern in BWD's service area.

- Western Pond Turtle – status is under review under the Federal ESA and considered a State Species of Concern by CDFW (CDFW 2018). Table 1-3 below summarizes recorded observation of western pond turtle within the seller counties. There have been no known occurrences of western pond turtle in BWD's service area since 2016.

- Tricolored Blackbird – considered a State Species of Concern by CDFW. On December 3, 2014, the California Fish and Game Commission granted emergency protections to the Tricolored blackbird. The action granted a 180-day period for CDFW to determine whether to make the protections permanent. In June 2015, the Commission determined not to advance a petition to list the species under the California ESA. In September 2015, USFWS announced that the Tricolored Blackbird is one of several species that it will formally consider for protection under the ESA. Table 1-3 below summarizes recorded observation of tricolored blackbird within the seller counties. There have been no known occurrences for tricolored blackbird in BWD's service area since 2008.

Table 1-3. Recorded occurrences of GGS, western pond turtle and tricolored blackbird in Butte Water District's Service Area in the Past 10 Years

Special-status Species	Number of Occurrences
GGS	5
Western Pond Turtle	4
Tricolored Blackbird	1

Source: California Natural Diversity Database- Rare Find 5 (CDFW 2018)
Key:
GGS= Giant Garter Snake

In addition to these special-status species, migratory birds are protected under the Migratory Bird Treaty Act.

Special-status plant species with potential to occur are listed in Appendix B. Based on the analysis presented in the appendix, no special-status plants would be affected by the project.

Table 1-4 summarizes fish species of concern in the project area.

Table 1-4. Fish Species of Management Concern in the Project Area

Status	Species	Primary Management Consideration	Location
Special-Status	Chinook Salmon (*Oncorhynchus tshawytscha*) – Winter run	FE, SE	Sacramento River
	Chinook Salmon – Spring-run	FT, ST	Sacramento River, lower American River
	Central Valley Steelhead (*Oncorhynchus mykiss*)	FT, Recreation	Sacramento River, lower American River, Cosumnes River, Merced River, San Joaquin River
	Green sturgeon (*Acipenser medirostris*)	FT	Sacramento River
	Hardhead (*Mylopharodon conocephalus*)	SSC	Sacramento River
	Sacramento splittail (*Pogonichthys macrolepidotus*)	SSC	Sacramento River, Cosumnes River, lower San Joaquin River, Delta
	Chinook Salmon – Fall/late-fall run	SSC, Commercial, Recreation	Sacramento River, lower American River, Merced River, San Joaquin River
	Delta smelt (*Hypomesus transpacificus)*	FT	Delta
	Longfin smelt *(Spirinchus thaleichthys)*	FC, ST	Delta
Other	Striped bass (*Morone saxatilis*)	Recreation	Sacramento River, lower San Joaquin River
	American shad (*Alosa sapidissima*)	Recreation	Sacramento River, San Joaquin River
	White sturgeon (*Acipenser transmontanus*)	Commercial, Recreation	Sacramento River, San Joaquin River

Source: USFWS 2015; CDFW 2015; CDFW 2018
Key:
FE = Federal endangered
FT = Federal threatened
SE = State endangered
ST = State threatened
SSC = State Species of Special Concern

Recreation = non-listed commercially important species of management concern.
Commercial = non-listed recreationally important species of management concern.

1.3.4 Geology and Soils

The Central Valley consists of mostly flat terrain associated with low gradient river valleys. There are some earthquake faults in the region, but earthquakes are generally associated with coastal California, west of the Central Valley. Strong seismic shaking is not common in the Central Valley, and liquefaction and other seismic-related ground failure are not major hazards in the region. Landslides and other hazards associated with unstable soil are uncommon due to the flat terrain. Dust from agricultural activities, such as plowing, grading, and discing, is a common occurrence in the Central Valley agricultural area, including the project area, and is a normal part of the agriculture practice in the region.

1.3.5 Greenhouse Gas Emissions

The greenhouse gas (GHG) analysis focuses on the following three pollutants: carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O). The other two pollutant groups commonly evaluated in various GHG reporting protocols, hydrofluorocarbons and perfluorocarbons, are not expected to be emitted in large quantities because of the alternatives and are not discussed further in this section.

Agricultural emissions represented approximately eight percent of California's GHG emissions in 2015 (CARB 2017c). Agricultural emissions represent the sum of emissions from agricultural energy use (from pumping and farm equipment), agricultural residue burning, agricultural soil management (the practice of using fertilizers, soil amendments, and irrigation to optimize crop yield), enteric fermentation (fermentation that takes place in the digestive system of animals), histosols (soils that are composed mainly of organic matter) cultivation, manure management, and rice cultivation.

1.3.6 Hydrology and Water Quality

1.3.6.1 Surface Water

The Sacramento River flows south for 447 miles through the northern Central Valley and enters the Delta from the north. The major tributaries to the Sacramento River are the Feather, Yuba, and American rivers. Reclamation owns and operates the CVP, which has major reservoirs on the Sacramento River (Shasta Reservoir) and American River (Folsom Reservoir). DWR owns and operates the SWP, which has a major reservoir on the Feather River (Oroville Reservoir).

1.3.6.2 Surface Water Quality

While surface water quality in the Feather River system is generally good, three water bodies within BWD have been identified as impaired by certain constituents of concern and appear on the most recent 303(d) list of impaired waterways under the Clean Water Act (SWRCB 2012). Table 1-5 presents the 2012 303(d) listed water bodies within BWD.

Table 1-5. 303(d) Listed Water Bodies and Associated Constituents of Concern

Name	Constituent	Estimated Area Affected [1]
Feather River, Lower (Lake Oroville Dam to Confluence with Sacramento River)	Chlorpyrifos Group A Pesticides Mercury PCBs Unknown Toxicity	42 miles
Morrison Slough	Diazinon	13 miles
Live Oak Slough	Diazinon Oxyfluorfen Oxygen, Dissolved	8.3 miles

Source: SWRCB 2012.

PCB = polychlorinated biphenyl

[1]Estimated area affected is given as the surface area (acres) of lakes or estuaries or length (river miles) for river systems.

1.3.6.3 Groundwater

BWD overlies the East Butte and Sutter subbasins of the Sacramento Valley Groundwater Basin. Groundwater pumping, if applicable, would only occur within the Sutter County portion of the East Butte subbasin.

Under normal hydrologic conditions, groundwater accounts for less than 30 percent of the annual supply used for agricultural and urban purposes within the Sacramento Valley (Faunt 2009). Average annual groundwater pumping by private landowners within BWD for irrigation is estimated to be 23,000 AF (Butte Water District 2016).

Groundwater levels within the East Butte subbasin have declined over the last decade (spring 2011 to spring 2017). On average, in the shallow, intermediate, and deep aquifer zones, groundwater elevations have declined 2.0, 2.5, and 1.9 feet, respectively (see Plates 1S-C, 1I-C, and 1D-C in Appendix C). These decreases in groundwater levels have caused wells to go dry, as shown in Table 1-6. Persistent dry weather conditions since 2006 have been partially responsible for these declining trends. Groundwater levels in the Sacramento Valley Groundwater Basin have recovered to better than spring 2016 levels but have not improved to pre-drought levels. Past groundwater trends are indicative of groundwater levels declining moderately during extended droughts and recovering to pre-drought levels after subsequent wet periods.

Table 1-6. Summary of Dry Wells Reported in 2014 and 2015

Counties	Number of wells reported dry in 2014 and 2015	Information received as of:
Butte	70	7/28/2015
Sutter	Data not available	Data not available

Source: Data collected by University of California Davis
*Number of dry wells reported are cumulative starting January 2014

Land Subsidence. DWR has categorized the East Butte subbasin as having a low to medium potential for subsidence (DWR 2014). Active extensometers 19N01E35B002M and 18N01E35L001M have recorded less than 0.1 foot of subsidence over the previous 12 years (2005- 2017) (DWR 2017a). Subsidence is currently not a concern in this area.

Groundwater Quality. Groundwater quality in the Sacramento Valley Groundwater Basin is generally good and sufficient for municipal, agricultural, domestic, and industrial uses. However, there are some localized groundwater quality issues in the East Butte subbasin. Localized high concentrations of manganese, iron, magnesium, total dissolved solids, conductivity, and calcium occur within the subbasin (DWR 2004).

1.3.7 Noise

Noise is generally measured in decibels (dB), which are measured on a logarithmic scale so that each increase in 10 dB equals a doubling of loudness. The letter "A" is added to the abbreviation (dBA) to indicate an "A-weighted" scale, which filters out very low and very high frequencies that cannot be heard by the human ear.

The buyers and sellers areas are primarily agricultural; major noise sources include traffic, railroad operations, airports, industrial operations, farming operations, and fixed noise sources. Common noise sources associated with farming operations include tractors, harvesting equipment and spray equipment (Glenn County 1993). Typical noise levels created by a range of farm equipment are presented in Table 1-7.

Table 1-7. Typical Noise Levels Associated with Farm Equipment

Equipment	Distance (feet)	Sound Level (dB)
Diesel Wheel Tractor		
- with Disc	150	72-75
- with Furrow	50	69-79
Weed Sprayer (1-cylinder)	50	74-75

Equipment	Distance (feet)	Sound Level (dB)
Aero Fan 391 Speed Sprayer	200	74-76
Diesel Engine	50	75-85

Source: Brown-Buntin Associates, Inc. in Glenn County 1993
Key: dB = decibel

A Community Noise Survey conducted in Glenn County indicated that typical noise levels in noise sensitive areas, including rural areas, are relatively quiet and fall in the range of 48 dB to 60 dB Ldn[4] (Glenn County 1993). These noise levels in Glenn County would be reflective of conditions in the neighboring Butte and Sutter counties.

