1. INTRODUCTION

1.1 Purpose of the Response to Comments Document

This Response to Comments document responds to comments received on the South Bay Salt Pond (SBSP) Restoration Project Draft Environmental Impact Statement/Report (EIS/R) for Phase 2 at Eden Landing Ecological Reserve (ELER or the Reserve). The Draft EIS/R identified the environmental consequences associated with the implementation of project actions, as well as mitigation measures to reduce significant and potentially significant impacts. As a result of comments received, the Draft EIS/R has been revised. The revised environmental analysis, together with this Response to Comments document and full set of appendices, constitutes the Final Environmental Impact Report (EIR) for the proposed SBSP Restoration Project for Phase 2 at ELER.

This Final EIR was prepared by the California Department of Fish and Wildlife (CDFW), the California Environmental Quality Act (CEQA) lead agency, in partnership with the U.S. Fish and Wildlife Service (USFWS) and the California State Coastal Conservancy (SCC). The USFWS acted as the National Environmental Policy Act (NEPA) lead agency during preparation of the draft environmental document but has withdrawn as the NEPA lead agency for the final environmental document. Because this site-specific project is located on the CDFW-owned and managed ELER, and because the USFWS is not issuing a permit or funding the restoration, the USFWS does not have a decision to make under NEPA. However, the USFWS has worked closely with CDFW and partners in preparing the environmental documents and intends to work closely with partners on this Phase 2 Project and future restoration efforts.

The Final EIR is an informational document prepared by CDFW that must be considered by decision-makers before approving or denying the proposed project. The Final EIR has been prepared so that it is compliant with both CEQA and NEPA requirements to facilitate permitting by a federal agency in the future and to remain consistent with previous documents.

Section 1502.9(b) of the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA (CEQ Regulations) states:

> Final environmental impact statements shall respond to comments as required in Part 1503 of this chapter. The agency shall discuss at appropriate points in the final statement any responsible opposing view which was not adequately discussed in the draft statement and shall indicate the agency's response to the issues raised.

CEQA Guidelines (Section 15132) specify that a Final EIR shall consist of:

> (a) The Draft EIR or a revision of the draft.
>
> (b) Comments and recommendations received on the Draft EIR either verbatim or in summary.
>
> (c) A list of persons, organizations, and public agencies commenting on the Draft EIR.
>
> (d) The response of the lead agency to significant environmental points raised in the review and consultation process.
>
> (e) Any other information added by the lead agency.

1.2 Environmental Review Process

On April 6, 2018, the lead agencies for the Draft EIS/R, USFWS and CDFW, released the Draft EIS/R for the SBSP Restoration Project Phase 2 at ELER for public review (State Clearinghouse No. 2016052051). The public review and comment period on the Draft EIS/R began on April 6, 2018 and closed on May 21, 2018 for comments addressed to federal agencies and June 5, 2018 for comments addressed to state agencies.

The lead agencies provided a Notice of Availability notifying the public of the publication of the Draft EIS/R. This notice was mailed to the individuals and organizations that have been involved in the SBSP Restoration Project planning effort as well as those who previously requested such notice in writing. The notice and the Draft EIS/R were also posted on the Project website (www.southbayrestoration.org).

One public meeting was held to discuss the proposed project and receive comments on the Draft EIS/R during the public comment period. The meeting was held at the Don Edwards San Francisco Bay National Wildlife Refuge 3rd Floor Auditorium on May 8, 2018. The date, time, and place of the meeting were identified in the publicly-circulated Notice of Availability of the Draft EIS/R.

1.3 Report Organization

Chapter 2 of this Response to Comments document contains copies of comments received during the comment period followed by the lead agencies' responses to those comments. Master Comment Responses (MCRs) that address multiple comments with similar concerns are provided below in Section 2.1. Each comment in a comment letter was assigned a number, in sequential order (note that some letters have more than one comment). The numbers were then combined with an abbreviation for affiliation type as well as an abbreviation for each commenting entity. These alphanumeric codes are indicated in the margin of each comment letter. Responses to the comments follow the comment letter, and are also coded to correspond to the comment codes assigned in the letter.

A number of comments that were received addressed similar concerns. Responses to these comments were consolidated into MCRs. Eight MCRs were prepared in response to these common issues/concerns. These master responses cover the following topics:

- Selection or description of the Preferred Alternative including process and rationale
- Details of designs
- Sea-level rise
- Beneficial reuse of dredge material, including placement locations, purpose, timing, and impacts
- Fish habitat restoration
- Public access bridge over the Alameda Creek Flood Control Channel (ACFCC)
- Public access trails including routes, elevations, and parking
- Maintenance responsibilities

Where a response includes a change to the text of the Draft EIS/R, the text has been revised in the Final EIR. The responses to comments note where in the revised text of the Final EIR the relevant changes have been made.

Table 1-1 below lists all persons and organizations that submitted comments on the Draft EIS/R during the comment period, the date of the letters, and the code used to identify each letter. One organization submitted a comment letter after the close of the comment period. This organization is listed below for completeness.

Table 1-1. Persons and Organizations that Submitted Comments on the Draft EIS/R

Commenter	Affiliation	Code	Date
Federal and State	**Agencies**		
Goforth, Kathleen	Environmental Protection Agency, Region 9	F-EPA	5/17/2018
Van Atta, Alecia	NOAA Fisheries	F-NMFS	6/4/2018
Oggins, Cy R	California State Lands Commission	S-CSLC	6/5/2018
Regional and Local	**Agencies**		
Ackerman, Hank	Alameda County Flood Control & Water Conservation District	L-AFCD1	5/21/2018
Ackerman, Hank	Alameda County Flood Control & Water Conservation District	L-AFCD2	6/5/2018
Attiogbe, Kwablah	Alameda County Flood Control & Water Conservation District	L-AFCD3	6/5/2018
Castillo, Erika	Alameda County Mosquito Abatement District	L-ACMAD	6/5/2018
Inn, Steven	Alameda County Water District	L-ACWD	6/5/2018
Malloy, Joan	City of Union City	L-CUC	5/21/2018
Hamlat, Sandra	East Bay Regional Park District	L-EBRP	5/21/2018
Giari, Michael	Port of Redwood City	L-PRC	6/5/2018
Huo, Lee Chien	Bay Area Metro, San Francisco Bay Trail Project	L-SFBT	5/18/2018
Organizations and	**Businesses**		
Miller, Jeff	Alameda Creek Alliance	O-ACA	4/25/2018
Coleman, John	Bay Planning Coalition	O-BPC	6/5/2018
High, Carin	Citizen's Committee to Complete the Refuge, CA Audubon, SF Baykeeper, and Ohlone Audubon Society	O-CR1	5/21/2018
High, Carin	Citizen's Committee to Complete the Refuge, CA Audubon, SF Baykeeper, and Ohlone Audubon Society	O-CR2	6/5/2018
Samuel, Patrick	California Trout	O-CT	5/4/2018
Schwartz, Susan	Friends of Five Creeks	O-FFC	5/29/2018
Wirth, Gena	Public Sediment Team via SCAPE / Landscape Architecture DPC	O-PST	6/5/2018
Pearl, Benjamin	San Francisco Bay Bird Observatory	O-SFBBO	6/5/2018
Mangarella, Peter	Trout Unlimited, John Muir Chapter	O-JMTU	5/8/2018
Stauffer-Olsen, Natalie	Trout Unlimited	O-TU	5/11/2018
Bodensteiner, Scott	Haley & Aldrich, Inc on behalf of Pacific Gas and Electric Company	B-HA	6/5/2018
Caldwell, Tim	McBain Associates	B-MBA	6/4/2018
Stout, Steve	Staten Solar	B-SS	5/1/2018
Spalding, Jewell	Sierra Club, San Francisco Bay	O-SC	6/15/2018 (late submittal)

Table 1-1. Persons and Organizations that Submitted Comments on the Draft EIS/R

Commenter	Affiliation	Code	Date
Individuals			
Baye, Peter	Consultant on behalf of Citizens Committee to Complete the Refuge	I-PB1	5/21/2018
Baye, Peter	Consultant on behalf of Citizens Committee to Complete the Refuge	I-PB2	5/30/2018
Ervin, Jim	Individual	I-JE	5/21/2018
Bogios, Constantine	Individual	I-CB1	5/17/2018
Bogios, Constantine	Individual	I-CB2	5/17/2018
Boniello, Ralph	Individual	I-RB	6/5/2018
Clegg, James	Individual	I-JC	6/5/2018
Cook, J.	Individual	I-JPC	6/5/2018
Copper, Elizabeth	Individual	I-EC	6/5/2018
Coyne, Brian	Individual	I-BC	6/5/2018
Dalal, Namita	Individual	I-ND	5/17/2018
Devine, Timothy	Individual	I-TD	4/13/2018
Galvan, Stonetree	Individual	I-SG	5/21/2018
Johnson, Ralph	Individual	I-RJ	6/5/2018
Knopf, Clay	Individual	I-CK	5/26/2018
Marshak, Bob	Individual	I-BM	5/22/2018
Morelli, Leslie	Individual	I-LM	4/12/2018
Nicholas, Myasha	Individual	I-MN	5/26/2018
Phillips, Barbara	Individual	I-BP	5/14/2018
Richardson, Matt	Individual	I-MR	4/13/2018
Scordelis, Philip	Individual	I-PS	5/18/2018
Tepe, Alan	Individual	I-AT	6/5/2018
Thompson, Lawrence	Individual	I-LT	4/21/2018
V, S	Individual	I-SV	4/16/2018
Woodcock, Charlene	Individual	I-CW	5/18/2018

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2. COMMENTS AND RESPONSES

2.1 Master Comment Responses (MCRs)

The responses to the individual comments and the specific topics or points made in them are addressed in the individual responses that follow. A complete relisting of those discussions here is unnecessary. However, there are broader and more general points that should be made here to provide some additional context and background for those individual responses. Note that many responses to individual comments cannot be wholly addressed simply by referring to an MCR. Rather, the MCRs provide a common base of explanation for the responses to many comments; from that base, the rest of the responses are expanded.

2.1.1 MCR 1: Selection of the Preferred Alternative

Only a few comments asked directly about the Preferred Alternative and the methods or process by which it will be selected. But indirectly, a majority of the comments either expressed a preference or made an argument for or against a particular project element included in the action alternatives analyzed in the Draft EIS/R. This MCR is intended to address questions specific to the Preferred Alternative. It also provides a simple overview of the Preferred Alternative and how it was developed. Chapter 6 of the Final EIR presents the description of the Preferred Alternative and its combination of elements from the three action alternatives presented in the Draft EIS/R. The reader is directed to Chapter 6 for more details.

The state lead agency, CDFW, along with the Project Management Team and other project partners decided not to specify a Preferred Alternative in the Draft EIS/R for Phase 2 at ELER. By waiting until the Final EIR to make that decision, the project proponents were able to incorporate input received from the public, regulatory agencies, and other stakeholders on the Draft EIS/R into the decision regarding which components to select for the Preferred Alternative. That intended process and outcome is how the Preferred Alternative was determined.

Many of the comments on the Draft EIS/R contained statements supporting or opposing particular components of the action alternatives. Those arguments informed and shaped the selection of individual elements as well as their recombination into the Preferred Alternative. Further, as was described in the 2007 Final EIS/R and other project planning documents, the SBSP Restoration Project's approach has been to allow the lessons learned from each project phase and from ongoing applied studies and other scientific research and monitoring to inform future phases of the project and to determine the ultimate outcome. These resources and results were used to shape the selection of components.

It is important to note that, although the Preferred Alternative is not exactly one of the action alternatives in the Draft EIS/R, it is made up of individual components that were presented and analyzed in the document with some modifications. Although the combination of the components is different in the Preferred Alternative than those presented in the action alternatives, there are no new significant impacts and no new mitigation measures are required.

For reader convenience, Table 2-1 summarizes the components of the Preferred Alternative. The Preferred Alternative provides habitat restoration, maintains or improves flood risk management, and provides wildlife compatible public access and recreation features, consistent with the Project's Phase 2 goals and objectives. In a few cases, clarifications and refinements to the individual components were made in response to comments and suggestions received on the Draft EIS/R. These changes do not increase, and often decrease, the potential for significant environmental impacts.

Table 2-1. Comparison of the Action Alternatives to the Preferred Alternative

Component	Alternative Eden B	Alternative Eden C	Alternative Eden D	Preferred Alternative
Restoration goal	Tidal restoration of the Bay, Inland, and Southern Ponds	Tidal restoration of the Bay Ponds and the Inland and Southern Ponds become permanent enhanced managed ponds	Tidal restoration of the Bay Ponds and adaptive management-informed phased restoration of the Inland and Southern Ponds (managed ponds then tidal marsh)	Similar to Alternative Eden D except Pond E6C is a permanent enhanced managed pond and the Southern Ponds receive muted tidal flows via culverts during the initial phase of restoration
Perimeter levee breaches and pilot channels	Levee breaches in Ponds E1, E6 and E2 with associated pilot channels	Levee breaches in Ponds E1 and E4 with associated pilot channels	Levee breaches at Pond E1 with associated pilot channels	Similar to Alternatives Eden B and C with an armored breach in the ACFCC near Pond E2, small breaches in Pond E1, and adaptive management-informed phased restoration that can include a breach in Pond E6 and a breach between Ponds E5 and E7
Internal levee breaches	Internal levee breaches and habitat islands/mounds in the Bay, Inland, and Southern Ponds	Internal levee breaches in the Bay and Southern Ponds; habitat islands/mounds in the Bay Ponds	Internal levee breaches and habitat islands/mounds in the Bay and Southern Ponds	Similar to Alternative Eden D with internal breaches in the Inland Ponds implemented if needed during phased restoration
Water control structures	New or repaired water control structures in the Southern Ponds and the ACFCC	New or repaired water control structures in the Inland and Southern Ponds and the ACFCC	New or repaired water control structures in the Inland and Southern Ponds and the ACFCC	Similar to Alternative Eden C with fewer water control structures in the Inland and Southern Ponds
Lowered levees	Lowered levees at Pond E1 north, Pond E2 south, and west levees	Lowered levees at Pond E1 north, Pond E2 south, and west levees	Lowered levees at Pond E1 north and Pond E2 south	Similar to Alternative Eden D
Landside levees	Improved landside levee and habitat transition zone at Ponds E6, E5, E6C, and E4C	Landside levee not improved	Improved landside levee	Similar to Alternative Eden B with a steeper habitat transition zone, if needed, and no habitat transition zone in Pond E6C
Mid-complex levee(s)	Internal levee breaches, habitat islands/mounds, and pilot channels at the boundary between the Bay and Inland Ponds.	Improved mid-complex levee and habitat transition zone at the boundary between the Bay and Inland Ponds	Temporary mid-complex levee and pilot channels at the boundary between the Bay and Inland Ponds	Similar to Alternative Eden C with a steeper habitat transition zone, if needed

Table 2-1. Comparison of the Action Alternatives to the Preferred Alternative

Component	Alternative Eden B	Alternative Eden C	Alternative Eden D	Preferred Alternative
Bayward levees	Lowered levees at Pond E1 west and northwest Pond E2 (bordering Cargill Mitigation Marsh and Southern Whale's Tale Marsh)	Improved bayside levee at Pond E2; levee lowering on Pond E1 west and northwest Pond E2	Improved bayside levee and habitat transition zone at Pond E1 and E2	Similar to Alternative Eden D with a steeper habitat transition zone, if needed
Southern levees	Improved southern levees at Ponds E4C and E5C and connections to Turk Island and Cal Hill	Southern levees not improved	Improved southern levees at Ponds E4C and E5C and connections to Turk Island and Cal Hill	Similar to Alternatives Eden B and D
Other levee improvements (recreational trails)	Improved levees at Ponds E6C south, E5C north, and E1C north	Improved levee at a section of Pond E1C (at mid-complex)	Improved levee at a section of Pond E1C (at mid-complex)	Similar to Alternative Eden B except that the northern levee at Pond E4C and a section of Pond E5C would be improved instead of the southern levee at Pond E6C
Recreational trail alignment	Through-trail from northern Eden Landing to the Southern Ponds, three trail route options, and two community connectors	Through-trail from northern Eden Landing to the Southern Ponds, three trail route options, two community connectors, and a spur trail to the Alvarado Salt Works	Through-trail from northern Eden Landing to the Southern Ponds, three trail route options, and two community connectors	Similar to Alternative Eden B with Trail Route 1 and one community connector at Veasy Street
Bridges	Two footbridges over the connection to the J-ponds	Bridge over the ACFCC at the Alameda Creek Regional Trail and two footbridges over the connection the J-ponds	Two footbridges over the J-pond connector	Similar to Alternative Eden C except with only one footbridge over the connection to the J-ponds
Dredge materials	Beneficial reuse of dredge materials in the Bay and Inland Ponds	Beneficial reuse of dredge materials in the Bay Ponds	Beneficial reuse of dredge materials in the Bay and Inland Ponds	Similar to Alternative Eden B and D, except no material would be placed in Pond E6C
Water use connections	Water reuse connections on the landside levee	No water reuse connections	No water reuse connections	Similar to Alternatives Eden C and D
Root-wads and enhancement features	Root-wad enhancement features on Pond E2's bay-facing levee	No rootwads and enhancement features on Pond E2's bay-facing levee	No rootwads and enhancement features on Pond E2's bay-facing levee	Similar to Alternative Eden B with rootwads and related enhancement features (gravels/coarse grain materials) located on Pond E2's bay-facing levee north of the existing shoal

2.1.2 MCR 2: Details of Designs

Many comments include one or more requests for a level of specificity greater than that available at the current design stage. Examples of this type of comment are requests for a description of the planting plan that would be developed for the slopes of the habitat transition zones or for details of how the rootwads would be anchored to the outer levee of Pond E2. This MCR is intended to explain the current state of design, what level of detail NEPA and CEQA require, and the plan for refining and advancing the design as the project proceeds.

The level of detail provided in the EIR is sufficient to analyze the environmental impacts of the project under NEPA and CEQA. This EIR is based on the preliminary design for the Project (an approximate 10 to 30 percent level of design). This is consistent with both CEQA and NEPA, in which the environmental analysis process occurs before completion of final design. Section 1501.2 of the CEQ Regulations states that "agencies shall integrate the NEPA process with other planning at the earliest possible time to ensure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts" (40 Code of Federal Regulations [CFR] 1501.2). Similarly, the State CEQA Guidelines indicate that environmental analysis "should be prepared as early as feasible in the planning process to enable environmental considerations to influence project program and design and yet late enough to provide meaningful information for environmental assessment" (State CEQA Guidelines, §15004). As provided in State CEQA Guidelines Section 15146, the level of detail in the environmental analysis is to "correspond to the degree of specificity involved in the underlying activity which is described in the EIR." The EIR is based on the level of engineering and planning currently available and is adequate to identify potential environmental impacts of the alternatives and identify appropriate mitigation measures.

Both NEPA and CEQA require the development and analysis of a range of alternatives. The comparison of alternatives is not required by NEPA or CEQA so that the "best" alternative for assuring the project's "success" can be identified, but rather so that the adverse impacts from different alternatives can be compared.

Permitting and other regulatory processes generally require more detailed design with more refined estimates of areas, volumes of fill, and habitat conversion. Many of the comments from the regulatory agencies spell out the type of detailed information that will be required to proceed with permitting. These processes typically proceed with designs ranging between 30 and 60 percent, depending on the regulation and agency involved. That level of specificity is necessary to address specific topics under each agency's purview and authorizing legislation.

The SBSP Restoration Project proponents have developed and included in the Phase 2 Draft EIS/R designs sufficient to inform the necessary environmental impact analyses and to compare the action alternatives and the no-project/no-action alternative against the current environmental baseline and against expected long-term trends in the environment. Designs sufficient for permitting will occur in the next step of the process.

Comments on a project's merits or that make suggestions to increase its chance of successful long-term outcomes are greatly appreciated. However, responding to questions on specific details that will be developed during detailed design is beyond the intent of NEPA and CEQA. It should be noted that, as designs proceed, many of the suggested refinements will be incorporated into the design, as feasible and appropriate. The SBSP Restoration Project Management Team is committed to implementing lessons learned through its own Adaptive Management Plan (or AMP) as well as through the insights and contributions of knowledgeable people in regulatory agencies, research bodies, nongovernmental or advocacy organizations, and the public. It is precisely this sort of input that we hope to gain by engaging our stakeholders and the project proponents fully intend to use this input to inform the final design.

2.1.3 MCR 3: Sea-Level Rise

Several comment letters and individual comments asked about sea-level rise. The SBSP Restoration Project proponents share these concerns and realize that there are uncertainties in several key aspects of sea-level rise. This MCR addresses how successful the particulars of various restoration efforts and concepts would be with sea-level rise. MCR 7, Public Access Trails, and MCR 8, Maintenance Responsibilities, also discuss whether levee elevation increases and other improvements would be sufficient to support long-term trails on those levees in the face of sea-level rise, and how CDFW and the SBSP Restoration Project team would maintain levee-top trails and other project features in the face of sea-level rise. Many of the specifics are also addressed in the individual responses to comments. This high-level summary of sea-level rise-related issues is presented here to provide context for the subsequent individual comments and responses that follow.

SBSP Restoration Project Flood Risk Management Responsibilities

In the 2007 Final EIS/R and in various visioning documents written before and after that time, the SBSP Restoration Project has listed, as one of its three primary goals, maintain or increase the existing levels of flood protection. The language around that goal has shifted to be about “flood risk management” instead of “flood protection”, but the intent is the same: the Project is obligated to not increase flood risk over baseline conditions, but it is not obligated to increase flood protection or provide long-term flood risk management beyond that which the two landowners (CDFW and USFWS) would do in the absence of the Project.

Following that logic, neither CDFW on its own nor the larger, combined set of agencies forming the SBSP Restoration Project Management Team has a responsibility to provide long-term flood protection against dynamics related to sea-level rise. CDFW, as the land owner at Eden Landing, is responsible for maintaining its levees and other lands/waters so that flood risks on adjacent properties are not increased from actions taken on the ELER property. But CDFW is not a flood management or flood protection agency and has very limited capacity and funding to provide long-term flood protection beyond basic levee maintenance and operation of water control structures to manage pond levels.

Estimates of Future Sea Level Rise and Climate Change Impacts on Marsh Restoration

It is important to first consider the changes to estimates of future sea-level rise in the South Bay. The 2007 Final EIS/R utilized the 2001 Intergovernmental Panel on Climate Change (IPCC) mid-range sea level rise estimate of 6 inches by 2050 (3 millimeters [mm] per year average) and 18 inches by 2100 (6 mm per year average between 2050 and 2100) (IPCC 2001). The higher rates in the second half of the century reflect the effects of accelerated sea level rise. However, more recent studies indicate that projections done even a decade or so ago are likely to risk underestimating the magnitude, rates, and timing of sea-level rise and other climate change-related effects.

Several researchers have investigated the predicted response of tidal marshes to future rates of sea-level rise in San Francisco Bay. While there is considerable uncertainty to the rate of sea level rise, particularly after about 2050 due to uncertainties in global carbon emission rates, there is a general consensus among scientists that sea levels near San Francisco are likely to increase by 4 to 6 inches by 2030, 7 to 13 inches by 2050, and 12 to 41 inches by 2100, relative to levels in 2000 (Ocean Protection Council [OPC] 2018)[1].

Different approaches to modeling the effect of sea level rise on tidal marsh sustainability have been investigated. Diana Stralberg[2] of Point Blue Conservation Science, estimated the spatial distribution of marsh accretion using the Marsh98 model, and considered the variation in tidal range throughout the San Francisco Bay. They varied the rate of sea level rise (20 to 65 inches) and varied the amount of organic matter and suspended sediment that was available for marsh accretion based on regions in the Bay. They found that marshes with low suspended sediment would not be sustained for more than 40 years under any of the sea-level rise rates. At the other end of the spectrum, marshes with a high level of suspended sediment (such as the South Bay) were sustained up to 80 years, but not over the full 100 years. The model projected that even under the most pessimistic of assumptions (low suspended sediment, high rates of sea level rise), that there would be a Bay-wide increase in marsh habitat until about 2050, suggesting that a large-scale effect of sea level rise may not be seen until close to 2100. After 2100, with predicted increased rates of sea level rise, loss of marsh habitat would also increase. To minimize marsh loss, the authors recommend conserving adjacent uplands for marsh migration, redistributing dredged sediment to raise existing elevations of ponds prior to restoration, and concentrating restoration efforts in sediment-rich areas.

