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February 11, 2022

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Subject: Pacheco Reservoir Expansion Project, Draft Environmental Impact Report, SCH No. 2017082020, Santa Clara, San Benito, Stanislaus, and Merced Counties

Dear Todd Sexauer:

The California Department of Fish and Wildlife (CDFW) received a Draft Environmental Impact Report (DEIR) from the Santa Clara Valley Water District (Valley Water) for the Pacheco Reservoir Expansion Project (Project) pursuant to the California Environmental Quality Act (CEQA).

CDFW is submitting comments on the DEIR to inform Valley Water, as the Lead Agency, of our concerns regarding potentially significant impacts to sensitive resources associated with the proposed Project. CDFW is providing these comments and recommendations regarding those activities involved in the Project that are within CDFW's area of expertise and relevant to its statutory responsibilities (Fish and Game Code, § 1802), and/or which are required to be approved by CDFW (CEQA Guidelines, §§ 15086, 15096 and 15204).

CDFW ROLE

CDFW is a Trustee Agency with responsibility under CEQA (Pub. Resources Code § 21000 et seq.) pursuant to CEQA Guidelines section 15386 for commenting on projects that could impact fish, plant, and wildlife resources. CDFW is also considered a Responsible Agency if a project would require discretionary approval, such as permits issued under the California Endangered Species Act (CESA), the Native Plant Protection Act, the Lake and Streambed Alteration (LSA) Program, and other provisions of the Fish and Game Code that afford protection to the state's fish and wildlife trust resources.

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Water Rights

The use of unallocated stream flows is subject to appropriation and approval by the State Water Resources Control Board (SWRCB) pursuant to Water Code section 1200 et seq. CDFW, as Trustee Agency, is consulted by the SWRCB during the water rights process to provide terms and conditions designed to protect fish and wildlife prior to appropriation of the State's water resources. Certain fish and wildlife are reliant upon aquatic ecosystems, which in turn are reliant upon adequate flows of water. CDFW therefore has a material interest in assuring that adequate water flows are present within streams for the protection, maintenance, and proper stewardship of those resources. CDFW provides, as available, biological expertise to review and comment on environmental documents and impacts arising from Project activities.

REGULATORY REQUIREMENTS

California Endangered Species Act

Please be advised that a CESA Incidental Take Permit (ITP) must be obtained if the Project has the potential to result in "take" of plants or animals listed under CESA, either during construction or over the life of the Project. Issuance of a CESA Permit is subject to CEQA documentation; the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the Project will impact CESA listed species, early consultation is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain a CESA Permit.

CEQA requires a Mandatory Finding of Significance if a project is likely to substantially restrict the range or reduce the population of a threatened, rare, or endangered species. (Pub. Resources Code, §§ 21001, subd. (c), 21083; CEQA Guidelines, §§ 15380, 15064, and 15065). Impacts must be avoided or mitigated to less-than-significant levels unless the CEQA Lead Agency makes and supports Findings of Overriding Consideration (FOC). The CEQA Lead Agency's FOC does not eliminate the Project proponent's obligation to comply with Fish and Game Code section 2080.

Lake and Streambed Alteration

CDFW requires an LSA Notification, pursuant to Fish and Game Code section 1600 et. seq., for Project activities affecting lakes or streams and associated riparian habitat. Notification is required for any activity that may substantially divert or obstruct the natural flow; change or use material from the bed, channel, or bank including associated riparian or wetland resources; or deposit or dispose of material where it may pass into a river, lake, or stream. Work within ephemeral streams, washes, watercourses with a subsurface flow, and floodplains are subject to notification requirements. CDFW, as a Responsible Agency under CEQA, will consider the CEQA document for the Project and

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may issue an LSA Agreement. CDFW may not execute the final LSA Agreement (or ITP) until it has complied with CEQA as a Responsible Agency.

PROJECT DESCRIPTION SUMMARY

Proponent: Santa Clara Valley Water District

Description: The Project aims to expand the Pacheco Reservoir by constructing and operating a new dam. The DEIR evaluates the Proposed Project, four alternative dam configurations that vary in type, location, and flow schedules, as well as a No Project alternative (summarized in Table ES-1).

The Proposed Project is located upstream of the existing North Fork Dam which impounds 5,500 acre-feet (AF) of water when functional. The Proposed Project would include construction of a hardfill dam and impound 140,000 AF of water. The Proposed Project also includes new water conveyance facilities (pipelines, tunnel, and pump station) that would connect the new expanded reservoir to the Pacheco Conduit as well as the decommissioning of the existing North Fork Dam and restoration of segments of the North Fork Pacheco Creek channel; utility modifications including a new electrical substation and power transmission lines; and new permanent access roads and road improvements on State Route (SR)-152 and Kaiser-Aetna Road. The Proposed Project would include a variable flow schedule release (see page 5 of this letter).

Alternative A would be an earthfill dam located upstream of the existing dam site, hold 140,000 AF of reservoir capacity, include temporary overcrossing improvements to SR 152 and follow a fixed flow schedule. Alternative B would also be an earthfill dam located upstream of the existing dam, hold 96,000 AF of water and follow a fixed flow schedule. Alternatives C and D are both located downstream of the existing dam site; each holds 140,000 AF of reservoir capacity. Alternative C is a hardfill dam type and has a variable flow schedule while Alternative D is earthfill and has a fixed flow schedule.

The DEIR identifies the following objectives that the Project intends to satisfy:

- Primary Objectives
 - Increase water supply reliability and system operational flexibility to help meet municipal and irrigation (M&I) and agricultural water demands in Santa Clara and San Benito Counties during drought periods and emergencies, or to address shortages due to regulatory and environmental restrictions.

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- Increase suitable habitat in Pacheco Creek for federally threatened South Central California Coast (SCCC) steelhead (*Oncorhynchus mykiss*) through improved water temperature and flow conditions.
- Secondary Objectives
 - Improve water quality and minimize supply interruptions, when water is needed, for Santa Clara and San Benito Counties, to increase operational flexibility for south-of – Sacramento-San Joaquin Delta (Delta) contractors dependent on San Luis Reservoir.
 - Develop water supplies for environmental water needs at Incremental Level 4 (IL4) wildlife refuges to support habitat management in the Delta Watershed.

Location: The existing Pacheco Reservoir is located on North Fork Pacheco Creek in southwestern Santa Clara County. North Fork Pacheco Creek is a 19-mile stream with headwaters northwest of Pacheco Reservoir in Henry W. Coe State Park. Mainstem Pacheco Creek begins 0.4 miles downstream from the North Fork Dam at the confluence of the North Fork Pacheco Creek and South Fork Pacheco Creek. Pacheco Creek is within the Pajaro River Watershed and is a tributary to the Pajaro River.

The Project area includes the entirety of the existing Pacheco Reservoir and adjacent areas affected by facilities, construction, or inundation related to the expanded reservoir (up to approximately seven miles upstream of the existing reservoir). This area includes portions of southwestern Santa Clara County, northwestern Merced County, and southwestern Stanislaus County. The Project area also includes areas downstream from the existing North Fork Dam, including portions of North Fork Pacheco Creek, Pacheco Creek, and San Felipe Lake within southern Santa Clara County and northern San Benito County.

Because of the potential influence of the proposed Project and future operations on resources over a large geographic area, the broader Project study area includes all portions of the areas listed below:

- Areas downstream from San Felipe Lake, including Miller Canal, and the Pajaro River
- Valley Water and San Benito County Water District facilities and service areas
- Wildlife refuges within the San Joaquin River Watershed that receive Central Valley Project Improvement (CVPIA) incremental level 4 water supplies

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- Central Valley Project (CVP) and State Water Project (SWP) facilities, areas downstream from these facilities, and water service areas, including the Delta and San Luis Reservoir

COMMENTS AND RECOMMENDATIONS

CDFW offers the below comments and recommendations to assist Valley Water in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish, plants, and wildlife (biological) resources.

General Comments

CDFW understands the importance of finding solutions that address water supply shortages to continue providing water for M&I uses as well as for agriculture. CDFW also recognizes that the Proposed Project and Alternatives have the potential to incorporate multi-benefits such as for biological resources (e.g., flows for steelhead, water for various habitats, etc.).

The DEIR currently lacks sufficient information for CDFW to fully assess the magnitude of the Proposed Project's environmental impacts and which mitigation measures may be necessary. For the reasons and concerns outlined throughout this letter, CDFW recommends Valley Water correct the issues identified in the DEIR and incorporate CDFW's recommendations in the EIR.

Variable Flow Schedule

Under the Proposed Project, flow releases would be based under a Variable Flow Schedule, which would include release of baseflows in all months; adult steelhead attraction pulse flows in January, February, and March; and outmigration pulse flows in April and May. The monthly base flows and pulse flow targets would vary by water year type. Water would be conserved during summer and drier years.

Issue: The DEIR (Chapter 2 section 2.3.3.1 Operations, Releases to North Fork Pacheco Creek) states "*Monthly baseflows and pulse flow targets vary by water year type, as defined by the Pacheco Reservoir Inflow Index using unimpaired inflow to the expanded reservoir. These monthly baseflows and pulse flow targets were developed in a series of workshops as part of a collaborative process between Valley Water and stakeholder agencies, including but not limited to NMFS, U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), and the CWC [California Water Commission]*" (p. 2-35).

CDFW participated in these multi-agency workshops and provided input on the needs of species that will be affected by the construction and operation of the proposed Project.

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Of the approximately 18 workshops conducted from 2019 to 2021, only two were specific to the Proposed Project configuration as described in the DEIR.

CDFW is concerned that changes in the Pacheco Creek flow regime have the potential to impact ecosystem functions and the plant and wildlife species and aquatic and terrestrial natural communities such as riparian and wetland vegetation that depend on these flows. Valley Water solicited input on flow regimes in Pacheco Creek using a set amount of water that would minimize impacts to some species while providing benefits to others. The Variable Flow Schedule resulting from these multi-agency workshops represents a flow schedule that attempts to minimize impacts to species, and provide a benefit to steelhead, and was largely conceptualized based on an understanding that the Proposed Project would be located at the downstream dam site (i.e., Alternatives C and D). The additional 1.8 miles of stream channel below the proposed dam site included as part of the Proposed Project were not factored into the analysis that was conducted and discussed during the workshops described. Additionally, CDFW recognizes that not all water being provided under the Variable Flow Schedule is solely for an ecosystem benefit under the Water Storage Investment Program (WSIP).

Recommendation: CDFW recommends the proposed Variable Flow Schedule, as described in Table 2-3 (p. 2-36), be evaluated specific to the upstream dam site (i.e., the Proposed Project location and Alternatives A and B) to ensure it still meets the needs of both mitigating for all Project impacts and providing a benefit to SCCC steelhead, and consider any influences of restoration to the 1.8 miles of North Fork Pacheco Creek on the proposed Pulse Flow target magnitude and duration.

Issue: Table ES-4 (page ES-15) contains a row comparing “Percent increase in Steelhead Score”. The cohort scores range from 21-36 percent less in the Variable Flow Schedule Project Alternatives (Proposed Project and Alternative C-the Environmentally Superior Alternative) versus the Fixed Flow Project Alternatives (Alternatives A, B and D). The Variable Flow Schedule was created to benefit steelhead, but this analysis shows a reduction in benefits to steelhead.