[4] The day-night average sound level (Ldn) is the average noise level, expressed in decibels, over a 24-hour period.

Chapter 2
Initial Study

The following Initial Study, Environmental Checklist, and evaluation of potential environmental effects (see Section 3) were completed in accordance with Section 15063(d)(3) of the State CEQA Guidelines to determine if the proposed project could have any potentially significant impact on the physical environment.

An explanation is provided for all determinations, including the citation of sources as listed in Section 4. A "No Impact" or "Less-than-significant Impact" determination indicates that the proposed project will not have a significant effect on the physical environment for that specific environmental category. No environmental category was found to have a potentially significant adverse impact with implementation of the proposed project.

2.1 Initial Study and Environmental Checklist Form

1. **Project Title:** Butte Water District 2018 Water Transfer Program

2. **Lead Agency Name and Address:**

   Butte Water District
   735 Virginia Street
   Gridley, California 95948

3. **Contact Person and Phone Number:** Mark Orme, (530) 846-3100

4. **Project Location:** Refer to Chapter 1 of the Mitigated Negative Declaration.

5. **Project Sponsor's Name and Address:**

   Butte Water District
   735 Virginia Street
   Gridley, California 95948

6. **Description of Project:** Refer to Chapter 1 of the Mitigated Negative Declaration.

7. **Surrounding Land Uses and Setting:** Agricultural/rural setting zoned for agricultural use.

8. Other Agencies Whose Approval is Required:

Buyers are all or some portion of the State Water Contractor, Inc.'s member agencies and/or San Luis & Delta-Mendota Water Authority and its individual agencies persons or entities within the CVP or SWP service area. Depending on the hydrologic conditions existing in the spring of 2018, all or a portion of these agencies may elect to receive all or a portion of water purchased.

California Department of Water Resources: contract approval and CEQA compliance.

2.2 Environmental Factors Potentially Affected

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

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☒ Biological Resources	☐ Cultural Resources	☐ Geology /Soils
☐ Hazards/Hazardous Materials	☒ Hydrology / Water Quality	☐ Land Use / Planning
☐ Mineral Resources	☐ Noise	☐ Population / Housing
☐ Public Services	☐ Recreation	☐ Transportation/Traffic
☐ Utilities / Service Systems	☐ Mandatory Findings of Significance	

2.3 Determination

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

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

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Mark Orme — 3/23/18

Signature — Date

Mark Orme — BWD

Printed Name — For

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Chapter 3
Evaluation of Environmental Impacts

The following sections use the checklist from Appendix G of the CEQA Guidelines as a template to assess potential environmental effects under CEQA. CEQA requires a determination of significance for each impact discussed in an IS based on the significance criteria. The discussion for each resource focuses on potential impacts; resources that would not be affected are briefly discussed.

I. AESTHETICS
– Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, or other locally recognized desirable aesthetic natural feature within a city-designated scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

a, b, d) No Impact. As there would be no construction activities with project implementation, no potential aesthetic resources would be impacted or altered. In addition, there would be no new sources of light and glare added to the project site. Hence, there would be no impacts to aesthetics with the proposed project.

c) Less than Significant. The pattern of cropping in the area within BWD's jurisdiction would be altered slightly, in that somewhat more rice land would be idled due to the implementation of the proposed project (i.e., up to 20 percent of the total irrigable acreage). Idled land is a typical feature of the agricultural landscape in BWD's jurisdiction and would not differ substantially from the existing environmental setting. As such, there would

be a less than significant impact to the existing visual character within the farmlands occurring in BWD's jurisdiction. BWD's proposed transfer would fully comply with the terms and conditions applicable to land idling transfers as set forth in *DRAFT Technical Information for Preparing Water Transfer Proposals* (Reclamation and DWR 2015).

II. AGRICULTURE AND FOREST RESOURCES:
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

	Potentially Significant Impact	**Less Than Significant with Mitigation Incorporation**	**Less Than Significant Impact**	**No Impact**
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

a-e) No Impact. As a single-year activity, the proposed project would not convert any farmland (Prime, Unique, Important or otherwise) to non-agricultural uses. The proposed activity would result in a reduction in the amount of farmland irrigation during the 2018 growing season and an increase in the amount of land idled for that year. Participation in the proposed project would be solely voluntary. Zoning, agricultural conversion and Williamson Act issues would not be changed. In addition, no forest land would be lost. No impact to agricultural resources would occur with project implementation.

III. AIR QUALITY

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

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☒
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non--attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

a-e) No Impact. The Project site is located in the Sacramento Valley Air Basin. To the extent less agricultural land would be cultivated, less air pollutant emissions would be emitted from normal farm practices (e.g., internal combustion engine emissions from tilling, seeding, pesticide application, etc.). These reductions in air emissions would be beneficial; however, such reductions (i.e., up to 20 percent of typical farming activities) would not be that noticeable within the Sacramento Valley Air Basin for the short project duration. Odors associated with farming activities may lessen to a minor degree, due to the decrease in farming activities during the growing season. Groundwater pumping will utilize existing electric pumps so there will be no air emissions from pumping activities. Overall, there would be no impacts to the air basin with project implementation.

IV. BIOLOGICAL RESOURCES
– Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in City or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

a) Less than Significant Impact with Mitigation Incorporation

Fishery Resources

Under the proposed project, transfer water would be released from Lake Oroville from July through September. The largest quantity of transfer water would be made available in July and August. Feather River flows would increase and Sacramento River flows would also increase from the confluence of Feather River to the Delta. The largest change in flow could be approximately 135 cfs in July and August. For comparison, flows in the Feather River near Gridley averaged 4,000 cfs in July 2017 and 6,500 cfs in August 2017; 10,500 cfs in July 2016 and 8,500 cfs in August 2016; 3,300 cfs in July 2015 and 1,900 cfs in August 2015 (DWR 2017b). Flows in the Sacramento River at Freeport averaged 15,000 cfs in July 2017 and 20,000 cfs in August 2017; 18,400 cfs in July 2016 and 18,800 cfs in August 2016; and 7,900 cfs in July 2015 and 7,800 cfs in August 2015 (USGS 2017). The increases up to 135 cfs in the Feather River, Sacramento River, and the Delta would not be substantial enough to affect special status fish species. Adult migration by special status fish species, including Chinook salmon, steelhead, and

green sturgeon would not be affected by slightly increased flows. This magnitude of flow increase would not reduce spawning habitat availability and incubation, increase redd dewatering or juvenile stranding, or reduce the suitability of habitat conditions during juvenile rearing of these species.

Groundwater Substitution Groundwater substitution transfers under the proposed project would reduce groundwater levels and potentially deplete surface water flows in rivers and creeks (see Section IX (b)). Surface water depletions in the Sacramento and Feather rivers as a result of groundwater substitution transfers would not be substantial, nor would they be of sufficient magnitude to affect special status fish species.

Terrestrial Resources

Cropland Idling The following is a discussion of effects of rice idling actions on special status wildlife species that are present in the seller's area. Additional special status animal and plant species have the potential to occur in the project area, but would not be affected by the proposed project. Appendices A and B list special status animal and plant species that could be present in the project area and the reason for the no effect determination.

Rice idling could affect special status species that use rice fields for forage, cover, nesting, breeding, or resting. Under the proposed project, a maximum of 4,902 acres of rice could be idled in Sutter and Butte counties. Table 3-1 shows the annual harvested rice acreages in each county from 2002 to 2016.

Table 3-1. Annual Harvested Rice Acreage by Seller's Counties

Year	Butte	Sutter	Total
2002	94,700	96,224	190,924
2003	92,500	93,654	186,154
2004	105,000	121,131	226,131
2005	96,400	97,801	194,201
2006	105,673	92,984	198,657
2007	101,634	108,241	209,875
2008	105,301	92,344	197,645
2009	103,416	109,766	213,182
2010	93,800	115,000	208,800
2011	95,000	112,000	207,000
2012	94,500	116,000	210,500
2013	98,400	116,000	214,400
2014	77,800	75,900	153,700
2015	87,700	88,600	176,300
2016	95,000	113,000	208,000
Average (2002-16)	96,454	103,243	199,697

Source: U.S. Department of Agriculture (USDA) 2003-2013, 2015a, 2015b, 2016a, 2018.

Rice harvested acreage in California decreased in 2014 and 2015 due to the drought and water restrictions. In 2016, rice harvested acreage increased 33 percent compared to 2015 acreages (USDA 2016). In 2017, rice harvested acreage decreased 7 percent compared to 2016 (USDA 2017a). This decrease is largely due to wet spring conditions where the landowners were unable to plant their crop in a timely manner (USDA 2017b).

Giant Garter Snake

Rice idling actions could affect the GGS that use flooded rice fields for foraging and protective cover habitat during the summer months. GGS require water during their active phase, extending from spring until fall. During the winter months, GGS are dormant and occupy burrows in upland areas. While the preferred habitat of GGS is natural wetland areas with slow moving water, GGS use rice fields and their associated water supply and tail water canals as habitat, particularly where natural wetland habitats are not available. Because of the historic loss of natural wetlands, rice fields and their associated canals and drainage ditches have become important habitat for GGS.