Lisa Schile of the University of California, Berkeley, and others[3] used another modeling approach, which built upon the work of Diana Stralberg by incorporating plant productivity to predict marsh resiliency using the Marsh Equilibrium Model, and calibrating the model with extensive data collected from four tidal marshes in San Francisco Bay Estuary (all collected from the Delta or North Bay). The Marsh Equilibrium Model was run using five rates of sea level rise (approximately 22 inches to 70 inches per century) and three suspended sediment concentrations and sea level elevations were projected for 2030, 2060, 2080, and 2110. As with the Marsh98 model, marsh accretion did not keep pace with sea level rise under low suspended sediment concentrations. Model results found that tidal wetlands were able to keep pace with sea level rise up to a "tipping point", specifically when the sea level rise rate was greater than 39 inches per century. Researchers stressed that adjacent upland areas could provide space for the marsh to migrate under the highest rates of sea level rise.

John Takekawa and Karen Thorne of the U.S. Geological Survey (USGS)[4] took a different approach by collecting detailed and site-specific elevation, tidal inundation, and vegetation data at 12 marshes around San Francisco Bay, along with sediment cores, to provide inputs to the Wetland Accretion Rate Model for Ecosystem Resilience (WARMER). Model results indicated that 96 percent of the areas studied would

[1] State of California Ocean Protection Council. 2018. State of California Sea-Level Rise Guidance. 2018 Update.

[2] Stralberg D, Brennan M, Callaway JC, Wood JK, Schile LM, et al. 2011. Evaluating Tidal Marsh Sustainability in the Face of Sea-Level Rise: A Hybrid Modeling Approach Applied to San Francisco Bay. PLoS ONE 6(11): e27388. doi:10.1371/journal.pone.0027388.

[3] Schile LM, Callaway JC, Morris JT, Stralberg D, Parker VT, et al. (2014) Modeling Tidal Marsh Distribution with Sea-Level Rise: Evaluating the Role of Vegetation, Sediment, and Upland Habitat in Marsh Resiliency. PLoS ONE 9(2): e88760. doi:10.1371/journal.pone.0088760

[4] Takekawa, J.Y., Thorne, K.M., Buffington, K.J., Spragens, K.A., Swanson, K.M., Drexler J.Z., Schoellhamer, D.H., Overton, C.T., Casazza M.L. 2013. Final report for sea-level rise response for San Francisco Bay estuary tidal marshes. U.S. Geological Survey Open File Report 2012-1081, 161 p.

become mudflat habitat by 2100, assuming a 49-inch sea level rise rate. Variations in tidal range, marsh accretion rates, and initial marsh elevation at the different study sites resulted in varying risks to sea level rise. They found that marsh accretion rates were relatively high in South Bay, and thus those tidal marshes withstood sea level rise effects longer, but with many areas transitioning to only low marsh by 2100. The two study sites that are closest to the project area are Cogswell Marsh along the Hayward Regional Shoreline (just north of ELER) and Laumeister Marsh owned by the City of Palo Alto (located north of the Alviso Complex). The WARMER model results showed that Cogswell Marsh had a gradual reduction in elevation, with an increased decline after 2060. Due to high accretion rates, due partly to high suspended sediment levels in South Bay, mid-marsh habitat was maintained through 2070 (assuming approximately 26 inches of sea level rise), but Cogswell Marsh was projected to transition to low-marsh habitat by 2100 (48 inches of sea level rise). Model results for Laumeister Marsh showed it was able to sustain itself longer due to its high initial elevation and marsh accretion rates, and partly to high suspended sediment. Laumeister Marsh is expected to sustain high-marsh habitat through 2060 (approximately 22 inches of sea level rise), would transition to mid-marsh habitat by 2080, and by 2100 (48 inches of sea level rise) would be mostly low-marsh habitat.

While these model results are encouraging for the sustainability of marshes in South Bay relative to other areas of the Bay, it is unknown what the sustainability of subsided managed ponds will be under future restoration efforts.

Karen Thorne, USGS, applied a structured decision-making process and expert judgment to develop alternative management strategies to increase tidal marsh resiliency through 2050. They sought to optimize a strategy for tidal marsh conservation which took into account future marsh accretion uncertainties, along with social and economic risks, ecological benefits and trade-offs. This prototype effort sought to answer the question, “[t]o conserve San Francisco Bay tidal marshes in light of future climate change, what management, restoration, and protection actions, if any, should be conducted, and where, when, and how should they be conducted?” The results of this process found the greatest utility would be from a “climate-smart” restoration allocation of resources. Such an approach includes increasing resiliency of tidal marshes to climate effects by exploring engineering options to improve resiliency of future marshes, retrofit ongoing or past marsh restorations, and enhance historic marshes; accelerate the timeline for tidal marsh restoration using fill to raise marsh elevations; and the restoration of areas with the highest marsh accretion potential.

One intriguing climate-smart adaptation strategy is shallow-water dredged material placements to allow natural processes to replenish sediments to marsh and mudflat habitats. Aaron Bever and Michael MacWilliams, both of Delta Modeling Associates at the time, in collaboration with the U.S. Army Corps of Engineers, studied the in-Bay placement of dredge material at two locations in San Francisco Bay: one in San Pablo Bay and the other in far South Bay[5]. Authors applied a three-dimensional hydrodynamic, wave, and sediment transport model to evaluate whether shallow-water dredged material placements in less dispersive areas adjacent to existing marshes or breached ponds would result in an increase in sediment deposition within these areas through natural dispersal processes. Dredged material placement simulations in far South San Francisco Bay indicated that the natural dispersal of sediment from open water in-Bay placement has the potential to be used to augment mudflat, marsh, and pond sedimentation.

[5] Bever, A., Michael L. MacWilliams, Frank Wu, Lisa Andes, and Craig S. Conner. 2014. Numerical Modeling of Sediment Dispersal Following Dredge Material Placements to Examine Possible Augmentation of the Sediment Supply to Marshes and Mudflats, San Francisco Bay, USA. PIANC (World Association for Waterborne Transport Infrastructure) World Congress, San Francisco, June 2014.

Placement regions in the far South Bay were much more effective at supplying sediment to mudflats and marshes than locations in San Pablo Bay, and supplied less sediment to federal navigation channels than the San Pablo Bay placement regions. Further evaluation of the effectiveness of this strategy would be a pilot project of in-Bay sediment placement and measurements of erosion and deposition to validate and refine the model.

Phased Implementation, Monitoring, and Adaptive Management to Address Uncertainty in Sea Level Rise

As the 2007 Final EIS/R explained, the SBSP Restoration Project "…would use phased implementation, monitoring and adaptive management to plan for and accommodate a range of potential future sea level rise. Updated sea level rise estimates would be used as future phases were designed and implemented. Monitoring and adaptive management would provide updated assessments of future sea level rise, inform planning for future phases, and adjust previously implemented phases as needed."

The Adaptive Management Plan and Section 2.3 of the 2007 Final EIS/R explain these actions and provide examples. Specific actions included monitoring sea-level rise in the South Bay, modeling and monitoring sediment dynamics in the South Bay, and using the coupled hydrodynamic and sediment transport model of the South Bay to develop better plans for phasing future implementation actions. Other examples include adjusting the phasing to better match the sediment supply; maintaining levees along the bayfront edge to shelter restored tidal areas from wave energy and encourage marsh formation; restoring natural shorelines such as shell breaches, wrack lines, and Bay-edge pans; using imported fill to raise pond beds to elevations conducive to vegetation establishment; and prioritizing restoration of less subsided ponds and/or ponds close to sediment supplies within the project area. The Phase 2 actions in particular have attempted to prioritize the restoration of less subsided ponds while there is still time to do so before sea-level rise become too rapid and extreme.

Sea Level Rise and Flood Protection / Maintaining Levees and Managed Salt Ponds in the Face of Future Sea-Level Rise

Several comments raised concerns regarding the long-term management of former salt-production ponds levees (which are not engineered levees and are more like berms) and other unimproved features, particularly in the face of sea-level rise and associated risks of failure. The risks of levee failure and the various management and levee maintenance actions are considered and addressed as needed, according to CDFW's ELER management. Such operations and maintenance are performed as needed as part of the overall ELER property management, whether or not a Phase 2 action were to be implemented at a given pond or area within ELER. Some of these risks and potential impacts are actually somewhat greater in the no action alternative than in the tidal restoration alternatives because the latter generally allow ponds to be breached. Other ponds will remain protected in place with adequate elevation and slopes to protect from wind wave or other coastal erosion (and deposition) functions over time. Tidal marsh restoration and retained managed ponds will be designed and implemented such that those actions protect existing habitats and built environments instead of allowing unplanned levee failures that might cause flooding or habitat degradation under a No Action Alternative.

The SBSP Restoration Project is committed to maintaining or improving, rather than reducing the existing levels of flood risk. Phase 2 actions seek to improve current and future flood risk where practicable. Options may include building a levee with a wider base to more easily accommodate future increases needed in levee height. These levee maintenance and/or improvement approaches could also be used for ponds retained and managed for pond-dependent wildlife species.

Sea Level Rise and Habitat Restoration Planning

Given the expected rates of sea-level rise discussed above, the SBSP Restoration Project team believes that it is important to do as much tidal restoration as is safe and feasible as soon as possible, so that the marsh can become established before sea-level rise greatly increases. In support of this idea, the Baylands Ecosystem Habitat Goals Project 2015 Science Update prioritizes maximizing tidal marsh restoration in areas like the South Bay by 2030.

The 2007 Final EIS/R presented lengthy details about how sea-level rise would be incorporated into the program-level planning and in project-level design and planning. It noted that higher than anticipated sea-level rise rates that result in delayed or arrested marsh establishment could affect the progression between the 50:50 and 90:10 alternatives presented in the 2007 Final EIS/R. Tidal habitat restoration may be closer to the 50:50 end point of the SBSP Restoration Project which may maximize the sediment supply available to those ponds that are tidally restored. In other words, at Project completion, the final habitat restoration target may be closer to 50 percent of the ponds being tidally restored in order to most effectively utilize available tidal sediment supply. Adaptive management efforts would be used to encourage marsh establishment in the tidal ponds. Restoration actions contain features to accommodate accelerated sea level rise, such as constructing a gradually sloping habitat transition zone surface that provides an elevation gradient over which tidal marsh could shift upslope as sea level rises. Additional actions could include initiating marsh vegetation plantings to maximize sediment-trapping efficiencies and enhance the accumulation of organic matter in the developing marsh sediments.

Further, Appendix I of the 2007 Final EIS/R was a habitat evolution assessment that, among other findings, presented research by Watson (2004) showing that the high sediment availability in the far South Bay sustained marshes at a time when subsidence was very high. It concluded that, if sea-level rise rates match the lower to mid-range of the predictions and sediment availability remains high, tidal marshes in the South Bay should keep pace with changing conditions as they have done historically. If higher rates of sea level rise prevail, the timeframe for marsh development may be delayed, and tidally-restored areas within the SBSP Restoration Project Area may persist as intertidal unvegetated mudflats or shallow open water habitat for prolonged periods. However, research by Jaffe and others (2006) showed that the South Bay, and in particular the far South Bay, have historically been sediment-laden depositional environments. Thus, tidally-restored ponds were expected to accrete sediment and vegetation is expected to establish in the face of accelerated sea level rise.

More recent research has shown that the Bay's sediment-rich recent history may have been linked to elevated sediment loading from legacy mining activities in the Sierra foothills during the Gold Rush era. This research has indicated the SF Bay may be entering an erosional period, rather than depositional. Recognizing the importance of sediment availability in future restoration with or without sea-level rise, the SBSP Restoration Project Management Team continues to monitor and study sediment dynamics in San Francisco Bay as a whole and in the South Bay in particular. Results from these studies will continue to shape the decisions of where and how to undertake different types of habitat restoration. Beneficial reuse of dredged sediment which meets standards for use in wetland restoration is being considered by the Project as discussed further below. Beneficial reuse has been supported by many other San Francisco Bay regulatory agencies, local municipalities and organizations. Existing approved beneficial reuse sites have been shown to be effective in rapid establishment of vegetated tidal marsh, including within former pond E8A as part of Phase 1.

To guard against the risk of sediment accretion not keeping pace with sea-level rise and inhibiting marsh formation, the Preferred Alternative for Phase 2 at Eden Landing includes the beneficial reuse of dredge material (more details on that are in MCR 4, in Chapter 2, Alternatives, as well as Appendix E, which presents the preliminary designs for that component of the Phase 2 designs). That material would be used to raise the pond bottom elevations prior to breaching the levees and thus "jump-start" marsh formation by reducing the time needed to accrete sediment up to marsh plain elevation. Suitable dredge material could also be used to construct habitat transition zones, which would also reduce the time needed to truck in material from upland excavation projects as well as associated impacts from traffic, noise, and air quality emissions.

The SBSP Restoration Project Management Team continues to work with proponents of the Long-Term Management Strategy, the regulatory agencies around San Francisco Bay, private dredgers, and other stakeholders to develop regulatory, technical, and economic frameworks and mechanisms to make it easier and more efficient to deliver dredged material to the South Bay salt ponds where it can be beneficially reused. The SBSP Restoration Project Management Team is also collaborating with dirt brokers, construction companies, developers, foundations, and local governments to develop sources and supply chains for the continued delivery of excavated dirt from upland projects.

In summary, the SBSP Restoration Project team continues to monitor ongoing research and modeling about climate change and sea-level rise and will continue to plan, design, and manage for higher rates of sea-level rise than initially projected. However, it is important to note that the project, on its own, will largely be limited to maintaining the level of flood risk management already in place. The SBSP Restoration Project will continue to work with willing local project partners to improve the level of flood risk reduction to the extent practicable, while designing and implementing restoration features that will be successful in the presence of future sea-level rise. The SBSP Restoration Project Management Team would seek to accommodate accelerated sea level rise, as feasible and appropriate (e.g., by incorporating beneficial reuse), in order to maximize achievement of the project objectives. This approach depends on the concepts described and used throughout the project, including phased implementation, monitoring, and adaptive management, as described in the EIR and many planning documents.

2.1.4 MCR 4: Beneficial Reuse of Dredge Material, Including Placement Locations, Purpose, Timing, and Impacts

Several comment letters strongly advocated for the inclusion of beneficial reuse of dredge material in the Preferred Alternative, citing the long-standing efforts of many regulatory agencies and other groups to establish a regulatory context for such use as well as the ecological benefits of turning what would otherwise be a waste product into a valuable resource to conduct tidal marsh restoration in the face of sea-level rise. Many of those same commenters made similar points during the scoping portion of the NEPA and CEQA processes.

As noted in MCR 1 and explained in detail in Chapter 6, Preferred Alternative, of the Final EIR, the Preferred Alternative for Phase 2 at Eden Landing includes the potential beneficial reuse of dredge material to raise pond bottom elevations and to build habitat transition zones in several ponds. Dredge material would be placed in the Bay Ponds (E1, E2, E4, and E7) and may be used to raise portions of

Ponds E5 and E6, depending on the eventual Adaptive Management Plan-informed decision about the long-term restoration of those ponds to tidal marsh.

Appendix E contains the design information for construction as well as operation and maintenance of the offloader and slurry pipe system to deliver dredge material to southern Eden Landing and then to place it in various locations there. Chapter 2 of the EIR explains how the material would be used in different ponds. The environmental impacts of the placement itself as well as the installation of the offloader and the slurry pipe and pump system are addressed throughout the resource sections in Chapter 3.

Some of the comments pointed out the different regulatory standards for cleanliness of material for use in foundations of features such as habitat transition zones versus its use as ecologically active cover material. Raising pond bottoms would occur ‘in the wet’ prior to larger connections with the Bay and surrounding waters and there may be an opportunity to apply foundation material in deeper regions of the ponds prior to application of cover material, depending on future permit requirements. The SBSP Restoration Project proponents are committed to complying with all regulatory standards regarding beneficial reuse of dredge material, including not only the quality requirements for cover or foundation material but also for impacts on the aquatic environment from offloader placement and operation, slurry pipe placement, and other details.

The SBSP Restoration Project proponents do note, however, that the construction of an offloader is expected to be by an external third party and that entity may be responsible for the permits and other regulatory clearances associated with its anchoring in the Bay. These permits may cover aspects such as noise, vibrations, air pollutant and greenhouse emissions, effects on Essential Fish Habitat under the Magnuson-Stevens Fisheries Conservation and Management Act, and others. A lease from the California State Lands Commission is also expected to be necessary. The SBSP Restoration Project proponents intend to be an active participant and partner in those regulatory processes, but the applicant for those permits may more appropriately be the owner/operator of the offloader.

Finally, the SBSP Restoration Project proponents intend to accept dredge material for the beneficial reuse in project restoration actions if materials are available in the time frame needed for successful project implementation. As such, the project was developed such that if dredge materials were not available in an appropriate time frame, project implementation can proceed without such material. The project would benefit from the incorporation of dredge material but does not depend on it. The inclusion of beneficial reuse of dredge material in the Phase 2 Preferred Alternative at Eden Landing should not be interpreted as a commitment to wait indefinitely for that material to be supplied to the project site.

2.1.5 MCR 5: Fish Habitat Restoration

Many comment letters included a strong preference for restoration actions that would provide multiple connections between the ACFCC and the southern Eden Landing ponds to make that area suitable habitat for migrating salmonids and other native fish. More specifically, many commenters expressed a preference for the type of full tidal marsh restoration described as Alternative Eden B in the Draft EIS/R, while others voiced a similar preference but acknowledged that phased tidal restoration, such as that described in Alternative Eden D, would also bring advantages to salmonids and other native fish. In addition to stating this overall preference, some of the comment letters included recommendations for detailed design that would specifically increase the habitat value of the restoration area. These recommendations included placing large woody debris near pilot channels, constructing deeper pool areas, and adding multiple breach locations to improve habitat complexity, add refuge areas, and reduce efficiency of predation on native fish.

This MCR is intended to provide a broad explanation of the types of fish habitat restoration and enhancements intended for implementation as part of the Phase 2 Project at Eden Landing. Specific comments are addressed in the individual responses that follow, and MCR 2 addresses the different stages of design relative to the current level of design detail, as some of the suggestions may be more appropriately considered at a later design stage.

As explained in MCR 1, the Preferred Alternative includes elements that, from a fish habitat perspective, are much like those in Alternatives Eden B and D. The Bay Ponds would be opened to tidal flows from several breaches on the northern border with Old Alameda Creek (OAC) and to tidal flows from at least two large locations along the southern border with the ACFCC. There would be many interior breaches to connect the four Bay Ponds to each other, and several deeper channels would be excavated to allow for more complete drainage with the tides.

To facilitate fish passage between the ACFCC and the restored ponds, the Preferred Alternative includes the maximum number of connections outlined in the Draft: two connections to the Bay Ponds and one to the Southern Ponds. One of the connections between the Bay Ponds and the ACFCC will no longer be through large culverts, as initially described, but instead through a full breach. This breach however, would be armored to prevent additional scour and uncontrolled widening that could undercut a new public access bridge on the Alameda Creek Regional Trail. The other two connections would be through culverts, as described in the Draft EIR.

As shown in Alternatives Eden B and D, the Southern Ponds would be opened to muted tidal flows through a culvert system, making them accessible to salmonids as well. Some of the comments did not support this action, however, because a single connection can be associated with higher predation rates than multiple connections. The SBSP Restoration Project team acknowledges this risk and intends to operate the water control structure there under careful monitoring in the early years to evaluate whether this dynamic occurs. If it does, those ponds could be operated more as true managed ponds and not left open to constant muted tidal flows. This is a shift that could also happen if ongoing monitoring shows that more managed ponds are needed for bird habitat. This is part of the adaptive management approach to the phased restoration of the Southern Ponds, as described for Alternative Eden D and in the Preferred Alternative.

Tidal restoration of the Bay Ponds would provide a large area of increased habitat value for salmonids and other native fish, whether as tidal lagoons in the early years or as marsh once it establishes. Either of these habitats are good nursery and forage habitat for juvenile fish, and this approach would satisfy most of the recommendations in the comments that concerned fish habitat restoration.

The Inland Ponds (E5, E6, and E6C) are not planned for tidal restoration in the Preferred Alternative during the first phase of restoration because of the Project's need to balance multiple types of habitat restoration and enhancement actions. The long-term operation of those ponds as enhanced managed ponds may be necessary to achieve the full balance of the Project's intended ecological goals unless monitoring and implementation of the Adaptive Management Plan provide a basis for determining that tidal restoration of Ponds E6 and E5 is most beneficial. Similarly, Pond E6C is proposed to be enhanced and maintained as seasonal habitat for western snowy plover and other pond nesting birds in the summer, while providing deeper open water for overwintering diving ducks and dabbling ducks, among other migratory bird species during the spring and fall migration periods.

The Project cannot provide multiple unarmored breaches into the ACFCC as requested by many comments. First, because it is a federal flood control levee and uncontrolled openings would require a lengthy and difficult decertification of that levee under Section 408 of the Clean Water Act, which requires an Act of Congress to approve. A bridge structure over the levee would also be required to retain the segment of the Alameda Creek Regional Trail west of the breach, and armoring the levee breach would be required for the bridge.

As noted, however, multiple breaches (as well as extensive areas of levee lowering) are planned for the ponds' northern connection with the OAC. Those, combined with the internal levee breaches and breaches to the ACFCC, will provide ample connectivity to allow multiple points of egress from ponds and decrease potential predation. Some of the other ideas or suggestions (such as large woody debris and excavating deep pools in the pond interiors) will be considered during detailed design.

2.1.6 MCR 6: Public Access Bridge over the Alameda Creek Flood Control Channel

Many of the comments expressed support for a public access (pedestrian and bicycle) bridge over the ACFCC. This MCR is intended to provide additional context to the decision to include the bridge over the ACFCC in the Preferred Alternative. Although this component was included in only one of the action alternatives presented in the Draft EIS/R, the text of the Project Description in Chapter 2 notes that such a bridge is a modular component that could be included into any configuration of a Preferred Alternative or an eventually implemented project.

Note first that providing the Bay Trail spine through Eden Landing is one of the Project's goals, and it is included in the Phase 2 Preferred Alternative. In contrast, the bridge over the ACFCC was initially included in the 2007 Final EIS/R as a possible mitigation measure for one or more breaches through the northern levee of the ACFCC and the resultant loss of existing Alameda Creek Regional Trail to the west of that or those breaches. As currently envisioned, any openings in the ACFCC levee would be armored and bridged or through culverts that would allow continuation of the Alameda Creek Regional Trail, which removes the necessity to provide a public access bridge over the ACFCC as a mitigation measure. The bridge and culvert crossings are elements of the Project that contribute to the regional public access network.

As MCR 1 explains, that bridge over the ACFCC has been included in the Preferred Alternative. Completing the Final EIR processes would thus provide CEQA coverage for that component. However, it is important to acknowledge a few limits on what that inclusion means. First, neither the CDFW nor any of the other SBSP Restoration Project primary entities (the USFWS or the State Coastal Conservancy) owns the land on either side of the ACFCC. The Project therefore holds no unique ability or influence to obtain the necessary funding, permits, or property rights to actually build it. The construction of such a bridge, as with the completion of a portion of the proposed trail through southern Eden Landing, would require property acquisition at fair market value or a permanent public access easement. Therefore, the SBSP Restoration Project proponents/CDFW are unlikely to be the sole implementer of a public access bridge over the ACFCC on their own. As noted, building that bridge will require a substantial effort to acquire funding for and perform design, permitting, and construction, and to obtain necessary easements or property acquisition. This is very likely to need cooperation between a number of partner agencies to successfully implement. The SBSP Restoration Project has already begun contributing to that effort by providing CEQA coverage for a bridge over the ACFCC.

2.1.7 MCR 7: Public Access Trails (Routes, Elevations, and Parking)

One of the Project aspects most frequently commented on in the Draft EIS/R were the public access features in the Phase 2 alternatives. This topic included opinions on and questions about the three trail routes for the Bay Trail spine, trail connections to the Alameda Creek Regional Trail and others, the "community connection" trail segment to link with the neighboring communities in Union City, the lack of added parking facilities, and consistency with external regional plans such as the Bay Trail system's plans. Many of these comments cannot be fully addressed by a MCR and are addressed in full in the individual responses below. However, this MCR (along with MCR 6, which is specific to the public access bridge over the ACFCC – no further discussion of that particular element is in this MCR) is intended to address several common aspects which those comments share and thereby provide a context for a more detailed answer.

Trail Route in the Preferred Alternative

Despite the misconception in some of the comment letters, all of the action alternatives in the Draft EIS/R included three different routes to complete the Bay Trail spine through all or most of southern Eden Landing, depending on property ownership or easement acquisition. Some of the details (such as elevation) would have differed depending on the alternative chosen, but the routes were in every alternative, as were one or more bridges over internal channels, a new viewing platform, and a commitment to maintaining existing access long the Alameda Creek Regional Trail, regardless of the approach taken to connecting the ponds to the ACFCC.

In the Preferred Alternative, Trail Route 1 was chosen as the alignment of the Bay Trail spine through southern Eden Landing. That was chosen in part to provide a more bayward experience for trail users (Trail Route 1 is the westernmost of the three considered) and to minimize the amount of land acquisition or easements or agreements necessary from outside parties that would be necessary to complete it. Note that several public access advocates expressed a strong preference for Trail Route 1. In addition, Trail Route 1 would need permission from the Alameda County Flood Control and Water Conservation District (ACFCWCD) only for small portions of trails and bridge abutments that would cross over its property.