Recommendation: CDFW recommends the EIR further explain why or how the cohort score is 21-36 percent less in the Variable Flow Schedule Project Alternatives versus the Fixed Flow Project Alternatives. It is understood the flow schedule has been changed to benefit a variety of species, including steelhead and Sycamore Alluvial Woodland (SAW), but CDFW recommends that the EIR provide a detailed explanation of scoring methods and results to explain conflicting objectives.

WSIP Benefit - SCCC Steelhead Habitat Improvement

Issue: As affirmed by Valley Water in the DEIR Executive Summary (ES.2 Background), the basis for the Proposed Project’s public ecosystem benefit under the WSIP is

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improved habitat for SCCC steelhead. It is CDFW's expectation that a re-established steelhead population will be present and utilizing Pacheco Creek's improved habitat for achievement of this public ecosystem benefit.

The DEIR anticipates that the Proposed Project will impact steelhead and other aquatic and terrestrial species during Project construction and operations (e.g., negative effects caused by induced creek dryback, Table 2-3 p.2-36). Section 6004(a)(3) of the California Code of Regulations for the WSIP require projects to demonstrate a net improvement, which is the enhancement of a resource condition less any negative impacts of the project that are not fully mitigated. The DEIR states, "*If a water supply interruption were determined to be an imminent risk to essential public health and safety, the Board of Directors of either agency [Valley Water and/or SBCWD] could make an emergency declaration and Valley Water and/or SBCWD could continue to withdraw water from the expanded reservoir, including the habitat storage reserve, to meet demand*" (p. 2-35). Therefore, based on the DEIR, CDFW cannot discern the amount of water that is expected to go toward providing a public ecosystem benefit to steelhead from the amount that will go toward minimizing impacts of the Proposed Project or toward the Proposed Project's emergency supply public benefit.

Recommendation: CDFW recommends that the EIR clearly describe how Valley Water plans to prioritize and allocate water supplies to meet the Proposed Project's needs and requirements. For example, the EIR should clearly differentiate between the Project's net improvements to steelhead and improvements from offsetting impacts of the Project by fulfilling compensatory mitigation requirements.

Fisheries Impacts

Issue: With the exception of the construction impacts in Pacheco Creek to Monterey hitch (*Lavinia exilicauda harengus*) and Monterey roach (*Lavinia symmetricus subditus*), which are both designated as state Species of Special Concern (Impact Fish-4), the DEIR determines that impacts to other special-status fish and native freshwater mussels during construction and operation of the Proposed Project to be less-than-significant (LTS) or No Impact (NI, Fish-9) in the primary study area (Table 3.6-2, pp. 3.6-24 - 3.6-27). However, the DEIR does not provide sufficient data or evidence to substantiate these findings. Some examples of where insufficient analyses have been provided to support a finding of LTS are outlined below:

The DEIR states "*The expanded reservoir under the Proposed Project would result in a larger area of inundation compared to the existing and future baselines, thereby reducing the amount of riverine habitat upstream from the new dam available to Monterey roach by approximately 7.7 miles, leaving 8.4 miles of intermittent creek habitat upstream from the expanded reservoir*" (p. 3.6-29). The 48% reduction of

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riverine habitat in North Fork Pacheco Creek is considered LTS “*Because much of North Fork Pacheco Creek is frequently dry*” (p. 3.6-29).

However, CDFW is concerned that the DEIR lacks an evaluation of the existing fish population size(s) and location(s) of stream use by native fish to be able to assess the potential impact of decreased habitat availability. Further, the DEIR states (p.3.6-30) that the expanded reservoir would be repopulated by fish in the Upper North Fork Creek, including Monterey roach, thereby suggesting the importance of the North Fork Creek’s habitat to maintaining and reestablishing viable populations of special-status native resident fish species.

The DEIR states “*The introduction of CVP water from San Luis Reservoir into Pacheco Reservoir has the potential to introduce non-native fish and invertebrate species into upper North Fork Pacheco Creek, which already supports a community of non-native species fish*” (p. 3.6-29). However, the DEIR finds the impact to be LTS because North Fork Pacheco Creek frequently goes dry which would “*result in keeping the numbers of non-native fish species inhabiting the upper North Fork Pacheco Creek above the expanded reservoir low*” (p. 3.6-29). Without substantiating this conclusion, CDFW considers it contradictory that the drying of North Fork Pacheco Creek would have LTS impacts on native species but negative impacts on non-native species. Furthermore, the DEIR states “*While the North Fork Pacheco Creek is intermittent, some habitat for these native and non-native fish may persist during these conditions that could sustain populations and could result in recolonization of the expanded reservoir*” (p. 3.6-31). But the DEIR states the potential impact to be LTS because the few Monterey roach currently populating the existing reservoir are already exposed to non-native predatory fish species (p. 3.6-31). CDFW considers this an insufficient and qualitative rather than quantitative assessment of potential impacts to special-status native resident fish species.

P. 3.6-30 states “*Under the Proposed Project, special-status native resident fish (Monterey roach which may be present) would be precluded from entering the expanded reservoir and dam construction area by the installation of a cofferdam upstream from the new dam and a functional barrier downstream from the existing dam.*” The DEIR fails to evaluate the potential impacts caused by exclusion of the native species, which could be for the duration of construction, which is stated to be between 5.8 to 7.3 years. Furthermore, it is stated that impacts from the draining of the existing Pacheco Reservoir and removal of the dam would result in the loss of habitat for reservoir species for a minimum of six years but that this impact is LTS because “*most, if not all, of these fish are non-native species*” (p. 3.6-30). However, the DEIR does not present data or evidence suggesting native fish species are absent from the reservoir. It is also unclear how native fish would repopulate the new reservoir if they currently were absent from both the existing reservoir and excluded for the duration of construction.

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The DEIR acknowledges that “*Winter peak flows during construction would mobilize residual sediment in the restored channel to some degree, increasing turbidity, suspended sediment, and bedload material in lower North Fork Pacheco Creek and downstream in Pacheco Creek*” (p.3.6-32). However, the DEIR then states, “*Monterey hitch and Monterey roach are currently exposed to increases in turbidity and sedimentation during peak flows*” (p.3.6-32) and therefore concludes while there might be some impacts to these species during a peak flow event, they have adapted to increases in turbidity and sedimentation and as such, are not expected to be affected. CDFW disagrees with the LTS determination. The compounding impacts of increasing turbidity and sedimentation by construction of the Proposed Project have not been evaluated. As discussed in Annear *et al.* (2004), studies assessing the impact of sediment on aquatic biota have demonstrated an inverse relationship between accumulation of sediment in spawning and rearing habitats and survival and abundance of fish.

Recommendation: CDFW recommends the EIR expand its evaluation of potential impacts of the Proposed Project on all special-status native fish, such as SCCC steelhead, Monterey hitch, Monterey roach, Pacific lamprey (*Entosphenus tridentatus*), and native freshwater mussel species that could be present within the Project study area, and provide sufficient analysis and scientific justification for any LTS determination.

CDFW also recommends the EIR evaluate the potential frequency and magnitude of impacts caused by sediment loading to all native aquatic species and their habitats (e.g., spawning gravels).

CDFW also recommends that the EIR analysis be based on surveys (e.g., electrofishing) conducted to quantitatively characterize the existing Monterey roach and Monterey hitch population sizes relative to the non-native fish population. Additionally, habitat mapping of North Fork Pacheco Creek should include identification of habitat types such as holding pools that might persist during intermittent conditions as well as invertebrate sampling/identification to evaluate existing conditions. Together, these surveys can provide information and create baseline conditions against which future conditions can be compared, and monitored, to ensure increased delivery of CVP water into the expanded reservoir is not (or is) introducing new non-natives or increasing known non-native populations, so that adaptive management can occur as necessary.

Issue: The DEIR finds the Proposed Project to have LTS effects either directly or through habitat modifications for special-status, anadromous fish species in lower North Fork Pacheco Creek, Pacheco Creek, South Fork Pacheco Creek, San Felipe Lake, Miller Canal, and Pajaro River (Impact Fish-7, Fish-8, Fish-9, and Fish-10, respectively). However, CDFW believes that the Proposed Project and Alternatives have the potential to significantly impact SCCC steelhead survival and recruitment in these creeks.

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The DEIR PAMM Fish-2 Anadromous Fish Exclusion Barrier and Relocation Plan (p. 2-48, 49) states, “*The primary objective of this plan will be to determine the physical location for placement of functional barriers that would prevent anadromous fish access to San Felipe Lake and Pacheco Creek upstream during construction... These barriers will be placed in Miller Canal and Tequisquita Slough downstream of San Felipe Lake due to their confined channel characteristics.*” Although this action is proposed as a Project-specific avoidance and minimization measure, CDFW believes this action can and will have an impact on SCCC steelhead in Pacheco Creek. Excluding anadromous fish from the entire Pacheco Creek watershed during construction (lasting between 5.8 to 7.3 years), would extirpate the species from Pacheco Creek. Furthermore, Appendix Alternatives Development and Project Description states (p. 2-9) “*Currently, Uvas Creek has the only self-sustaining steelhead population in the Pajaro River watershed*” and “*In the Pajaro River watershed, there are only two consistent populations – Corralitos Creek near the estuary, and Uvas Creek. Llagas Creek and Pacheco Creek only have sporadic steelhead activity due to the intermittent nature of the streams.*” This raises the question of how a Pacheco Creek SCCC steelhead population would be re-established after Project construction and what would be the source or origin of SCCC steelhead for Pacheco Creek.

Recommendation: CDFW recommends that the EIR include a detailed evaluation of impacts to SCCC steelhead during the construction phase of the Proposed Project, including an assessment of the potential impacts of installing the fish exclusion barrier and relocating steelhead (PAMM Fish-2). The EIR should also include a description of SCCC steelhead population enhancement actions to be implemented after Project construction is complete to ensure a successful return and re-establishment of SCCC steelhead in Pacheco Creek.

Issue: Section 3.6.3.4 of the DEIR (impact Fish-7 p.3.6-42) states, “*To control the spread of willows from encroaching on sycamore alluvial woodland habitat, flow releases that result in drybacks in Pacheco Creek may be implemented in critically dry years when inflows into the expanded reservoir would be low, and the habitat conditions less suitable for steelhead... Because these fish already experience nearly annual drybacks, this impact would be less than significant because impacts on anadromous fish species and their habitat would not be substantial.*” CDFW disagrees with the DEIR’s conclusion that because the current sporadic SCCC steelhead population in Pacheco Creek (Appendix Alternatives Development and Project Description p. 2-9) experiences nearly annual drybacks, the future impact would be LTS to the steelhead population once habitat improvements have occurred and a SCCC steelhead population has re-established. Induced drybacks, as proposed in the Variable Flow Schedule, could result in significant impacts to any rearing juvenile SCCC steelhead present in Pacheco Creek by stranding individuals or concentrating them in isolated pools that become unfavorable habitat conditions.

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Furthermore, proposed Project operations during emergencies could have potential impacts to SCCC steelhead. The DEIR states, *“If a water supply interruption were determined to be an imminent risk to essential public health and safety, the Board of Directors of either agency [Valley Water and/or SBCWD] could make an emergency declaration and Valley Water and/or SBCWD could continue to withdraw water from the expanded reservoir, including the habitat storage reserve, to meet demand”* (p. 2-35). Drawdown of the habitat storage reserve and reducing and/or eliminating releases into Pacheco Creek to maintain stream conditions can impact SCCC steelhead and other aquatic and terrestrial species that depends on releases.