Rice idling would affect available habitat for GGS. The GGS displaced from idled rice fields would need to find other areas to live. This may lead to indirect effects such as reduced reproductive success, reduced condition prior to the start of the overwintering period, and increased predation risk. Because GGS in rice fields are within an active rice growing region that experiences variability in rice production and farming activities, they are already subject to these risks. If water levels in major canals in the sellers' areas decrease, GGS may have more limited aquatic habitat and options for movement through the areas.

The USGS led a GGS study in 2016 to assess the effects of rice idling on occupancy dynamics of GGS in the Sacramento Valley (USGS 2017). The first year of surveys (May to September 2016) included 83 samples sites across 5 survey basins (American, Butte, Colusa, Sutter, and Yolo). The study found 91 snakes at 51 sites. The primary purpose of the study is to examine the effects of water transfers, particularly rice idling, on GGS distribution and occupancy, and to assess the effectiveness of the measures that could reduce effects on GGS. During the first year of the study (2016), the primary objective was to determine whether sites associated with active and fallowed rice fields differ in the probability of GGS occurrence. Distribution, occurrence, and detection probability of GGS were also evaluated for several other biological variables, including the percent cover of submerged vegetation, capture rate of fish, and capture rate of frogs. Related to rice production, preliminary results for 2016 indicate that there is a positive correlation between occupancy of GGS and the presence of rice within a 1, 2, and 3 kilometer buffer distance from survey sites. The probability of occurrence appears to level off at its highest when there is at least 60 percent rice within a 3 kilometer buffer (USGS 2017).

Work by the USGS suggests that GGS are most likely to occur within areas of historical tule marsh, and the likelihood of encountering them drops

substantially with distance from these areas of historical habitat (Halstead et al. 2014). As discussed in Section 1.3.3, there are no known sightings of GGS in BWD since 2014, and the area does not have any known sustaining populations of GGS. However, as seen in the figures presented in Appendix D, some parts of BWD have suitable GGS habitat. Without best management practices to protect GGS, cropland idling transfers could have significant effects on GGS because dry canals could limit movement of snakes. Mitigation Measure BIO-1 identifies best management practices that would reduce these effects. The mitigation measure would protect movement corridors for GGS by maintaining water in irrigation ditches and canals. This measure also keeps emergent aquatic vegetation intact for GGS escape cover and foraging. By maintaining water in agricultural ditches, some GGS would successfully relocate to find alternate forage, cover, and breeding areas during idling events. The mitigation measure also includes voluntary training by sellers to continue GGS best management practices, including educating maintenance personnel to recognize and avoid contact with GGS, cleaning only one side of a conveyance channel per year, and implementing other measures to enhance habitat for GGS.

Incorporation of Mitigation Measure BIO-1 would reduce impacts of rice idling under the proposed project to a less than significant impact on GGS because it would avoid or reduce many of the potential indirect impacts associated with loss of habitat and displacement of GGS. Some individual snakes would be exposed to displacement and the associated increased risk of predation, reduced food availability, increased competition, and potentially reduced fecundity. The number of individual snakes affected is expected to be small because the Mitigation Measure avoids areas with highly suitable habitat for GGS. The measure to maintain water in canals near idled fields would also protect GGS. In addition, no more than 3 percent of average annual rice acreage in Butte and Sutter counties from 2009 to 2016 would be affected. Idling will also be limited to no more than 20 percent of the total irrigable lands in BWD.

Western Pond Turtle

Ditches and drains associated with rice fields provide suitable habitat for the western pond turtle. Actions that result in the desiccation of aquatic habitat could result in the turtle migrating to new areas, which in turn puts them at an increased risk of predation. If adequate water is not maintained in canals, the turtle may have limited movement corridors. Without best management practices to protect the turtle, this impact would be significant. Mitigation Measure BIO-1 requires that sellers maintain adequate water in major irrigation and drainage canals to provide movement corridors for aquatic species, including the pond turtle. This would be implemented in areas where cropland idling occurs. Canal water depths should be similar to years when transfers do not occur or, where information on existing water depths is limited, at least two feet of water would be sufficient. The mitigation measure minimizes impacts to western pond turtle because it would maintain aquatic habitat for the turtle and the opportunity to migrate to new areas; therefore, effects to the western pond

turtle from cropland idling transfers would be less than significant after mitigation.

Special Status Bird Species and Migratory Birds

Many migratory bird species use seasonally flooded agricultural land for nesting and forage habitat during the summer rearing season. Among these are special-status species such as the black tern, which uses flooded rice land and emergent vegetation for foraging (for insects and small vertebrates) and for nesting. Reduction of seasonally flooded agricultural habitat could adversely affect local populations of special status species such as the black tern. However, the decisions regarding crop idling would have already been made prior to the onset of the species breeding season (May through August), such that terns returning to the area would be able to select appropriate nesting sites for that year. The maximum amount of rice idling would be 4,902 acres, which is approximately 3 percent of the average acreage (199,697 acres) of rice harvested in Sutter and Butte counties. Therefore, nesting habitat would be available in active rice fields nearby. The impacts to the species would be minor, and they would be further reduced through implementation of the mitigation measure aimed at the protection of GGS because best management practices would minimize idling near wildlife refuges that provide important habitat for terns. The practice to maintain water in canals near idled fields would also protect the tern by supporting emergent vegetation in canals for forage on small aquatic insects, emergent plants, and seeds.

Special-status bird species including bank swallows and tricolored blackbirds forage in rice fields near their nesting colonies. Although the rice plants are not tall or sturdy enough to support nests, the seasonally flooded fields provide resources required for breeding colony locations, which consist of open access to water and suitable foraging space with insect prey. The primary concern for the tricolored blackbird's association with rice fields is the use of the habitat as a source of insects and waste grain forage. Tricolored blackbirds may use rice fields year-round and would also use emergent vegetation in return ditches and irrigation canals associated with the seasonally flooded fields. The rice agriculture cycle provides insect forage in the flooded fields during the summer and waste grain forage over winter. Rice idling could affect the population's foraging distribution behavior and patterns and could reduce foraging and breeding habitat for these species.

In addition, many raptors forage in summer and/or winter over rice fields, preying on various wildlife, including waterfowl. A reduction in the number of waterfowl or other prey could affect local populations.

For the millions of birds that use rice fields during winter migration, this small reduction in crops planted is not expected to affect the amount of post-harvest flooded agriculture that provides important winter forage for migratory birds, particularly waterfowl and shorebirds. Farmers in the Sacramento Valley only flood-up a fraction of the cropland planted; typically, around 60 percent in

normal water years (Miller et al 2010, Central Valley Joint Venture 2006) and as little as 15 percent in critically dry years (Buttner 2014). The decision on whether to flood is not based on what was produced for the year but instead is determined by the availability of fall and winter water. Growers divert a separate water supply, pursuant to state water rights, in fall and winter for rice decomposition. Particularly during drier years (when transfers occur), the amount of land flooded is limited by availability of fall water supply rather than the amount of land that was planted during the irrigation season. Because the proposed project does not include transfers of water that would otherwise be used for rice decomposition or otherwise affect the availability of fall and winter water, it would not change the availability of water for post-harvest flooding and therefore would not result in a reduction of winter foraging and resting habitat for migrating birds.

The location of cropland idling does have the potential to affect the use of historic roost sites, particularly for sandhill cranes, which exhibit site fidelity (Zeiner et al. 1990), typically returning to the same location each year to winter. Idling fields within areas that sandhill cranes historically return to may affect their wintering distribution patterns due to reduced forage availability on idled or crop shifted fields. Although the birds would disperse as their main food source diminishes, cropland idling could affect the timing of dispersal and could negatively affect those individuals that have not had sufficient time to prepare for winter migration.

While the effects to migratory birds would be small overall because the maximum reduction in rice production would be within the historic range of variation, there may be localized significant effects on some birds that typically use sites that have fewer rice fields in production nearby. Incorporation of Mitigation Measure GW-1 would minimize idling in known wintering areas that support high concentrations of wintering waterfowl and shorebirds, and water transfers would not include rice decomposition water and therefore would not reduce the availability of post-harvest forage. Incorporation of Mitigation Measure GW-1 would reduce effects to migratory birds to less than significant.

Mitigation Measure BIO-1: Terrestrial Species Best Practices

Mitigation Measure BIO-1 includes measures to reduce and avoid impacts to terrestrial species associated with cropland idling transfers:

- Movement corridors for aquatic species (including western pond turtle and GGS) include major irrigation and drainage canals. BWD will keep adequate water in major irrigation and district owned and operated drainage canals, including but not limited to the Sutter Butte Canal, Lateral 4, Chandon Lateral, Hamilton Slough, Morrison Slough and Live Oak Slough. Canal water depths will be maintained at levels similar to years when transfers do not occur or, where information on existing water depths is limited, at least two feet of water will be considered adequate.

- Maintaining water in smaller drains and conveyance infrastructure supports key habitat attributes such as emergent vegetation for GGS for escape cover and foraging habitat. If crop idling occurs near the wildlife management areas, BWD will document that adequate water remains in drains and canals in those priority areas. Documentation may include flow records, photo documentation, or other means of documentation.