In contrast, Trail Route 2 would likely have needed acquisition of Cargill Pond 3C and its surrounding levees because a permanent easement for public access would not be obtained from Cargill because of their standing policy not to allow public access on their property owned in fee title. Neither acquisition or an easement is reasonably foreseeable at the present time, and so Trail Route 2 was dropped from the Preferred Alternative. Related to that, CDFW and the other agencies on the SBSP Restoration Project's management team agree that spur trails to Turk Island and/or Cal Hill would be excellent public access features. Efforts continue to be made to acquire the parcel from Cargill. However, the Project cannot commit to providing the Bay Trail spine on a route that it does not currently have a likelihood of successfully acquiring in the near future. This is a major reason that Trail Route 2 was also not included in the Preferred Alternative. The selection of Trail Route 1 does not preclude access to Turk Island/Cal Hill in the future if that parcel is acquired at some point in the future.

Trail Route 3 and the associated "community connector" trail to Union City Boulevard were also removed from the Preferred Alternative because of the strong negative response to it in the comment letters. The original intentions of that route included providing more access for local residents and to provide a "fallback option" for the Bay Trail spine alignment if permission to build Trail Routes 1 or 2 were not able to be obtained from the ACFCWCD or Cargill, respectively. However, the comments received indicated that advocates of the Bay Trail spine and other public access agencies did not value that added option, which was almost unanimously viewed as unsatisfactory. Also, there were concerns from several commenters (including the City of Union City and the East Bay Regional Park District) that creating this community connector would draw more outside trail users to the area and encourage them to park on the existing streets because no new added parking facility was included in the Phase 2 alternatives. Since providing additional parking is not currently feasible (see more on that below), this community connector will not be included, though a community connector will be provided at the Veasy Street entrance.

Several comment letters expressed displeasure at the lack of a new trail all the way to San Francisco Bay (i.e., the lack of a "blue water experience") along OAC. Note that the existing Alameda Creek Regional Trail already provides that experience along Eden Landing's southern border. That trail will be retained in Phase 2 at some expense and difficulty to the restoration effort. A similar experience is available in northern Eden Landing along the spur trail built as part of Phase 1 of the Project. Because the outer, bay-facing levees along Pond E1 and E2 would be improved and because only controlled openings into southern Eden Landing are possible on its southern boundary with the ACFCC, much of the necessary tidal exchange into the project site would come from the north, through multiple breaches into OAC. This makes it infeasible to place a trail to the Bay along that alignment.

A shorter trail along OAC to the former site of the Alvarado Salt Works (with or without the bridge over the OAC to northern Eden Landing) was removed from the Preferred Alternative for similar reasons. Management flexibility would be retained for Ponds E5 and E6 and the northern levee on Pond E6 may be breached as part of the adaptive management approach to the phased restoration of those Ponds.

Levee-top Trail Elevations

In the Preferred Alternative, levee elevations would be increased to 12 feet, North American Vertical Datum of 1988 (NAVD88), along most levee sections improved that would support the public access trail. That design would provide full adaptive management capability while also addressing concerns that either (a) the levees would not be high enough to comply with agency guidance on sea-level rise or with design guidelines for the Bay Trail spine, or (b) permitting of a future elevation increase would be prohibitively difficult due to concerns regarding endangered species habitat. In the short- and medium-term, the Bay Trail spine levees would not necessarily need to be raised to elevation 12 feet because the mid-complex levee would be raised to keep fully tidal flows from the Bay Ponds away from those levees. But raising the levees as part of the Phase 2 action would preserve the adaptive management flexibility to adjust the way two of the Inland Ponds (E5 and E6) and the Southern Ponds (E1C, E2C, E4C, and E5C) are configured in the future. Those levees would also be built with wider bases to allow future increases in elevations without adding more fill in waters of the U.S. and State of California or otherwise affecting endangered species habitat.

Long-term maintenance of the trails and the levees under them are discussed in MCR 8.

Parking

A few letters in particular mentioned the lack of additional parking as part of the Phase 2 action. Note first that CDFW owns no suitable land on which to build a parking lot. As in other MCRs, however, both CDFW and the larger SBSP Restoration Project team would be willing to collaborate with other local agencies and provide assistance in adding parking in one of the surrounding areas.

Second, with the removal of the community connector along Westport Way and Trail Route 3 out to Union City Boulevard (see MCR 1), there is only one community connector trail, at Veasy Street and no new "trailhead" as part of Phase 2, and thus a reduced need for a new parking area. Instead, a Preferred Alternative that completes the Bay Trail spine through southern Eden Landing (per the plan summarized in MCR 1 and detailed in Chapter 6) would make this portion of the Bay Trail more of a through-trail used for longer hikes or bicycle rides to or from existing trailheads. Those existing trailheads with parking are to the north (the Phase 1 parking area at northern Eden Landing) and to the south (the Alameda Creek Regional Trail parking lot along the ACFCC). The elimination of Trail Route 3 unless added parking is feasible (as per City of Union City preference) leaves only one new community connector trail at Veasy Street. The resulting Phase 2 public access features would provide excellent connectivity to the existing regional trail network.

As part of ongoing operational activities at northern Eden Landing, CDFW could expand the parking area built in Phase 1 of the project to accommodate any additional demand by opening and improving the overflow parking area as appropriate. Currently the lot occasionally fills only for brief periods on certain weekend days, particularly during special events, and it is inefficient to build a parking lot to accommodate the peak demand instead of the typical demand. Weekend/peak demand will continue to be monitored at that site by CDFW, and the overflow area could be opened if significant new demand is supported.

2.1.8 MCR 8: Maintenance Responsibilities

Many of the comment letters on the Draft EIS/R contained questions about the ongoing maintenance of existing features at the ELER in general or of specific features of the SBSP Restoration Project Phase 2 action itself. These comments addressed the operations and maintenance of existing levees, proposed levee modifications, proposed trails and bridges, invasive species control, nuisance wildlife species control, and so on. Several commenters inquired about whether and how the SBSP Restoration Project team would be able to adequately maintain (or fund the maintenance of) levees and the public access trails on their crests in the face of the expected sea-level rise. The responses to the individual comments and the specific topics or points made in them are addressed in the individual responses that follow. However, there are some general points that should be made here to provide some additional context and background for those individual responses.

Note first that NEPA and CEQA are intended to inform the public about a proposed project and the potential adverse impacts on the environment from its implementation and operation. Project proponents are required to analyze and disclose these impacts on the environment from the project being proposed. However, NEPA and CEQA generally do not require demonstration of sufficient long-term funding. As with all publicly provided facilities, services, and potential experiences, agency funding levels can vary widely over time. No public agency can "guarantee" long-term funding (as was requested in several comment letters), as it does not unilaterally control its own budget or the levels of supplemental funding that may be obtained through grants or cost-sharing arrangements with outside partners.

CDFW is the landowner and manager of the ELER and is responsible for maintaining the levees, water control structures, and other features of the lands and waters at the site as needed for habitat purposes. CDFW performs or coordinates other maintenance activities such as removal of invasive plant species, performing bird counts or other biological surveys, and patrolling to see that public access features are being used in accordance with Reserve rules (e.g., that people stay on trails, respect rules about dogs, etc.). These types of management actions are things that CDFW would need to do regardless of the details of the Preferred Alternative or whether there was an SBSP Restoration Project at all.

The Project and CDFW are committed to the management of invasive vegetation species (including invasive Spartina and its hybrids, phragmites, and other species), controlling nuisance wildlife species, and maintaining appropriate human uses of the Reserve trails and public access features. They will do so through the continued support and collaboration with the Invasive Spartina Project and other efforts to control invasive species. As stated above, costs of this control are an important part of management, and both the Project and CDFW management will ensure that costs and funding are appropriately considered, estimated, and aggressively sought through various federal, state, regional and local funding sources.

Finally, regarding maintenance of public access features, the SBSP Restoration Project proponents and the managers of CDFW's ELER are committed to participating in the ongoing provision of wildlife-compatible public access. The SBSP Restoration Project's approach to doing that at ELER has been for the Project to design, plan, permit, and build the public access features using the funding it has assembled from various sources. Then, one or more local project partners would be actively sought to participate in funding and performing the long-term maintenance of trails, bridges, viewing platforms (including signage, benches, etc.), with CDFW's involvement. This approach was successfully implemented in Phase 1 of the Project in northern Eden Landing during, in which the Project team and CDFW provided several new trails, viewing platforms, a kayak launch, and a public access parking area for Americans with Disabilities Act (ADA) compliance. The East Bay Regional Park District provides ongoing operation of the Eden Landing Bay Trail spine and Staging Area, while CDFW provides maintenance of those newer Phase 1 features.

Other aspects of trails, and/or maintenance thereof, are discussed in these MCRs:

- MCR 1 describes the Preferred Alternative for Phase 2 at Eden Landing, which includes the Bay Trail through the southern half of Eden Landing (on a route that minimizes the amount of land acquisition or easement agreements necessary from outside parties necessary to complete it), reduces potential adverse impacts on sensitive wildlife species from use of public access features, and addresses as many of the goals or visions of plans such as the Association of Bay Area Governments' Bay Trail Plan as feasible to do while still maintaining existing levels of flood risk management while implementing Phase 2 tidal marsh restoration and retained or enhanced managed ponds.

- MCR 3 describes the plans for levee maintenance (and thus the maintenance of levee-top trails) in light of sea-level rise.

- MCR 6 describes the Project's intentions as they relate to the public access bridge over the ACFCC.

MCR 7 describes the trail alignment included in the Preferred Alternative (as well as the rationale and explanation for that choice), notes a change in the levee-top elevations of those trails, and also addresses some of the other details and limitations of the trail system through southern Eden Landing, as it is based on acquiring some other lands or easements/permissions.

2.2 Individual Comments and Responses

2.2.1 Federal and State Agencies

Comments from federal and state agencies and the responses to those comments are presented in this section.

Environmental Protection Agency (F-EPA)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

May 17, 2018

Brenda Buxton
Deputy Program Manager
State Coastal Conservancy
1515 Clay Street, 10th Floor
Oakland, California 94612

Subject: Draft Environmental Impact Statement/Report (DEIS/EIR), South Bay Salt Pond Restoration Project, Phase 2, Eden Landing Ecological Reserve, Alameda County, California (EIS No. 20180053)

Dear Ms. Buxton:

F-EPA-1

The U.S. Environmental Protection Agency (EPA) has reviewed the above-referenced document pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act. The Draft Environmental Impact Statement/Environmental Impact Report (DEIS/EIR) is tiered from the 2007 Programmatic EIS/EIR for the South Bay Salt Pond Restoration Project. EPA provided scoping comments for the DEIS to the U.S. Fish and Wildlife Service on July 19, 2016.

EPA fully supports the proposed restoration of salt ponds in the southern half of the Eden Landing Ecological Reserve. In addition to restoring habitat, the proposed project is expected to provide flood risk management and wildlife-oriented public access and recreation. Based on our review of the DEIS, we have rated the action alternatives as *Lack of Objections* (LO).

F-EPA-2

As recommended in EPA's scoping comments, the DEIS/EIR evaluates beneficial reuse of dredged material and includes such reuse in the design of Eden Landing Phase 2. According to DEIS/EIR, dredged material placement would account for a majority of the project's air emissions, which, although estimated to be below federal General Conformity de minimis thresholds, would exceed local significance thresholds for oxides of nitrogen (NOx). The DEIS/EIR states that mitigation for construction equipment requires the use of Tier 4 engines, which offer the highest emissions reductions, while the proposed mitigation for harborcraft is to meet, at a minimum, EPA Tier 2 marine engine emission standards. Because the air basin is in nonattainment for the ozone National Ambient Air Quality Standard (NAAQS), we suggest that the lead agencies encourage the use of marine vessels that meet the latest EPA exhaust emissions standards for marine compression-ignition engines (i.e., Tier 4 for Category 1 & 2 vessels, and Tier 3 for Category 3 vessels), if available, to further reduce air emissions.

F-EPA-3

EPA appreciates the opportunity to review this DEIS/EIR. When the Final EIS/EIR is released for public review, please send one electronic copy to the address above (mail code: ENF-4-2). If you have any questions, please contact me at (415) 972-3521, or contact Karen Vitulano, the lead reviewer for this project, at 415-947-4178 or vitulano.karen@epa.gov.

Sincerely,

Kathleen Martyn Goforth

Kathleen Martyn Goforth, Manager
Environmental Review Section

Enclosure: Summary of EPA Rating Definitions

cc: Jared Underwood, Refuge Manager, Don Edwards S.F. Bay National Wildlife Refuge
Gregg Erickson, CA Dept. of Fish and Wildlife Regional Manager, Bay Delta Region

Response to Environmental Protection Agency (F-EPA)

F-EPA-1

The project proponents appreciate your support of the project.

F-EPA-2

Project-level Mitigation Measure AQ-B has been updated in the Final EIR to encourage the use of marine vessels that meet the latest EPA exhaust emissions standards for marine compression-ignition engines (i.e., Tier 4 for Category 1 & 2 vessels, and Tier 3 for Category 3 vessels), unless such engines are unavailable.

F-EPA-3

Copies of the Final EIR will be provided as requested.

NOAA Fisheries (F-NMFS)

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404-4731

June 4, 2018

Brenda Buxton
Deputy Program Manager
State Coastal Conservancy
1515 Clay St., 10th Floor
Oakland, CA 94612

Re: Comments on Draft Environmental Impact Statement/Report for Phase 2 of the South Bay Salt Ponds Project at Eden Landing

Dear Ms. Buxton:

F-NMFS-1

This letter transmits NOAA's National Marine Fisheries Service's (NMFS) comments on the California Department of Fish and Wildlife's (CDFW) and the U.S. Department of Fish and Wildlife Service's (FWS) Draft Environmental Impact Statement/Report (DEIS/R) for Phase 2 of the South Bay Salt Ponds (SBSP) Restoration Project at the Eden Landing Ecological Reserve. NMFS is submitting these comments for CDFW and FWS' consideration in the selection of the final Phase 2 Action Alternative for Eden Landing.

The Eden Landing Phase 2 project area is comprised of 11 ponds within the southern portion of the Eden Landing Ecological Reserve in the vicinity of the confluence of Alameda Creek and South San Francisco Bay, Alameda County, California. CDFW and FWS are considering the SBSP at Eden Landing as a means to restore and/or enhance 2,270 acres of tidal wetland habitat and managed ponds in the South San Francisco Bay, while simultaneously providing flood risk management and wildlife-oriented public access and recreation. The DEIS/R contains the No Action Alternative and three Action Alternatives. All three Action Alternatives aim to restore the existing ponds to either entirely tidal marsh or a mixture of tidal marsh and enhanced managed ponds. To date, a Preferred Alternative has not yet been selected for this proposed project, which will likely contain a combination of landscape and habitat features currently included in the Action Alternatives B, C, and D.

F-NMFS-2

Federally threatened Central California Coast (CCC) Distinct Population Segment (DPS) steelhead (*Oncorhynchus mykiss*) and threatened Southern DPS (sDPS) of North American green sturgeon (*Acipenser medirostris*) occur in South San Francisco Bay and the Eden Landing Phase 2 project area. Additionally, designated critical habitat for both of these listed species occurs within the project area. The project area is also designated as Essential Fish Habitat (EFH) for various life stages of fish managed under the Pacific Coast Groundfish Fishery Management Plan (FMP), Coastal Pelagic Species FMP, and the Pacific Coast Salmon FMP, pursuant to section 305(b) of the Magnuson-Stevens Fisheries Conservation and Management Act (MSA).

Tidal marsh and channel habitat in the South Bay provide important habitat for CCC steelhead and sDPS green sturgeon. For steelhead, tidal marshes and sloughs provide rich foraging opportunities for juvenile steelhead prior to ocean entry, areas for acclimation of smolts to seawater, and serve as migration corridors to several South Bay steelhead spawning streams.

F-NMFS-2 (cont.)

Juvenile sDPS green sturgeon spend their first few years in the Delta and San Francisco Bay before entering the marine environment as subadults. Within tidal marshes and sloughs in the Bay, juvenile sturgeon are thought to be primarily opportunistic benthic foragers and feed on benthic crustaceans, particularly amphipods, shrimps, clams, annelid worms, crabs, and small fishes. For these listed species and EFH, the restoration of tidal marsh at Eden Landing is expected to increase aquatic productivity in adjacent tidal sloughs and channels and significantly enhance foraging opportunities in South San Francisco Bay.

Alternative Eden B proposes to restore the project area to tidal marsh in one stage by major levee alterations and improvements. Through the utilization of levee breaches, levee lowering, and pilot channel techniques, this alternative would maximize connectivity of tidal habitats with Alameda Creek and provide new foraging opportunities during high tide in developing tidal channel networks within the restored marshes. Increases in productivity are expected to expand the prey base available to native fish species including CCC steelhead, sDPS green sturgeon, and species managed under the Groundfish, Coastal Pelagic, and Salmon FMPs. The proposed addition of rootwads, habitat islands and mounds, and habitat transition zones are also expected to increase foraging and refuge opportunities for numerous fish species in the project area.

F-NMFS-3

Under Alternatives Eden C and D, the creation and continued operation of managed ponds in the project area has the potential to adversely affect native fish in South San Francisco Bay including steelhead, green sturgeon, and EFH for groundfish, coastal pelagics, and salmon. The effects of artificial tidal restriction through implementation of water control structures on ecosystem structure and function have been documented worldwide (Roman *et al.* 1984; Burdick *et al.* 1996; Roman *et al.* 2002; Raposa and Talley 2012). Impacts include loss of biodiversity and abundance of fish and invertebrates, proliferation of invasive non-native species, and prolonged periods of hypoxia or anoxia (Portnoy 1991; Daehler and Strong 1996; Zedler *et al.* 2001; Raposa and Roman 2003; Gedan *et al.* 2009). Water quality factors and shallow pond depths combine to affect aquatic systems by changing primary and secondary productivity, altering benthic and pelagic communities or harming or killing aquatic prey organisms, and changing biomass, and nutrient dynamics (Hall *et al.* 1978). Fish in the project area may be entrained from the South Bay, Alameda Creek and tidal sloughs into managed ponds where they will be exposed to degraded water quality conditions, increased risk of predation, and non-native species and reduction of prey resources, as observed in the Alviso Pond Complex (Hobbs *et al.* 2013; Lewis *et al.* 2016; Hobbs 2017). Hobbs *et al.* (2013) reports the managed ponds within the Alviso Complex exhibit disproportionately high numbers of non-native fish species and reduced prey resources for fish compared to tidal marsh habitat.

F-NMFS-4

For the above reasons, NMFS recommends CDFW and FWS select a final action alternative that maximizes the restoration of tidal marsh habitat and incorporates enhancement features such as habitat islands, large wood, and habitat transition zones. Detrital input from restored marshes is expected to increase benthic and pelagic productivity, potentially increasing the density of the invertebrate prey base available to various fish species in the South Bay. Important rearing and nursery areas for fish will be expanded and enhanced as tidal channel networks develop within restored marshes and increase the amount of foraging opportunities during high tide. Marsh restoration is also expected to benefit productivity on adjacent South Bay mudflat habitat. Crustaceans, polychaete worms, gastropod and bivalve mollusks, and other invertebrates live on

F-NMFS-4 (cont.)

or just below the surface of the mud (Harvey *et al.* 1977). Fish that move over the mudflats to feed on these invertebrates will benefit from the increased productivity.

F-NMFS-5

NMFS appreciates the opportunity to comment on the DEIS/R for Phase 2 Eden Landing and we look forward to working with CDFW and FWS as the project proceeds through environmental review and permitting. Please contact Brian Meux at (707) 575-1253, or brian.meux@noaa.gov, if you have questions regarding these comments.

Sincerely,

Alecia Van Atta
Assistant Regional Administrator
California Coastal Office

cc: Gregg Erickson, California Department of Fish and Wildlife, Napa, CA
Anne Morkill, U.S. Fish and Wildlife Service, Fremont, CA
John Bourgeois, California Coastal Conservancy, Oakland, CA
Copy to ARN File #151422WCR2018SR00116
Copy to Chron

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Response to NOAA Fisheries (F-NMFS)

F-NMFS-1

Your comments have been reviewed and considered during the formation of the Preferred Alternative and in preparation of the Final EIR.

F-NMFS-2

The project proponents agree that restoration of tidal marsh habitat and the inclusion of enhancement features such as rootwads, habitat islands and mounds, and habitat transition zones can benefit a wide range of aquatic species. As discussed in MCR 1, Selection of the Preferred Alternative, and MCR 5, Fish Habitat Restoration, the Preferred Alternative includes many of the same elements as Alternative Eden B intended to maximize connectivity, provide new foraging opportunities, and increase productivity.

F-NMFS-3

Section 3.5.3 of the EIR acknowledges that managed ponds can provide adverse conditions for aquatic species due to poor productivity, low dissolved oxygen levels, and/or increased predation pressure, and with Alternatives Eden C and D, the Inland and Southern Ponds would continue to be operated as seasonal or managed ponds for some duration. Note that Alternatives Eden C and D would not create managed ponds in areas that currently have tidal habitat, but instead would restore some ponds (the Bay Ponds) to tidal habitat which would provide a large area of increased habitat value for salmonids and other native fish, improve conditions in southern Eden Landing, and provide good nursery and forage habitat for juvenile fish. Therefore, each of the action alternatives is expected to benefit, but not necessarily provide the same degree of benefits to, aquatic species.

F-NMFS-4

The Preferred Alternative is intended to maximize tidal marsh restoration while still balancing multiple restoration goals. As such, the Bay Ponds would be converted to tidal marsh in the initial phase of restoration under the Preferred Alternative. Several connections are planned for the ACFCC, with one of the connections between the Bay Ponds and the ACFCC no longer through large culverts, as initially described, but instead through a full breach. This breach would be armored to prevent additional scour and uncontrolled widening that could undercut a new public access bridge on the Alameda Creek Regional Trail. The Southern Ponds would be opened to muted tidal flows through a culvert system, making them accessible to salmonids. However, because a single connection to the Southern Ponds could be associated with higher predation rates, this water control structure would be carefully monitored in the early years to evaluate the need for operational changes, consistent with an adaptive management approach.

As described in MCR 1, Selection of the Preferred Alternative, and MCR 5, Fish Habitat Restoration, the Inland Ponds (E5, E6, and E6C) are not planned for tidal restoration in the Preferred Alternative during the first phase of restoration because of the Project's need to balance multiple types of habitat restoration and enhancement actions. The long-term operation of those ponds as enhanced managed ponds may be necessary to achieve the full balance of the Project's intended ecological goals unless monitoring and implementation of the Adaptive Management Plan provide a basis for determining that tidal restoration of Ponds E6 and E5 is most beneficial. Pond E6C is proposed to be enhanced and maintained as seasonal habitat for western snowy plover and other pond nesting birds in the summer, while providing deeper open water for overwintering diving ducks and dabbling ducks, among other migratory shorebird species during the spring and fall migration periods.

As noted, however, multiple breaches (as well as extensive areas of levee lowering) are planned for the Bay Ponds' northern connection with the OAC. Those, combined with the internal levee breaches and breaches to the ACFCC, will provide ample connectivity to allow multiple points of egress from these ponds and decrease potential predation. Enhancement features such as habitat islands and habitat transition zones are also included in the Preferred Alternative.

F-NMFS-5

Thank you for your comment letter.

California State Lands Commission (S-CSLC)

STATE OF CALIFORNIA EDMUND G. BROWN JR., *Governor*

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Established in 1938

June 5, 2018

File Ref: SCH #2016052051

Gregg Erickson
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7329 Silverado Trail
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Brenda Buxton
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Oakland, CA 94612

VIA REGULAR & ELECTRONIC MAIL (phase2comments@southbayrestoration.org)

Subject: Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the South Bay Salt Pond Restoration Project, Phase 2, Eden Landing Ecological Reserve, Alameda County

Dear Mr. Erickson and Ms. Buxton:

S-CSLC-1

The California State Lands Commission (Commission) staff has reviewed the subject EIS/EIR for the South Bay Salt Pond (SBSP) Restoration Project (Project), Phase 2 at the Eden Landing Ecological Reserve (Reserve), which is being prepared by the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), in coordination with the California State Coastal Conservancy (SCC). The CDFW, as the public agency who owns and manages the Eden Landing Ecological Reserve (proposed Project area), is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.), and the USFWS is the lead agency under the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.). The Commission is a trustee agency for projects that could directly or indirectly affect State sovereign land and their accompanying Public Trust resources or uses. Additionally, since the Project involves work on State sovereign land, the Commission will act as a responsible agency.

Greg Erickson and Brenda Buxton Page 2 June 5, 2018

Commission Jurisdiction and Public Trust Lands

S-CSLC-1 (cont.)