Recommendation: CDFW recommends the EIR include a robust analysis of all potential impacts to steelhead from implementing drybacks and drawdown of the habitat storage reserve, and include an effective monitoring and mitigation plan to offset all direct and indirect impacts.

SCCC Steelhead Monitoring

Issue: The DEIR describes releases to North Fork Pacheco Creek in Chapter 2 (p.2-39) as followed: *“In years when adult migration most likely does not occur due to lack of hydrologic connectivity in the Pajaro River system, and other steelhead life stages within Pacheco Creek are not likely to be present to benefit from summer/fall baseflows (e.g., June – October), reservoir releases for summer/fall baseflows may be reduced to retain water supplies to create later environmental pulse flows.”* In addition, Section 3.6.3.4 (p. 3.6-37) states, *“In order to control the spread of willows from encroaching on sycamore alluvial habitat, drybacks may be implemented in critical years when inflows into the expanded reservoir would be low, habitat conditions less suitable for steelhead, and a low number of adults have migrated into the system.”* These statements imply that reservoir releases may be modified depending on SCCC steelhead presence in Pacheco Creek. However, the DEIR does not include any description of a routine monitoring plan to assess juvenile and adult SCCC steelhead presence in Pacheco Creek.

Chapter 3, Section 3.6 of the DEIR references limited information on SCCC steelhead presence in Pacheco Creek and is based on observations from the 1970s and early 1980s. The DEIR acknowledges there is no fish monitoring program in the Pajaro River watershed. The analysis of the Proposed Project impacts to SCCC steelhead would benefit from more recent monitoring data.

Recommendation: CDFW recommends that the EIR include a robust steelhead monitoring plan. CDFW also recommends that baseline monitoring data for SCCC steelhead in Pacheco Creek, including North and South Forks, be collected to better assess potential impacts to the species from Project construction and operations. The monitoring plan should include pre-construction and post-construction objectives that would determine population of native fish in the system. CDFW also recommends

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annual aquatic monitoring for other special status fish species previously mentioned in this letter as well as regular water quality monitoring [e.g., temperature, stage, and dissolved oxygen (DO)] at appropriate locations within the Project area.

Steelhead Habitat Restoration

Issue: The DEIR Chapter 2 (p. 2-15) states *“Field studies indicate that, under current conditions (low flows and high water temperature), only the 10 miles of Pacheco Creek downstream from the existing confluence of North Fork and South Fork Pacheco Creeks may provide suitable habitat for steelhead egg incubation and fry rearing in some years (Smith pers. comm 2017).”* However, the DEIR does not provide substantiating data or references to support this assertion. Additionally, the habitat suitability domain for calculating cohort score (Table 7-10 p. 7-13) is described as the *“Length of the creek from dam outlet to 8 creek miles below the confluence of North Fork and South Fork Pacheco Creek”*. This is inconsistent with the description of suitable habitat occurring for 10 miles downstream of the North and South Fork Pacheco creeks confluence.

Furthermore, Water Resources and Fisheries Numerical Modeling Appendix, Section 7.2 Modeling Assumptions (p. 7-14) states *“the start of creek mile 0 was moved upstream to coincide with the new dam location for each alternative. The stream/aquifer submodel and habitat suitability assumptions for creek mile 0 remained the same as the No Project Alternative.”* However, no supporting data or evidence is provided to corroborate the conclusion that the stream/aquifer and/or habitat suitability created through restoration of the currently inundated North Fork Pacheco Creek will perform the same as habitats currently downstream.

While the schedule for restoration is described as occurring in two phases (p. 3.6-31, 32), it is unclear when the restored reach would function as suitable habitat for SCCC steelhead and other native aquatic species. The timing of the start and completion of the second phase should also be clarified. The DEIR states that *“phase one would begin in the summer of construction year two...phase two would begin in the summer before the final year”* (p. 2-26), therefore, the gap between phases could be approximately 3-5 years.

Recommendation: CDFW recommends that the EIR more fully describe and reference the cited field studies, methodologies, and any other supporting evidence (i.e., specific habitat locations and characteristics) used to support the conclusion from p. 2-15 as quoted above. CDFW recommends that model assumptions be clearly described and supported, potentially differing by location (i.e., the lower vs. higher dam location). Additionally, a more detailed restoration plan for the North Fork Pacheco Creek should be provided, which includes a proposed timeline supported by modeling for when specific restoration actions might be completed and when the reach is likely to function

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as suitable aquatic habitat (e.g., sinuosity re-established, gravel augmented, contain sufficient vegetative cover, sediment loading issues addressed).

Issue: The DEIR mentions that the *“Pajaro River Watershed is considered severely degraded”* (p.2-14). The Proposed Project and Alternatives are far upstream in the watershed, but downstream fish passage needs are not addressed. It is not clear if fish will be able to access the restored flow and habitat area once the Proposed Project has been completed. Improvements that may be needed downstream to allow fish to access improved habitat restoration areas is not discussed.

Recommendation: CDFW recommends the EIR include a thorough assessment of the greater Pacheco Creek migratory corridor in order to understand fish passage conditions downstream of the new dam after completion of the Proposed Project and subsequent stream restoration. The DEIR fish passage assessment should encompass the area from downstream of the new dam to the ocean to ensure Pacheco Creek provides sufficient fish passage and supports suitable habitat for fish that may eventually occupy the newly restored channel.

Temperature Analysis

Issue: The DEIR provides supporting documentation for water temperature of baseline conditions, the Proposed Project, and Alternatives A-D. However, the model results leave uncertainty about the Project’s water temperature impacts to aquatic resources because of potential compounded model error resulting from limited historical measured data. For example, the Water Resources and Fisheries Numerical Modeling Appendix states, *“Extensive historical measured data was not available to develop comprehensive input parameters for all models. Where necessary, input data was developed or selected from different sources by applying a precautionary principle of assuming a conservative value that would result in the ‘worst’ or most impactful outcome (e.g., assuming warmer air temperatures so as not to overestimate cold-water release benefits)”* (p.1-4). Additional uncertainty stems from the use of modeled mean monthly water temperatures. Chapter 3, Section 3.12 and the Water Resources and Fisheries Numerical Modeling Appendix describes models (e.g., CE-QUAL-W2 and PCSHSM) that estimate reservoir release temperatures and water temperatures in Pacheco Creek on a mean monthly basis. Monthly average water temperatures could vary greatly at a smaller time scale. Daily and weekly changes to water quality can often have lethal or sub-lethal effects on aquatic resources, which a monthly time step cannot capture.

Recommendation: Due to the limited historical data on water temperatures in Pacheco Creek which can lead to modeling error as well as the variability of water quality conditions in this stream system, CDFW recommends that modeling to assess water quality impacts on aquatic resources be based on a daily time series analysis rather than a monthly analysis. Additionally, the worst-case conditions must be analyzed on a

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daily time-step rather than a monthly time-step in order to more accurately evaluate potential lethal or sub-lethal effects on aquatic resources such as SCCC steelhead.

Overarching Uncertainty

Issue: CDFW recognizes the limitations of the analytical tools and data available to Valley Water to conduct a comprehensive evaluation of potential impacts of the Proposed Project on aquatic species. However, there are several instances in the DEIR where statements and conclusions on Project impacts to water quality and consequently fisheries are not sufficiently substantiated. Select examples include:

- p. 3.6-41, “*Supplemental CVP inflows would result in a long-term average blend of 55 percent natural inflow from the North Fork Pacheco Creek watershed and 45 percent CVP supplies by volume in the expanded reservoir (see Section 3.20.3.4)...A long-term average would have a blending ratio of less than 50 percent CVP water; however, some years – mostly in extended droughts- this may exceed 50 percent...Accordingly, the impact of straying would be less than significant because impacts on anadromous fish species and their habitat would not be substantial.*” CDFW would like to note that an analysis of blending ratios of natural inflow and imported water is not provided in Section 3.20.
- p. 3.6-42, “*To control the spread of willows from encroaching on sycamore alluvial woodland habitat, flow releases that result in drybacks in Pacheco Creek may be implemented in critically dry years when inflows into the expanded reservoir would be low, and the habitat conditions less suitable for steelhead... Lower North Fork Pacheco Creek would maintain at least 8 cfs to support any rearing steelhead, if present, and to support the riparian vegetation. Ramping rates would be set at 1 cfs every four hours to reduce the risk of stranding fish. Because these fish already experience nearly annual drybacks, this impact would be less than significant because impacts on anadromous fish species and their habitat would not be substantial.*” While under baseline conditions anadromous fish likely experience nearly annual drybacks, this would not be the case with the Proposed Project operations. An induced dryback could potentially have significant impacts on steelhead that might be present in Pacheco Creek.

Recommendation: CDFW recommends the EIR provide supporting documentation and/or analysis to substantiate statements regarding Project impacts to aquatic and terrestrial biological resources. CDFW recommends an analysis be conducted and provided to substantiate conclusions of LTS. The model results and not just an interpretation of them should be included in the EIR. CDFW recommends the EIR include graphs, tables, etc. to explain and show the comparative analysis. These graphics should show baseline conditions and future conditions for the Proposed Project and Alternatives. Graphs showing the following information (similar to those

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recently presented by Valley Water on September 22, 2021, at the Pacheco Expansion Project Operations Workshop #8) would be helpful: 1- Graphs of flow data (y) plotted against creek miles (Points of Interest) (x); 2-Temperature data by month (y) plotted against creek miles (Points of Interest) (x); and 3-Depth/Habitat Suitability (y) plotted against creek miles (Points of Interest) (x).

Additionally, CDFW recommends the EIR substantiate the statement from the second example above with an analysis of anticipated frequency of drybacks in critically dry years.

CalSim-II Baseline Assumptions

Issue: In Table 2-1, pgs. 2-3 through 2-11, Chapter 2 of the Water Resources and Fisheries Numerical Modeling Appendix: The CalSim-II Baseline Assumptions notation 5 (p. 2-11) states that Refuge Level 4 (and IL4) water is not included as part of the analysis. Firm Level 2 water deliveries were assumed for the purpose of existing baseline analysis. IL4 supplies can count for as much as two-thirds of refuge supplies and not including IL4 in the CalSim analysis may affect the modeling assumptions of the DEIR.

Recommendation: The United States Bureau of Reclamation has contracts for IL4 water supplies that are based on water allocations, and CDFW recommends including IL4 supply with the modeling analysis to more accurately represent water demands, and water supply availability.

Cumulative Impacts

Issue: The DEIR states that Valley Water customers “*receive more than 45 percent of their supply from Delta exports under CVP and SWP contracts*” (p.2-13). Therefore, a secondary goal of the Proposed Project is to increase Valley Water and SBCWD’s local storage capacity so that they can “*take advantage of a portion of higher wet year allocations*” (p. 2-13). As such, the Delta is included in the DEIR as the extended Project study area because of the potential operational changes the Proposed Project could cause in the San Luis Division of the Central Valley and State Water Projects (p.3.6-1). The DEIR uses CalSim II to evaluate Delta conditions and concludes “*there would be negligible changes to Delta conditions under the Proposed Project, including X2, Old and Middle River flows, and exports for both CVP and SWP*” (p. 3.6-48). However, the DEIR fails to account for or evaluate potential cumulative impacts to the Delta caused by changes in CVP and SWP operations resulting from the Proposed Project along with changes related to foreseeable future projects, such as the Delta Conveyance Project which has planned exports ranging from 3,000 cfs to 7,500 cfs, or the Los Vaqueros Reservoir Expansion Project which also plans to alter the quantity and timing of Delta exports.