- BWD will avoid idling lands that have high habitat suitability for GGS. The determination of habitat suitability will be made through coordination with GGS experts, GIS analysis of proximity to historic tule marsh, and GIS analysis of suitable habitat (such as USGS efforts to map priority habitat). The current versions of the priority habitat maps are included in Appendix D. As adequate new information becomes available, these maps are expected to be updated by USGS. As appropriate, map updates will be provided to USFWS along with the related GIS data. In addition, fields abutting or immediately adjacent to federal wildlife refuges will be considered suitable habitat. When identifying fields to idle, selling agencies will give preference to areas that are less suitable for GGS habitat.

- Areas with known priority GGS habitat near BWD consist of wildlife management areas such as Gray Lodge Wildlife areas. This wildlife area is outside BWD's service area and will not be eligible to participate in BWD's land idling water transfers program. Riparian/wetland areas along Morrison Slough and the Feather River also provide habitat for GGS. These areas, and fields directly adjacent to these areas, will not be eligible to participate in land idling water transfers. Participating landowners can request a case-by-case evaluation of whether a specific field would be precluded from participating in water transfers based on its proximity to riparian and wetland areas. Exceptions could include fields that are separated from priority habitat by existing barrier to GGS movement, such as paved roads, major waterways, and lands not suitable as GGS aquatic habitat (i.e. cultivated row crops, disturbed upland habitat). Exceptions may also be made based on the size and shape of a field and barriers between rice checks that would allow a portion of a larger field to remain in production while the remaining portion of the field is fallowed, but a minimum buffer distance of 200 feet will be maintained between GGS priority habitat and areas participating in cropland idling transfers.

- BWD will provide a map(s) to DWR by June of each year showing the parcels of rice land that are idled for the purpose of transferring water for that year.

- BWD will perform GGS best management practices during irrigation canal maintenance activities, including educating maintenance personnel to recognize and avoid contact with GGS, cleaning only one side of a conveyance channel per year to retain foraging areas and cover habitat for GGS within maintained canals and ditches, and avoid the stockpiling of vegetation and sediment debris adjacent to canals and ditches. BWD will create and distribute a GGS best management practices information pamphlet to maintenance personnel that includes photos of GGS and their habitat, a map depicting locations of where GGS have been identified during recent trapping efforts and descriptions of best management practices.

- In order to limit reduction in the amount of over-winter forage for migratory birds, including greater sandhill crane, cropland idling transfers will be minimized near known wintering areas in Butte Sink (which is outside the districts' boundaries).

b, c) Less Than Significant Impact

Under the proposed project, transfer water would be released from Lake Oroville from July through September. The largest quantity of transfer water would be made available in July and August. Feather River flows would increase and Sacramento River flows would also increase from the confluence of Feather River to the Delta. The largest change in flow could be approximately 135 cfs in July and August. For comparison, flows in the Feather River near Gridley averaged 4,000 cfs in July 2017 and 6,500 cfs in August 2017; 10,500 cfs in July 2016 and 8,500 cfs in August 2016; 3,300 cfs in July 2015 and 1,900 cfs in August 2015 (DWR 2017b). Flows in the Sacramento River at Freeport averaged 15,000 cfs in July 2017 and 20,000 cfs in August 2017; 18,400 cfs in July 2016 and 18,800 cfs in August 2016; and 7,900 cfs in July 2015 and 7,800 cfs in August 2015 (USGS 2017). While flows would increase during this transfer period, the change in flow would still be minor compared to flows in the Feather River, Sacramento River, and the delta, and the increased flows would not affect riparian habitat.

As discussed in (a), groundwater substitution transfers could result in streamflow depletion in rivers and creeks, specifically Morrison Slough, Snake Creek, and Live Oak Slough. If these changes result in noticeable changes in the waterways, they could affect riparian or wetland communities. However, the magnitude of groundwater pumping is small and not likely to affect these waterways. Effects to these communities would be less than significant.

Cropland idling transfers would only reduce agricultural diversions by the amount of water consumptively used by the crop (when planted), and the remaining water that typically runs off as tailwater would still be diverted. Irrigation tail water flows to wetlands would have minimal effects because this water would still be in the agricultural delivery system. As a result, wetlands would continue to receive irrigation tail water flows. The incremental effect to wetlands under the proposed project would be less than significant.

d) Less Than Significant Impact with Mitigation Incorporation

Wildlife that is dependent on water as a means of moving from one area to another may be unable to relocate due to the parched landscape. GGS present in areas of rice idling would have to move across dewatered habitat to find suitable areas with water. Moving across dewatered areas could expose snakes to a number of potential impacts associated with the need to relocate. These include the energetic costs associated with relocation, a reduction in food supplies associated with the decrease in habitat, increased predation, potential for increased competition in new habitats, and potentially reduced reproduction and recruitment for those individuals displaced. Dewatered areas could also affect movement of the western pond turtle that occupy drainage ditches and irrigation canals. Dewatering could require the turtle to migrate to new areas, which in turn puts them at an increased risk of predation. This impact could be potentially significant. Mitigation Measure BIO-1 would require sellers to maintain water in irrigation canals and to reduce idling near known GGS populations and movement corridors for species to relocate if necessary.

Maintenance water in smaller drains and conveyance infrastructure support key habitat attributes such as emergent vegetation which GGS and western pond turtle utilize for escape cover and foraging habitat. Ensuring water remains in these key habitats reduces the potential impact to suitable habitat and the need for GGS individuals and western pond turtle to relocate. Mitigation Measure BIO-1 would reduce potential impacts to movement corridors of GGS and western pond turtle; therefore, impacts would be less than significant after mitigation.

e, f) No Impact. The proposed project would not conflict with any local, regional or state policy, ordinance or conservation plan in effect for the area. Hence no impact to adopted habitat conservation plans would occur with project implementation.

V. CULTURAL RESOURCES
– Would the project

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in State CEQA §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to State CEQA §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

a-d) No Impact. The proposed project does not involve any land alteration and thus no archeological or palentologic disturbances are possible within the proposed project's scope. In addition, with no construction activities proposed, there would be no disturbances to potential burial sites or cemeteries. Therefore, no impact to cultural resources would occur with project implementation.

VI. GEOLOGY AND SOILS
-- Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

a) No Impact. No project facility falls within an Alquist-Priolo Earthquake Fault Zone, as presented in the most recent Division of Mines and Geology Special Publication 42. Hence, no impact relating to fault rupture zones would occur with project implementation.

b) No Impact. Based upon readily available soil map information, most of the project area is underlain by fine-textured, strongly structured soils, such as clay and silty clay. Such soils have a wind erodibility index of 86 (tons per acre per year) when in a dry, unvegetated condition (U.S Department of Agriculture 1993). Highly wind-erodible soils, such as fine sands, have a wind erodibility index of 134-310. Therefore, the soils in the project area have a relatively low risk of wind erosion when left in a dry, unvegetated condition.

c) No Impact. Soils in the proposed project area consist of clays with a flat terrain. The proposed project would not result in instability of existing soils. The use of the soils for this short-term project is in accordance with past

farming practices and no landslides, lateral spreading, subsidence, liquefaction or collapse have occurred, to date.

d) No Impact. Expansive soils are not known to occur within or on the proposed project site. Therefore, no impacts pertaining to expansive soils would occur with project implementation.

e) No Impact. The proposed project would not involve the use of septic tanks or alternative wastewater treatment disposal systems to handle wastewater generation. Therefore, no impacts would result with implementation of the proposed project.

VII. GREENHOUSE GAS EMISSIONS
– Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

a-b) Less than Significant.

Cropland Idling The proposed project would idle up to 20 percent of the irrigable acreage within BWD's boundaries. While some field work, such as laser land leveling, may occur in idled fields by participating landowners, it is expected that substantially less field work will occur as a result of the proposed project than compared to no project conditions. By idling the land, less farm equipment will be utilized and less greenhouse gas will be emitted. Further, the proposed project does not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Groundwater Substitution This analysis estimates emissions using available emissions data and information on fuel type, engine size (hp), and annual transfer amounts included in the proposed alternatives. Existing emissions data used in the analysis includes:

- Electric utility CO_2 emission factors from TCR (2017)
- Emissions & Generation Resource Integrated Database (eGRID) CH_4 and N_2O emission factors from USEPA (USEPA 2017b)

Each GHG contributes to climate change differently, as expressed by its global warming potential (GWP). GHG emissions are discussed in terms of CO_2 equivalent (CO_2e) emissions, which express, for a given mixture of GHG, the amount of CO_2 that would have the same GWP over a specific timescale. CO_2e is determined by multiplying the mass of each GHG by its GWP. This analysis uses the GWP from the Intergovernmental Panel and Climate Change Fourth Assessment Report (Forster et al. 2007) for a 100-year time period to estimate CO_2e. This approach is consistent with the federal GHG Reporting Rule (40 CFR 98), as effective on January 1, 2014 (78 Federal Register 71904) and California's 2000-2014 GHG Emission Inventory Technical Support Document (CARB 2016). The GWPs used in this analysis are 25 for CH_4 and 298 for N_2O.

CARB uses a threshold of 25,000 metric tons CO_2e per year as a threshold for including facilities in its cap-and-trade regulation (17 CCR 95800-96023). Because the goal of the regulation is to reduce GHG emissions statewide, this threshold was deemed appropriate to assess significance.