The Commission has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The Commission also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6009, subd. (c); 6009.1; 6301; 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the common law Public Trust Doctrine.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The state holds these lands for the benefit of all people of the state for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line (MHTL), except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court. On navigable non-tidal waterways, including lakes, the state holds fee ownership of the bed of the waterway landward to the ordinary low-water mark and a Public Trust easement landward to the ordinary high-water mark, except where the boundary has been fixed by agreement or a court. Such boundaries may not be readily apparent from present day site inspections.

Based upon the information contained in the Draft EIS/EIR and a review of in-house records, Commission staff has determined that portions of the proposed Project will extend onto State owned sovereign land under the jurisdiction of the Commission. Figure ES-2 of the Draft EIS/EIR shows the Project area encompassing Old Alameda Creek (OAC) and extending into Alameda Creek Flood Control Channel (ACFCC)[1] and San Francisco Bay (Bay) waterward of the MHTL. These waterbodies are State owned sovereign land, as the Draft EIS/EIR correctly notes at page 1-20. The Draft EIS/EIR also notes that a lease from the Commission will be required for the bayward dredge material infrastructure and for pilot channel dredging. Other project improvements on State owned sovereign land will require a lease or other authorization from the Commission. Commission staff requests that the lead agencies contact George Asimakopoulos (see contact information below) to determine which Project components will require a lease and formal authorization from the Commission for the use of State sovereign land.

In addition, active Public Agency leases cover State sovereign land adjacent to or within the Project area. On April 23, 2014, the Commission authorized the issuance of Lease No. PRC 2380.9, General Lease – Public Agency Use to the Alameda County Flood Control and Water Conservation District, for the continued use, maintenance, and operation of flood control channels, ditches, waterway, conduits, channels, storm dikes,

[1] Commission staff name these water courses differently. What the Draft EIS/EIR calls "Old Alameda Creek," our maps and leases call "Alameda Creek Flood Control Channel." What the Draft EIS/EIR calls "Alameda Creek Flood Control Channel," our maps and leases call "Coyote Hills Slough." We note this in hopes of preventing confusion, and in this letter, we use the names from the Draft EIS/EIR.

Greg Erickson and Brenda Buxton Page 3 June 5, 2018

S-CSLC-1 (cont.)

embankments, and protective works in Old Alameda Creek. Lease No. PRC 5520, dated June 1, 1978, authorizes Alameda County to control a tidal flow gate near the far northeast corner of the Project area. These leases, though non-exclusive, may prohibit certain uses of the land.

These comments are made without prejudice to any future assertion of State ownership or public rights, should circumstances change, or should additional information come to our attention. In addition, these comments are not intended, nor should they be construed as, a waiver or limitation of any right, title, or interest of the State of California in any lands under its jurisdiction.

S-CSLC-2

Project Description

The objectives of the Project as explained in the Draft EIS/EIR are to restore or enhance 2,270 acres of tidal wetlands and managed pond habitats, while providing flood management and wildlife-oriented public access, in the South Bay of Alameda County. The Project is the second phase of the SBSP Restoration Project, which was analyzed in a 2007 Final Programmatic EIS/EIR. This Draft EIS/EIR provides a project-level analysis of Phase 2 and evaluates the potential environmental impacts of four Action Alternatives, including a No Action Alternative. From the Project Description, Commission staff understands that the Project would include the following proposed actions that have the potential to affect State sovereign land:

- Levee Lowering and Breaching in OAC. Portions of levees would be lowered and breached to introduce tidal flows to Bay Ponds. These levees would be lowered to mean higher high water to provide more frequent levee overtopping, help provide an equal/improved level of flood risk management relative to existing conditions and increase the hydraulic connectivity between channels and marshes.
- Water Control Structure Installation and Pilot Channel Excavation in OAC and the ACFCC and Fish Habitat/Passage Enhancements. Water control structures would be installed to manage tidal exchange and flows between the Project area and its connection points to OAC and ACFCC.
- Pilot Channel Excavation in OAC and the ACFCC. Pilot channels would be excavated to connect the levee breaches and lowering to the rest of the Bay Ponds and Inland Ponds.
- Fish Habitat Enhancements in the ACFCC. One pilot channel, paired with a water control structure, would be excavated to provide enhanced fish habitat. The channel would be sized, placed, and oriented to allow passage of anadromous steelhead and other native fish from the ACFCC into the large Bay Ponds, which are expected to be beneficial nursery habitat for anadromous and estuarine fish as restored tidal marsh.
- Pedestrian Bridge Construction Across the ACFCC. This bridge would be constructed over the ACFCC at Cal Hill. Construction methods may include cofferdams, foundation piles, cast-in-place concrete abutments, and placement of riprap scour protection.

Greg Erickson and Brenda Buxton Page 4 June 5, 2018

S-CSLC-2 (cont.)

- Placement of Root Wads and Logs in the Bay. Root wads and logs would be placed on the Bay side of Pond E2 to help trap sediment and form beach-like areas while providing some erosion protection.
- Temporary Construction of an Offloading Facility in the Bay. This facility would be less than 30,000-square-feet and located approximately 3 miles offshore in the deep-water channel of the Bay. The offloading facility would comprise a hydraulic offloader, landing barges, temporary mooring piles (30 piles, 18 to 36 inches in diameter), delivery vessels, a feed water system, and slurry pipeline.

These components are included in various combinations in each Action Alternative and are intended to improve habitat complexity and allow for the appropriate management of the Reserve. As described in the Draft EIS/EIR, the lead agencies will identify an Environmentally Superior Alternative during the preparation of the Final EIS/EIR with consideration of public and agency comments on the Draft EIS/EIR.

S-CSLC-3

Environmental Review

Commission staff requests that the USFWS and CDFW consider the following comments on the EIS/EIR to ensure that impacts to State sovereign land are adequately analyzed for the Commission's use of the certified EIS/EIR to support future lease approvals for the Project.

General Comments

1. Mitigation Measures, Biological Opinion Conservation Measures/Conditions, Best Management Practices (BMPs), Project Features, and Deferred Mitigation: In the Draft EIS/EIR, there are references to mitigation measures adapted from the 2007 Final EIS/EIR, conservation measures/conditions from the Programmatic Biological Opinion (BO) or future BO, and BMPs to reduce Project-related impacts.

   In the Biological Resources section of the Draft EIS/EIR, for example, the analysis section discusses potentially significant impacts to biological resources. While Project activities may significantly affect these resources, the analysis concludes that impacts are Less Than Significant after mitigation measures required by BMPs or the BO. It is unclear whether these measures are required by the Programmatic BO or a future BO. The Draft EIS/EIR incorporates all program-level mitigation measures into the Project as Project features rather than mitigation measures. For Biological Resources, however, no program-level mitigation measures were implemented; instead all potential impacts were found to be Less Than Significant. This finding was based partly on Project features, such as seasonal work windows, surveys, and biological monitoring, which could be characterized as mitigation measures. Thus, it is unclear whether impacts are Less Than Significant or Less Than Significant with Mitigation and referring back to the Programmatic EIS/EIR does not clarify the analysis in all cases.

S-CSLC-4

   Please provide a table of all mitigation measures, project design features, BO measures/conditions, and BMPs and describe how each will be implemented, the

Greg Erickson and Brenda Buxton Page 5 June 5, 2018

S-CSLC-4 (cont.)

specific impacts they apply to, and the document from which each measure originates (e.g., 2007 Programmatic EIS/EIR, Draft EIS/EIR, Programmatic BO). This table will help responsible agencies and stakeholders to identify this information for activities occurring within the Project area and respective jurisdictions. In order to avoid the improper deferral of mitigation, these measures should either be presented as a range of specific, feasible, enforceable obligations that may be required or as specific "performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way" (State CEQA Guidelines, §15126.4, subd. (a)).

S-CSLC-5

2. Alternative B – Root Wads and Logs: Alternative B includes the placement of root wads and logs on the Bay side of Pond E2 to help trap sediment and form beach-like areas, while providing some erosion protection. However, the Draft EIS/EIR does not describe how the root wads and logs would be anchored/integrated into the Bay side of Pond E2, or the potential ecological effects of trapping sediment and changing the Bay coastline. This information should be detailed in the EIS/EIR, with the potential environmental effects fully analyzed and disclosed in the appropriate environmental resource sections.

Biological Resources

S-CSLC-6

3. Underwater Noise Impacts: Impact 3.5-14 (pages 3.5-93 to -97) discusses the potential for Project-related impacts to estuarine fish inhabiting the Project area. While the Draft EIS/EIR states that underwater noise generated during Project construction may affect movement, foraging, and cause temporary threshold shifts in hearing ability, no underwater noise analysis is provided. Instead, the Draft EIS/EIR defers this analysis until project permitting. This also appears to be the case for Impact 3.5-17 (page 3.5-104 to -106), which identifies that underwater noise generated during Project construction may expose harbor seals to underwater noise above the National Marine Fisheries Service's established thresholds. Commission staff requests that an underwater noise analysis be conducted and included in the EIS/EIR, especially for pile driving activities, to provide responsible agencies and stakeholders with information regarding the potential for injurious and behavioral effects to estuarine fish and harbor seals, and whether the measures or proposed BMPs reduce impacts to Less Than Significant. Additionally, please include these measures or BMPs in a table, as described in Comment 1, above.

S-CSLC-7

4. Dewatering Impacts to Fish: The Biological Resources section does not specifically consider impacts from dewatering activities to steelhead and estuarine fish for the installation of water control structures. Commission staff recommends that the USFWS and CDFW analyze these impacts in the Draft EIS/EIR. In particular, please assess whether stranding may occur during dewatering, and determine if stranding would result in significant impacts. If dewatering activities create significant impacts, please provide mitigation that would avoid or reduce the impacts to the extent feasible. If impacts from dewatering are found to be significant, Commission staff recommends that the USFWS and CDFW consider expanding the discussion of fish rescue activities and use fish rescue and relocation as a mitigation measure.

S-CSLC-8

Recreation

5. Water-Based Recreation: Although water-based recreation is discussed in Section 3.6.1 of the Draft EIS/EIR, the analysis does not consider whether construction activities, including levee breaching, water control structure construction, and bridge construction, would impact water-based recreation in the Project area. Please analyze whether construction activities would create significant impacts to water-based recreation. If impacts are found to be significant, provide mitigation measures that would avoid or reduce impacts. Mitigation measures could include public notices at nearby boat launches regarding the construction schedule and public access impacts, and alternative areas for public access and recreation.

S-CSLC-9

Cultural Resources

6. Area of Potential Effects (APE): In Section 3.7, Cultural Resources, it is unclear if the APE includes areas of the Bay which would be utilized by the Project, especially considering the ground-disturbing work that would occur during pile driving to secure the offloading facility. Commission staff recommends that the offloading facility be included in the APE and for USFWS and CDFW to conduct a cultural resources search for the offshore Project area to determine whether cultural resources are present. If cultural resources are present, it should be determined whether the mitigation measures proposed would avoid potentially significant impacts, or if the offloading facility can be relocated to an area where such resources are not present.

S-CSLC-10

7. Submerged Resources: The EIS/EIR should evaluate potential impacts to submerged cultural resources in the Project area. The Commission maintains a shipwrecks database that can assist with this analysis. Commission staff requests that the USFWS and CDFW contact Staff Attorney Jamie Garrett (see contact information below) to obtain shipwrecks data from the database and Commission records for the Project site. The database includes known and potential vessels located on the state's tide and submerged lands; however, the locations of many shipwrecks remain unknown. Please note that any submerged archaeological site or submerged historic resource that has remained in state waters for more than 50 years is presumed to be significant. Due to this possibility, please add the following mitigation measure: "In the event cultural resources are discovered during any construction activities, Project personnel shall halt all activities in the immediate area and notify a qualified archaeologist to determine the appropriate course of action."

S-CSLC-11

8. Title to Resources: The EIS/EIR should also identify that the title to all abandoned shipwrecks, archaeological sites, and historic or cultural resources on or in the tide and submerged lands of California is vested in the state and under the jurisdiction of the Commission (Pub. Resources Code, § 6313). Commission staff requests that the USFWS and CDFW consult Staff Attorney Jamie Garrett should any cultural resources on state lands be discovered during construction of the proposed Project. In addition, Commission staff requests that the following statement be included in the EIS/EIR's Mitigation and Monitoring Program (MMP): "The final disposition of archaeological, historical, and paleontological resources recovered on state lands under the

Greg Erickson and Brenda Buxton Page 7 June 5, 2018

S-CSLC-11 (cont.)

jurisdiction of the California State Lands Commission must be approved by the Commission."

Tribal Cultural Resources

S-CSLC-12

9. Tribal Engagement and Consideration of Tribal Cultural Resources: The Draft EIS/EIR lacks an analysis of Project impacts to Tribal cultural resources, in conformance with State CEQA Guidelines (see http://www.opr.ca.gov/ceqa/updates/ab-52/) and Assembly Bill (AB) 52 (Gatto; Stats. 2014, ch. 532). AB 52 provides procedural and substantive requirements for lead agency consultation with California Native American Tribes, consideration of effects on Tribal cultural resources (as defined in Pub. Resources Code, § 21074), and examples of mitigation measures to avoid or minimize impacts to these resources. Even if no Tribe has submitted a consultation notification request for the Project area, the USFWS and CDFW should:

   - Contact the Native American Heritage Commission to obtain a general list of interested Tribes for the Project area
   - Include the results of this inquiry within the EIS/EIR
   - Disclose and analyze potentially significant effects to Tribal Cultural Resources; and avoid impacts when feasible

   Since the Draft EIS/EIR does not disclose if notification or outreach to interested Tribes has occurred and does not document their response, Commission staff recommends that the USFWS and CDFW include this information in the EIS/EIR to maintain a clear record of their efforts to comply with AB 52.

Climate Change

S-CSLC-13

10. Sea-Level Rise: The State of California released the final "Safeguarding California: Reducing Climate Risk, an Update to the 2009 California Climate Adaptation Strategy" (Safeguarding Plan) on July 31, 2014, to provide policy guidance for state decision-makers as part of continuing efforts to prepare for climate risks. The Safeguarding Plan sets forth "actions needed" to safeguard ocean and coastal ecosystems and resources as part of its policy recommendations for state decision-makers.

    Commission staff believes the goals of the Project are consistent with the guidance and recommendations presented in the Safeguarding Plan, and that the restored habitat and creation of habitat transition zones will enhance the resilience of wetland habitat and local communities to sea-level rise; however, Commission staff suggests that additional detail be provided in the EIS/EIR that describes the sea-level rise projections used to inform the Project design, including the height of the levees and pedestrian bridges. It is not clear in the Project Description or subsequent resource analyses which projections are being used to ensure protection from and resilience to the effects of climate change and future sea-level rise. Please note that when

S-CSLC-14

    considering a lease application for the Project, Commission staff will:

Greg Erickson and Brenda Buxton Page 8 June 5, 2018

S-CSLC-14 (cont.)

- Request information from applicants concerning the potential effects of sea-level rise on their proposed projects
- If applicable, require applicants to indicate how they plan to address sea-level rise and what adaptation strategies are planned during the projected life of their projects
- Where appropriate, recommend project modifications that would eliminate or reduce potentially adverse impacts from sea-level rise, including adverse impacts on public access

S-CSLC-15

Additionally, the USFWS and CDFW should also consider developing a long-term monitoring program to track shoreline changes and monitor other climate change-related impacts (e.g., storms, high tides) on the improved levee system. The information gathered from such monitoring efforts could help identify triggers that might lead to future modifications of the levee system or additional adaptation efforts.

S-CSLC-16

Thank you for the opportunity to comment on the Draft EIS/EIR for the Project. As a responsible and trustee agency, the Commission will need to rely on the certified EIS/EIR for the issuance of any amended/new lease as specified above. Therefore, we request that you consider our comments prior to certification of the EIS/EIR.

Please send copies of future Project-related documents, including electronic copies of the certified EIS/EIR, MMP, Notice of Determination, CEQA Findings, and if applicable, Statement of Overriding Considerations when they become available. Please refer questions concerning environmental review to Kelly Keen, Environmental Scientist, at (916) 574-1938 or via email at kelly.keen@slc.ca.gov. For questions concerning archaeological or historic resources under Commission jurisdiction, please contact Staff Attorney Jamie Garrett, at (916) 574-0398 or via email at jamie.garrett@slc.ca.gov. For questions concerning Commission leasing jurisdiction, please contact George Asimakopoulos, Public Land Management Specialist, at (916) 574-0990 or via email at george.asimakopoulos@slc.ca.gov.

Sincerely,

Cy R. Oggins, Chief
Division of Environmental Planning
and Management

cc: Office of Planning and Research
K. Keen, Commission
J. Garrett, Commission
G. Asimakopoulos, Commission

Response to California State Lands Commission (S-CSLC)

S-CSLC-1

The project proponents appreciate the clear statement that a lease or other authorization from the CSLC will be needed for the project and the provision of the appropriate person (and contact information) with which to proceed with that process.

S-CSLC-2

This comment is a summary of portions of the project description. No response is required.

S-CSLC-3

The Final EIR includes a Mitigation Monitoring and Reporting Program (MMRP) table that summarizes environmental commitment for the project. As discussed in Chapter 2 of the EIR, program-level avoidance and minimization measures outlined in Section 2.3 of the EIR and the conservation measures outlined in the USFWS programmatic Biological Opinion for the SBSP Restoration Project are incorporated into the Phase 2 project design and would be implemented as part of the action alternatives. The environmental commitments specified in Chapter 2, Alternatives, are incorporated into the project design and as such are not project-level mitigation measures. In addition, ongoing monitoring specified in the Adaptive Management Plan is a program-level activity that would be implemented even in the absence of Phase 2 actions. (And as a point of clarification, there were no biological resource program-level mitigation measures in the 2007 Final EIS/R.) The MMRP table includes sections describing each of these types of environmental commitments. The significance determination in the resource chapters is based on the need for project-specific mitigation in addition to the environmental commitments described above.

Clarifying text is included in the Final EIR to indicate that the biological opinion referenced in Section 3.5 was the Programmatic biological opinion and not a future biological opinion specific to the Phase 2 project at Eden Landing. Additional clarifying details were also included regarding BMPs required during pile driving. The inclusion of this additional clarifying information in the Final EIR does not change the analysis or conclusions of the Draft EIS/R (since the information clarifies and amplifies the information provided in the Draft EIS/R).

S-CSLC-4

Much of the information requested above is provided in the MMRP table for the Final EIR. As discussed in the response to comment S-CSLC-3, the MMRP table includes project-level mitigation measures and additional sections describing each type of environmental commitment. Additional information regarding application to specific impacts is discussed in the resource chapters.

S-CSLC-5

Additional clarifying details are included in Chapter 2, Alternatives, regarding the rootwads and logs and associated environmental enhancement features included on Pond E2's bay-facing levee. Although there are range of potential options for how the rootwads and logs could be anchored (such as cabling to new boulders placed adjacent to the bay-facing levee), specific details regarding the anchoring is not available at the current level of design. Construction effects and potential long-term effects of the enhancement features have been considered in the environmental resource sections; specific reference to these features as rootwads are now included (e.g., in Section 3.5).

S-CSLC-6

The input parameters for an underwater noise analysis are dependent on the specific number and size of temporary mooring piles that would be driven to secure the offloading facility. An approximate range for the size of the offloading facility, the number of temporary mooring piles, and the diameter of the piles are provided in Section 2.2 of the EIR; however, underwater noise analysis would require a level of specificity that has yet to be developed. As discussed in MCR 2, Details of Designs, the project is based on a preliminary design, which is consistent with the level of design detail required for both CEQA and NEPA. Permitting and other regulatory processes generally require more detailed design with more refined estimates of (in this case) size, number, and composition of mooring piles, which would typically require designs ranging between 30 and 60 percent. As the designs proceed, the specific information will become available. With respect to a discussion of BMPs, please see response to comment S-CSLC-3.

S-CSLC-7

Additional clarifying details have been added to Section 3.5 to address this concern. That additional text indicates that temporary cofferdams would be used during installation of new water control structures. As previously indicated in the impact analysis for steelhead and estuarine fish, if fish rescue and/or relocation would be required during construction, these activities would be completed under an agency-approved plan to limit impacts. Stranding during dewatering activities would be avoided because fish would be removed or flushed out of the cofferdams prior to dewatering wherever such activities would occur.

S-CSLC-8

Clarifying text has been added in Section 3.6 of the Final EIR to indicate that, similar to the temporary closures of some parking areas or trails during construction, there would be brief restrictions on water-based recreation in some areas during some portions of construction (e.g., during the breach events themselves). These restrictions would be temporary and regular recreational use of waterways that allow these uses would resume shortly thereafter.

S-CSLC-9

As discussed in Section 3.7.3 of the EIR, cultural resources have not been identified in the deepwater channel of the Bay near the proposed location for the offloading facility. While there is a very low potential for encountering archaeological material within Bay mud, some isolated burials have been found in other areas of the Bay. If the pile driving activity is deep enough to extend below the Bay mud, then there is also some potential for encountering archaeological resources in the deeper strata (although no such sites have been found to date). The exact location for the offloading facility will be identified as the design proceeds. Geotechnical borings could provide information about the presence of cultural resources prior to pile driving and if those areas were found to have cultural resources, additional protection measures would be implemented as indicated in SBSP Mitigation Measure 3.8-1.

S-CSLC-10

As detailed in Section 2.3.2, SBSP Mitigation Measure 3.8-1 includes provisions for unanticipated finds, including but not limited to halting operations in the vicinity of the find and following appropriate contact procedures. Work would not resume in the vicinity of the find until a qualified professional archaeologist has had the opportunity to examine the find. Additional clarifying information has been included in Section 3.7.3 regarding the specific case of encountering shipwrecks.

S-CSLC-11

The SBSP Restoration Project will coordinate with the listed CSLC personnel as requested if cultural resources are discovered on state lands. Clarifying text has also been included in Section 3.7.2 of the Final EIR indicating that the title to abandoned shipwrecks, archaeological sites, and historic or cultural resources on or in the tide and submerged lands of California is vested in the State of California.

S-CSLC-12

Consistent with AB52 requirements, CDFW sent a request on April 10, 2017 to the Native American Heritage Commission (NAHC) for a sacred lands file search and a list of tribes that are culturally or traditionally affiliated with the geographic area associated with the SBSP Phase 2 project at ELER. CDFW received a list of Native American contacts from the NACH on April 11, 2017. Letters were then sent to the tribes identified on the list on April 21, 2017 along with background information, maps and contact information to determine if they wanted to consult on the project. No requests for consultation followed.

S-CSLC-13

MCR 3, Sea-Level Rise, provides a discussion of future sea-level rise projections that have been considered including the Ocean Protection Council's *State of California Sea-Level Rise Guidance 2018 Update*. Consistent with project goals and objectives, the intent of the project is to maintain or improve existing levels of flood risk management at adjacent and nearby properties. This project goal is one of the primary design objectives and will continue to be incorporated into the design as the project proceeds.

S-CSLC-14

This comment provides information regarding CSLC's review of a lease application. There are no specific comments therein.

S-CSLC-15

As per the Adaptive Management Plan, transects are evaluated in breached ponds and bathymetry and LiDAR (or Iconos satellite data and/or aerial photography and ground truthing) are performed periodically over a larger area of the South Bay to evaluate sediment dynamics and changes to subtidal shallows, channels, and mudflats. Monitoring triggers and potential management actions are identified and linked to these monitoring efforts.

S-CSLC-16

Copies of future SBSP Restoration Project-related documents will be provided to the individuals listed in the comment letter, as requested the CSLC.

2.2.2 Regional and Local Agencies

Comments from regional and local agencies and the responses to those comments are presented in this section.

Alameda County Flood Control and Water Conservation District (L-AFCD1)

Flood Control & Water Conservation DISTRICT

Daniel Woldesenbet, Ph.D., P.E., General Manager

399 Elmhurst Street • Hayward, CA 94544 • (510) 670-5480 • www.acgov.org/pwa

May 21, 2018

Brenda Buxton, Deputy Program Manager
State Coastal Conservancy
1515 Clay St., 10th Floor
Oakland, CA 94612
Via email: phase2comments@southbayrestoration.org

Subject: Alameda County Flood Control & Water Conservation District, Review Comments on *Draft Environmental Impact Statement/Report, Phase 2, Eden Landing Ecological Reserve, April 2018*

Dear Ms. Buxton:

L-AFCD1-1

The Alameda County Flood Control & Water Conservation District (District) appreciates our longstanding and positive collaboration with the South Bay Salt Pond Restoration Project to develop a vibrant, healthy, accessible, and sustainable tidal marsh habitat, while maintaining or improving flood risk management. Several major District flood control facilities – including the Alameda Creek Flood Control Channel, Old Alameda Creek, and the J Ponds (Lines J-2, J-3, and associated pump stations) – are located within the Phase 2 Eden Landing Ecological Reserve footprint. These facilities provide flood risk management to people, neighborhoods, businesses, and infrastructure in the Cities of Hayward, Union City, and Fremont.