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Recommendation: CDFW recommends that the EIR evaluate cumulative impacts to Delta species caused by changes in CVP and SWP export quantity and timing in order to disclose all reasonably foreseeable potential impacts.

Issue: In section 2.10, Alternatives Considered but Eliminated from Further Analysis, the following alternative was mentioned “*Repair Existing Dams (Anderson, Almaden, Calero, and Guadalupe)*. This alternative was rejected because the future conditions baseline includes completion of the below projects. As described in the Water Resources and Numerical Modeling Appendix (see Table 6-2 in Section 6.5), the below projects are included in the future conditions (2030) baseline water operations modeling.

- *Anderson Dam Seismic Retrofit Project*
- *Almaden Dam Improvements Project*
- *Calero Dam Seismic Retrofit Project*
- *Guadalupe Dam Seismic Retrofit Project*”

Although repair of these other dams is not an alternative for this Project, CDFW is concerned with the inaccuracy of Repair of Existing Dams timeline. In section 2.10 and in the following quote “...and the additional water-related facilities assumed to be in place by 2030” (p. 3.6-19), the DEIR states that these projects are part of the future condition of 2030. CDFW does not consider this timeline to be realistic since many of these projects are still in the development phase or CEQA review process. For context, the Anderson Dam Seismic Retrofit Project is the most advanced of all seismic retrofit projects listed to be implemented (construction was initiated in 2021) and its expected construction completion is late 2030.

Recommendation: CDFW recommends selecting a more appropriate completion year for the dam retrofit projects mentioned above and re-evaluating the future conditions baseline based on a more realistic timeframe for initiation and completion of the proposed Valley Water seismic retrofit projects.

Sediment, Turbidity, and Pollutants

Issue: The DEIR states “*samples showed depths of residual sediments of between 7 and 20 feet within the estimated floodplain of the historic North Fork Pacheco Creek channel, with a composition of either silt or poorly graded gravel with sand*” (p.3.20-9). Additionally, “*the excavation of the dam site to a depth of 30 to 40 feet would require excavation of 926,000 cubic yards*” p. 3.20-31, and “*the exposure of 493 acres in the first few years of construction would expose soil and rock to erosional processes over the course of several construction seasons*” (p. 3.2-31).

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However, when discussing impacts to water quality related to sediment and turbidity, the DEIR states there are no tools available to quantify potential changes in turbidity and that no data exist to quantify the baseline turbidity of existing Pacheco Reservoir or North Fork Pacheco Creek, so impacts were analyzed qualitatively (p. 3.20-34). The DEIR finds impacts related to decommissioning the existing dam to be significant, and significant and unavoidable (Impact WQ-1, WQ-5, WQ-6, WQ-7), related to the Proposed Project's potential to cause a violation of water quality standards, as a result of turbidity and sediment releases, and concludes, "*No further mitigation is feasible that could cost effectively achieve the objectives of creation of functional habitat and removal or stabilization of all sediment in a manner that ensures water quality objectives are met under high flow conditions during construction*" (p.3.20-34).

However, it is unclear what, if any, additional mitigation was assessed and determined cost prohibitive. Additionally, the DEIR acknowledges activities related to construction and decommissioning the existing dam will adversely impact water quality, and consequently aquatic species and their habitat, including SCCC steelhead, but has not attempted to quantitatively assess the magnitude of impacts.

CDFW also has concerns about the mobilization of sediment from the existing reservoir footprint once the dam is moved upstream. Sudden increases in sediment load resulting from storm runoff can cause negative impacts to fish health and survival such as decreased water quality, potential decreases in suitable spawning gravel, and potential suffocation of eggs and/or alevin. Details as to how sediment from the existing reservoir bed will be stabilized during construction of the new dam and during the restoration of the channel downstream of the new dam are described generally in the DEIR (e.g., PAMM BI-4 and WQ-5 would be implemented where applicable to provide native revegetation, and PAMM BI-7 would stabilize surfaces with sufficient geotextile or plastic p. 3.20-33). However, the DEIR does not discuss the timeframe for the downstream channel restoration making it difficult for CDFW to determine the type and extent of impacts resulting from construction of the Proposed Project.

Recommendation: CDFW recommends that the EIR include a quantitative analysis of turbidity and sediment impacts and include a robust sediment removal, management, and mitigation plan for activities relating to removal of the existing dam, channel restoration, and subsequent construction of the new dam as well as present a timeline for implementation of identified activities. A quantitative assessment could potentially be done thorough developing tools and/or collecting data to generate accurate baseline conditions related to water quality. Once baseline conditions are determined and the magnitude of the impacts analyzed and described in the DEIR, CDFW can more effectively compare the impacts with the mitigation proposed and assess the type and extent of any remaining impacts. Even if the EIR determines that impacts are significant and unavoidable, CDFW recommends that additional mitigation measures would be

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warranted to, at a minimum, decrease the magnitude and duration of impacts to Pacheco Creek and aquatic species.

Issue: Section 3.11 of the DEIR states that as a result of the proposed channel restoration, “*Under the Proposed Project, approximately 1,000,000 cubic yards of residual sediments deposited in the existing reservoir inundation area would be excavated and either transported to disposal sites or stabilized in upland areas away from the restored channel in order to restore the historic channel planform and profile*” (p.3.11-29,30). As such, three of the eight samples collected for analysis of hazardous materials were taken as composite samples from the channel restoration area within the existing reservoir, “*Of the three samples analyzed, one sample exceeded the Construction Worker Safety ESL for Cobalt, and all three samples exceeded the Construction Worker Safety ESL for Nickel (SFBRWQCB 2019)*” (p.3.11-30). The section also acknowledges that in addition to the excavation activities described, the Proposed Project would expose 493 acres in the first few years of construction which would be susceptible to erosional processes thereby transporting the potentially hazardous material (p. 3.11-29).

However, the DEIR finds any impacts to be LTS because of the Project-specific avoidance and minimization measure HM-4 which will require dust control and notification measures along with an Excavated Materials Management Plan if naturally occurring asbestos or heavy metals are identified subject to grading or excavation activities. Both arsenic and cobalt were reported in samples to exceed their respective screening levels and nickel was reported in seven of the eight samples exceeding the construction worker ESL of 86 mg/kg (p.3.11-4). With these results reported, it is unclear how a determination of LTS was made and why a management plan is not being developed for arsenic, cobalt, and nickel, and presented in the DEIR.

Recommendation: CDFW recommends the EIR include a measure to include an Excavated Materials Management Plan for arsenic, cobalt, and nickel to prevent contamination of waters downstream both during and after decommissioning of the existing dam. Various pollutants such as heavy metals can affect amphibians and lead to “*population declines both directly by reducing individual survival and indirectly by decreasing mass or by increasing the frequency of abnormalities*” (Egea-Serrano *et al.* 2012). The EIR should therefore include measures in the management plan in order to avoid or minimize negative impacts to aquatic species in North Fork Pacheco and Pacheco Creeks.

Harmful Algal Blooms

Issue: The DEIR states that the “*expansion of Pacheco Reservoir under the proposed project would avoid the consequences of the San Luis Reservoir low-point issue by taking delivery of CVP supplies earlier in the season, storing these supplies in the*

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expanded Pacheco Reservoir, using additional CVP and local supplies developed through expansion of the Pacheco Reservoir, and using water stored in the expanded reservoir as a source of blending water when needed” (p. 2-64). The DEIR also states, “Anecdotal observations suggest when Pacheco Reservoir storage is low in the fall, cyanobacteria (i.e., blue-green algae) may form a harmful algal bloom, depleting dissolved oxygen in the reservoir and diminishing water quality” (p. 3.20-10).

However, this appears to be the extent of the discussion on Harmful Algal Blooms (HABs). HABs include a wide range of phytoplankton species such as diatoms and dinoflagellates, in addition to cyanobacteria. Additionally, “*Water would be transported from San Luis Reservoir into the new expanded reservoir; therefore, aquatic resources in San Luis Reservoir, and from the Delta, as San Luis Reservoir receives water from the Delta, have the potential to be transported into the expanded reservoir” (p. 3.6-1). Cyanotoxins may be present in water, sediment, and biological organisms even if a bloom isn’t observed. Microcystis is the dominant cyanobacteria in California, but Aphanizomenon and Dolichospermum are becoming more abundant (Lehman et al. 2021). Further, certain cyanobacteria HABs can be epiphytic, meaning they are present on aquatic plants. These cyanobacteria may create toxins that can bioaccumulate killing predators such as bald eagles (*Haliaeetus leucocephalus*) (Breinlinger et al. 2021).*

Recommendation: CDFW recommends that the EIR include a more detailed discussion of potential sources of HABs and include an analysis of their potential occurrence in the Proposed Project area. Additionally, CDFW recommends that the EIR acknowledge there is a relationship between HABs and aquatic vegetation and that it is a knowledge gap of concern that may need to be addressed through future adaptive management.

Adaptive Management Plan

Issue: Chapter 2 Section 2.3.3.1 Operations, Adaptive Management Plan, outlines Valley Water’s expectation to “*develop and implement adaptive management plans in cooperation with appropriate regulatory agencies to be consistent with WSIP and regulatory requirements” (p. 2-36). Specific contract requirements are identified in the California Code of Regulations, Title 23, § 6014 for the administration of public benefits under the WSIP. Specifically, section § 6014(a)(2)(A)(1)) outlines required components of adaptive management including monitoring metrics, locations, frequency, and timing, metric evaluation methodology and associated threshold or trigger levels, decision making processes, as well as funding sources and financial commitments to implementing the adaptive management plan. As such, the adaptive management plan developed consistent with the WSIP regulations will be specific to providing suitable habitat conditions for SCCC steelhead in Pacheco Creek, with metrics associated with SCCC steelhead presence.*

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Recommendation: CDFW recommends that separate adaptive management plans be developed in consultation with CDFW: one that addresses WSIP requirements (CCR, Title 23, Section § 6014(a)(2)(A)(1)), and another for other species and/or habitat (i.e., sycamore alluvial woodland) and pursuant to other regulatory requirements.

Water Handling During Construction

Issue: The DEIR Chapter 2, Section 2.3.2.2 Construction Sequencing and Methods for Facilities, Water Handling During Construction at New Dam Site (p. 2-28) states, “*water entering the dam construction area would be handled by use of a coffer dam and run-of-river system (e.g., similar to natural hydrograph), passing creek flows through the pre-existing creek channel prior to cofferdam construction, and diverting water through the dam site via a diversion system following cofferdam construction.*” The description of water handling during construction for the Proposed Project and Alternatives A-D does not present sufficient information to determine impacts to aquatic and terrestrial resources during construction. It is unclear when and where water will be diverted, conveyed, and released in the Project area.

Recommendation: CDFW recommends the EIR include a more detailed description of the various phases of water handling (i.e., pre- and post- cofferdam construction) and the water diversion system design and location, and include figure(s) of the proposed cofferdam and water diversion system that is described for the Proposed Project and Alternatives A-D. The EIR should include a thorough analysis of potential impacts to biological resources resulting from the water diversion system.