Groundwater substitution could increase GHG emissions in the seller area, while cropland idling transfers, as discussed above, could reduce vehicle exhaust emissions. Cropland idling transfers could offset some of the emissions from groundwater substitution transfers, but the quantity of water transferred under each mechanism could be much less than the maximum 21,927 AF. Therefore, impacts were evaluated for the full quantity of groundwater substitution, without regard for any potential offsets from idled land.

Emissions from groundwater substitution would be 229 metric tons CO_2e per year (detailed calculations are provided in Appendix E, Climate Change Analysis Emission Calculations). As a result, the proposed project would not conflict with any plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

Overall, with project implementation, greenhouse gas emissions impacts would be less than significant.

VIII. HAZARDS AND HAZARDOUS MATERIALS
– Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) Located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) Within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

a-h) No Impact. The proposed project would not involve the transport or use of hazardous materials nor change any public exposure to hazards or hazardous materials beyond what is currently occurring with existing farming practices within BWD's jurisdiction. Herbicide and pesticides use would decrease by up to 20 percent from what is now occurring within BWD's service area due to the idling for one year. This minor decrease in the use of such chemicals may be viewed as beneficial, but would not substantially affect the overall physical environment. Overall, there would be no hazardous impacts with project implementation.

IX. HYDROLOGY AND WATER QUALITY
– Would the project:

	Potentially Significant Impact	**Less Than Significant with Mitigation Incorporation**	**Less Than Significant Impact**	**No Impact**
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☒	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☒
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

a) No Impact. Under the proposed project, transfer water would be released from Lake Oroville from July through September. The largest quantity of transfer water would be made available in July and August. Feather River flows would increase and Sacramento River flows would also increase from the confluence of Feather River to the Delta. The largest change in flow could be approximately 135 cfs in July and August. For comparison, flows in the Feather River near Gridley averaged 4,000 cfs in July 2017 and 6,500 cfs in August 2017; 10,500 cfs in July 2016 and 8,500 cfs in August 2016; 3,300 cfs in July 2015 and 1,900 cfs in August 2015 (DWR 2017b). Flows in the Sacramento River at Freeport averaged 15,000 cfs in July 2017 and 20,000 cfs in August 2017; 18,400 cfs in July 2016 and 18,800 cfs in August 2016; and 7,900 cfs in July 2015 and 7,800 cfs in August 2015 (USGS 2017). Changes in flows on the Feather River, Sacramento River, and Delta would be a small percentage of flows and would not affect water quality in these water bodies.

When exporting water from the Delta, DWR must comply with all current State and federal regulatory requirements in effect at the time of the export pumping, including numerous environmental standards, laws, and regulations relating to Delta inflow and outflow, Delta water quality, fish protection, environmental needs, water rights, and the needs of other legal users, including legal in-basin demands. These requirements include applicable SWRCB orders, Corps permits, Biological Opinions and other regulatory constraints including any relevant judicial orders in effect at the time of the operation. They have

established water quality and flow requirements and limits on the rate of export of water that can be pumped by the state and federal pumping plants. The proposed project does not increase Delta export rates beyond permitted limits.

In determining the availability of excess capacity within the SWP or CVP, Project operators analyze annual hydrology, project operations, contractor requests, and regulatory and operational restrictions among other things to determine whether transfers can be conveyed without affecting the Projects.

Project operations are governed by the requirements contained in Water Right Decision 1641 (D1641). D1641 contains flow and water quality objectives. D1641 also contains specific provisions relating to the use of Project facilities for conveyance of transfer water including water level and water quality response plans.

Another operational consideration important for transfers moving through the Delta is carriage water. Carriage water is the additional flow necessary to move transfer water across the Delta for export so as not to exceed the objectives contained in D1641. DWR and Reclamation estimate carriage water based on annual hydrology, Project operations and regulatory restrictions among other operational considerations. Carriage water losses are applied to the quantity of transfer water made available above the Delta. This reduces the quantity of water that is actually exported from the Delta. The amount of carriage water required to export transfer water can vary significantly from year to year and can exceed 20 percent in dryer years. In 2012 and 2013, carriage water losses for cross Delta transfers were 30 percent. Carriage water requirements are reflected in the proposed project and would help avoid water quality concerns in the Delta.

The proposed project would not violate water quality standards or waste discharge requirements.

b) Less than Significant with Mitigation Incorporation

The proposed project would extract up to 5,750 AF of groundwater from two BWD production wells in Sutter County (East Butte subbasin). These wells have approximate production capacities of 3,500 GPM and 4,000 GPM respectively. Groundwater pumped in lieu of diverting surface water could affect groundwater hydrology. The potential effects could be short term declines in local groundwater levels, interaction with surface water, and land subsidence.

Increased groundwater substitution pumping could result in temporary declines of groundwater levels. Groundwater substitution pumping could occur from April through October and the pumped groundwater would be used for crop irrigation within the seller's district. Declining groundwater levels resulting from increased groundwater substitution pumping could cause: (1) increased

groundwater pumping costs due to increased pumping depth; (2) decreased yield from groundwater wells due to reduction in the saturated thickness of the aquifer; (3) decrease of the groundwater table to a level below the vegetative root zone, which could result in environmental effects; and (4) third-party impacts to neighboring wells.

BWD last participated in a groundwater substitution transfer in 2014. Pre-pumping groundwater levels returned promptly after cessation of the transfer. BWD has operated these wells in the past at similar production rates and has observed no substantial impacts on groundwater levels or groundwater supplies (GEI Consultants 2011, GEI Consultants 2013, GEI Consultants 2014 and GEI Consultants 2015). Based on the results of the monitoring data collected as part of 2014 transfers, groundwater substitution transfers are unlikely to have significant effects on groundwater levels. Because of the uncertainty of how groundwater levels could change, especially during a very dry year, the impacts could be potentially significant.

Groundwater substitution transfers could result in temporary groundwater declines in excess of seasonal variation and these effects on non-transferring wells could be significant. To reduce these significant effects to less than significant, the Mitigation Measure GW-1 (below) specifies that transferring agencies establish monitoring and mitigation programs for groundwater substitution transfers. The requirements of GW-1 would require monitoring of groundwater levels within the local pumping area and if effects were reported or occurred, BWD would compensate for effects or reduce pumping until the groundwater basin recharges as specified in GW-1. Mitigation Measure GW-1 would reduce the impacts to less than significant.

Groundwater/Surface Water Interaction
The implementation of groundwater substitution pumping can lower the groundwater table and may change the relative difference between the groundwater and surface water levels. This change could reduce the amount of surface water, as compared to pre-pumping conditions, due to two mechanisms. The mechanisms are:

- Induced leakage. Lowering the groundwater table causes a condition where the groundwater table is lower than the surface water level. This condition causes leakage out of a surface water body and could also increase percolation rates on irrigated lands.

- Interception of groundwater. A pumping well used for groundwater substitution pumping can intercept groundwater that would have discharged to the surface water absent the pumping.

Because these mechanisms may result in a depletion of streamflow, the volume of water actually transferred is not the same as the volume of groundwater pumped through a substitution action. The amount of water that can justifiably

be considered to be transferred is the volume of substitution pumping less the amount of induced leakage and the amount of intercepted groundwater flow. The proposed project includes measures that would reduce the amount of water that the buyers receive by an estimated 13 percent depletion factor to prevent any adverse impacts associated with groundwater/surface water interaction, as further described in Chapter 1. This would avoid water supply concerns associated with potential stream depletion as a result of the proposed project. Additionally, the potential effects to fish and riparian vegetation from decreased streamflows are assessed in the Biological Resources section (and found to be minor).

Land Subsidence

Excessive groundwater extraction from unconfined and confined aquifers could lower groundwater levels and decrease pore-water pressure in the aquifer. The reduction in pore-water pressure could result in a loss of structural support within clay and silt beds in the aquifer. The loss of structural support could cause the compression of clay and silt beds resulting in a lowering of the ground surface elevation (land subsidence). The compression of fine-grained deposits, such as clay and silt, is largely permanent. Infrastructure damage and alteration of drainage patterns are possible consequences of land subsidence.

As discussed in Chapter 1, East Butte Groundwater subbasin has a low to medium potential for subsidence. The potential for subsidence as a result of the proposed project is small if the groundwater substitution pumping is small compared to overall pumping in a region. While the potential for subsidence is small, BWD will implement the Monitoring Program and Mitigation Plan described below under Mitigation Measure GW-1, which includes subsidence monitoring. The subsidence monitoring will measure changes in the ground surface elevation, whether subsidence is short-term or long-term. The monitoring and mitigation actions would verify that this impact would be less than significant.

Mitigation Measure GW-1: Monitoring Program and Mitigation Plan

The objective of Mitigation Measure GW-1 is to avoid significant adverse environmental effects and ensure prompt corrective action in the event unanticipated effects occur. The measure accomplishes this by monitoring groundwater and/or surface water levels during transfers to avoid potential effects. The objectives of this process are to: (1) minimize potential effects to other legal users of water; (2) provide a process for review and response to reported effects to non-transferring parties; (3) assure that a local mitigation strategy is in place prior to the groundwater transfer; and (4) mitigate significant adverse environmental effects. BWD will confirm that the proposed groundwater pumping will be compatible with state and local regulations and Groundwater Management Plans (GMPs).

Well Review Process BWD has used two productions wells that lie within the Sutter County portion of their district boundary for previous groundwater

substitution transfers. BWD will continue to use the same two wells for groundwater substitution transfers in 2018. BWD will prepare a report on its groundwater substitution transfers as detailed in the most current version of the DRAFT Technical Information for Preparing Water Transfer Proposals and submit to DWR for review before the transfer period.