We congratulate you and the State Coastal Conservancy staff on this important milestone of publishing the *Draft Environmental Impact Statement/Report, Phase 2, Eden Landing Ecological Reserve.* In general, the District is fully supportive of the project goals and the project, provided that the inland community's flood risk is not negatively impacted and the District's flood control system in not compromised. To this end, the District respectfully submits the following comments on the alternatives outlined in the EIS/R.

L-AFCD1-2

1. The District has concerns over the terms flood risk and flood risk management as used in the document. Please provide further explanation of these terms and difference between the two terms, particularly as they pertain to the level of flood protection provided and maintained by the project.

1

L-AFCD1-3

2. Historic salt pond operation in the Eden Landing project area has resulted in the creation of a network of ponds and earthen berms which were used to control flow of water though the site. Although the main intent of these existing ponds, dikes, berm, and levees was not to provide inland flood protection, the overall nature and operation of this system did provide a baseline level of flood protection to inland properties, as evidenced by many years of observations supported by hydrologic modeling and analyses performed by the District. The planned restoration concept at Eden Landing involves modification of the existing system of berms and opening of the system to tidal inflow. Although the District does not expect the project to provide the level of flood protection ultimately required by FEMA, the project should, at a minimum, maintain the level of flood protection and associated flood risk that existed at the time of land acquisition by the State of California.

L-AFCD1-4

3. Section 1.2.4, Flood Risk Management states "*Recognizing that the changing hydrology in these areas requires the expertise and funding available from local flood protection agencies, the SBSP restoration Project's management team invited these agencies to join the planning team early in the process. The approach to managing flood risks with tidal restoration projects was to locate the projects in areas where they would not increase the existing flood risk; in addition, existing levees were to be improved to provide increased, if still limited, protection or to raise existing high-ground areas with fill. In areas where this approach was not sufficient, the project sought to work with local flood protection agencies to implement the appropriate measures to protect adjacent areas and allow for tidal and other habitat restoration.*"

   The District appreciates SBSP Restoration Project's management team's ongoing efforts to collaborate with District staff to ensure that equivalent or greater flood protection to adjacent and nearby properties. Future collaboration will be necessary to ensure that the District can continue to fulfill its mission: "to support the public safety, health, and welfare of the residents and businesses of Alameda County by developing and maintaining functional and appropriate flood control systems." While the District appreciates the opportunity to be a partner in this important restoration project, the District does not have funding available to support improvements to the existing flood protection system necessitated by any impacts from increased flood risk caused by the project. This should be clearly stated in the document.

L-AFCD1-5

4. The District acknowledges that fully developed and healthy tidal marsh habitat can provide robust shoreline flood mitigation function and is generally preferred over the existing system of earthen berms and ponds which require ongoing management and maintenance. With this goal in mind, the District stresses the importance of ensuring that the baseline level of flood protection is maintained, at a minimum, during the interim period before full development of marsh features occurs and project completion. Acceptable interim flood protection measures need to be developed by the Project and agreed upon by the District and affected cities.

2

L-AFCD1-5 (cont.)

5. Alternative A offers a valuable baseline if existing conditions against which the performance of other alternatives can be measured. Regardless of which final alternative is selected, the de facto levels of coastal flood risk management provided to the adjacent inland communities must be maintained or improved upon.

L-AFCD1-6

6. Regarding Section 2.2.3, Paragraph 1, Sentence 4, "Outboard levees would be expected to be maintained as necessary (or repaired on failure)": the outboard levees are a vital – and perhaps the most important – flood risk management feature in the Eden Landing complex. The District requests that Sentence 3 be revised to state, "The outboard levees, outboard dikes, and levees around the ponds are high-priority levees to be maintained …", and that Sentence 4 be deleted.

L-AFCD1-7

7. Restoration is intended to be performed in a single stage of construction in Alternative B. The District is concerned that all system redundancies would be removed at once, thereby relying solely on the backside levee for flood risk management. The District does not consider this configuration as providing the de facto levels of coastal flood risk management.

L-AFCD1-8

8. The District's J Ponds are currently isolated from tidal action and serve as vital drainage detention facilities for District Lines J-2 (Patterson Creek) and J-3 and the associated J-2 and J-3 pump stations. The District strongly opposes any measures that open the J Ponds to tidal action that would increase flood risk due to a loss of storage capacity. The presence of a permanent mid-complex levee (as shown in Alternative C) would be an acceptable solution to keep the J Ponds isolated from downstream (west) tidal action. However, additional levee strengthening on the upstream (east) levees around the J Ponds would be needed to protect against damage caused by tidal action from Pond E6C.

L-AFCD1-9

9. The EIR includes a suggestion that portions of the outer levees around the Bay Ponds be lowered to MHHW (7 ft NAVC88) to provide more frequent levee overtopping and increase hydraulic connectivity between channels and marshes. The District has two comments on this feature: (1) Lowering the segments to MHHW will allow daily tidal water to enter the ponds only infrequently, and thereby may not satisfy the goals of tidal restoration. (2) The District is concerned that lowering the levees will eliminate maintenance vehicle access to the outboard levees and dikes along the Bay shoreline. Regardless of which alternative is selected and implemented, the outboard levees are a vital – and perhaps the most important – flood risk management feature in the Eden Landing complex. The outboard levees are subject to significant erosive wave action and will require long-term maintenance to protect the marshes, wetlands, and inland communities behind them. If portions of the existing outer levees are lowered, alternative vehicle access will be needed to ensure that the outboard levees can be adequately maintained.

3

L-AFCD1-10

10. The District opposes a "root wad" based outboard levee configuration, as shown in Alternative B, or any other configuration that is not designed to sustain long term exposure to wind and wave action and extreme tidal events. For adequate flood risk management, the outboard levee should be either maintained indefinitely or designed with cross-sectional width adequate to sustain and resist erosion, land subsidence, seismic ground shaking, and other potential damage.

L-AFCD1-11

11. The District may support the concept of breaching the ACFCC north levee to allow flow and connectivity between Alameda Creek and Ponds E2 and/or E4. There are many details to consider during design; the District has the following several conceptual comments at this stage: (1) Breaching the ACFCC channels would necessitate installation of a much stronger mid-complex levee to provide adequate flood risk management, rather than a temporary mid-complex levee, as shown in Alternative D. (2) Breaching the ACFCC levee would introduce large fluvial flows into Ponds E2, E4, E1, and E7. Potential flooding in Old Alameda Creek will need to be considered from this additional source of water. (3) The sizing of the breach opening will need to be optimized to allow adequate flow in and out, while allowing beneficial sediment flow and offering favorable fish passage habitat. (4) A bridge would need to be built across the breach to allow maintenance access to the outboard levee.

L-AFCD1-12

12. Breaching Old Alameda Creek (as shown in Alternatives B, C, and D) will allow both tidal and fluvial flooding into the adjacent ponds (Ponds E1, E7, and E6). Depending on the timing of surface water flow in combination with tidal action, the water levels in Ponds E5 and E6 may be higher than elevation 12 (the height of the proposed backside levee).

L-AFCD1-13

13. Any modifications to the drainage into and out of Old Alameda Creek from the pond modifications, from an ACFCC breach, and directly from the Bay should consider the timing of tidal flows (high tide) combined with fluvial high-water drainage scenarios to ensure that the creek does not flood at Eden Landing or upstream. A continuous simulation analyses, based on a reasonable record of data (10-year minimum) should be performed, rather than an assumed design discharge condition.

L-AFCD1-14

14. The District feels that the analyses of wave action on the outboard levee may have resulted in an underestimate of the erosive power and damage that could be caused by wind-driven waves. For example, the outboard levee at the Hayward Marsh, just north of Eden Landing, failed and a large portion of the marsh has been inundated. The suggestion (as shown in Alternative C and D) that the outboard levee serves only for "habitat separation and enhancement" is a moot point. As stated previously, the outboard levee must be designed for long term sustainability and flood protection, regardless of other beneficial uses.

4

L-AFCD1-14 (cont.)

Nevertheless, the District favors the improved outboard levee presented in Alternative D, which includes a habitat transition zone. This configuration most resembles the District's proposed "landmass" concept, which has been discussed and accepted by the District.

L-AFCD1-15

15. The temporary mid-complex levee, as shown in Alternative D, is directly adjacent to the Pond E5 and E6 pilot channel, and may be subject to higher erosive action than other levees. The District suggests that, if a temporary mid-complex levee is included in the final alternative, two conditions be met: (1) the temporary levee be engineered and constructed with enough integrity to withstand this erosion over the projected lifespan of the structure, and (2) the outboard levee continue to be maintained even after the Bay Ponds become established as a tidal marsh, to protect the restored wetlands from damage and thereby ensure adequate flood risk management.

L-AFCD1-16

16. All scenarios should be evaluated for current conditions and for reasonable projections of sea level rise in the San Francisco Bay. The District recommends that the project not rush to implement the "lowered levee" features, as the Eden Landing Pond complex may need to rely on higher levees as sea level rises.

The District plans to provide additional technical comments by the state's deadline (June 5, 2018). Please feel free to contact me (510-670-5553 or hank@acpwa.org) if you have any questions or need further clarification on our comments. We look forward to continuing to work together on this important project.

Sincerely,
Alameda County Flood Control & Water Conservation District

Hank Ackerman, PE
Flood Control Program Manager

5

Response to Alameda County Flood Control and Water Conservation District (L-AFCD1)

L-AFCD1-1

The project proponents appreciate your support of the project.

L-AFCD1-2

As discussed in Section 1.2.4 of the EIR, the terminology used by the SBSP Restoration Project has changed from "flood protection" to "flood risk management" when describing forward-looking statements and actions that would be taken in the future to distinguish improvements to existing salt pond levees from improvements needed for FEMA-accredited levees designed specifically for flood protection. The term "flood risk" is used in a similar manner as in the 2007 Final EIS/R.

L-AFCD1-3

As discussed in Chapter 2 of the EIR, each of the action alternatives were developed to maintain or improve existing levels of flood risk management at adjacent and nearby properties as compared to existing conditions. Since land acquisitions in 1996 and 2003, CDFW has inspected their levees, identifying areas with potential erosion, and performed routine levee maintenance on an as needed basis. Such repairs have included re-armoring levee in Pond E10 and E2 in 2008 with large rock, rebuilding Pond E2's water control structure in 2010 to address erosion beneath the structure within the headwalls, and re-armoring Pond E2's levees in 2017 at four locations. As the landowner and manager of the ELER, CDFW would continue to maintain the levees, water control structures, and other features of the lands and waters at the site as needed for habitat purposes while maintaining (or improving) the level of flood protection and associated flood risk that existed at the time of land acquisition by the State.

L-AFCD1-4

There are no impacts from increased flood risk expected to be caused by the project. Consistent with project goals and objectives, the intent of the project is to maintain or improve existing levels of flood risk management at adjacent and nearby properties. This project goal is one of the primary design objectives and will continue to be incorporated into the design as the project proceeds. Water control structures, levee breaches, and other features described in the EIR are considered project elements, which would be funded in a similar manner as other project actions. The ACFCWCD's request to include in the document a discussion of the ACFCWCD's funding status is noted, and the inclusion of this comment in this appendix to the Final EIR satisfies that request.

L-AFCD1-5

As described in response to comment L-AFCD1-3, each of the action alternatives were developed to maintain or improve existing levels of flood risk management at adjacent and nearby properties. Preliminary hydrodynamic modeling provided in Appendix D of the EIR indicates that this objective would be met with proposed project improvements and existing pond bathymetry. As discussed in MCR 1, the Preferred Alternative also incorporates multiple levee improvements and habitat transition zones, providing redundancy in flood risk management.

L-AFCD1-6

The third sentence in this section was changed as requested but the fourth sentence was retained which indicates that the outboard levees would be maintained, as needed. As a further point of clarification, the existing outboard levees were not built as flood risk management features, but they do provide some measure of de facto flood risk management.

L-AFCD1-7

Each of the action alternatives, including Alternative Eden B, was developed to maintain or improve existing levels of flood risk management at adjacent and nearby properties. Levee improvements were proposed to ensure that the extent of landward flooding during the 100-year design event was no greater than existing conditions. As described in MCR 1, the Preferred Alternative incorporates levee improvements and habitat transitions zones at multiple locations (e.g., outboard, mid-complex, and backside levees), providing redundancy in the flood risk management. The Preferred Alternative is also phased, and second phase of construction would incorporate “lessons learned” from the initial phase of construction.

L-AFCD1-8

As discussed in MCR 1, the Preferred Alternative includes a mid-complex levee on the west of the J-ponds and improvements to the levee on the northern side of Ponds E1C, E5C, and E4C. Pond E6C would be a permanent managed pond providing seasonal habitat for western snowy plover; as such, it would not have tidal flows. This configuration would isolate the J-ponds from adjacent areas with tidal action. Furthermore, as shown in the draft alternatives, the Preferred Alternative includes a new water control structure in the southern portion of the J-ponds that would allow the ACFCWCD to passively drain their detention ponds. This water control structure does not exist currently and all J-pond drainage is limited to the existing water control structure upstream and the Alvarado Pump Station. Therefore, the Preferred Alternative and expected project implementation should improve the ACFCWCD’s ability to manage storm water detention.

L-AFCD1-9

Daily tides would enter the Bay Ponds through the levee breaches. Levee lowering will allow increased flow during the higher ranges of the tidal cycle and is intended to increase habitat complexity for fish and wildlife. Under the Preferred Alternative, the outboard levee would be improved and a habitat transition zone would be placed along the eastern edge of the levee, buffering the improved levee and providing additional protection to the restored ponds. Pond E1’s northern levee and Pond E2’s southern levee would be breached, preventing vehicle access along the top of levee beyond those locations. Areas west of unarmored levee breaches would be lowered because those areas would already have restricted access due to the unarmored breaches.

As discussed in response to comment L-AFCD1-3 and L-AFCD1-4, as the landowner and manager of the ELER, CDFW would continue to maintain the levees, water control structures, and other features of the lands and waters at the site as needed for habitat purposes. While land-based access would not be maintained due to breaches on the northern and southern levees to connect with stream channels (not on the outboard levee), marine access would a remain viable means of access for maintenance and occasional repairs, as needed.

L-AFCD1-10

Rootwads and other enhancement features on the bay-facing levee are intended to increase habitat complexity and to encourage formation of fringe wetlands by accelerating accretion near the structure; they are not intended to be a flood risk management feature. Mechanisms to anchor these features would be developed during detailed design, but would not use existing features, such as the surface rip-rap, in a manner that would damage the levee. As discussed in MCR 1, the Preferred Alternative incorporates levee improvements and a habitat transitions zone at the outboard levee at Pond E1 and E2.

L-AFCD1-11

MCR 1, Selection of the Preferred Alternative, identifies the components selected for the Preferred Alternative. Due to this input, the Preferred Alternative includes an improved mid-complex levee and an armored and bridged breach at the ACFCC. A bridge would not be needed across the breach to allow maintenance access to the outboard levee. While land-based access would not be maintained due to breaches on the northern and southern levees to connect with stream channels (not on the outboard levee), marine access would a remain viable means of access for maintenance, as needed.

L-AFCD1-12

Although there may be a combination of tide and creek flow that results in a water level in the ponds greater than 12 feet (for example, a 500-year tide is 12 feet; *San Francisco Bay Tidal Datums and Extreme Tides Study, 2016*), as discussed in the preliminary design hydrodynamic modeling report (Appendix D, Attachment 1), the design criteria of providing at a minimum the same level of tidal and fluvial flood protection as exists under current conditions was applied to flood scenarios with a combination of 10- and 100-year riverine and tidal events: the 100-year tide with 10-year riverine discharge from the OAC and ACFCC (coinciding tide and discharge peaks), and 10-year tide with 100-year riverine discharge from the OAC and ACFCC (coinciding tide and discharge peaks). These flood scenarios were chosen because at the time of the modeling these scenarios were recommended by the ACFCWCD. Also note that this approach is more conservative than recommended in the Alameda County Hydrology and Hydraulics Manual (2003) where for primary facilities the highest of the following scenarios is to be used:

- The FEMA 100-year water surface elevation; or
- The 5-year recurrence peak discharge combined with a 100-year tide elevation in the Bay; or
- The 15-year recurrence peak discharge with a MHHW elevation in the Bay.

As seen by the modeling results for the flood scenarios, water surface elevations on the Inland Ponds landside levee were found to be at 10 feet NAVD88 or less in each of the modeled scenarios.

L-AFCD1-13

See response to comment L-AFCD1-12 regarding the flood scenarios modeled for the preliminary design. Although a continuous simulation analysis would provide results for a wide variety of fluvial and tidal conditions that could be used to evaluate the performance of a flood control basin, it is highly unlikely to provide a combination of extreme events (such as the 100-year fluvial and 10-year tidal) which has been used here to model a conservative scenario for inland flooding.

L-AFCD1-14

As discussed in MCR 1, the Preferred Alternative includes three habitat transition zones in the project area: one located on the inside of the outboard levee, one on the west side of the mid-complex levee, and one on the west side of the backside levee. The habitat transition zone at the outboard levee would buffer the improved levee and provide additional protection to the restored ponds. See also response to comment L-AFCD1-4 regarding levee design. It should also be noted that the outboard levee at Cogswell Marsh on the Hayward Regional Shoreline did not fail; it was designed with the bayfront levee breached. Although a large portion of the marsh has been inundated and eroded, this was due to a potential design flaw, not a levee failure. At Eden Landing, no bayfront breach is proposed.

L-AFCD1-15

As discussed in MCR 1, the Preferred Alternative includes an improved mid-complex levee and a pilot channel connecting a control structure at the ACFCC and a levee breach at Pond E4. The potential for erosion from the pilot channel is being considered in the detailed design of the levee. The Preferred Alternative also includes an improved outboard levee with an adjacent habitat transition zone. The habitat transition zone would be placed along the eastern edge of Pond E2's outboard levee, providing de facto flood risk management. Maintenance access to the outboard levee would be limited, as trucks and other vehicles would not be able to access the outboard levee after breaching Pond E1's northern levee and Pond E2's southern levee. However, the outboard levee would be inspected and repaired by marine access as needed to protect habitat in the Bay Ponds from additional damage.

L-AFCD1-16

Appendix D of the EIR describes the hydrodynamic modeling associated with the preliminary design. The flood scenarios modeled are described in response to comment L-AFCD1-12. Results for near-future conditions indicate that flooding during the 100-year design events would be no greater than existing conditions. As discussed in MCR 3, Sea-Level Rise, and MCR 8, Maintenance Responsibilities, CDFW will maintain existing levels of flood risk management with implementation of the Preferred Alternative. Potential future impacts from long-term sea-level rise in San Francisco Bay are not project impacts for evaluation in the NEPA/CEQA document.

Alameda County Flood Control and Water Conservation District (L-AFCD2)

Flood Control & Water Conservation DISTRICT

Daniel Woldesenbet, Ph.D., P.E., General Manager

399 Elmhurst Street • Hayward, CA 94544 • (510) 670-5480 • www.acgov.org/pwa

June 5, 2018

Brenda Buxton, Deputy Program Manager
State Coastal Conservancy
1515 Clay St., 10th Floor
Oakland, CA 94612
Via email: phase2comments@southbayrestoration.org

Subject: Alameda County Flood Control & Water Conservation District, Review Comments on *Draft Environmental Impact Statement/Report, Phase 2, Eden Landing Ecological Reserve, April 2018*

Dear Ms. Buxton:

L-AFCD2-1

The Alameda County Flood Control & Water Conservation District (District) is pleased to submit additional comments on the *Draft Environmental Impact Statement/Report, Phase 2, Eden Landing Ecological Reserve* in accordance with the California Environmental Quality Act (CEQA) process. In a letter dated May 21, 2018, the District previously provided comments in accordance with the National Environmental Policy Act (NEPA) process. Please consider this letter and our May 21 letter, together, to constitute our full set of comments.

Comments on the Alternatives

In our May 21 letter, the District offered general comments on various aspects or components of the proposed alternatives. The District is herewith providing an alternative-by-alternative summary of comments on each of the four alternatives, along with additional technical comments.

L-AFCD2-2

Alternative A: The EIR/S states that de facto levels of coastal flood risk management provided to the adjacent inland communities will be retained. The District is concerned that long-term coastal subsidence, particularly in Ponds E1 and E2, may jeopardize the current level of flood risk management provided by the existing marshlands. Higher water levels in the San Francisco Bay caused by sea level rise may exacerbate this problem. Therefore, in Alternative A, the future level of flood protection may not be adequate.

L-AFCD2-3

Regarding Section 2.2.3, Paragraph 1, Sentence 4, "*outboard levees would be expected to be maintained as necessary (or repaired on failure)*": the outboard levees are a vital – and perhaps

1

L-AFCD2-3 (cont.)

the most important – flood risk management feature in the Eden Landing complex. The District would prefer a more definitive statement that the outboard levees, which serve as the primary line of defense against wave action and flooding, be rigorously maintained and repaired to current conditions into the future. Therefore, the District requests that Sentence 3 be revised to state, "The outboard levees, outboard dikes, and levees around the ponds are high-priority levees to be maintained …", and that Sentence 4 be deleted.

L-AFCD2-4

Alternative B: Restoration is intended to be performed in a single stage of construction in Alternative B. The District is concerned that all system redundancies (including allowing the outboard levee to deteriorate, flooding all ponds at once, and lowering the levees along Ponds E1 and E1) would be removed at once, thereby relying solely on the backside levee for flood risk management. Although the backside levee would be raised of elevation 12 feet NAVD88, the backside levee itself is a non-engineered structure. Without redundancies, if the inboard levee failed, there would be no means to protect adjacent inland communities. The District, therefore, does not believe Alternative B provides de facto levels of coastal flood risk management, and the District is not in favor of Alternative B.

L-AFCD2-5

The District's J Ponds are currently isolated from tidal action and serve as vital drainage detention facilities for District Lines J-2 (Patterson Creek) and J-3 and the associated J-2 and J-3 pump stations. The District strongly opposes any measures that open the J Ponds to tidal action that would increase inland flood risk due to a loss of storage capacity. In Alternative B, the proposed breach into the south side of Pond E2 would allow tidal San Francisco Bay waters into District's J Ponds, which would adversely impact the District's flood control operations.

L-AFCD2-6

The EIR includes a suggestion that portions of the outer levees around the Bay Ponds (Ponds E1 and E2) be lowered to MHHW (7 ft NAVC88) to provide more frequent levee overtopping and increase hydraulic connectivity between channels and marshes. The District has two comments on this feature: (1) Lowering the segments to MHHW will allow daily tidal water to enter the ponds only infrequently, and thereby may not satisfy the goals of tidal restoration. (2) The District is concerned that lowering the levees will eliminate maintenance vehicle access to the outboard levees and dikes along the Bay shoreline.

Regardless of which alternative is selected and implemented, the outboard levees are a vital – and perhaps the most important – flood risk management feature in the Eden Landing complex. The outboard levees are subject to significant erosive wave action and will require long-term maintenance to protect the marshes, wetlands, and inland communities behind them. If portions of the existing outer levees are lowered, alternative vehicle access will be needed to ensure that the outboard levees can be adequately maintained.

L-AFCD2-7

The District opposes a "root wad" based outboard levee configuration, as shown in Alternative B, or any other configuration that is not engineered. For adequate flood risk management, the outboard levee must be a fully engineered structure, designed and maintained to resist erosion, land subsidence, earthquake shaking, and other potential damage.

L-AFCD2-8

Breaching Old Alameda Creek, as shown in Alternative B, will allow both tidal and fluvial flooding into the adjacent ponds (Ponds E1, E7, and E6). Depending on the timing of surface

2

L-AFCD2-8 (cont.)

water flow in combination with tidal action, the water levels in Ponds E5 and E6 may be higher than elevation 12 (the height of the proposed backside levee). The District would like the opportunity to review future hydraulic and hydrologic modeling and analyses.

L-AFCD2-9

Any modifications to the drainage into and out of Old Alameda Creek from the pond modifications, from an ACFCC breach, and directly from the Bay should consider the timing of tidal flows (high tide) combined with fluvial high-water drainage scenarios to ensure that the creek does not flood at Eden Landing or upstream. A continuous simulation analyses, based on a reasonable record of data (10-year minimum) should be performed, rather than an assumed design discharge condition.

L-AFCD2-10

The District supports the concept of breaching the ACFCC north levee to allow flow and connectivity between Alameda Creek and Ponds E2 and/or E4. There are many details to consider during design; the District has the following several conceptual comments at this stage: (1) Breaching the ACFCC channels would necessitate installation of a permanent mid-complex levee to provide adequate flood risk management, rather than a temporary mid-complex levee, as shown in Alternative D. (2) Breaching the ACFCC levee would introduce large fluvial flows into Ponds E2, E4, E1, and E7. Potential flooding in Old Alameda Creek will need to be considered from this additional source of water. (3) The sizing of the breach opening will need to be optimized to allow adequate flow in and out, while allowing beneficial sediment flow and offering favorable fish passage habitat. The water control structure shown and described in Alternative B (6-foot x 6-foot box culvert) will likely be too small. (4) A bridge would need to be built across the breach to allow maintenance access to the outboard levee.