Groundwater

Issue: The DEIR relies on the draft Groundwater Sustainability Plan prepared by the Groundwater Sustainability Agency (GSA) for the North San Benito Subbasin to establish a threshold for significant impacts to groundwater supplies and levels (Impact Hydro-3 and Impact Hydro-4). The GSA establishes the minimum threshold as groundwater 97 feet below ground surface (bgs), measured at Key Well 11-5-13D1. CDFW believes the DEIR has adopted this minimum threshold improperly. The GSP uses the minimum threshold of 97 feet bgs to indicate a problematic chronic lowering of groundwater levels (p. 3.12-25). Alternatively, the GSP utilizes a minimum threshold of 44 feet bgs as the minimum threshold for “*unreasonable adverse impacts on beneficial uses of surface water, including impacts to aquatic and riparian habitat*” (p. 3.12-25).

Additionally, it appears that groundwater levels near Pacheco Creek are frequently near the surface and well within the reach of groundwater dependent ecosystems. For example, Figure 3.12-14, p.3.12-103 indicates that groundwater is frequently within 30 feet of the ground surface for multiple years at a time. Furthermore, the DEIR states that Pacheco Creek operates as a gaining stream (i.e., it receives water inputs from high

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groundwater levels) during even dry years (p. 3.12-6). Therefore, the minimum threshold of 97 feet bgs is an inadequate threshold for determining potential impacts to groundwater dependent ecosystems located downstream of the Proposed Project, as this area regularly has demonstrated groundwater levels near the surface.

Furthermore, the DEIR does not identify ecosystems downstream of the Proposed Project that may be impacted by lower groundwater levels. However, the California Department of Water Resources' Natural Communities Dataset (NC Dataset) identifies both groundwater-dependent vegetation and wetlands downstream of the Proposed Project along Pacheco Creek within the Gilroy-Hollister Valley, North San Benito subbasin. While the NC Dataset only identified groundwater dependent ecosystems within groundwater basins identified within the California Department of Water Resources' Bulletin 118, it is likely that groundwater dependent ecosystems also exist further upstream along Pacheco Creek (in Groundwater Reach 1 as depicted in Figure 3.12-5), closer to the Proposed Project.

Moreover, the DEIR states that "*the Proposed Project would temporarily modify surface flows in Pacheco Creek for the period of time between removal of North Fork Dam and initial operation of the new dam. This would result in seasonal changes in groundwater recharge in Pacheco Creek and seasonal reductions in groundwater supplies for up to seven years in the four Groundwater Reaches underlying Pacheco Creek*" (p. 3.12-31).

Recommendation: CDFW recommends the EIR properly identify ecosystems that may be impacted by groundwater level declines as well as adopt a much higher groundwater level as the threshold for the determination of potential Project impacts.

Permanent Access Roads and Artificial Lighting

Issue: In section 2.3.1.5 Permanent and Temporary Access Roads and Improvements, the Proposed Project and Alternatives A-D would include both permanent and temporary roads. However, the DEIR does not provide sufficient information on baseline conditions and future road infrastructure (whether the permanent roads are existing or proposed to be constructed). The purpose or need for any future construction of permanent roads as well as resulting impacts of road construction to biological resources are also not clearly described. CDFW considers any additional barriers or impediments to species movement as both a significant impact and a cumulatively significant impact.

Additionally, the DEIR states that "*permanent lighting*" (p. 2-22) will be installed as part of the Proposed Project; however, the DEIR does not adequately address impacts to species due to artificial lighting. Night lighting can disrupt the circadian rhythms of many species. Many wildlife species use photoperiod cues for communication (e.g., bird song; Miller 2006), determining when to begin foraging (Stone *et al.* 2009), behavior thermoregulation (Beiswenger 1977), and migration (Longcore and Rich 2004). Artificial

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lighting has also been found to impact juvenile salmonid overwintering success by delaying the emergence of salmonids from benthic refuge and reducing their ability to feed during the winter (Contor and Griffith 1995). One study showed that artificial light adversely impacts reproduction in badgers and causes a reduction in the population size and affects foraging (Natural England 2002).

Recommendation: CDFW recommends that the EIR provide a more detailed description on both existing and future proposed permanent roads within the Proposed Project area. In addition to implementing mitigation measure PAMM BI-10 – Minimize Impacts on Wildlife Dispersal and Migratory Corridors, CDFW recommends the following measures be incorporated in the EIR to address both the individual and cumulatively significant impacts to wildlife connectivity in order to reduce those impacts to LTS:

- Existing wildlife studies and data should be reviewed and referenced and, as necessary, new studies conducted to identify the areas where wildlife crossings are most prevalent and to identify areas where wildlife crossing installations would result in the largest benefit to rare, threatened, and endangered species and serve to reduce vehicle strikes.
- Existing structures should be updated, and new structures installed to facilitate wildlife movement and increase overall connectivity in the Project area from existing conditions. Site selection criteria and design criteria for wildlife connectivity structures should be conducted in coordination with natural resources agencies and follow the protocols outlined in; The California Department of Transportation (Caltrans), Wildlife Crossings Design Manual, Meese et.al., University of California Davis, March, 20093 and the Wildlife Crossing Structure Handbook – Design and Evaluation in North America, Publication No. FHWACFL/TD-11-003, March, 20114.

CDFW recommends the EIR address all direct and indirect impacts to biological resources from the installation of artificial lighting. In addition to measure PAMM AES-1, Project Lighting, the EIR should describe the type, quantity, location and specification outputs (in kelvin-scale and/or nanometers) of all proposed new and replacement artificial lighting installations for all proposed dam alternatives. A comparison analysis amongst potential alternatives as it pertains to light pollution should be included in the EIR. To accomplish this, the EIR should provide an analysis of the current lighting regime known to be present onsite as well as an analysis of the proposed changes and the lighting regime that will occur as a result of new or replacement lighting installations through the development and comparison of Isolux diagrams. Isolux diagrams should illustrate the area and intensity over which artificial lighting will create additional light impacts over the natural landscape or aquatic habitat along the Project area. CDFW recommends incorporating the following avoidance and minimization measures as conditions of approval in the EIR to reduce potentially significant impacts:

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Mitigation Measure 1: Light Impact Assessment and Avoidance

Valley Water shall submit to natural resource agencies, 30 days prior to the initiation of construction, Isolux diagrams that include current light levels present during Pre-Project conditions and the predicted Project light levels that will be created upon completion of the Project. Within 60 days of Project completion Valley Water shall conduct a ground survey that compares predicted light levels with actual light levels through comparison of Isolux diagrams. If an increase from the projected levels to the actual levels is discovered, additional avoidance, minimization, or mitigation measures may be required in coordination with the natural resource agencies.

Mitigation Measure 2: Light Output Limits

All LED's or bulbs installed as a result of the Project shall be rated to emit or produce light at or under 2700 kelvin that results in the output of a warm white color spectrum.

Mitigation Measure 3: Vehicle Light Barriers

Solid concrete barriers at a minimum height of 3.5 feet should be installed in areas where they have the potential to reduce illumination from overhead lights and from vehicle lights into areas outside of the roadway. Barriers should only be utilized as a light pollution minimization measure if they do not create a significant barrier to wildlife movement. Additional barrier types should be employed when feasible, such as privacy slats into the spacing of cyclone fencing to create light barriers into areas outside the roadway.

Mitigation Measure 4: Reflective Signs and Road Stripping

Retro-reflectivity of signs and road stripping should be implemented throughout the Project to increase visibility of roads to drivers and reduce the need for electrical lighting. Reflective highway markers have also been proven effective to reduce raptor collisions on highways in California Central Valley if installed along highway verges and medians.

Mitigation Measure 5: Light Pole Modifications and Shielding

All light poles or sources of illumination that shall be new or replacement installation should be installed with the appropriate shielding to avoid excessive light pollution into natural landscapes or aquatic habitat within the Project area and in coordination with wildlife agencies. In addition, the light pole arm length and mast heights should be modified to site specific conditions to reduce excessive light spillage into natural landscapes or aquatic habitat. In areas with sensitive natural landscapes or aquatic habitat Valley Water should also analyze and determine in the updated EIR if placing the light poles at non-standard intervals has the potential to further reduce the potential

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for excessive light pollution caused by decreasing the number of light output sources in sensitive areas.

Wildlife Connectivity/Corridors

Issue: The Proposed Project would inundate existing upland habitat as well as construct permanent roads and improve drainage by installing culverts. The Proposed Project may create barriers to the movement of wildlife such as mountain lion (*Puma concolor*), which is a candidate species for listing under CESA; tule elk (*Cervus canadensis nannodes*; see also page 35 of this letter); and mesocarnivores which could prevent access to important hunting or foraging grounds, shelter, and breeding areas. Such impediments and habitat fragmentation could result in isolation of subpopulations and reduced genetic material exchange, putting populations at risk of local extirpation. Roads are also known causes of wildlife mortality in the Pacheco Pass State Route 152 area based on ongoing wildlife permeability studies conducted by Pathways for Wildlife (from 2020 to present). Under measure PAMM BI-10 Minimize Impacts on Wildlife Dispersal and Migratory Corridors, p. 2-45, the DEIR states that culverts of at least 36 inches in diameter or greater at key wildlife crossing locations would be installed; however, this measure would not fully ensure wildlife passage for all species and not sufficiently mitigate for impacts to wildlife corridors to LTS levels.

Recommendation: CDFW recommends that the EIR include a detailed description of existing wildlife habitat linkages and movement corridors within the Proposed Project study area, and a thorough analysis of the Project's potential direct and indirect impacts to mountain lion, tule elk, and mesocarnivore subpopulations, including impaired wildlife connectivity and mortality due to vehicle collisions on roads resulting from implementation of the Project. Work by James Thorne and others from the University of California, Davis, in 2002 and 2006, tracking data from mountain lion and tule elk research and work associated with the Santa Clara Habitat Conservation Plan/Natural Community Conservation Plan (SCVHP or Habitat Plan) has specifically identified 17 corridors in Santa Clara County of significant importance.

The EIR should include effective and feasible avoidance, minimization, and mitigation measures to reduce impacts to wildlife connectivity to LTS. For impacts that cannot be completely avoided, compensatory mitigation could include planning, design, and implementation of appropriate wildlife crossings in select areas of the Pacheco Creek watershed and surrounding lands. An extensive evaluation should be conducted before final wildlife passage locations are selected to determine the appropriate and most effective locations, number, and types of wildlife passage structures. Dedicated wildlife crossing structures should ensure permeability, be evaluated on a species-specific basis, and be required to meet specific minimum dimensions for increased probability of wildlife utilizing these structures for crossing opportunities. Specific care should be taken to ensure that any wildlife crossing structure design incorporates generous

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openness and clear line of sight from entry to exit to maximize detection of the crossing by species at the time of encounter and to ensure use. Wildlife crossings should be developed in consultation with CDFW and other appropriate natural resource agencies and experts.

Water Conveyance Facilities

Issue: Chapter 2, section 2.3.1.2 Water Conveyance Between Expanded Reservoir and Existing Pacheco Conduit and Chapter 3.6, p. 3.6-39 of the DEIR describe the construction of a conveyance pipeline that will include trenchless tunneling underneath South Fork Pacheco Creek. The proposed tunnel would require excavation “*for the approximately 350-foot-long trenchless crossing.*” Although there are some measures provided to prevent fractures (e.g., monitoring ground movement) additional measures are needed.