Monitoring Program BWD will be required to complete and implement a monitoring program that must, at a minimum, include the following components:

- Monitoring Well Network. The monitoring program shall incorporate a sufficient number of monitoring wells, as determined by the sellers in relation to local conditions, to accurately characterize groundwater levels and response in the area before, during, and after transfer pumping takes place. Depending on local conditions, additional groundwater level monitoring may be required near ecological resource areas.

- Groundwater Pumping Measurements. All wells pumping to replace surface water designated for transfer shall be configured with a permanent instantaneous and totalizing flow meter capable of accurately measuring well discharge rates and volumes. Flow meter readings will be recorded just prior to initiation of pumping and at designated times, but no less than monthly and as close as practical to the last day of the month, throughout the duration of the transfer.

- Groundwater Levels. Sellers will collect measurements of groundwater levels in both participating transfer wells and monitoring wells. Groundwater level monitoring will include measurements before, during and after transfer-related pumping. The seller will measure groundwater levels as follows:

  – Prior to transfer: Groundwater levels will be measured monthly from March in the year of the proposed transfer-related pumping until the start of the transfer (where possible).

  – Start of transfer: Groundwater levels will be measured on the same day that the transfer-related pumping begins, prior to the pump being turned on.

  – During transfer-related pumping: Groundwater levels will be measured weekly throughout the transfer-related pumping period, unless site specific information indicates a different interval should be used.

  – Post-transfer pumping: Groundwater levels will be measured weekly for one month after the end of transfer-related pumping,

after which groundwater levels will be measured monthly through March of the year following the transfer.

Sellers thus monitor effects to groundwater levels that may result from the proposed transfer and avoid significant impacts. The primary criteria used to identify potentially significant impacts to groundwater levels are the basin management objectives (BMOs) set by GMPs. Sutter County has established GMPs to provide guidance in managing the resource, but they do not have a quantitative target that identifies when transfer mitigation should begin. BWD will initiate the mitigation plan if groundwater levels fall below historic low groundwater levels. As part of a seller's transfer proposal, BWD will need to identify appropriate monitoring wells and the specific groundwater trigger for each well (established through the historic low groundwater level for that well).

Additionally, BWD will coordinate closely with potentially impacted third parties to collect and monitor groundwater data. If a third party expects that it may be impacted by a proposed transfer, that party should contact BWD with its concern. The burden of collecting groundwater data will not be the responsibility of the third party. If warranted, groundwater level monitoring to address the third-party's concern may be incorporated in the monitoring and mitigation plans required by Mitigation Measure GW-1.

- Groundwater Quality. BWD shall measure specific conductance in samples from each participating production well. Samples shall be collected when the seller first initiates pumping, monthly during the transfer period, and at the termination of transfer pumping.

- Land Subsidence. Subsidence monitoring will be required if groundwater levels could decline below historic low levels during the proposed water transfer. Before a transfer, BWD will examine local groundwater conditions and groundwater level changes based on past pumping events or groundwater substitution transfers. This existing information will be the basis to estimate if groundwater levels are likely to decline below historic low levels, which would trigger land surface elevation measurements (as described below).

  If the measured groundwater level falls below the historic low level, the seller must confirm the measurement within seven days. If the water level has risen above the historic low level, the seller may continue transfer pumping. If the measured groundwater level remains below the historic low level, the seller will stop transfer-related pumping immediately or begin land surface elevation measurements in strategic locations within and/or near the transfer-related pumping area. Measurements may include (1) extensometer monitoring, (2) continuous GPS monitoring, or (3) extensive land-elevation benchmark surveys

conducted by a licensed surveyor. This data could be collected by the seller or from other sources (such as public extensometer data). Measurements must be completed on a monthly basis during the transfer.

If the land surface elevation survey indicates an elevation decrease between 0.1 foot and 0.2 foot from the initial measurement, the seller could have significant impacts and would need to start the process identified below in the Mitigation Plan. The seller will also work with DWR to assess the accuracy of the survey measurements based on current limitations of technology, professional engineering/surveying judgment, and any other data available in or near the transferring area.

The threshold of 0.1 foot was chosen as this value is typical of the elastic (i.e., recoverable) portion of subsidence; the threshold of 0.2 foot was selected considering limitations of current land survey technology.

- Coordination Plan. The monitoring program will include a plan to coordinate the collection and organization of monitoring data. This plan will describe how input from third parties will be incorporated into the monitoring program, and will include a plan for communication with DWR as well as other decision makers and third parties.

- Evaluation and Reporting. The proposed monitoring program will describe the method of reporting monitoring data. At a minimum, sellers will provide data summary tables to DWR, both during and after transfer-related groundwater pumping. Post-program reporting will continue through March of the year following the transfer. Sellers will provide a final summary report to DWR evaluating the effects of the water transfer. The final report will identify transfer-related effects on groundwater and surface water (both during and after pumping), and the extent and significance, if any, of effects on local groundwater users. It shall include groundwater elevation contour maps for the area in which transfer operations are located, showing pre-transfer groundwater elevations, groundwater elevations at the end of the transfer, and recovered groundwater elevations in March of the year following the transfer. The summary report shall also identify the extent and significance, if any, of transfer-related effects to ecological resources such as fish, wildlife, and vegetation resources.

Mitigation Plan

Potential sellers must complete and implement a mitigation plan to avoid potentially significant groundwater impacts and ensure prompt corrective action in the event unanticipated effects occur. Mitigation actions could include:

- Curtailment of pumping until natural recharge corrects the issue.

- Lowering of pumping bowls in non-transferring wells affected by transfer pumping.
- Reimbursement for significant increases in pumping costs due to the additional groundwater pumping to support the transfer.
- Curtailment of pumping until water levels rise above historic lows if non-reversible subsidence is detected (based on local data to identify elastic versus inelastic subsidence).
- Reimbursement for modifications to infrastructure that may be affected by non-reversible subsidence.
- Other appropriate actions based on local conditions, as determined by, as appropriate, by DWR or Reclamation.

As summarized above, the purpose of Mitigation Measure GW-1 is to monitor groundwater levels during transfers to avoid potentially significant adverse effects. The mitigation plan will describe how to avoid significant effects and address any significant effects that occur despite the monitoring efforts. The objectives of this process are to: (1) minimize potential effects to other legal users of water; (2) provide a process for review and response to reported effects; and (3) assure that a local mitigation strategy is in place prior to the groundwater transfer. Accordingly, to ensure that mitigation plans will be feasible, effective, and tailored to local conditions, the plan must include the following elements:

- A procedure for the seller to receive reports of purported environmental or effects to non-transferring parties;
- A procedure for investigating any reported effect;
- Development of mitigation options, in cooperation with the affected parties, for legitimate significant effects; and
- Assurances that adequate financial resources are available to cover reasonably anticipated mitigation needs.

Mitigation to avoid potentially significant subsidence impacts and ensure prompt corrective action in the event that unanticipated effects occur is described by the following stages.

Stage 1: Groundwater Levels

Irreversible subsidence would not occur if groundwater levels stay above historic low levels for the entire transfer season. As groundwater is pumped from an aquifer, the pore water pressure in the aquifer is reduced. This reduction in pore water pressure increases the effective stress on the structure of the aquifer itself. This increase in effective stress can cause the aquifer structure to deform, or compress, resulting in the subsidence of the ground surface elevation. Subsidence can be irreversible if the reduced effective stress

is lower than the historically low effective stress. Typically this would be the result of groundwater levels reaching levels lower than the historical low level.

Before a transfer, each seller will examine local groundwater conditions and groundwater level changes based on past pumping events or groundwater substitution transfers. This existing information will be the basis to estimate if groundwater levels are likely to decline below historic low levels as a result of the proposed transfer. If the pre-transfer assessment indicates that groundwater levels will stay above historic low levels, and this finding is confirmed by monitoring during the transfer-related pumping period, then no additional actions for subsidence monitoring or mitigation are necessary. Sellers would need to proceed to stage 2 for land surface elevation monitoring if the pre-transfer estimates indicate that groundwater levels are anticipated to decline below historic low levels. If monitoring during the transfer-related pumping period (confirmed by two measurements within seven days) indicates that groundwater levels have fallen below historic low levels, sellers must immediately stop pumping from transfer wells in the area that is affected or proceed to stage 2.

Stage 2: Ground Surface Elevations

Stage 2 includes monthly ground surface monitoring during transfer-related pumping if pumping could cause groundwater levels to fall below historic low levels, as described above in the Monitoring Plan. If ground surface elevations decrease between 0.1 and 0.2 foot, the seller will evaluate the accuracy of the information based on the current limitations of technology, professional engineering/surveying judgment, and other local data. If the elevations decline more than 0.2 foot, this change could indicate inelastic subsidence, which would trigger a shift to Stage 3.

Stage 3: Local Investigation

If the threshold of 0.2 foot of ground surface elevation change is exceeded, the seller shall cease groundwater substitution pumping for the transfer until one of the following occurs: (1) groundwater levels recover above historic low groundwater levels; and (2) seller completes a more detailed local investigation identifying hydrogeologic conditions that could potentially allow continued transfer-related pumping from a subset of wells (if the seller can provide evidence that this pumping is not expected to cause additional subsidence).