L-AFCD2-11

Alternative C: The District feels that the EIR/S analyses of wave action on the outboard levee may have resulted in an underestimate of the erosive power and damage that could be caused by wind-driven waves. For example, the outboard levee at the Hayward Marsh, just north of Eden Landing, failed and a large portion of the marsh has been inundated. The suggestion (as stated in Alternative C) that the outboard levee serves only for "*habitat separation and enhancement*" and "*not necessarily for flood risk management*" is not acceptable to the District. A levee with the primary purpose of "*prevent[ing] scour and erosion of the restoring marsh in the Bay ponds behind it*" is not equivalent to the levee currently in-place; damage to the outboard levee would endanger the newly formed habitat and inland coastal communities. The outboard levee must be designed and maintained as fully engineered structure, regardless of function, to prevent damage to the levee itself and to the inland marshland and communities.

The mid-complex habitat transition zone shown in Alternative C may partially compensate for the increased flood risk to inland communities due to future sea level rise and tidal extremes; however, from a flood risk management perspective, Ponds E1 and E2 may still be at risk of future inundation if the outboard levee fails.

L-AFCD2-12

The District's J Ponds are currently isolated from tidal action and serve as vital drainage detention facilities for District Lines J-2 (Patterson Creek) and J-3 and the associated J-2 and J-3 pump stations. The District strongly opposes any measures that open the J Ponds to tidal action that would increase flood risk due to a loss of storage capacity. The presence of a permanent

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L-AFCD2-12 (cont.)

mid-complex levee (as shown in Alternative C) would be an acceptable solution to keep the J Ponds isolated from downstream (west) tidal action. Additional levee strengthening on the upstream (east) levees around the J Ponds would be needed to protect against damage caused by tidal action from Pond E6C. However, it appears that a breach is proposed between Pond E4 and the J Ponds, allowing tidal San Francisco Bay waters from Pond E4 into District's J Ponds, which would adversely impact the District's flood control operations.

L-AFCD2-13

Breaching Old Alameda Creek (as shown in Alternative C) will allow both tidal and fluvial flooding into the adjacent ponds (Ponds E1, E7, and E6). Depending on the timing of surface water flow in combination with tidal action, the water levels in Ponds E5 and E6 may be higher than elevation 12 (the height of the proposed backside levee). The District would like the opportunity to review future hydraulic and hydrologic modeling and analyses.

L-AFCD2-14

Any modifications to the drainage into and out of Old Alameda Creek from the pond modifications, from an ACFCC breach, and directly from the Bay should consider the timing of tidal flows (high tide) combined with fluvial high-water drainage scenarios to ensure that the creek does not flood at Eden Landing or upstream. A continuous simulation analyses, based on a reasonable record of data (10-year minimum) should be performed, rather than an assumed design discharge condition.

L-AFCD2-15

Alternative D: The District prefers Alternative D, as it appears to be the most plausible from a flood protection perspective. The District favors the improved outboard levee presented in Alternative D, which includes a habitat transition zone. This configuration most resembles the District's engineered "landmass" concept, which has been approved for other similar projects by FEMA for flood risk management purposes. However, the suggestion (as stated in Alternative D) that the outboard levee serves only for "*creating upland and transitional habitat, not flood risk management purposes*" is not acceptable to the District. The outboard levee must be designed and maintained as fully engineered structure, regardless of function, to prevent damage to the levee itself and to the inland marshland and communities.

L-AFCD2-16

The EIR includes a suggestion that portions of the outer levees around the Bay Ponds (Ponds E1 and E2) be lowered to MHHW (7 ft NAVC88) to provide more frequent levee overtopping and increase hydraulic connectivity between channels and marshes. The District has two comments on this feature: (1) Lowering the segments to MHHW will allow daily tidal water to enter the ponds only infrequently, and thereby may not satisfy the goals of tidal restoration. (2) The District is concerned that lowering the levees will eliminate maintenance vehicle access to the outboard levees and dikes along the Bay shoreline.

The outboard levees are a vital flood risk management feature in the Eden Landing complex. The outboard levees are subject to significant erosive wave action and will require long-term maintenance to protect the marshes, wetlands, and inland communities behind them. If portions of the existing Bay Pond levees are lowered, alternative vehicle access will be needed to ensure that the outboard levees can be adequately maintained.

L-AFCD2-17

Breaching Old Alameda Creek (as shown in Alternative D) will allow both tidal and fluvial flooding into the adjacent ponds (Ponds E1, E7, and E6). Depending on the timing of surface

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L-AFCD2-17 (cont.)

water flow in combination with tidal action, the water levels in Ponds E5 and E6 may be higher than elevation 12 (the height of the proposed backside levee). The District would like the opportunity to review future hydraulic and hydrologic modeling and analyses.

L-AFCD2-18

Any modifications to the drainage into and out of Old Alameda Creek from the pond modifications and directly from the Bay should consider the timing of tidal flows (high tide) combined with fluvial high-water drainage scenarios to ensure that the creek does not flood at Eden Landing or upstream. A continuous simulation analyses, based on a reasonable record of data (10-year minimum) should be performed, rather than an assumed design discharge condition.

L-AFCD2-19

The temporary mid-complex levee, as shown in Alternative D, is directly adjacent to the Pond E5 and E6 pilot channel, and may be subject to higher erosive action than other levees. The District suggests that, if a temporary mid-complex levee is included in the final alternative, two conditions be met: (1) the temporary levee be engineered and constructed with enough integrity to withstand this erosion over the projected lifespan of the structure, and (2) the outboard levee continue to be maintained even after the Bay Ponds become established as a tidal marsh, to protect the restored wetlands from damage and thereby ensure adequate flood risk management.

L-AFCD2-20

Technical Comments

1. The District does not agree with the representation of water levels and resulting flood impacts under the existing condition, which effectively establishes the baseline for which Project alternatives are compared relative to the ultimate level of flood protection provided. Because the range of tidal events that could affect Project impacts to existing flood control facilities has not yet been fully evaluated for the existing condition, comparisons to impacts of the proposed alternatives are also considered invalid.

2. In determining Project impacts to flood control, modeling and evaluation of extreme events only (i.e. 10-yr, 100-yr tidal and fluvial combinations) can effectively obscure Project impacts to newly tidally exposed areas from more frequent events, such as King Tides, that need to be mitigated. The Project must evaluate the impact of restoration alternatives under a wider range of tidal scenarios with no fluvial impacts to more fully understand Project impacts to flood control due to tides. This range of scenarios must include more frequent tidal events such as King Tides that occur several times annually and are not necessarily coincident with significant fluvial events.

L-AFCD2-21

3. The fluvial hydrographs for Old Alameda Creek (OAC) and Alameda Creek Flood Control Channel (ACFCC) should be consistent with District hydrology model results. For ACFCC, the design flood hydrograph used for evaluation of flood impacts must be consistent with the historic record for critical extreme flow events indicated by the gauge at Niles. The District does not believe that a single peak hydrograph such as that presented in Appendix D, Attachment 1, Figure 2.7 is representative of the critical flood hydrograph for Project evaluations of fluvial flood impacts.

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L-AFCD2-22

4. As discussed in Appendix D, Attachment 1, Section 2.8, the design dimensions of restoration tidal channel and levee breach width sizes is based, in part, on empirical hydraulic geometries of historic marshes in San Francisco Bay, as published in *PWA et al. 2004*. We understand that *PWA, et. al., 2004* is based on historic tidal marsh geometry data from the entire San Francisco Bay. Results of this study are used to inform design dimensions for tidal channels and levee breaches. Project design of tidal channel dimensions and appropriate levee breach widths should be based on a more refined evaluation of historic tidal marsh conditions which reflect the south San Francisco Bay, including the Eden Landing site vicinity. Results of such a refined evaluation should be considered in recommended design dimensions for tidal channels and levee breach widths.

L-AFCD2-23

5. To have a more comprehensive understanding of potential Project impacts to flood control and to support establishment of appropriate design criteria for protective levee systems, the evaluation of each alternative should include consideration of the fully restored condition. At this time, the EIR only includes pre- and (immediate) post-project conditions and not the intended "fully restored condition." Furthermore, all scenarios should be evaluated for current conditions and for reasonable projections of sea level rise in the San Francisco Bay. The District recommends that the project not rush to implement the "lowered levee" features, as the Eden Landing Pond complex may need to rely on higher levees as sea level rises.

L-AFCD2-24

The District, as a Project partner and landowner that will be affected by the project, desires to work with SBSPRP in establishing realistic and acceptable baseline conditions for the level of flood protection provided by the existing system of ponds and associated berms and water control structures. Additionally, the District requests an opportunity to review and approve project design criteria, basis of design, and design plans and construction specifications related to flood control and flood risk management. This includes, but is not limited to, hydraulics and hydrology, seismicity and seismic hazards, civil and geotechnical design, and operation and maintenance and emergency action and repair plans.

Please feel free to contact me (510-670-5553 or hank@acpwa.org) if you have any questions or need further clarification on our comments. We look forward to continuing to work together on this important project.

Sincerely,
Alameda County Flood Control & Water Conservation District

Hank Ackerman

Hank Ackerman, PE
Flood Control Program Manager

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Response to Alameda County Flood Control and Water Conservation District (L-AFCD2)

L-AFCD2-1

See the response to comments L-AFCD1-1 through L-AFCD1-16 for responses to the previously submitted comments.

L-AFCD2-2

Section 3.2.3 of the EIR evaluates the increased risk of flooding that would occur as a result of maintaining the ponds at southern Eden Landing in accordance with existing Reserve management documents and practices. Activities such as maintaining levees or operating seasonal ponds would not cause coastal subsidence or sea-level rise to be worse. MCR 3, Sea-Level Rise, and MCR 8, Maintenance Responsibilities, discuss the limits of CDFW's flood management responsibilities. For the No Action Alternative (Alternative Eden A), the existing level of flood risk management when acquired by the State would be maintained. We acknowledge that existing conditions may not be adequate for future conditions.

L-AFCD2-3

See response to comment L-AFCD1-6. The third sentence in this section was changed as requested but the fourth sentence was retained as this sentence also indicates that the outboard levees would be maintained as needed. As a further point of clarification, the existing outboard levees were not built as flood risk management features, but they do provide some measure of de facto flood risk management.

L-AFCD2-4

See response to comment L-AFCD1-7. Alternative Eden B also includes a habitat transition zone that would be placed along the western edge of the backside levee, which would buffer the improved levee and reduce the potential for levee failure. The backside levee in Alternative Eden B would be an engineered structure (improvements as per stamped engineering design drawings), but it would not be a FEMA-accredited levee designed specifically for flood protection.

L-AFCD2-5

See response to comment L-AFCD1-8. As discussed in the preliminary design hydrodynamic modeling report (Appendix D, Attachment 1), the modeled flood scenarios indicate that water from the ACFCC (in the 10-year tide and 100-year fluvial discharge scenario) or from the Bay (in the 100-year tide and 10-year fluvial discharge scenario) is expected to flow into the J-ponds under existing conditions. This indicates that it is not the breach that allows tidal flow into the J-ponds, but instead this is due to the extreme tides or fluvial discharge and the low topography. In Alternative Eden B, some of the water from the ACFCC (in the 10-year tide and 100-year fluvial discharge scenario) would instead flow through the breach in Pond E2 and out towards OAC via the lowered levees on Pond E1. Water surface elevations in the J-ponds in Alternative Eden B are expected to be equal to or less than existing conditions for these modeled flood scenarios.

L-AFCD2-6

See response to comment L-AFCD1-9.

L-AFCD2-7

See response to comment L-AFCD1-10 and L-AFCD1-5.

L-AFCD2-8

See response to comment L-AFCD1-11 and L-AFCD1-12. The SBSP Restoration Project proponents will continue to coordinate with the ACFCWCD during later stages of modeling and design.

L-AFCD2-9

See response to comment L-AFCD1-12 and L-AFCD1-13.

L-AFCD2-10

See response to comment L-AFCD1-11.

L-AFCD2-11

See response to comment L-AFCD1-14. Note that the levees improved for habitat separation and the levees improved for flood risk management in Alternative Eden C would be raised to the same minimum elevation and management and repair of those levees would be similar. In the Preferred Alternative, the outboard levee, the mid-complex levee, and the backside levee would all be improved, and with the inclusion of the habitat transition zones, each of these levees would serve multiple purposes including flood risk management and habitat enhancement. See also MCR 3, Sea-Level Rise, and MCR 8, Maintenance Responsibilities, regarding sea-level rise.

L-AFCD2-12

See response to comments L-AFCD1-8 and L-AFCD2-5. In Alternative Eden C, the breach at Pond E4 levee that connects the pilot channel to pond is located west of the mid-complex levee. It is not a breach through the mid-complex levee connecting Pond E4 to the J-ponds.

L-AFCD2-13

In Alternative Eden C, a water control structure would connect OAC to Pond E6 and another water control structure would connect Pond E7 to Pond E5. In addition, the Inland Ponds would be permanent managed ponds. See response to comment L-AFCD1-12 and L-AFCD2-5 for a discussion of the modeled flood scenarios. Water levels in Ponds E5 and E6 under Alternative Eden C are expected to remain relatively low due to the mid-complex levee.

L-AFCD2-14

See response to comment L-AFCD1-12 and L-AFCD1-13.

L-AFCD2-15

See response to comments L-AFCD1-14 and L-AFCD2-11.

L-AFCD2-16

See response to comment L-AFCD1-9.

L-AFCD2-17

In Alternative Eden D, a water control structure would connect OAC to Pond E6. See response to comment L-AFCD1-12 and L-AFCD2-5 for a discussion of the modeled flood scenarios. Water levels in Ponds E5 and E6 under Alternative Eden C are expected to remain relatively low during interim conditions due to the mid-complex levee and continue to be at or below 10 feet NAVD88 when breached. As was the case during the development of the preliminary design, the ACFCWCD would be given the opportunity to review future hydraulic and hydrologic modeling and analyses, if conducted to support implementation of the Preferred Alternative.

L-AFCD2-18

See response to comment L-AFCD1-12 and L-AFCD1-13.

L-AFCD2-19

See response to comment L-AFCD1-15.

L-AFCD2-20

See response to comment L-AFCD1-12 for a description of the flood scenarios evaluated in the preliminary design and why those particular scenarios were selected. A typical tide was also evaluated during the preliminary design to confirm that the restoration features would create adequate filling and draining of the ponds during tidal cycles. No flood impacts were found under the typical tide scenario. The flood and tide modeling scenarios provide a range of events that “bookend” the potential combinations of fluvial and tidal flows that would be experienced under existing conditions and with the action alternatives. Although other modeling scenarios can be investigated, this range of potential outcomes provided the necessary information needed to evaluate the extent of inland flooding at nearby communities in the EIR.

As discussed in response to comment L-AFCD2-5, the modeled flood scenarios indicate that water from the ACFCC or from the Bay can flow into the J-ponds under existing conditions reducing the amount of flood storage that can be provided by the J-ponds. As discussed in MCR 1 and response to comment L-AFCD1-8, the Preferred Alternative includes a mid-complex levee on the west of the J-ponds and improvements to the levee on the northern side of Ponds E1C, E5C, and E4C to isolate the J-ponds from adjacent areas with tidal action.

Hydrodynamic modeling will be used as needed to support later stages of design and the SBSP Restoration Project proponents will coordinate with the ACFCWCD during this process. Specific topics evaluated during detailed design would include issues such as potential scour from the pilot channel located west of the mid-complex levee, which may necessitate additional bank protection at the mid-complex levee toe.

L-AFCD2-21

As discussed in the preliminary design hydrodynamic modeling report (Appendix D, Attachment 1), the hydrographs for the 10- and 100-year discharge events from OAC and ACFCC were selected to be consistent with contemporary modeling efforts for the ACFCC that were being performed for the ACFCWCD. Hydrodynamic modeling will be used to support later stages of design as needed and the SBSP Restoration Project proponents will coordinate with the ACFCWCD during this process.

Also note that a single peak hydrograph is consistent with the 24-hour design storm in the 2018 Alameda County Hydrology and Hydraulics manual.

L-AFCD2-22

The suggested refinement will be considered during detailed design.

L-AFCD2-23

With the exception of Alternative Eden D, which includes a temporary mid-complex levee, the levees included in the action alternative would remain in place during the fully restored condition. In addition and as acknowledged by the ACFCWCD in comment L-AFCD1-5, a fully developed and healthy tidal marsh habitat is expected to provide a robust shoreline flood mitigation function. As such, the de facto flood risk management provided by the project is expected to be maintained or improve rather than decrease in the fully restored condition assuming existing tidal elevations and fluvial flows. MCR 3, Sea-Level Rise, and MCR 8, Maintenance Responsibilities, discuss the limits of CDFW's flood management responsibilities. Potential future impacts from long-term sea-level rise in San Francisco Bay are not project impacts for evaluation in a NEPA/CEQA document.

L-AFCD2-24

The SBSP Restoration Project proponents will continue to coordinate with the ACFCWCD during later stages of design.

Alameda County Flood Control and Water Conservation District (L-AFCD3)

From: Attiogbe, Kwablah
To: phase2comments@southbayrestoration.org
Subject: [phase2comments] Comments Phase 2 Eden Landing Draft Environmental Impact Statement/Report
Date: Tuesday, June 05, 2018 5:26:08 PM

Brenda Buxton, Deputy Program Manager
State Coastal Conservancy
1515 Clay St., 10th Floor
Oakland, CA 94612

L-AFCD3-1 The Alameda County Flood Control and Water Conservation District (District) reviewed portions of the Phase 2 Eden Landing Draft Environmental Impact Statement/Report and have the following comments. The review period is inadequate to allow thorough examination of the document. The review period should be extended several more weeks.

L-AFCD3-2
- There is inadequate discussion on the impacts of the project on several Flood Control District properties, including the J Ponds and the portions identified on Figure 2-6 as Alameda County Marsh. The District requests the Restoration Project to coordinate with the District prior to any work that would adversely affect it properties.

L-AFCD3-3
- The landfill identified as County owned on page 2-9 is an error. This is a private property.

L-AFCD3-4
- The County of Alameda and the Alameda County Flood Control District are two different entities. The Alameda County Flood Control District owns all the properties identified as Alameda County's. Please correct this error.

Thank you for the opportunity to comment

Kwablah Attiogbe
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Alameda County Flood Control & Water Conservation District
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To unsubscribe from this group and stop receiving emails from it, send an email to phase2comments+unsubscribe@southbayrestoration.org.

Response to Alameda County Flood Control and Water Conservation District (L-AFCD3)

L-AFCD3-1

A 45 to 60 day public review period for the Draft EIS/R is consistent with NEPA and CEQA guidelines.

L-AFCD3-2

The SBSP Restoration Project proponents will continue to coordinate with the ACFCWCD during later stages of design and construction. See response to comment L-AFCD2-5 (and Appendix D, Attachment 1) regarding the hydrodynamic modeling results and the potential effects of the opening in the ACFCC, the pilot channel, and the levee breach in Pond E2 on the nearby high marsh and J-ponds. See also response to comment L-AFCD1-8 for a discussion of Preferred Alternative and its improvements at and near the J-ponds. Implementation of the Preferred Alternative is not expected to adversely affect ACFCWCD properties and may improve stormwater management.

L-AFCD3-3

Figure 2-9 indicates that the landfill is on a private parcel.

L-AFCD3-4

Figure 2-9 was revised in the Final EIR to indicate that the ACFCC, OAC, and the J-ponds are owned by the ACFCWCD, and not the County.

Alameda County Mosquito Abatement District (L-ACMAD)

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acmad@mosquitoes.org

June 5, 2018

Brenda Buxton
Deputy Program Manager
State Coastal Conservancy
1515 Clay St., 10th Floor
Oakland, CA 94612-1401

Subject: Comments regarding Phase 2, Eden Landing Ecological Reserve Draft EIS & EIR

Dear Ms. Buxton:

L-ACMAD-1

The Alameda County Mosquito Abatement District appreciates the opportunity to comment on the Phase 2, Eden Landing Ecological Reserve Draft Environmental Impact Report. As a public health organization responsible for protecting the residents of Alameda County from mosquitoes, we encourage the reduction of any mosquito breeding habitat. Please see the comments below organized by the sections in which they are found.

Section 2.2.2 Overview of Eden Landing Phase 2 Project Alternatives, Alternative Eden D (p. 2-16) – This section states Eden D would have a temporary mid-complex levee that would eventually be used for habitat enhancement, including transition zones. Once this is turned into a transition zone there needs to be access for mosquito inspections and treatments.

L-ACMAD-2

Section 2.2.4 Alternative Eden B, Habitat Transition Zones (p. 2-18) – Habitat transition zones are defined as having a slope as shallow as 30:1 (h:v), but they could be designed and built to be steeper… Steeper slopes are recommended to minimize they potential for standing water which can collect in depressions as the transition zone settles.

L-ACMAD-3

Section 2.2.4 Alternative Eden B, Habitat Transition Zones (p. 2-19) – This section clearly states that the maintenance of the habitat transition zones is generally limited to removal of invasive plants and mosquito abatement activities, as discussed in Section 2.2.10, Operation and Maintenance, however there is no mention of mosquito abatement activities in Section 2.2.10.

L-ACMAD-4

Section 2.2.6 Alternative Eden D, Habitat Transition Zones (p. 2-33) – In this alternative, the habitat transition zone is located on the east (internal) side of the westernmost Bay-facing levee of Pond E2. There are no land access options to the habitat transition zone for mosquito inspections and treatments. Therefore, Alternative Eden D is the least preferred alternative as it has the potential to have a significantly impact on public health and vector management.

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An Independent Special District Protecting Public Health Since 1930

ACMAD
Page 2 of 3

L-ACMAD-5 **Section 2.2.7 Construction Methods, Individual Components, Levee improvements, Habitat transition zones (p. 2-43)** – Once again it states the habitat transition zones would be constructed by placing material at roughly 30:1 (h:v) side slopes. Steeper slopes are recommended to minimize they potential for standing water which can collect in depressions as the transition zone settles.

L-ACMAD-6 **Section 2.2.10 Operations and Maintenance (p. 2-55)** – In the fifth paragraph we recommend including mosquito abatement in the list of maintenance activities for habitat transition zones like stated in section 2.2.4, p. 2-18.

L-ACMAD-7 **Section 2.2.10 Operations and Maintenance (p. 2-55)** – In the seventh paragraph it states that ponds open to full tidal flows need little to know operations or maintenance beyond the control of invasive plants. We recommend expanding the maintenance activities to include minor regrading and the creation of minor ditches in areas where tidal waters settle and do not fully flush in and out.

L-ACMAD-8 **Section 3.9.1 Physical Setting, Project Setting (p. 3.9-2)** – In the second paragraph, the last word, mosquitoes is misspelled.

Table 3.9.1 Mosquito Species Found in the SBSP Restoration Project Eden Landing Phase 2 Area (p. 3.9-2) – Remove *Aedes melanimon* and *Aedes taeniorhynchus* from this table.

Section 3.9.2 Regulatory Setting (p. 3.9-4) – In the last paragraph of this section change California Department of Health Services to California Department of Public Health.

L-ACMAD-9 **Section 3.9.3 Environmental Impacts and Mitigation Measures, Project-Level Evaluation, *Phase2 Impact 3.9-1:* Potential increase in mosquito populations. *Alternative Eden D* (p. 3.9-6 and p. 3.9-7)** – In the Alternative Eden D, upland areas (e.g., habitat transition zones) would be constructed on the east (internal) side of the westernmost Bay-facing levee of Pond E2. Upland areas have the potential to increase the amount of mosquito-breeding habitat if they are not designed, constructed, and maintained so that water does not pool in them. The location of this habitat transition zone does not allow for land access for mosquito inspection and control. Also, Eden D would have a temporary mid-complex levee that would eventually be used for habitat enhancement, including transition zones. Once this is turned into a transition zone there needs to be access for mosquito inspections and treatments. Inaccessible habitat transition zones have the potential to increase mosquito populations and the need for mosquito management activities. This makes the impact from this alternative potentially significant.

L-ACMAD-10 **General Comments:**
Access – Access to all areas holding water needs to have a route with all-weather paths that will accommodate vehicle travel.

L-ACMAD-11 **Fully Tidal Salt Marsh, Muted Tidal Marsh, –** These habitats support a variety of mosquito species which are aggressive day-biting mosquitoes that disperse long distances. Access needs to be provided to these areas for mosquito inspection and treatments. Permission for off-road vehicle use (Argos, ATVs) is needed for inspections and treatments in large areas. Minimizing areas that hold water and the amount of time that they hold water will reduce the need for mosquito control. Regrading and the creation of minor ditches which tie into the pilot ditches may be needed.