Recommendation: CDFW recommends that a frack-out contingency plan be developed for the conveyance pipeline and included as a minimization measure. The plan should be designed, pre-planned, and include directing the drilling in such a way as to minimize the risk of spills of all types. The frac-out contingency plan should address the possibility of frac-outs (the release of drilling lubricants through fractures in streambed, waterway, or bank) and should include but not be limited to the name(s) and phone numbers of biological monitor(s) and crew supervisor(s); documentation of the experience of the drilling contractor and the training of their inspector(s); site specific resources of concern, including factors such as possible presence of sensitive species; monitoring protocols including frac-out monitoring; and containment and equipment list, necessary hose lengths, number of sandbags or similar and specifications on diverting flow around frac-out, etc. The EIR should also address all potential impacts to biological resources due to this project component.

Potential for Species to Occur and Project Study Area

Issue: The DEIR repeatedly states that a species has a low potential to occur within the Project area since there are no California Natural Diversity Database (CNDDDB) occurrences within 5 miles of the Project area. For example, Lemmon’s Jewelflower (*Caulanthus lemmonii*), which has a California Rare Plant Rank of 1B.2 (rare, threatened, or endangered), has the potential to occur in grassland habitats within the access and utility area. Nevertheless, the DEIR states that “*however, there are no CNDDDB record within 5 miles of the project study area of this species, so it is considered to have low potential to occur*” (p. 3.5-26). The potential for a species to occur should not be solely based on whether an occurrence has been documented on CDFW’s CNDDDB. CNDDDB is a very useful tool that provides location and natural history information on special-status plants, animals, and natural communities, but is a positive

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occurrence database which does not confirm absence and does not replace a site-specific habitat assessment and protocol-level surveys.

The DEIR includes inconsistencies between Chapter 3.5 and the Biological Resources – Botanical/Wildlife Appendix in regards to the Project study area boundaries. Chapter 3.5 discusses some impacts from the installation of transmission lines and construction of permanent access roads, but the Botanical/Wildlife Appendix states “*the study area encompasses approximately 6,835 acres and includes the currently proposed impact areas associated with construction of the proposed dam and inundation area (i.e., study area does not include the future landowner access routes or auxiliary roads or transmission lines)*” (p.2-1). It is therefore unclear how Chapter 3.5 addresses biological resource impacts from Project activities such as the utility transmission lines and access roads.

Recommendation: CDFW recommends that the EIR re-assess the potential for species to occur based on rigorous and thorough habitat assessments and suitability for each plant and wildlife species with potential to occur within the Project area, and not solely rely on CNDDDB occurrences. CDFW recommends that protocol-level surveys be conducted in habitats found to be suitable for special-status species.

CDFW also recommends that the EIR address the inconsistencies between Chapter 3.5 and the Biological Resources – Botanical/Wildlife Appendix. The Project study area should be clear and consistent throughout the document and supplemental information. Additionally, impacts due to the construction of permanent access roads or installation of transmission lines should be fully analyzed in the EIR (see also other sections in this letter addressing these topics).

Bald Eagle (*Haliaeetus leucocephalus*), Golden Eagle (*Aquila chrysaetos*), and California Condor (*Gymnogyps californianus*)

Issue: Bald eagle is State listed under CESA as endangered and a State Fully Protected Species. Golden eagle is a State Fully Protected Species and both species are protected under the Bald and Golden Eagle Act. California Condor is both Federally listed and State listed as endangered, as well as a State Fully Protected Species. These species are known to occur within and in the vicinity of the Proposed Project footprint. The Project will permanently remove potential nest trees and foraging habitat used extensively by these species and involve noise and groundwork from construction. Mitigation Measure BI-13a: Avian Transmission Line Design Avoidance Measures, and Mitigation for Loss of Habitat (Proposed Project, Alternatives A- D) (p. 3.5-322) states that Valley Water will follow Avian Power Line Interaction Committee (APLIC) *Suggested Practices for Avian Protection on Power Lines*. However, the measure does not include mitigation for loss of habitat as the mitigation measure title states.

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Recommendation: CDFW recommends that the EIR include detailed mitigation measures based on guidance and recommendations from the APLIC to avoid or minimize avian collisions and electrocution from installation of transmission lines. The EIR should also include an assessment of all temporary and permanent loss of all nesting, roosting and foraging habitat for bald eagle, golden eagle and other avian species, and sufficient compensatory mitigation to completely offset the impacts to avian habitat.

California Tiger Salamander (*Ambystoma californiense*), California Red-Legged Frog (*Rana Draytonii*), Foothill Yellow-Legged Frog (*Rana boylei*)

Issue: California tiger salamander (CTS) is both Federally and State listed as threatened. California red-legged frog (CRLF) is federally listed as threatened and is a State Species of Special Concern. Foothill yellow-legged frog (FYLF) is State listed as endangered and a candidate to be federally listed. The DEIR describes multiple Project activities that could cause “take” of CTS and FYLF as well as impact CRLF and their habitat.

Recommendation: If the Proposed Project will impact any CESA-listed species, early consultation is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain a CESA Permit. More information on the CESA permitting process can be found on the CDFW website at <https://www.wildlife.ca.gov/Conservation/CESA>. CDFW recommends that Valley Water apply for an ITP for CTS and FYLF as a condition of Project approval.

If any CRLF are found during pre-construction surveys or at any time during construction, discussion with CDFW is recommended to determine if any additional minimization measures are warranted. CDFW recommends that initial ground-disturbing activities be timed to avoid the period when CRLF are most likely to be moving through upland areas (November 1 and March 31). When ground-disturbing activities must take place between November 1 and March 31, CDFW recommends a qualified biologist monitor construction activity daily for CRLF.

Western Burrowing Owl (*Athene cunicularia*)

Issue: Western burrowing owl (BUOW) is designated as a California Bird Species of Special Concern. The DEIR states that there is potential for nesting and foraging habitat within the Project study area for BUOW and other owl species. The DEIR also states that “*construction activities (e.g., grading) would occur during the avian breeding season (i.e., February 1 through September, depending on species) and could disturb special-status avian species*” (p. 3.5-97) including BUOW. Furthermore, “*construction-related disturbances... could result in the incidental loss of fertile eggs or nestlings and/or nest abandonment*” (p. 3.5-98).

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Recommendation: In addition to measure BI-3b which includes conducting focused surveys prior to construction following CDFW's Staff Report on Burrowing Owl Mitigation survey methodology (<https://wildlife.ca.gov/Conservation/Survey-Protocols#377281284-birds>), CDFW recommends that surveys encompass the entire Project area and a sufficient buffer zone to detect owls nearby that may be impacted. Time lapses between surveys or Project activities should trigger subsequent surveys, as determined by a qualified biologist, including but not limited to a final survey within 24 hours prior to ground disturbance before construction equipment mobilizes to the Project area. The qualified biologist should have a minimum of two years of experience implementing the CDFW 2012 survey methodology resulting in detections.

CDFW recommends that detected burrowing owls be avoided pursuant to the buffer zone prescribed in the CDFW 2012 staff report. Please be advised that CDFW does not consider eviction of burrowing owls (i.e., passive removal and of an owl from its burrow or other shelter) as a "take" avoidance, minimization, or mitigation measure; therefore, off-site habitat compensation is appropriate if impacts to BUOW habitat cannot be completely avoided. Off-site habitat compensation that supports both suitable nesting and foraging habitat would be warranted for any nest burrows used within the last three years that would be removed. Habitat compensation acreages amount depends on site-specific conditions. For mitigation to be effective and enforceable, we recommend that mitigation lands for BUOW be protected in perpetuity through placement of a conservation easement and preparation and implementation of a long-term management plan and endowment to manage the land for BUOW.

San Joaquin Kit Fox (*Vulpes macrotis mutica*)

Issue: San Joaquin kit fox (SJKF) is State listed as threatened. The Proposed Project and Alternatives A-D have the potential to impact foraging, denning, and dispersal habitat for this species. In addition to grassland and shrubland habitats, SJKF den in a variety of areas such as rights-of-way, agricultural and fallow/ruderal habitat, dry stream channels, and canal levees, and populations can fluctuate over time. SJKF are also capable of occupying urban environments (Cypher et al. 2013). SJKF may be attracted to Project construction zones due to the type and level of ground disturbing activities and the loose, friable soils resulting from intensive ground disturbance. In addition to natural habitats, SJKF will forage in fallow and agricultural fields and utilize streams and canals as dispersal corridors. As a result, there is potential for SJKF to occupy all suitable habitat within the Project area and surrounding area.

Without appropriate avoidance and minimization measures for SJKF, potential significant impacts associated with construction include habitat and connectivity loss, den collapse, inadvertent entrapment, reduced reproductive success, reduction in health and vigor of young, and direct mortality of individuals.

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Recommendation: To evaluate potential impacts to SJKF associated with subsequent land conversion, ground disturbance and construction, CDFW recommends conducting the following evaluation of Project areas and implementing the following mitigation measures:

- For all Project-specific components including construction and land conversion, CDFW recommends that a qualified biologist conduct a habitat assessment in advance of Project implementation, to determine if the Project area or its immediate vicinity contains suitable denning habitat for SJKF.
- CDFW recommends assessing presence/absence of SJKF dens by having qualified biologists conduct surveys of Project areas and a 500-foot buffer of Project areas to detect SJKF and their sign. CDFW also recommends following the USFWS “*Standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance*” (2011).

If SJKF dens or other SJKF use is identified on-site and take avoidance cannot be ensured, CDFW recommends that Valley Water obtain an ITP in advance of Project implementation.

Western Pond Turtle (*Actinemys marmorata*)

Issue: Western pond turtle (WPT) is a State Species of Special Concern. Mitigation Measure BI-8c (p. 3.5-94) includes the development of a translocation plan to move individuals out of harm’s way.

Recommendation: CDFW recommends adding the measure below in the EIR to ensure relocation, if needed, is appropriately implemented:

- Surveys for WPT should include the identification of western pond turtles and their nests. If relocation is necessary, a relocation plan shall be prepared and approved by CDFW prior to implementation. The plan shall include disinfection and handling protocols, animal care during relocation, suitable areas for relocations, and reporting requirements.

Tricolored Blackbird (*Agelaius tricolor*)

Issue: Tricolored blackbird (TRBL) is State listed as threatened. The DEIR acknowledges that TRBL occur within the Project study area. The DEIR states that the Santa Clara Valley Habitat Agency (SCVHA) “*identified an active tricolored blackbird breeding colony at Circaulo pond in 2021, adjacent to Pacheco Creek*” (p. 3.5-36) which is located several miles downstream of the existing Pacheco dam.

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Recommendation: Although the DEIR provides some avoidance, minimization, and mitigation measures such as PAMM BI-1 (pre-construction surveys and protective buffers), CDFW recommends EIR include the following measures, and that these measures be made conditions of approval for the Project.

It is advised that Project activities be timed to avoid the typical bird breeding season (February 1 through September 15). However, if Project activities must take place during that time, CDFW recommends that a qualified biologist conduct surveys for nesting TRBL throughout the nesting season with a final survey no more than 7 days prior to the start of ground or vegetation-disturbing activities to evaluate the presence/absence of TRBL nesting colonies in proximity to Project activities and to evaluate potential Project related impacts.

If an active TRBL nesting colony is found during pre-construction nesting season surveys, CDFW recommends implementation of a minimum 300-foot no-disturbance buffer in accordance with CDFW's *Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields in 2015* (CDFW 2015). However, a larger buffer up to 0.25 mile may be warranted for construction-type projects such as the Proposed Project that are not of an agricultural nature. CDFW advises that the buffer remain in place until the breeding season has ended or until a qualified biologist has determined that nesting has ceased, the birds have fledged and are no longer reliant upon the colony or parental care for survival. Further, TRBL colonies can expand overtime and for this reason the colony may need to be reassessed on a reoccurring basis to determine the extent of the breeding colony within seven (7) days of Project initiation.