Stage 4: Mitigation

If subsidence effects to local infrastructure occur despite monitoring efforts, then the sellers must work with the lead agencies to determine whether the measured subsidence may be caused by transfer-related pumping. Any significant adverse subsidence effects caused by transfer pumping activities must be addressed. A contingency plan must be developed in the event that a

need for further corrective action is necessary. This contingency plan must be approved by Reclamation before transfer-related pumping could continue after Stage 3.

Stage 5: Continued Monitoring

The sellers will continue to monitor for subsidence while groundwater levels remain below historic low levels. If the seller has ceased transfer-related pumping but groundwater levels remain below historic lows, subsidence monitoring will need to continue until the spring following the transfer. The results of subsidence monitoring will be factored into monitoring and mitigation plans for future transfers.

c-d) No Impact. The proposed project would not substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation on- or off-site, or increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. The water transferred would be maintained within existing conveyance and storage systems of DWR. No drainage courses would receive transferred water from the proposed project. In addition, there are no construction activities associated with the proposed project. As such, no impacts relating to water drainage patterns would occur with project implementation.

e) No Impact. The proposed project would not create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems. Also refer to previous responses, (Items c-d). Hence, no impacts relating to storm water drainage systems would occur with project implementation.

f) Less than significant. Changes in groundwater levels and the potential change in groundwater flow directions could cause a change in groundwater quality through a number of mechanisms. One mechanism is the potential mobilization of areas of poorer quality water, drawn down from shallow zones, or drawn up into previously unaffected areas. Changes in groundwater gradients and flow directions could also cause (or speed) the lateral migration of poorer quality water.

Groundwater quality in the Seller Assessment Area subbasin is generally good and sufficient for irrigation, however elevated levels of Arsenic is concern in the area (Butte Water District 2016). Groundwater extraction under the proposed project would be limited to withdrawals during the irrigation season of the 2018 contract year. Groundwater extraction under the proposed project would be limited to short-term withdrawals during the irrigation season and extraction near areas of reduced groundwater quality would not be expected to result in a permanent change to groundwater quality conditions. Consequently,

effects from the migration of reduced groundwater quality would be less than significant.

g-i) No Impact. The proposed project would not expose people or property to water-related hazards such as flooding or impede or redirect flood flows. The proposed project would not involve constructing any housing. All facilities which would be utilized are existing facilities constructed according to standard engineering design practices to limit the potential for exposure of people or property to water-related hazards, such as flooding. Therefore, no impact relating to flooding would occur with the project implementation.

j) No Impact. The proposed project would not be subject to tsunami or seiche wave inundation because the project area is not situated near a large enough body of water. Also, the associated facilities are not subject to mudslides. As such, no impacts would result from project implementation with respect to tsunamis or seiches.

X. LAND USE AND PLANNING
– Would the project:

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

a-c) No Impact. The proposed project would not displace or divide an established community, as no new construction activities would occur with project implementation. Only existing facilities and equipment would be employed. Also, no zoning or land use changes would be required for the participating farmer to enter into an agreement to idle a portion of his or her farmlands. Idling of agricultural land is a typical agricultural practice. Refer to Item IV. (Biological Resources) with regard to the question on conflicts with applicable habitat conservation plans. Overall, there would be no impacts to land use or planning with project implementation.

XI. MINERAL RESOURCES
– Would the project

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

a, b) No Impact. As the area is currently used for agricultural purposes only, the one-year idling of some additional farmlands for a one-year period would not result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the State. No impacts to mineral resources would occur with the proposed water transfer.

XII. NOISE
– Would the project result in:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) Within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

a- f) No Impact. The proposed project does not involve the development or enhancement of any new noise emitting devices. Groundwater pumping would utilize existing electric pumps only. In addition, there would be no construction activities associated with the proposed project. Only existing facilities and equipment would be utilized with the proposed water transfer. As such, no noise impacts would result with project implementation.

XIII. POPULATION AND HOUSING
– Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

a-c) No Impact. The proposed project would involve the movement of water in amounts that would not exceed existing CVP or SWP contractors' contractual amounts specified in each long-term water supply contract for water transported through the California Aqueduct or Delta Mendota Canal nor allow for a total

amount of water to be transported that would exceed levels previously delivered in non-shortage years. Therefore, there would be no net increase in water supply. No housing would be constructed, demolished, or replaced as a result of the proposed project, no displacement of people and no substantial population growth would result. Therefore, no impacts to housing or population distribution would occur as a result of the proposed water transfer.

XIV. PUBLIC SERVICES

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

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Fire protection?	☐	☐	☐	☒
b) Police protection?	☐	☐	☐	☒
c) Schools?	☐	☐	☐	☒
d) Parks?	☐	☐	☐	☒
e) Other governmental facilities (including roads)?	☐	☐	☐	☒

a-e) No Impact. The proposed project neither creates any new demand for public services nor alters existing public facilities. The proposed water transfer would occur within existing water conveyance facilities. Hence, no impacts to public services or facilities would occur with project implementation.

XV. RECREATION
– Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

a, b) No Impact. The proposed project would neither create nor alter demand for recreational services. The proposed project would involve the movement of water in amounts that would not exceed existing entitlements for water transported through the California Aqueduct or Delta Mendota Canal nor allow for a total amount of water to be transported that would exceed levels previously delivered in non-shortage years. As such, there would be no net increase in recreational opportunities and no impacts to recreational facilities or activities would occur with project implementation.

XVI. TRANSPORTATION/TRAFFIC
– Would the project:

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

a-f) No Impact. The proposed project does not create any new demand for any mode of transportation services as it would involve existing facilities and to forebear water for water supply purposes. Also, there are no construction activities associated with the proposed project (such as movement of trucks). Therefore, no transportation impacts would occur with project implementation.

XVII. UTILITIES AND SERVICE SYSTEMS
– Would the project:

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

a-g) No Impact. The proposed project would not place additional demands on nor affect public utilities, particularly wastewater treatment facilities, water facilities, and storm drain systems in the area. No new or expanded water entitlements would be necessary. That is, the proposed project would involve the movement of pre-existing entitlements of water. No solid waste disposal or disposal facilities would be needed for the proposed project. Therefore, no impacts to existing utilities and conveyance systems would occur with project implementation.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE –

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

a) Less than Significant with Mitigation Incorporation. Water transfers would not have substantial incremental effects to habitat or species relative to the conditions that would occur in response to the dry hydrologic conditions. Mitigation Measures BIO-1 and GW-1 would reduce potential special status species impacts to less than significant. Water transfers would not degrade the quality of the environment or eliminate examples of California history or prehistory.

b) Less than Significant with Mitigation Incorporation. This cumulative impacts analysis identifies past, present and reasonably foreseeable future projects with the potential to contribute to cumulative effects, when combined with the proposed project. these impacts are not significant individually or cumulatively. The proposed project would occur through existing facilities with no new construction. As such, implementation of the proposed project would have no significant impacts. As discussed below, water transfers from the Sacramento Valley through the Delta for consumptive uses and environmental

purposes South of the Delta have been occurring on a large scale for over a decade. Examples include:

DWR Water Purchase Programs

The first large scale water transfer program in California was the 1991 Emergency Drought Water Bank (1991 DWB). The 1991 DWB was established in response to projected critical water supply shortages following 4 years of drought conditions. The 1991 DWB team purchased water from willing sellers in the Delta, Sacramento Valley and Feather River basin areas. Water was made available through crop idling, groundwater substitution and reservoir storage release. The 1991 DWB team executed over 300 contracts with water agencies and individuals to purchase water for critical statewide needs. Water from the 1991 DWB was allocated to 12 municipal and agricultural water users. Drought water banks were implemented again in 1992 and 1994, acquiring water primarily from groundwater substitution.

DWR implemented Dry Year Purchase Programs in 2001 and 2002 in response to dry conditions and reduced SWP and CVP allocations. In 2001 DWR purchased water from willing sellers in Northern California from a combination of crop idling, groundwater substitution and reservoir storage release, for delivery to eight water agencies throughout the State to help offset water shortages. In 2002, DWR acquired water made available through groundwater substitution from Yuba County Water Agency (YCWA) and its member units and provided it to four SWP contractors.

DWR implemented a drought water bank in 2009 after a series of three dry years, acquiring about 76,600 AF of transfer water from a combination of crop idling, groundwater substitution and reservoir storage release. An additional 200,000 AF of cross-Delta transfers were executed independently by water agencies and exported through SWP and CVP facilities. Since 2009, DWR has facilitated water transfers by conveying transfer water through SWP facilities; however, it has not acted as a purchaser or broker.

Federal Water Acquisition Programs

The Central Valley Project Improvement Act of 1992 (CVPIA) amended previous authorizations of the CVP to include fish and wildlife protection, restoration, and enhancement as project purposes having equal priority with agriculture, municipal and industrial, and power purposes. A major feature of CVPIA is that it requires acquisition of water for protecting, restoring, and enhancing fish and wildlife populations. To meet water acquisition needs under CVPIA, the U.S. Department of the Interior (Interior) has developed a Water Acquisition Program (WAP), a joint effort by Reclamation and the FWS. The major purposes of the WAP are acquisition of water to meet optimal refuge demands and support instream flows. Additional information on Reclamation's water transfer programs is contained in the CVP Water Transfer Program Fact Sheet which can be accessed at http://www.usbr.gov/mp/PA/water/docs/CVP_Water_Transfer_Program_Fact_

Sheet.pdf and the CVPIA Water Acquisition Program Background Information Sheet, November 2003 USDOI which can be accessed at http://www.usbr.gov/mp/cvpia/3406b3_wap_info_index.html.