2

L-ACMAD-12 **Habitat Transition Zones –** These habitats support a variety of mosquito species including *Culex tarsalis*, one of the primary vectors of West Nile virus. Access needs to be provided to these areas for mosquito inspection and treatments. Minimizing areas that hold water and the amount of time that they hold water will reduce the need for mosquito control.

L-ACMAD-13 **Coordination –** The Alameda County Mosquito Abatement District requests to remain in consultation regarding the creation of wetland areas and access to and throughout the areas.

Thank you again for the opportunity to provide comments on the Phase 2, Eden Landing Ecological Reserve Draft Environmental Impact Report. Should you have any questions about these comments or the work done by the Alameda County Mosquito Abatement District, please contact me at (510) 783-7744 or via email at erika@mosquitoes.org.

Sincerely,

Erika Castillo
Regulatory & Public Affairs Director
Alameda County Mosquito Abatement District

Response to Alameda County Mosquito Abatement District (L-ACMAD)

L-ACMAD-1

As discussed in MCR 1, the Preferred Alternative includes three habitat transition zones in the project area: one located on the inside of the outboard or bayward levee, one on the west side of the mid-complex levee, and one on the west side of the backside or landward levee. Access conditions vary for each of these habitat transition zones. The backside levee would remain accessible by maintenance truck. The mid-complex levee would be accessible by truck during the initial phase of restoration. However, depending on the eventual Adaptive Management Plan-informed decision about the long-term restoration of Ponds E5 and E6, the mid-complex levee and the northern levee of Pond E6 could be breached which would limit truck access to some areas. Vehicular access to the bayward habitat transition zone would also be limited, as both the northern levee on E1 and the southern levee on E2 would be breached and have sections where the levee is lowered. Off-road vehicles (Argos, ATVs) could be used in areas with sufficient elevation where conditions are safe (e.g., on the upper section of the transition zones and in areas with high marsh elevations). Traversing areas near levee breaches would likely be limited due to safety hazards, precluding land access.

L-ACMAD-2

Several issues will be considered during detailed design of the transition zones including settlement, compaction, the availability of soil/sediment of sufficient quality to meet surface/cover criteria, and the frequency and duration of standing water and the corresponding need for mosquito abatement. Note that the lower portion of the habitat transition zone would be inundated on a frequent (twice daily) basis, while the upper portion of the transition zone that ties into the levee would be rarely flushed/inundated. Only a small section of the transition zone would be inundated with the highest tide and not flushed the same day or the next day. Although there is a potential for differential settlement which allows small pockets of standing water to form within a narrow band on the transition zone and hold water for several days, these pools are expected to be small. The size and the depth of these depressions would generally be limited by the height of the lower lip of the pool and the lip itself would be subject to tidal inundation. Additional text is included in Section 3.9.3 of the EIR to clarify. Also note that long-term operation of ponds and the habitat transition zones are subject to adaptive management actions for vector control, as described below in response to comment L-ACMAD-4.

L-ACMAD-3

Clarifying text is included in the beginning of Section 2.2.10 which indicates that mosquito abatement activities could occur at levees, habitat transition zones, or in other areas of the ponds.

L-ACMAD-4

See response to comment L-ACMAD-1 and L-ACMAD-2. Also note that the project alternatives include implementation of adaptive management actions that are designed to avoid a substantial increase in the need for vector management activities. These actions include adjusting the design to enhance drainage or tidal flushing, controlling vegetation in ponded areas, and/or facilitating access to marsh ponds. Although vehicular access to outboard levees would be precluded under Alternative Eden D and the Preferred Alternative, other adaptive management measures would be implemented to decrease mosquito-breeding habitat in that area.

L-ACMAD-5

See response to comment L-ACMAD-2.

L-ACMAD-6

Clarifying text is included in the beginning of Section 2.2.10 which indicates that mosquito abatement activities could occur at levees, habitat transition zones, or in other areas of the ponds.

L-ACMAD-7

Clarifying text is included in this paragraph, as suggested.

L-ACMAD-8

Text was revised as suggested.

L-ACMAD-9

As discussed in response to comment L-ACMAD-1, L-ACMAD-2, and L-ACMAD-4, the habitat transition zones would be designed for enhanced drainage and/or tidal flushing, constructed with a fairly uniform slope, and maintained per the Adaptive Management Plan. Although vehicular access to outboard levees would be precluded under Alternative Eden D and the Preferred Alternative, other adaptive management measures would be implemented to decrease mosquito-breeding habitat in that area. These actions would likely include controlling vegetation in ponded areas and/or minor regrading and the creation of minor ditches (as recommended above) when adaptive management triggers are exceeded. The detection of mosquitoes at levels exceeding management triggers would be addressed through implementation of the above Adaptive Management Plan actions. As such, the potential impact would be reduced to a less-than-significant level with implementation of the Adaptive Management Plan.

L-ACMAD-10

See response to comment L-ACMAD-1.

L-ACMAD-11

See response to comments L-ACMAD-1, L-ACMAD-4, and L-ACMAD-9.

L-ACMAD-12

See response to comments L-ACMAD-1, L-ACMAD-4, and L-ACMAD-9.

L-ACMAD-13

The project proponents would continue to coordinate with the Alameda County Mosquito Abatement District regarding wetland areas as per the Adaptive Management Plan.

Alameda County Water District (L-ACWD)

ACWD
ALAMEDA COUNTY WATER DISTRICT

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June 5, 2018

Brenda Buxton, Deputy Program Manager
State Coastal Conservancy
1515 Clay Street, 10th Floor
Oakland, CA 94612

Dear Ms. Buxton:

Subject: Draft Environmental Impact Statement/Environmental Impact Report, for the South Bay Salt Pond Restoration Project, Phase 2, Eden Landing Ecological Reserve

L-ACWD-1

Thank you for the opportunity to comment on the Draft Environmental Impact Statement/Environmental Impact Report (DEIS/EIR) for the South Bay Salt Pond Restoration Project, Phase 2, Eden Landing Ecological Reserve (Project). The Alameda County Water District's (ACWD) geographic area encompasses approximately 105 square miles. ACWD's groundwater statutory service area includes the Cities of Fremont, Newark, Union City, and the southern portion of the City of Hayward. ACWD primarily provides retail water service to a population of 356,000 within the Cities of Fremont, Newark, and Union City. ACWD manages the Niles Cone Subbasin 2-09.01 (Niles Cone) that underlies the Project area and operates water supply infrastructure on Alameda Creek to benefit native fish species. As a result, ACWD is committed to stewardship of the natural resources within our community and therefore supports the multi-agency effort to restore tidal marsh habitat to the South San Francisco Bay region, which has significant benefits for the Alameda Creek watershed.

Alameda Creek and Fish Restoration Projects

ACWD has a strong interest in protecting and preserving water quality and water supply in Alameda Creek and the Alameda Creek watershed and views the Project proposal as a critical project that will restore habitat within the Alameda Creek corridor and foster ecological resilience against climate change. ACWD is one of the founding members of the Alameda Creek Fisheries Restoration Workgroup and has collaborated with multiple stakeholders since 1999 on efforts to benefit Central Coast Steelhead, a federally-listed, threatened species. Over the last two decades, ACWD has committed millions of dollars to construct a variety of enhancements for salmonids migrating on Alameda Creek, including the removal of a rubber dam, the installation of three fishways (one built and two others currently in progress), and full fish screening of all off-stream diversion points. Come the year 2022, with the completion of the final fish ladder, steelhead will have full access to the Alameda Creek watershed for the first time in 50 years.

RECYCLED PAPER

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L-ACWD-1 (cont.)

The goals of the proposed Project align directly with ACWD's broader efforts to restore steelhead to Alameda Creek. Specifically, the Project would maximize habitat potential for anadromous fish in the Alameda Creek corridor through expansion of habitat transition zones and improvements in habitat connectivity, allowing for more growth during a critical stage in the lifecycle. The importance of such habitat enhancement cannot be understated. Fishery science has shown that the survival rate of migratory steelhead is highly dependent on smolt size. With only limited opportunities to enhance steelhead habitat within the urbanized Alameda Creek watershed, restoration of the tidal marshes in the Eden Landing Ecological Reserve could provide a crucial opportunity for migratory steelhead passing through ACWD's fish ladders to gain an early advantage before journeying out to sea. Implementation of the Project may therefore represent a major step to re-establishing a healthy steelhead run in the Alameda Creek watershed.

L-ACWD-2

Comments for the DEIS/EIR

ACWD has reviewed the DEIS/EIR for the South Bay Salt Pond Restoration Project, Phase 2, Eden Landing Ecological Reserve and would appreciate your consideration of the following comments:

1. Section 2.2.4 Alternative Eden B (pages 2-16 through 2-25):

   In Alternative Eden B, the DEIS/EIR discusses the potential of utilizing two ACWD Aquifer Reclamation Program (ARP) wells as an alternative water supply for the habitat transition zone. ACWD is interested in the concept of exploring partnership opportunities to leverage ACWD's ARP wells to deliver brackish groundwater to habitat transition zones in the Inland and Southern Ponds. Such collaboration could help sustain the target salinity gradient for the transitional ponds while furthering ACWD's long-term effort to remove excess salinity from the underlying Niles Cone.

   The DEIS/EIR states that these two ARP wells are used to removed "trapped" saline water (page 2-23). Please note that the objective of these two wells is mainly to improve overall groundwater quality. Because they are screened in the Newark Aquifer, they do not remove brackish water "trapped" in the deeper aquifers of the Niles Cone. In addition, the wells are currently non-operational and will require supplementary evaluation before the wells can be utilized and the volume of groundwater pumped from the wells will need to be measured and is subject to a Replenishment Assessment fee.

L-ACWD-3

2. Section 2.3.1 Surface Water, Sediment, and Groundwater Quality (pages 2-57 & 2-58):

   a. ACWD appreciates the inclusion of SBSP Mitigation Measure 3.4-6 (page 2-57) which provides coordination with ACWD regarding the proper destruction of abandoned wells within the Project area. Historical records indicate the existence of three remaining abandoned wells within this portion of the overall South Bay Salt Pond Restoration project area. Project proponents should also coordinate with ACWD prior to any construction activities (e.g., levee improvement, levee breaches,

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L-ACWD-3 (cont.)

channel excavation, dredging) in areas where ACWD has already identified abandoned water wells that have not been destroyed, so that ACWD can assist in their location and identification. Although not specifically within the Project area, project proponents should be aware that ACWD has also identified two abandoned water wells in pond CP3C. ACWD is currently working on updating its well location map of the Project area and will send a copy to the State Coastal Conservancy at a later date.

L-ACWD-4

b. ACWD owns several groundwater monitoring wells within the Project area and near the perimeter. Groundwater sampling and monitoring of these wells is imperative to ACWD's management of the Niles Cone. Therefore, ACWD requests that the DEIS/EIR address maintaining access to all ACWD monitoring wells and the protection of these wells against being potentially damaged or lost (e.g., buried) during construction activities.

L-ACWD-5

3. Section 3.2.3 Environmental Impacts and Mitigation Measures (pages 3.2-16 through 3.2-27):

For Alternatives Eden B, C, and D, the DEIS/EIR states that two new bridges would be constructed between the inland and southern ponds to extend the Bay Trail through Eden Landing. This is to allow Alameda County equipment access under the bridge, if necessary. The construction will require bridge abutments on the channel banks and support pier in the water channels. Please note that support piers must be constructed in a manner that will prevent the creation of: 1) a preferential pathway that could allow runoff to rapidly infiltrate the subsurface and bypass soils which have the capacity to remove pollutants and protect the groundwater supply, or 2) an interconnection of aquifers or water-bearing zones. In order to protect the groundwater basin, ACWD requests the DEIS/EIR include the provision that project proponents coordinate and consult with ACWD prior to the design and construction of the piers or piles.

L-ACWD-6

4. Section 3.3.1 Physical Setting (pages 3.3-1 through 3.3-14):

The DEIS/EIR states: "The relatively thin Holocene Bay muds at the margins of the Bay do not currently isolate the shallow Newark Aquifer between the current outboard and inboard salt pond levees. However, Bay mud and fine-gained alluvial deposits do generally create differences in hydraulic head that are evidenced of hydraulic separation" (page 3.3-11). This statement is correct with respect to the Bay mud (marine deposition) which appears to thin out as it approaches the original Bay margins. Field identification of the Bay muds is typically identified by a darker colored fine grained material in the blue-gray range, and the terrestrial source (alluvial deposition) is typically identified by a lighter olive gray-olive-brown color range. A review of data from ACWD's drilled borings in the area indicate minor amounts of blue-gray silts and clays with a majority of the identified silts and clays being within the lighter color olive-gray to olive-brown color range. Although the Bay muds are not isolating surface infiltration from the Newark Aquiclude, the 25 to 50 feet of alluvial silts and clays appear to be.

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L-ACWD-6 (cont.)

In addition, areas west of I-880 may have a perched shallow water-bearing zone that is located within the Newark Aquiclude that overlies the Newark Aquifer. This shallow water-bearing zone should not be confused with the Newark Aquifer itself. To the extent that groundwater may be interacting with the ponds in the project area, such groundwater may be from this shallow water-bearing zone and not the Newark Aquifer.

L-ACWD-7

5. Section 3.3.3 Environmental Impacts and Mitigation Measures (pages 3.3-24 through 3.3-49):

   a. The DEIS/EIR states: "None of the SBSP Restoration Project alternatives use groundwater, so the project would not interfere with groundwater recharge or deplete groundwater supplies through groundwater extraction" (page 3.3-24). However, Alternative Eden B identifies a potential for groundwater use by referencing ACWD's ARP wells as an alternative water supply for the habitat transition zone. As previously mentioned, ACWD is interested in the concept of exploring partnership opportunities to leverage ACWD's ARP wells to deliver brackish groundwater to habitat transition zones. However, if Project proponents decide to move forward with utilizing groundwater, a subsequent or supplemental CEQA document will likely be required.

L-ACWD-8

   b. The DEIS/EIR states: "The threshold for an impact to groundwater quality is a substantial increase in the potential for salinity intrusion from the Bay into deep potable aquifers. This increase would be indicated by a project-related increase in salinity or total dissolved solids (TDS) at monitoring wells protecting water supplies that exceeds the narrative objective for salinity or the numeric objective for TDS or violates the state's antidegradation policy by unreasonably degrading the quality of high-quality water" (page 3.3-28). The DEIS/EIR should clarify which monitoring wells are being referenced in this section and if the monitoring of these wells is included in the Adaptive Management Plan. Since the TDS concentration in the Newark Aquifer at the Project area currently exceeds 500 milligrams per liter (mg/L), the threshold for impact from saltwater intrusion should be determined by observed spikes or increasing trends in TDS and chloride concentrations near the Project area.

L-ACWD-9

   c. The DEIS/EIR states: "Because surface water and groundwater are in at least partial hydraulic communication, shallow groundwater could seep into the ponds or restored tidal habitat or the surrounding sloughs and Bay. Fuel and solvent spills affect the shallow aquifers in industrialized areas of the South Bay, and the resulting plumes migrate in the groundwater flow direction" (page 3.3-45 & 46). As previously discussed, areas west of I-880 may have a perched shallow water-bearing zone that is located within the Newark Aquiclude that overlies the Newark Aquifer. Based on ACWD's review of nearby cleanup sites (unless there is compelling alternative information), "shallow groundwater" as referenced

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L-ACWD-9 (cont.)

above, should be clarified in the DEIS/EIR as being from the shallow water-bearing zone.

L-ACWD-10

ACWD will continue to engage with our environmental, regulatory, and community partners to maintain a fish-friendly waterway in Alameda Creek and restore native habitat to the region. Successful completion of the South Bay Salt Pond Restoration Project, Phase 2, Eden Landing Ecological Reserve will contribute to this ongoing mission.

Sincerely,

Steven D. Inn

Steven D. Inn
Manager of Water Resources

ks/cs
By email

Response to Alameda County Water District (L-ACWD)

L-ACWD-1

The project proponents appreciate your support of the project. As noted by the commenter, one the Project's intended ecological goals is fish habitat restoration and enhancement. As discussed in MCR 1, Selection of the Preferred Alternative, and MCR 5, Fish Habitat Restoration, the Preferred Alternative includes restoration elements intended to maximize habitat connectivity, provide new foraging opportunities, and increase productivity.

L-ACWD-2

Text was revised to indicate that the primary use of the two Aquifer Reclamation Program (ARP) wells near southern Eden Landing is to improve water quality in the Newark Aquifer.

L-ACWD-3

The project proponents will coordinate with interested parties during construction and will continue to coordinate with ACWD regarding abandoned wells per SBSP Mitigation Measure 3.4-6. As discussed in Section 3.3.3 of the EIR, all known well locations in the Reserve were closed as part of Phase Out Agreement with Cargill and the Initial Stewardship Plan and therefore there are no known wells in the ELER. The project proponents appreciate any updated information provided regarding abandoned wells in the project area and vicinity.

L-ACWD-4

Section 3.3.1 of the EIR indicates that there are several ACWD monitoring wells located near the eastern edge of the salt ponds. According to figures from the ACWD's 2017 groundwater monitoring report, these wells are primarily located east of the ELER within the city boundaries of the City of Union City, but a few wells are located along OAC near Ponds E6A and E8. The project proponents will coordinate access during construction to infrastructure located within the ELER that is owned by others, and coordinate access near work areas and staging areas. During construction, these features would be marked, protected or fenced, and avoided by the construction contractor.

L-ACWD-5

Issues raised by the ACWD regarding the potential for bridge piers and abutments that may create a preferred pathway between surface water and groundwater and the potential for bridge piers, and abutments to create an interconnection between groundwater aquifers and other water bearing zones would be considered during detailed design of the project. Note that the project proponents will continue to coordinate with interested parties during the design process and during project construction. More formal consultation would occur with agencies that issue project permits.

L-ACWD-6

Clarifying text is included in the paragraph, as suggested.

L-ACWD-7

As noted by the commenter, Section 3.3.3 of the Draft EIS/R describes the potential use of brackish water from ARP wells in Alternative Eden B. The conflicting information identified by the commenter was deleted in the Final EIR.

L-ACWD-8

Clarifying text is included in the EIR to indicate that the referenced wells are regional groundwater wells. Focused monitoring efforts for the Adaptive Management Plan have been concentrated on ponds and regional surface waters, not on groundwater. As discussed in Section 3.3.3 of the EIR, tidal inundation of prior circulation or batch ponds are not expected to result in a significant change in groundwater hydrology or quality because groundwater currently has positive flow into the Bay.

Consequently, regional groundwater quality data would be reviewed, but the installation of new groundwater monitoring wells would not be required to implement the Adaptive Management Plan. Observed spikes or increasing trends in TDS and chloride concentrations near the Project area would be evaluated against management triggers and potential management actions.

L-ACWD-9

Clarifying text is included in the Final EIR to indicate that it is perched groundwater from the shallow waterbearing zone that could be in partial hydraulic communication with the restored ponds.

L-ACWD-10

The project proponents will coordinate with interested parties during design and construction of SBSP Restoration Project, Phase 2 at the ELER.

City of Union City (L-CUC)

UNION CITY
california

economic & community development

May 21, 2018

Brenda Buxton, Deputy Program Manager
State Coastal Conservancy
1515 Clay Street, 10th Floor
Oakland, California 94612

Dear Ms. Buxton:

L-CUC-1

On behalf of the City of Union City, I am writing to submit comments on the Draft EIS/EIR for the Eden Landing Ecological Reserve Phase 2 Project, also known as the South Bay Salt Ponds (SBSP) Restoration Project. The City's comments are focused on the needed improvements to protect the community from sea level rise and the need for the planned Bay Trail to provide long-term community benefits that link Northern Eden Landing to Coyote Hills Regional Park through the bay lands.

1) Sea Level Rise Mitigation of Project

a) We appreciate the attention to the discussion of sea level rise throughout the document and support incorporating sea level rise mitigations.

b) We strongly support the Bay Trail guidelines that state the Bay Trail should be elevated to accommodate sea level rise. The Bay Trail levee improvements should be designed so as funding is available for the SBSP Restoration Project, the improvements can be made in tandem. These necessary improvements should be strategically planned, considered, and anticipated so there are not unexpected impacts to the Project in the future. As a matter of 'fact,' sea level rise must be incorporated into the improvements. Increasing the base width and height of a levee could be very disruptive to the ecology of the SBSP Restoration Project in the future. As such, we believe that critical, backbone infrastructure to protect against sea level rise should be constructed as part of the first phase of the Project.

c) The Bay Trail should not be located on levees that will be lost to deterioration or sea level rise. This would be a poor use of public funds and would not provide a long-term benefit to the public.

d) We strongly support that the Project sponsors continue their partnership with Alameda County Flood Control and Water Conservation District to determine a final Bay Trail alternative that also mitigates the community impacts of sea level rise.

L-CUC-2

2) Bay Trail Access from Union City Boulevard - The City supports additional public access from Union City Boulevard to the Bay Trail. However, please consider the following:

a) Trailheads with public access and parking lots should be provided in the Horner/Veasy Street area in Union City and at the East Bay Regional Park Land District property adjacent to Alameda Creek. Other access points should be secondary and solely for pedestrian and bicycle access.

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california

L-CUC-3

b) The preferred trail alignments on Alternatives B, C, and D are the Proposed Trail, Proposed Trail: Route 1, and Proposed Trail: Route 2. The Existing Trail and Proposed Trail: Route 3 rely on Union City Boulevard as a Bay Trail connector. Union City Boulevard is a busy, heavily trafficked street that does not fulfill the need or the vision of a Bay Trail. Additionally, on the south side of the closed Turk Island Landfill, both the Existing Trail and the Proposed Trail: Route 3 alignments require the trail to traverse through a single-family residential neighborhood along Westport Way. The neighborhood does not have adequate public parking and is already impacted by sports activities at Sea Breeze Park. Parking from the park activities often overflows into the neighborhood. Adding additional traffic and parking to the neighborhood that would result from a new trailhead/community connector is not appropriate.

c. Alternative bicycle and pedestrian links along existing levee roadways from Union City Boulevard may be appropriate points of connection other than Westport Way.

d. Union City staff request that meetings be held with the neighborhood for their input should the Project sponsor determine that Westport Way is the preferred community connector alignment for the Bay Trail.

L-CUC-4

3) Linking the Bay Trail to Coyote Hills Regional Park – The Bay Trail should complete the link between Eden Landing Phase 1 and Coyote Hills Regional Park on an alignment that is located west of Union City Boulevard in the bay lands. The Project should also include the bridge across Alameda Creek in order to complete the link to Coyote Hills Regional Park. This has been a long-term goal of the region, the City and the Bay Trail plan.

L-CUC-5

Thank you for the opportunity to comment. The SBSP Restoration Project will be an open space amenity for the region as it restores habitat for native plants and animals across the 15,100 acres. However, with such a large investment of public funds, the project should plan for and incorporate the improvements that are needed to protect against sea level rise. Further, the Project should include recreational opportunities for public access that are provided for by a Bay Trail alignment that is fully incorporated into the Restoration Project and links to Eden Landing Phase 1 and Coyote Hills Regional Park.

Sincerely,

Joan Malloy

JOAN MALLOY
Economic and Community Development Director, City of Union City
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510.675.5327

economic & community development

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Response to City of Union City (L-CUC)

L-CUC-1

As discussed in MCR 1, Selection of the Preferred Alternative, and MCR 7, Public Access Trails (Routes, Elevations, and Parking), the Preferred Alternative includes a trail alignment through southern Eden Landing that would be located upon levees raised to a minimum elevation of 12 feet NAVD88, which is the same height as the proposed mid-complex levee. Because this trail alignment is intended to extend the Bay Trail spine through southern Eden Landing, the design of the levees would follow Bay Trail design guidelines with respect to trail width and surfacing, as practicable. Bridges would be passable by pedestrians and bicycles and depending on bridge length and location may also be passable by maintenance or emergency vehicles.

As discussed in MCR 3, Sea-Level Rise, although there is considerable uncertainty to the rate of sea level rise, particularly after about 2050 due to uncertainties in global carbon emission rates, there is a general consensus among scientists that sea levels near San Francisco are likely to increase by 4 to 6 inches by 2030, 7 to 13 inches by 2050, and 12 to 41 inches by 2100, relative to levels in 2000 (OPC 2018). Although improved levees may be subject to wave run-up, overtopping, and ponding at some point in the future, trails located on levees improved to 12 feet NAVD88 would generally be protected from coastal inundation from high tides during interim future conditions. Building the levees with wider bases to allow for future increases in elevations without adding more fill in waters of the U.S. and State of California or otherwise affecting endangered species habitat will also be considered during detailed design where feasible and reasonable.

L-CUC-2

As discussed in MCR 7, Public Access Trails (Routes, Elevations, and Parking), both CDFW and the larger SBSP Restoration Project team would be willing to collaborate with other local agencies and provide assistance in adding parking in one of the surrounding areas (such as seeking supplemental funding through grants).