In the event that a TRBL nesting colony is detected during surveys, consultation with CDFW is advised to discuss how to implement the Project and avoid take, or if avoidance is not feasible, acquisition of an ITP, pursuant to Fish and Game Code section 2081 subdivision (b), would be warranted prior to any ground or vegetation disturbing activities. If TRBL activity (nesting and/or foraging) is identified on or near the Project area, Valley Water should mitigate for the permanent loss of nesting and/or foraging habitat. Mitigation lands should be protected in perpetuity under a conservation easement and be managed in perpetuity through an endowment with an appointed land manager.

Swainson's Hawk (*Buteo swainsoni*)

Issue: Swainson's hawk (SWHA) is State listed as threatened and has the potential to nest and forage within the Project area. The DEIR states (page 3.5-38) that approximately 4,000 acres of woodland and scrub habitats within the Project study area provide suitable nesting for SWHA and other raptors. The DEIR presents a general pre-construction survey measure (PAMM BI-1) for raptors; however, protocol-level surveys

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specific to SWHA are warranted in order to ensure that presence or absence is confirmed. Compensatory mitigation for loss of both SWHA suitable nesting and foraging habitat is needed to reduce impacts to LTS levels.

Recommendation: CDFW recommends that prior to the initiation of construction activities, the Project proponent should have a qualified biologist conduct surveys for SWHA in accordance with the Swainson's Hawk Technical Advisory Committee's (TAC) *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (2000), available on CDFW's webpage at <https://www.wildlife.ca.gov/Conservation/Survey-Protocols#377281284-birds>. Survey methods should be closely followed by starting early in the nesting season to maximize the likelihood of detecting an active nest (nests, adults, and chicks are more difficult to detect later in the growing season because trees become less transparent as vegetation increases). Surveys should be conducted within a minimum 0.5-mile radius of the Project area or a larger area, if necessary, to identify potentially impacted active nests. Surveys should occur annually for the duration of the Project. The qualified biologist should have a minimum of two years of experience implementing the TAC survey methodology. If an active nest is identified, a 0.5-mile protective buffer should be maintained around the nest until the young fledge. The protective buffer should be clearly marked and be an area where no Project-related activities or personnel are allowed while in place. If the 0.5-mile buffer must be reduced, the Project proponent should be required to obtain a CESA ITP as a condition of Project approval.

If SWHA activity (foraging, not just nests) is identified on or near the Project site, Valley Water should mitigate for the permanent loss of foraging habitat. CDFW recommends compensation for the loss of SWHA foraging habitat to reduce impacts to SWHA foraging habitat to LTS based on CDFW's Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (CDFG, 1994), which recommends that mitigation for habitat loss occur within a minimum distance of 10 miles from known nest sites and the amount of habitat compensation is dependent on nest proximity. In addition to fee title acquisition or conservation easement recorded on property with suitable grassland habitat features, mitigation may occur by the purchase of conservation or suitable agricultural easements. Suitable agricultural easements would include areas limited to production of crops such as alfalfa, dry land and irrigated pasture, and cereal grain crops. Vineyards, orchards, cotton fields, and other dense vegetation do not provide adequate foraging habitat.

Mitigation lands should be protected in perpetuity under a conservation easement and be managed in perpetuity through an endowment with an appointed land manager.

Monarch Butterfly (*Danaus plexippus plexippus*)

Issue: Monarch butterfly is a California Terrestrial and Vernal Pool Invertebrate of Conservation Priority and candidate species under the federal Endangered Species Act

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(ESA). The DEIR states “*potential suitable breeding and migration habitat for the monarch butterfly occurs adjacent to and upstream from North Fork Dam*” (p. 3.5-32). Additionally, “*within the upstream and downstream areas, 11 populations of approximately 7,300 host plants (i.e., milkweed [Asclepias spp.]) encompassing 24 acres throughout the project study area were identified that could provide potential breeding habitat for this species*” (p.3.5-32). The Project may result in injury or mortality to monarch butterfly and loss of breeding and migration habitat. Therefore, Project impacts to monarch butterfly would be potentially significant.

Recommendation: In addition to Mitigation Measures BI-5b, BI-7, BI-8b and specifically BI-5c, which would include planting of seed or plants in suitable habitat in the vicinity of where seeds are collected or other areas of the Project study area, CDFW recommends that plantings be maintained and monitored within a protected site. Additionally, the use of pesticides should be avoided when monarchs are potentially present.

Western Bumble Bee (*Bombus occidentalis*) and Crotch Bumble Bee (*Bombus crotchii*)

Issue: The DEIR states that “*approximately 1,297 acres of grassland habitat in the project study area provides potential foraging and nesting habitat*” (p.3.5-32), but that there is low potential for these species to occur partially because there are minimal ground squirrel (*Otospermophilus beecheyi*) burrows that were observed but smaller burrows (i.e., gopher [*Thomomys bottae*]) were observed. The Project may impact foraging and nesting habitat due to construction of permanent facilities and associated infrastructure such as the new dam, access roads, the expanded reservoir, installation of transmission lines, construction within the interchange area, and other Project activities.

CDFW disagrees that there is low potential for these species to occur within the Project area. Crotch bumble bee has been documented to occur within the vicinity of the Project area (CDFW 2021) and historic observations occur in both Santa Clara and Merced Counties. Similarly, CNDDDB records of western bumble bee have been reported in Santa Clara County in the vicinity of the Project area. The Project area supports grasslands and upland scrub that contain requisite habitat elements for both bumble bee species, including small mammal burrows. The Project may impact foraging and nesting habitat for western bumble bee and Crotch bumble bee due to construction of permanent facilities and associated infrastructure such as the new dam, access roads, the expanded reservoir, installation of transmission lines, construction within the interchange area, and other Project activities.

Recommendation: CDFW recommends the EIR include a complete and accurate assessment of suitable overwintering, nesting and foraging habitat for western bumble bee and Crotch bumble bee, and an analysis of the Proposed Project’s impacts to their

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habitats. Bumblebees are critically important because they pollinate a wide range of plants over the lifecycles of their colonies, which typically live longer than most native solitary bee species. Crotch bumble bee primarily nest in late February through late October underground in abandoned small mammal burrows but may also nest under perennial bunch grasses or thatched annual grasses, underbrush piles, in old bird nests and in dead trees or hollow logs. Overwintering sites include soft, disturbed soil or under leaf litter or other debris. Western bumble bee nests, forages and overwinters in meadows and grasslands with floral resources and may be found in some natural areas within the urban landscape. As an avoidance measure, CDFW recommends that all small mammal burrows, thatched/bunchgrass, and other habitat described above be avoided by a minimum of 50 feet, and compensatory mitigation be provided if avoidance of bumble bee habitat is not possible.

Sycamore Alluvial Woodland

Issue: Central California sycamore alluvial woodland (SAW) is a rare habitat type designated as a California Native Plant Society S3 ranked with limited distribution in California. SAW is also designated as G1 and S1.1 (critically imperiled) under the CNDDDB ranking system. SAW is also currently experiencing diebacks and has also shown minimal seedling recruitment. The DEIR (BI-2c; p. 3.5-67) states that the Project's direct construction-related impacts to Central California sycamore alluvial woodland (SAW) would be compensated through the preservation, enhancement and/or restoration of SAW at a minimum 2:1 or as agreed to by CDFW. The DEIR (p. 3.5-70) also states that 71 acres (Table 3.5-7) of SAW from creek mile 0 to creek mile 7 would be expected to shift to other riparian vegetation community types at a faster rate and to a greater degree than baseline conditions or the No Project Alternative, and that these indirect impacts to SAW would be mitigated at a 1:1 ratio (BI-2c).

Furthermore, the DEIR states (p. 3.5-114) that the Proposed Project could potentially limit the areas available for the SCVHA, which is the entity that administers the SCVHP, to preserve/restore SAW given the impacts identified in Impact Bio-2 and the limited amounts of SAW present in the SCVHP boundaries. Potential indirect impacts of the flows associated with the Proposed Project along Pacheco Creek could occur on portions of the Pacheco Creek Reserve which is managed by the SCVHA. The DEIR acknowledges that impacts of the Project to SAW pose a potential conflict with the SCVHP given the amounts of SAW that the SCVHP is required to preserve, and the rarity of this sensitive vegetation community in the SCVHP permit area.

Changes in the new Pacheco Reservoir's hydrologic flow regime could negatively affect extant SAW along Pacheco Creek as well as prevent future restoration of this unique habitat type by the SCVHA, especially within the Pacheco Creek Reserve as well as adjacent lands. Proposed changes in the hydrologic regime would likely result in willow (*Salix* spp.) encroachment and competition with SAW which require periodic drybacks.

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Therefore, CDFW is concerned that the Project's proposed operational flow regime may reduce Pacheco Creek's ability to support SAW and hinder the Habitat Plan's restoration goals (SCVHA must achieve up to 20 acres of SAW restoration/creation credits).

Recommendation: CDFW is one of the two Wildlife Agencies (with USFWS) who work collaboratively with the SCVHA in implementing the Habitat Plan. Due to the rarity of SAW in the area, the length of time needed for restore this habitat type and the significant direct and indirect impacts of the Proposed Project on SAW, CDFW believes that a 2:1 mitigation ratio for direct impacts and 1:1 ratio for indirect impacts to SAW is inadequate to reduce impacts to LTS. CDFW recommends that the EIR prescribe a minimum 4:1 mitigation ratio for all impacts to SAW within the Proposed Project study area. Although the Proposed Project is not covered under the SCVHP, a 4:1 mitigation ratio is most appropriate for reasons stated above and is commensurate with requirements for projects covered under the Habitat Plan. Lands proposed as mitigation for the Project's impacts to SAW should be discussed pro-actively with the SCVHA to avoid conflicts with pending or future acquisition of reserves under the SCVHP.

The EIR should also prescribe a hydrologic flow regime that balances the needs of all species affected by the Project. Operational changes for the new Pacheco Reservoir should consider the unique ecological requirements of the natural plant communities along Pacheco Creek and prevent adverse impacts to extant SAW populations and allow for successful future restoration efforts.

Mountain Lion (*Pumas concolor*) and American Badger (*Taxidea taxus*)

Issue: The Fish and Game Commission recently accepted the mountain lion Central Coast North Evolutionarily Significant Unit (ESU) as a State candidate for listing as threatened under CESA. As a candidate species, mountain lion within this ESU now has all the protections afforded to a listed species under CESA. The DEIR states that "*all terrestrial habitat adjacent to and upstream from the existing north fork dam is suitable habitat for Mountain Lion*" (p. 3.5-39). Other parts of the Project area are also considered suitable habitat for this species. In addition to mountain lions, American badgers also have the potential to occur within the Project area. American badger is State Species of Special Concern. The DEIR states that "*suitable habitat for this species is primarily associated with the upstream and access and utility areas*" (p. 3.5-39). There is also potential for suitable habitat for the badger in other parts of the Project area. The DEIR also states that "*although there would be a long-term and short-term loss of habitat for these species, it would not significantly reduce denning and foraging habitat that occurs within the surrounding area adjacent to the project site; ample habitat would remain within the project study area and the surrounding vicinity*" (p. 3.5-107). This conclusion is unsubstantiated considering that the Project has an expected duration of 5.8 to 7.3 years.