Environmental Water Account

The Environmental Water Account (EWA) was established in 2000. The purpose of the EWA program was to provide protection to at-risk native fish species of the Bay-Delta estuary by supporting environmentally beneficial changes in SWP and CVP operations. EWA funds were used to acquire alternative sources of water, called the "EWA assets," which the EWA agencies used to replace the SWP and CVP water that was not exported from the Delta because of the voluntary fish actions. The EWA program ended in December 2007.

Yuba River Accord Transfers

In 1989, the State Water Resources Control Board (SWRCB) received a complaint regarding fishery protection and water right issues on the Lower Yuba River. The SWRCB held hearings on the issues raised in this complaint and in 1999 issued a draft decision. At the request of YCWA and the California Department of Fish and Wildlife, subsequent hearings were postponed in order to provide the parties an opportunity to reach a proposed settlement regarding instream flows and further studies. The parties failed to reach agreement on a settlement and the SWRCB held additional hearings in the spring of 2000. A draft decision was issued in the fall of 2000 and was adopted as Decision 1644 on March 1, 2001.

Subsequent litigation led to withdrawal of Decision 1644 and issuance of Revised Decision 1644 (RD-1644) in July, 2003. These decisions established revised instream flow requirements for the Lower Yuba River and required actions to provide suitable water temperatures and habitat for Chinook salmon and steelhead and to reduce fish losses at water diversion facilities.

After the issuance of RD-1644, the parties involved in the SWRCB proceedings expressed a desire to further negotiate the instream flow, flow fluctuation, and water temperature issues on the Lower Yuba River. The parties engaged in a collaborative, interest-based negotiation with numerous stakeholders, reaching a series of agreements now known as the Lower Yuba River Accord (Accord). These negotiations resulted in the agreements outlined below and the SWRCB approval of the flow schedules and water transfer aspects of the Accord on March 18, 2008 with Water Right Order 2008-0014. Several technical revisions to the Order were adopted as part of Water Right Order 2008-0025 on May 20, 2008.

Surface water releases are made available for transfer under the Accord based on the difference between a baseline release rate (the interim flow schedules defined in RD-1644 and in Water Right Order 2008-0014) and the Fisheries Agreement flow schedules. The baseline releases (interim flow schedule in RD-

1644) are based on the Yuba River Index as defined in RD-1644. The flow schedules in the Fisheries Agreement are determined based on the North Yuba River Index independent from the Yuba River Index. (There are also some conditions when the YCWD-CDFW agreement or the current FERC license control the baseline flows.) As a result, there can be a wide range of possible transfer amounts under the various hydrologic conditions that can occur in the Yuba River watershed in any year.

Groundwater substitution water is made available by individual landowners within seven of the eight YCWA member units that are signatories to the Accord. YCWA reduces its surface diversions to those member units from the Yuba River and regulates storage in Bullards Bar Reservoir to accrue and release the groundwater substitution water on a schedule to allow the releases to be exported in the Delta.

Finally, in recent history, individual and groups SWP and CVP contractors have purchased water transfer supplies on an as-needed basis to supplement shortages to water supplies. BWD and other entities have occasionally participated in these prior water transfers.

There have been no known demonstrable adverse impacts resulting from these recent water transfers, which have complied with all applicable environmental regulations governing Delta operations. There have been no impacts in any one year when the various transfers are considered cumulatively; nor have there been any impacts when considering the various transfers cumulatively over the last decade. BWD's proposed transfer is one of several transfers in the Sacramento River Basin likely to occur in 2018. This project proposes to sell Buyers up to 21,927 AF of water to meet some of their needs in the event of a shortfall. In total, up to approximately 194,000 AF of potential transfers from all sellers in the Sacramento River watershed could be purchased by CVP and/or SWP contractor buyers (see Table 3-2, below). This represents about 0.9 percent of the average annual total water supply available in the Sacramento Valley from surface and groundwater resources for all uses and 2.4 percent of total average agricultural water use in the Sacramento Valley. BWD has participated in past land idling transfers in 2014, 2012, 2010 and 2009. It has participated in groundwater substitution water transfers utilizing the same two wells in 2014, 2013, 2010, and 2009. No adverse impacts were claimed or noted as part of BWD's past transfers. As such, and recognizing that no individual or cumulatively significant impacts have been noted for past transfers at or exceeding this order of magnitude, no significant impacts (individually or cumulatively) are expected as a result of the proposed project. Delta impacts are likewise not expected to be significant as all the water shown in Table 3-2 was pumped in the Delta within existing biological constraints without incident.

Table 3-2. Potential Transfers from Sellers in Sacramento River Watershed

Program	2006	2007	2008	2009	2010	2011	2012	2013	2014	Potential 2018
DWR Drought Water Banks/Dry Year Programs	0	0	0	74	0	0	0	0	0	0
Environ Water Acct	0	147	60	60	60	0	0	0	0	0
Others (CVP, SWP, Yuba, inter alia)	0	0	173	140	243	0	190	210	198	194
Totals (TAF)	0	147	233	274	303	0	190	210	198	194

Key:
DWR- Department of Water Resources
CVP- Central Valley Project
SWP- State Water Project
TAF- thousand acre-feet
Notes: Table reflects gross AF purchased prior to 20 percent Delta carriage loss (i.e., actual amounts pumped at Delta are 20 percent less)

Biological Resources

The proposed project would result in a slight increase in Sacramento River and Feather River flows. Other cumulative transfers would result in increased flows downstream of the sellers' point of diversion to the Delta. Detailed analysis in the Long-Term Water Transfers EIS/EIR concluded that cumulative change in flow due to transfers would not reduce the suitability of habitat conditions during adult immigration by Chinook salmon, steelhead, and green sturgeon (Reclamation and SLDWMA 2015). This magnitude of cumulative flow change would also not appreciably reduce spawning habitat availability and incubation, increase redd dewatering or juvenile stranding, or reduce the suitability of habitat conditions during juvenile rearing for these sensitive fish species because the increase in flow is so small compared to baseline flows. Other special-status fish species, including hardhead and Sacramento splittail would also not be affected by small changes in river flow.

The proposed project includes up to 4,902 acres of rice idling in Butte and Sutter counties. Transfers under the cumulative condition would result in the idling of more rice fields than those included in the proposed project. As described under IV. Biological Resources, rice fields provide habitat for GGS, western pond turtle, and migratory birds. For the GGS and western pond turtle, rice idling could result in reduced forage and cover habitat, hindered movement, and increased predation risk. For migratory birds, rice idling could reduce nesting, forage, and rearing habitat. Additional rice idled under the cumulative condition could increase these effects relative to the proposed project.

Mitigation Measure BIO-1 includes best management practices to reduce potential effects to special status species, including GGS and western pond turtle, and migratory birds. Other water transfers facilitated by Reclamation and DWR using Federal and State facilities would be required to have similar measures in place to protect special status species, as specified in *DRAFT Technical Information for Preparing Water Transfer Proposals* (Reclamation and DWR 2015). As a result, cumulative impacts to these species would not be

expected to be significant. Further, Mitigation Measure BIO-1 would reduce potential effects of the proposed project on special status species under cumulative conditions, such that the proposed project's contribution to any such impacts would be minimal.

Groundwater substitution transfers under the cumulative condition would also result in streamflow depletion and potentially affect flows for fish and natural communities. The additional groundwater substitution transfers under cumulative conditions are generally in different areas of the Sacramento Valley than those included in the proposed project and would not substantially increase streamflow depletion in any one area. As a result, any losses in stream flows would be minor and effects to fisheries or natural communities would be less than significant under the cumulative condition.

Groundwater Resources
The reduction in recharge due to the decrease in precipitation and runoff in the past years in addition to the increase in groundwater substitution transfers would lower groundwater levels. As discussed in the Hydrology and Water Quality section, groundwater pumping under proposed project would not cause significant adverse effects to groundwater levels with the implementation of Mitigation Measure GW-1. The additional groundwater substitution transfers in the cumulative condition are in different areas of the Sacramento Valley; therefore, this addition to the cumulative condition is not likely to cause a significant cumulative impact.

The seller will be required to conduct well review, monitoring, and mitigation to reduce effects to third party groundwater users for approval of transfers. Only wells that meet the requirements outlined in the *DRAFT Technical Information for Preparing Water Transfer Proposals* (Reclamation and DWR 2015) will be allowed to participate in a transfer. Monitoring and mitigation programs would reduce cumulative groundwater effects. Coordination of groundwater programs in the Sacramento Valley would also minimize and avoid the potential for cumulative effects to groundwater resources. DWR is involved in multiple groundwater programs in the Sacramento Valley, including monitoring programs. BWD will be submitting transfer reports to DWR that will be used to track program activities, collect and combine data, and assess potential groundwater effects. Because of the required groundwater monitoring and mitigation for transfer approval and agency coordination, the proposed project would not result in a cumulatively considerable contribution to effects on groundwater.

c) No Impact. The MND assesses the potential impacts of the proposed project. There would be no construction activities associated with the proposed water transfer. Typical farming practices with the idling of land would comply with applicable health and safety requirements. Therefore, the proposed project would not cause substantial adverse effects on human beings, either directly or indirectly.

Chapter 4
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