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Recommendation: CDFW recommends avoiding impacts to areas that provide habitat for mountain lion and other sensitive species. If impacts cannot be avoided, CDFW recommends that the EIR include robust feasible avoidance, minimization, and mitigation measures to reduce impacts to mountain lion to LTS. If take of mountain lion cannot be completely avoided, CDFW recommends that Valley Water apply for an ITP in advance of Project implementation.

CDFW also recommends the following additional mitigation measures for American Badger: a qualified biologist should survey for this species including adjacent habitat prior to construction, avoid impacts to occupied burrows and include a sufficient buffer approved by CDFW; and development of a relocation plan and submitted to CDFW for a review and approval.

Tule Elk (*Cervus canadensis nannodes*)

Issue: Elk are California's largest land mammal and an important wildlife resource whose population growth in recent decades has been of great interest to the public. Population growth since 1970 has been significant and California now supports approximately 5,700 tule elk (CDFW 2018). The DEIR briefly mentions tule elk in a historical and cultural context and refers to it as a subsistence resource within section 3.7.2.1 Regional Setting p. 3.7-5 and p. 3.7-9. Although the DEIR focuses on special-status species, the Project has the potential to impact this species. Without appropriate mitigation measures for tule elk, potentially significant impacts include loss of habitat and corridors, entanglement with fences and other structures, and mortality resulting from vehicle collisions.

Recommendation: To evaluate potential impacts to tule elk, CDFW recommends conducting the following evaluation of the Project area, incorporating the following mitigation measures into the EIR prepared for this Project, and that these measures be made conditions of approval for the Project.

Mitigation Measure 1: Tule Elk Habitat

The EIR should include surveys of tule elk and their habitat. The loss of habitat should be conserved and Valley Water should coordinate with CDFW to determine suitable mitigation.

Mitigation Measure 2: Fencing

Physical barriers such as fencing, mesh wire, panels, electric fence, and visual barriers have the potential to impact tule elk. CDFW recommends not utilizing physical barriers that may impede tule elk access to water and foraging areas.

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Roosting Bats

Issue: The Project would impact riparian, oak woodland habitats, and other habitats that could contain roosting habitat for bats, including special-status species like the pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), western mastiff bat (*Eumops perotis californicus*), and western red bat (*Lasiurus blossevilli*), which are all California Species of Special Concern. The DEIR states that measure PAMM BI-9c, Exclusion for Special-Status Bat Species, would *involve "installation of screens at potential roosts to prevent bat use (after verifying that no bats would be trapped by screening)"* (p. 2-45) but does not provide any measure specific to the removal of potential maternity or roosting habitat.

Recommendation: CDFW recommends the EIR include the following measures:

- At least six months prior to the start of construction and tree removal activities, a qualified biologist shall assess all trees to determine if they contain suitable bat roosting habitat (e.g., cavities, crevices, deep bark fissures). If any trees contain such habitat, bat presence shall be presumed. Trees containing bat roosting habitat shall be removed using the method described below during the following seasonal periods of bat activity:
 - o Prior to maternity season – from approximately March 1 (or when night temperatures are above 45°F and when rains have ceased) through April 15 (when females begin to give birth to young); and prior to winter torpor – from September 1 (when young bats are self-sufficiently volant) until October 15 (before night temperatures fall below 45 degrees Fahrenheit and rains begin).
 - o On Day 1, in the afternoon and under the supervision of a qualified biologist, chainsaws only shall be used to remove tree limbs that do not contain suitable bat roosting habitat (e.g., cavities, crevices, deep bark fissures). The next day, the rest of the tree shall be removed.
 - o If bat habitat trees cannot be removed during the above seasonal periods of bat activity, a qualified biologist shall survey the trees to determine if the tree contains a maternity colony or winter torpor bats. If the qualified biologist cannot make this determination with certainty, the presence of maternity colonies or winter torpor bats shall be assumed, and removal of the tree shall be delayed until the seasonal periods of bat activity specified above. If the biologist determines bats are present but maternity colony or winter torpor bats are absent, then the tree may be removed outside of the above periods of seasonal bat activity using the above two step tree removal process. If the qualified biologist determines that bats are absent,

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then the tree may be removed without bat seasonality or method restrictions.

CDFW also recommends that wildlife exclusion or fencing plans be provided to CDFW for review and approval.

Mitigation for Habitat and Species Impacts

Issue: Throughout the DEIR in Chapter 3.5, mitigation measures are presented to avoid, minimize, or compensate for impacts to biological resources. For the loss of habitat (including plant communities and species habitats) the DEIR suggests a mitigation ratio at a 2:1 with the flexibility that natural resource agencies could require additional mitigation. It is not clear in the DEIR how Valley Water quantified mitigation impacts and recommended a 2:1 ratio for each impact. The DEIR also does not specify whether mitigation for loss of habitat or impacts to fish and wildlife species as well as plant species could overlap.

Recommendation: CDFW recommends that the EIR more clearly describe the approximate amounts and types of mitigation for each habitat type and species expected to be impacted and develop appropriate and effective mitigation proposals for each habitat and/or species. In general, ground-based temporary impacts to habitat are those whereby habitat is fully restored within one year of the impact; semi-permanent impacts are those whereby habitat is restored within two years of the impact; and permanent impacts are those of more than two years in duration.

The EIR should clearly describe how mitigation for each species or habitat is expected to be fulfilled such as through land acquisition or purchase of mitigation/conservation bank credits, or other viable approaches, and whether overlap may occur between species (e.g., CTS, SJKT and BUOW). As previously mentioned in this letter, mitigation lands should be protected in perpetuity under a conservation easement and managed in perpetuity through an endowment with an appointed land manager. The easement should be held by a governmental entity, special district, non-profit organization, for-profit entity, person, or another entity to hold title to and manage the property provided that the district, organization, entity, or person meets the requirements of Government Code sections 65965-65968, as amended.

CDFW often recommends a minimum 3:1 mitigation ratio for permanent impacts to species habitat, a 2:1 mitigation ratio for semi-permanent impacts and a 1:1 mitigation ratio for temporary impacts in addition to full restoration. However, higher or lower mitigation ratios may be required depending on the type and extent of biological resource impacts from any given project. CDFW recommends that Valley Water work with the natural resource agencies to determine suitable mitigation and locations for impacts to biological resources.

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Editorial Comments and/or Suggestions

Water Rights

Issue: Section 3.12.2.2 of the DEIR states the expansion of Pacheco Reservoir would require a water rights change petition with respect to the existing Pacheco Pass Water District (PPWD) water right and the application of new water right permits from the SWRCB storage and diversion at the expanded Pacheco Reservoir. In addition, the SWRCB may require Reclamation to submit a change petition for CVP water rights due to the proposed use of the expanded Pacheco Reservoir as a conduit for conveying CVP water to Valley Water.

Project-related diversions to storage may impact riparian, wetland, fisheries and terrestrial (upland) wildlife species and their habitats. As stated previously, CDFW, as Trustee Agency, is consulted by the SWRCB during the water rights process to provide terms and conditions designed to protect fish and wildlife prior to appropriation of the State's water resources. Given the potential for impacts to sensitive species and their habitats, it is advised that consultation with CDFW occur well in advance of any SWRCB water right application process.

Recommendation: CDFW recommends the EIR provide additional detail on how the proposed water right applications and change petitions will differ from existing water rights. CDFW also recommends the EIR provide all existing water rights within the sphere of influence of the Project, including those associated with the CVP and State SWP water supply, pre-1914 appropriative rights, riparian rights, prescriptive rights, and appropriative rights approved under licenses and SWRCB WR Orders.

Water Quality

Issue: In ES.5.1.5, Table ES-4, the M&I Water Quality section of the table includes the number of months that water quality will not be impaired (based on modeling results); however, the DEIR lacks information on the months when water quality would be impaired and types of impacts that would subsequently occur.

Recommendation: CDFW recommends the EIR include more detailed information on the modeling results, and describe the conditions when the objectives such as water quality cannot be met and the impacts to biological resources that would be associated with those conditions.

Monitoring Program

Issue: The monitoring program for the Proposed Project is inconsistent with that described for Alternatives A-D.

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Recommendation: CDFW recommends consistency or clarification for the differences in the monitoring program for the Proposed Project and Alternatives A-D. The monitoring program for the Proposed Project should include a new stream gage at the confluence of the North and South Fork Pacheco Creeks, similar to that described in Section 2.6.3.1, p. 2-86, “*A new stream gage installed downstream from the confluence of North Fork and South Fork Pacheco Creek would measure stream flow and water depth in Pacheco Creek.*”

Construction Schedule and Sequencing

Issue: In section 2.3.2.1 as well as other sections, the DEIR includes some information regarding the schedule of the Proposed Project. However, the schedule(s) lack details of the various phases and timing of Project components.

Recommendation: In order to better assess potential impacts to species, CDFW recommends the EIR include a more comprehensive schedule (e.g., table or outline format) of the sequential phases and timing of Project components (e.g., old dam removal, restoration, new dam, filling, operations, etc.).

Operation and Maintenance

Issue: The DEIR states that “*a 35,000-acre-foot habitat storage reserve would be maintained to provide suitable flows and water temperatures for SCCC steelhead in the North Fork and mainstem Pacheco Creek during multi-year droughts. Once the expanded reservoir drops below 35,000 acre-feet, the reserve would be managed independent of water supply to provide releases according to the Variable Flow Schedule, **unless an emergency declaration is made for health and safety purposes***” (p. ES-10). It is unclear what triggers or criteria would need to be met in order for an emergency to be declared.

Recommendation: CDFW recommends the EIR include a clear description of the types of scenarios that might result in an “emergency declaration” and the process by which that decision is reached.

Issue: The DEIR states, “*If necessary, at the beginning of the wet season storage capacity would be made available by releasing water to Pacheco Conduit until the expanded reservoir was 5,500 below full capacity.*” Another option for creating storage capacity would be to release water into Pacheco Creek for habitat releases.

Recommendation: CDFW recommends that Valley Water consider releasing water into Pacheco Creek for habitat purposes, as appropriate for ensuring storage capacity to meet the proposed variable flow schedule for habitat releases (e.g., augment adult attraction pulse flows).

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Issues to be Resolved

Issue: CEQA Guidelines Section 15123 states that the lead agency must disclose issues to be resolved, and that “*an EIR shall contain a brief summary of the proposed action and its consequences.*” The DEIR states the following under section ES.11 (p. ES-41) Issues to be Resolved, “*Selection of lands and activities for compensatory mitigation related to botanical/natural community and terrestrial resource mitigation measures.*”

Recommendation: CDFW is concerned with the overall lack of description in the DEIR of proposed compensatory mitigation to completely offset future impacts of the Proposed Project on aquatic, terrestrial and plant species and their habitats, and sensitive plant communities. Although specific mitigation acreages required to compensate for impacts may not be fully known during the CEQA review process, the EIR should still identify and describe proposed mitigation types and locations in order to ensure that impacts are mitigated to below a level of significance and not defer the formulation of mitigation measures to a later time or to other permitting agencies.

FILING FEES

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

CONCLUSION

CDFW appreciates the opportunity to comment on the DEIR to assist Valley Water in identifying and mitigating Project impacts on biological resources.

CDFW recommends Valley Water correct the issues identified in this letter. To ensure significant impacts are adequately mitigated to LTS levels, the feasible mitigation measures described in this letter should be incorporated as enforceable conditions into the final CEQA document for the Project.

Questions regarding this letter or further coordination should be directed to the following CDFW representatives:

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