Also note that the Preferred Alternative includes one community connector at Veasy Street and no new "trailheads" with Phase 2, which makes this connection to the existing Bay Trail more of a through-trail used for longer hikes or bicycle rides to or from existing trailheads, and consequently there is a reduced need for a new parking area. Existing trailheads with parking are to the north (the Phase 1 parking area at northern Eden Landing) and to the south (the Alameda Creek Regional Trail parking lot along the ACFCC). As part of ongoing operational activities at northern Eden Landing, CDFW could expand the parking area built in Phase 1 of the project to accommodate any additional demand by opening and improving the overflow parking area as appropriate. Currently the lot occasionally fills only for brief periods on certain weekend days, particularly during special events, and it is inefficient to build a parking lot to accommodate the peak demand instead of the typical demand. Weekend/peak demand will continue to be monitored at that site by CDFW, and the overflow area could be opened if significant new demand is supported.

L-CUC-3

As discussed in MCR 7, Public Access Trails (Routes, Elevations, and Parking), the preferred trail alignment through southern Eden Landing is Trail Route 1. Trail Routes 2 and 3 and the community connector at Westport Way were not included in the Preferred Alternative. Trail Route 1 was chosen in part to provide a more bayward experience for trail users (Trail Route 1 is the westernmost of the three considered) and to minimize the amount of land acquisition or easements or agreements necessary from outside parties that would be necessary to complete it. Trail Route 3 and the associated "community connector" trail to Union City Boulevard was not included in the Preferred Alternative because of a strong negative response to it by stakeholders (including the City of Union City) and because of the concern that the community connector would draw more outside trail users to the area and encourage them to park on existing streets. Bicycle and pedestrian links would still connect to the south via the Alameda Creek Regional Trail.

L-CUC-4

As discussed in MCR 1, the Preferred Alternative includes the trail alignment at Trail Route 1, which is the westernmost of the three route options considered, and the public access bridge over the ACFCC. However, it is important to acknowledge a few limits on what that inclusion means. First, neither the CDFW nor any of the other SBSP Restoration Project primary entities (the USFWS or the State Coastal Conservancy) owns the land on either side of the ACFCC. The Project therefore holds no unique ability or influence to obtain the necessary funding, permits, or property rights to actually build it. The construction of such a bridge, as with the completion of a portion of the proposed trail through southern Eden Landing, would require property acquisition at fair market value or a permanent public access easement. Therefore, the SBSP Restoration Project proponents/CDFW are unlikely to be the sole implementer of a public access bridge over the ACFCC on their own. As noted, building that bridge will require a substantial effort to acquire funding for and perform design, permitting, and construction, and to obtain necessary easements or property acquisition. This is very likely to need cooperation between a number of partner agencies to successfully implement.

L-CUC-5

See response to comment L-CUC-1 regarding sea-level rise and response to comment L-CUC-4 regarding public access links to Coyote Hills Regional Park via a public access bridge over the ACFCC.

East Bay Regional Park District (L-EBRP)

East Bay Regional Park District

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May 21, 2018

Brenda Buxton, Deputy Program Manager
State Coastal Conservancy
1515 Clay Street, 10th Floor
Oakland, CA 94612-1401

RE: Eden Landing Ecological Reserve Phase 2 Draft EIS/EIR

Dear Ms. Buxton:

L-EBRP-1

Thank you for the opportunity to comment on the Eden Landing Ecological Reserve (ELER) Phase 2 Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR). The East Bay Regional Park District owns and manages 122,000 acres of open space and active transportation trails in both Contra Costa and Alameda Counties. Specifically, we operate Hayward Regional Shoreline, Coyote Hills Regional Park, Quarry Lakes Regional Park, and the Alameda Creek Regional Trail as well as provide maintenance of the 7 miles of ELER Phase 1 trails.

Park District staff understands that the South Bay Salt Pond Restoration Project (SBSP) is a multiple agency effort to restore tidal marsh habitat, reconfigure managed pond habitat, maintain or improve flood risk management, and provide recreation opportunities and public access in 15,100 acres of former salt-evaporation ponds. One of the project objectives also is to "[p]rovide public access and recreational opportunities compatible with wildlife and habitat goals".

Public land along the Bay shoreline is rare, and ELER Phase 2 represents a unique opportunity to provide much-needed and mandated public access. Some of the proposed alternatives, however, include no public access. Instead, there should be more public access to the "blue water" experience of the San Francisco Bay, especially considering the vast acreage and mileage of shoreline. Additionally, once endangered species habitat is established, this opportunity will be lost in perpetuity as well as the ability to repair levees and provide coastal protection to the communities that ELER buffers.

L-EBRP-2

For all alternatives, only one trail leads to ELER with minor spurs with little to no connectivity to the south. These trails are located on levees that are 8 or 9 feet high, and they will probably need to be 13.5 feet high to address sea level rise projections over the next 80 years. If a trail were to be flooded in the next 20 years for endangered species, the levees could not be raised. At a minimum, there must be a wide enough "bench" for the levee trail so that in the future fill can be added without negatively impacting endangered species' habitat.

L-EBRP-3 We appreciate that this restoration project is a major investment in improving habitat and ecological function of the baylands. Regardless, the value of this investment is diminished if the public who are funding it do not have access to it. Furthermore, the proposed project is in a State-designated disadvantaged community, and this proposed plan essentially keeps the people who most need access to recreational resources out.

L-EBRP-4

Preferred Alternative

Parallel to the environmental planning of this phase of the SBSP, SBSP staff has been engaged with other key stakeholders such as the San Francisco Bay Trail, Alameda County Flood Control District, and Park District staff in the Resilient by Design challenge that seeks to create a blueprint for coastal resilience and social equity in the San Francisco Bay Area. The Public Sediment proposal for Alameda Creek includes the Alameda Creek Trail, Quarry Lakes Regional Park, Coyote Hills Regional Park, and the South Bay Salt Ponds. The team has proposed a plan that will reconnect sediment flow to the marshes and mudflats at the Bay edge, create protective ecological infrastructure that adapts to sea level rise, mitigates flood risk, and provides adequate public access.

On May 5, 2018, key stakeholders, including SBSP staff, actively engaged in a conference call to specifically discuss public access and completion of the Bay Trail spine with a "blue water" experience at ELER Phase 2. We all agreed that the Draft EIS/EIR Alternative Eden C Trail Route 2 with a bridge across Alameda Creek would most closely align with the Resilient by Design proposal and should be the preferred alternative. To be consistent with regional goals of completing the Bay Trail alignment, ELER Phase 2 should implement the entire Bay Trail spine that connects ELER Phase 1 to Coyote Hills Regional Park, including the 600-foot long bridge crossing the Alameda Flood Control Channel shown in Alternative Eden C. ELER Phase 2 is a unique opportunity and possibly the last chance to implement this critical segment of Bay Trail along the Alvarado Wetlands properties. This preferred alternative would also require the acquisition of a couple of parcels of private land from a willing seller at fair market value.

L-EBRP-5 We support the beneficial reuse of dredged material and/or upland fill material as well as increasing wildlife-oriented public access and extension of the Bay Trail. Since the Park District currently provides maintenance
L-EBRP-6 of ELER Phase I trails, the breach bridge should be drivable by a heavy-duty truck for these purposes.

Following are specific comments related to section 3.6 Recreation Resources and section 3.11 Traffic of the Draft EIS/EIR.

Recreation Resources

L-EBRP-7 As stated in section 3.6.2 Regulatory Setting, the San Francisco Bay Conservation and Development Commission (BCDC), among other responsibilities, regulates shoreline public access, and the *San Francisco Bay Plan* specifies that the ELER provides excellent wildlife compatible recreation opportunities. Furthermore, BCDC considers the Bay Trail Plan in making determinations as to whether a project is consistent with their policies on public access.

In terms of Phase 2 Impact 3.6-3, this impact should be revised to potentially significant for all alternatives except Alternative Eden A, because they do not propose staging nor parking areas. The analysis refers to the trailhead parking areas such as the Alameda Creek Regional Trail and ELER Bay Trail staging areas. These staging areas currently serve their respective trails – the Park District's Alameda Creek Trail and the Bay Trail associated with ELER Phase 1. Additionally, the analysis should include the number of acres of public open space, number of parking spaces, and number of miles of trail to demonstrate the amount of public access that would or would not be provided. The analysis acknowledges that the use of the new trail and public access facilities would increase use and demand for existing trailhead facilities. With the addition of Phase 2, adequate parking that provides service to the new trail and public access facilities should be included and analyzed. The

L-EBRP-7 (cont.)

lack of parking would cause stress on nearby Park District staging areas by substantially increasing recreation use and cause substantial physical deterioration of these adjacent recreational facilities, which would result in a potentially significant impact. This impact should be mitigated by providing additional parking, and the statement should be revised to reflect this impact. This issue is further discussed in the traffic section below.

Traffic

L-EBRP-8

Section 3.11 Traffic states that the current ELER Bay Trail connection only provides 24 parking spaces. The existing 24-space ELER parking lot serves Phase 1 and would not adequately provide parking for both Phase 1 and 2. Phase 2 Impact 3.11-3 says that the estimated increase in recreational use from Phase 2 implementation is up to 150 additional recreational users per day, increasing demand by up to 56 vehicles per day. As the impact statement also states, the landowner shall design recreational facilities with sufficient parking spaces to accommodate the projected increase in vehicles that access the site. Relying on potential off-site parking to provide additional parking is not sufficient, as it would increase demand for parking and public access at nearby Park District parks. Since the lack of adequate parking in all the alternatives except for Alternative Eden A would increase demand for parking, the proposed project would result in a potentially significant impact that should be mitigated.

L-EBRP-9

We appreciate the opportunity to provide comments and applaud this major effort at restoring habitat and ecological function of the baylands. The proposed project, however, should balance habitat restoration with public access to the Bay, as stated in the project objectives. The Resilient by Design challenge is an opportunity for all the key stakeholders to collaborate on a vision that achieves those objectives and should be used as the preferred alternative. Furthermore, to be consistent with regional goals of completing the Bay Trail spine, ELER Phase 2 should implement the entire Bay Trail spine that connects ELER Phase 1 to Coyote Hills Regional Park including the bridge across Alameda Creek. ELER Phase 2 is a unique opportunity and possibly the last chance to implement this critical segment of Bay trail along the Alvarado Wetlands. Please feel free to contact us if you have any questions or would like additional information.

Sincerely,

Sandra Hamlat

Sandra Hamlat
Senior Planner

cc: Brian Holt, Chief of Planning/GIS
Chris Barton, Environmental Program Manager
Sean Dougan, Trails Program Manager
Mark Taylor, Park Supervisor
Lee Huo, Bay Trail Planner

Response to East Bay Regional Park District (L-EBRP)

L-EBRP-1

As discussed in MCR 7, Public Access Trails (Routes, Elevations, and Parking), all of the action alternatives in the Draft EIS/R included three different routes to complete the Bay Trail spine through all or most of southern Eden Landing, depending on property ownership or easement acquisition. Some of the details (such as elevation) would have differed depending on the alternative chosen, but the routes were in every alternative, as were one or more bridges over internal channels, a new viewing platform, and a commitment to maintaining existing access long the Alameda Creek Regional Trail, regardless of the approach taken to connecting the ponds to the ACFCC. In the Preferred Alternative, Trail Route 1 was chosen as the alignment of the Bay Trail spine through southern Eden Landing. It was chosen in part to provide a more bayward experience for trail users (Trail Route 1 is the westernmost of the three considered) and to minimize the amount of land acquisition or easements or agreements necessary from outside parties that would be necessary to complete it. Additional explanations of the trails that were selected for inclusion in the Preferred Alternative are in MCR 7, Public Access Trails (Routes, Elevations, and Parking).

In addition to providing public access, each of the action alternatives (and the Preferred Alternative) includes features to address coastal flooding that would maintain or improve existing levels of flood risk management at adjacent and nearby properties. Note that CDFW is the landowner and manager of the ELER and is responsible for maintaining the levees, water control structures, and other features of the lands and waters at the site as needed for habitat purposes. CDFW performs or coordinates other maintenance activities such as removal of invasive plant species, performing bird counts or other biological surveys, and patrolling to see that public access features are being used in accordance with Reserve rules (e.g., that people stay on trails, respect rules about dogs, etc.) These types of management actions are activities that CDFW would continue to conduct regardless of the details of the Preferred Alternative or whether there was an SBSP Restoration Project at all.

L-EBRP-2

Refer to response to comment L-EBRP-1 and MCR 7, Public Access Trails (Routes, Elevations, and Parking), regarding public access for the action alternatives. Also note that the Preferred Alternative includes a trail alignment through southern Eden Landing that would be located upon levees raised to a minimum elevation of 12 feet NAVD88, which is the same height as the proposed mid-complex levee.

As discussed in MCR 3, Sea-Level Rise, although there is considerable uncertainty to the rate of sea level rise, particularly after about 2050 due to uncertainties in global carbon emission rates, there is a general consensus among scientists that sea levels near San Francisco are likely to increase by 4 to 6 inches by 2030, 7 to 13 inches by 2050, and 12 to 41 inches by 2100, relative to levels in 2000 (OPC 2018). Although improved levees may be subject to wave run-up, overtopping, and ponding at some point in the future, trails located on levees improved to 12 feet NAVD88 would generally be protected from coastal inundation from high tides during interim future conditions. Building the levees with wider bases to allow for future increases in elevations without adding more fill in waters of the U.S. and State of California or otherwise affecting endangered species habitat will also be considered during detailed design where feasible and reasonable.

L-EBRP-3

As discussed above in response to comment L-EBRP-1 and MCR 7, Public Access Trails (Routes, Elevations, and Parking), the trail routes in the action alternatives would increase public access and complete the Bay Trail spine through southern Eden Landing, thereby providing people in the nearby community a new public access opportunity.

L-EBRP-4

As discussed in MCR 1, the Preferred Alternative includes Trail Route 1 and the public access bridge over the ACFCC. Trail Route 1 was chosen in part to provide a more bayward experience for trail users (Trail Route 1 is the westernmost of the three considered) and to minimize the amount of land acquisition or easements or agreements necessary from outside parties that would be necessary to complete it. Although the public access bridge over the ACFCC was included in only one of the action alternatives presented in the Draft EIS/R, the text of the Project Description in Chapter 2 notes that such a bridge is a modular component that could be included into any configuration of a Preferred Alternative or an eventually implemented project.

However, it is important to acknowledge a few limits on what that inclusion means. First, neither the CDFW nor any of the other SBSP Restoration Project primary entities (the USFWS or the State Coastal Conservancy) owns the land on either side of the ACFCC. The Project therefore holds no unique ability or influence to obtain the necessary funding, permits, or property rights to actually build it. The construction of such a bridge, as with the completion of a portion of the proposed trail through southern Eden Landing, would require property acquisition at fair market value or a permanent public access easement. Therefore, the SBSP Restoration Project proponents/CDFW are unlikely to be the sole implementer of a public access bridge over the ACFCC on their own. As noted, building that bridge will require a substantial effort to acquire funding for and perform design, permitting, and construction, and to obtain necessary easements or property acquisition. This is very likely to need cooperation between a number of partner agencies to successfully implement. The SBSP Restoration Project has already begun contributing to that effort by providing NEPA and CEQA coverage for a bridge over the ACFCC.

L-EBRP-5

Each of those components are included in the Preferred Alternative.

L-EBRP-6

To facilitate fish passage between the ACFCC and the restored ponds, the Preferred Alternative includes a connection between the Bay Ponds and the ACFCC that will no longer be through large culverts, as initially described, but instead through a full breach. This breach however, would be armored to prevent additional scour and uncontrolled widening that could undercut a new public access bridge on the Alameda Creek Regional Trail. This breach bridge is intended to be drivable by heavy duty truck for maintenance purposes.

As a point of clarification, although East Bay Regional Park District operates and maintains the Bay Trail spine on the original Baumberg Tract at the northern boundary of Eden Landing (which is about 3 miles in length), CDFW currently operates and maintains the 4 miles of new spur trails developed during Phase 1 at ELER.

L-EBRP-7

Section 3.6.4 of the EIR evaluates the potential impact associated with the physical deterioration of neighboring recreational facilities due to increased use in the ELER Phase 2 area. Projected recreational use of the ELER Phase 2 area is estimated to average 100 to 125 users per day with peak periods such as summer weekends within the range of 150 to 250 users per day. These estimates are similar to average daily use for the Hayward Regional Shoreline as measured at Hayward Marsh (150 to 200 users per day), Hayward's Landing (120 to 150 users per day) and the San Lorenzo Trail Bridge (145 to 160 users per day). This is likely a conservative estimate, as the average daily use in the ELER Phase 1 area has historically been lower, with 50 to 125 users per day reported near the Phase 1 parking area at northern Eden Landing and only 10 to 75 users per day at Eden Shores (described in Appendix G). Low trail use in the ELER Phase 1 area was also found by Sokale and Trulio (2013).

As discussed in MCR 7, Public Access Trails (Routes, Elevations, and Parking), the Preferred Alternative (and the action alternatives), which connects the existing Bay Trail segment at Eden Shores to the Alameda Creek Regional Trail, would be more of a through-trail used for longer hikes or bicycle rides to or from existing trailheads, and consequently there would be a reduced need for a new parking area. However, as part of ongoing operational activities at northern Eden Landing, CDFW could expand the parking area built in Phase 1 of the project to accommodate any additional demand by opening and improving the overflow parking area, as appropriate. Currently the lot occasionally fills only for brief periods on certain weekend days, particularly during special events. Weekend and peak demand will continue to be monitored at that site by CDFW, and the overflow area could be opened if significant new demand is supported.

In addition, both CDFW and the larger SBSP Restoration Project team would be willing to collaborate with other local agencies and provide assistance in adding parking in one of the surrounding areas.

Note that Section 3.6.3 of the EIR describes the proposed recreation and public access facilities in detail, including location, length, and improvements and Section 3.11.1 of the EIR describes the number of parking spaces in the ELER Phase1 area and at the Alameda Creek Regional Trail. Clarifying information is included in Section 3.6.4 of the Final EIR which indicates that the proposed facilities in southern Eden Landing are expected to be used as a through-trail for longer hikes or bicycle rides to or from existing trailheads.

L-EBRP-8

See Response to Comment L-EBRP-7. As part of ongoing operational activities at northern Eden Landing, CDFW could expand the parking area built in Phase 1 of the project to accommodate any additional demand by opening and improving the overflow parking area, as appropriate. Weekend and peak demand will continue to be monitored at that site by CDFW, and the overflow area could be opened if significant new demand is supported. In addition, both CDFW and the larger SBSP Restoration Project team would be willing to collaborate with other local agencies and provide assistance in adding parking in one of the surrounding areas.

L-EBRP-9

See response to comment L-EBRP-1 regarding the proposed public access for the action alternatives and response to comment L-EBRP-4 regarding the public access bridge over the ACFCC.

Port of Redwood City (L-PRC)

PORT OF REDWOOD CITY
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June 5, 2018

Ms. Brenda Buxton, Deputy Program Manager
California State Coastal Conservancy
1515 Clay Street
Oakland, CA 94111

Re: Comments on the South Bay Salt Pond (SBSP) Restoration Project Phase 2 Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for Eden Landing Ecological Reserve

Dear Ms. Buxton,

L-PRC-1

The Port of Redwood City (RWC) has been and continues to be a supporting neighbor and property owner to the SBSP Restoration Project. The Port's Redwood City Harbor federal navigation channel (RCH) is adjacent to the Don Edwards South S.F. Bay National Wildlife Refuge. Over 50,000 CY of the dredged material from the channel contributed to restoration of tidal marsh on the Refuge's Bair Island.

The Port has long been actively promoting the restoration of tidal marsh and the vital opportunity this Restoration Project provides for the beneficial use of dredged sediment to achieve the Project's habitat restoration and flood risk management goals in the South Bay.

The Eden Landing Ecological Reserve (ELER) tidal salt marsh restoration alternatives under consideration include construction of a large earthen bayfront feature as well as upland transition zones and/or raised pond bottom elevations. All of these restoration and/or flood protection features could make use of dredged material from nearby port navigation channels, the closest in proximity being the Port of RWC's federal channel. The proposed construction design concept(s) is described in the Draft EIS-EIR's Appendix E, "*Preliminary Design Memorandum of Dredged Material Placement at Southern Eden Landing*".

Another important related project, supported by the Port of RWC, is the California State Coastal Conservancy's non-federal cost-sharing proposal, ***Resilient San Francisco Bay Project***, for consideration as one of the ten selected projects in the beneficial use pilot program established by the U.S. Army Corps of Engineers pursuant to Section 1122 of the Water Resources Development Act of 2016. Eden Landing is one of the four placement sites that, when permitted upon the Final certification of the Draft EIS-EIR. would be eligible for dredged material placement under the new Resilient S.F. Bay Project, (if selected as one of the ten).

PORT OF REDWOOD CITY
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L-PRC-1 (cont.)

The Port of RWC fully endorses the ELER Phase 2 project and accompanying Draft EIS-EIR and Appendix E. The Port looks forward to the Final certified environmental document so that the ELER site permitting can be accomplished as soon thereafter as possible to enable dredged material placement for restoration and shoreline resilience.

Sincerely yours,

Michael J. Giari
Executive Director

Cc: LTC Travis Rayfield, San Francisco District Engineer, U. S. Army Corps of Engineers
Jason Brush, U. S. EPA, Region IX
Larry Goldzband, Executive Director, S.F. Bay Conservation and Development Commission
Bruce Wolfe, Executive Officer, S. F. Bay Regional Water Quality Control Board
John Krause, ELER Manager, CDFW
John Bourgeois, Executive Project Manager, SBS

Response to Port of Redwood City (L-PRC)

L-PRC-1

The project proponents appreciate your support of the project. As discussed in MCR 1, Selection of the Preferred Alternative, and MCR 4, Beneficial Reuse of Dredge Material, including Placement Locations, Purpose, Timing, and Impacts, the Preferred Alternative for Phase 2 at Eden Landing includes the potential beneficial reuse of dredge material to raise pond bottom elevations and to build habitat transition zones in several ponds. Dredge material would be placed in the Bay Ponds (Ponds E1, E2, E4, and E7) and may be used to raise portions of Ponds E5 and E6, depending on the eventual Adaptive Management Plan-informed decision about the long-term restoration of those ponds to tidal marsh.

Also note that, the SBSP Restoration Project proponents intend to accept dredge material for the beneficial reuse in project restoration actions if materials are available in the time frame needed for successful project implementation. As such, the project was developed such that if dredge materials were not available in an appropriate time frame, project implementation can proceed without such material. The project would benefit from the incorporation of dredge material but does not depend on it. The inclusion of beneficial reuse of dredge material in the Phase 2 Preferred Alternative at Eden Landing should not be interpreted as a commitment to wait indefinitely for that material to be supplied to the project site.

San Francisco Bay Trail Project, Bay Area Metro (L-SFBT)

May 18, 2018

Brenda Buxton, Deputy Program Manager
State Coastal Conservancy
1515 Clay St., 10th Floor
Oakland, CA 94612

Subject: **Comments on the Draft Environmental Impact Statement (EIS) and Environmental Impact Report (EIR) for the Eden Landing Ecological Reserve Phase 2 Project**

Dear Ms. Buxton:

L-SFBT-1

On behalf of the San Francisco Bay Trail Project, I am writing to submit comments on the Draft EIS/EIR for the Eden Landing Ecological Reserve Phase 2 Project (Phase 2 Project). The Bay Trail Project is a nonprofit organization administered by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) that plans, promotes, and advocates for the implementation of the Bay Trail. The Bay Trail is a planned 500-mile continuous network of multi-use bicycling and hiking paths that, when complete, will encircle San Francisco and San Pablo Bays in their entirety. It will link the shoreline of all nine Bay Area counties, as well as 47 cities. To date, 355 miles of the proposed Bay Trail system has been developed.

The core essence of the Bay Trail is the vision of a continuous shoreline trail that provides a "Bay" experience for bicyclists and pedestrians around San Francisco Bay. As a result, proximity to the Bay waters and environment as well as connectivity are key elements to successfully implementing the vision of the Bay Trail.

Since the realization of the South Bay Salt Pond purchase to return the salt ponds to the public, it has been the goal of the Bay Trail Project to move the Bay Trail alignment off of city streets along Union City Boulevard to an alignment that will provide Bay views and a "Bay" experience consistent with Bay Trail goals at Eden Landing.

After reviewing the draft EIS/EIR for the Phase 2 Project, we have the following comments:

1) We were surprised that the project did not explicitly include the goal of completing the entire Bay Trail alignment between the existing Bay Trail at Eden Landing Phase 1 and Coyote Hills Regional Park. To be consistent with the regional goals of completing the Bay Trail alignment, we believe that the Phase 2 Project should explicitly list the goal of

Ms. Brenda Buxton
May 18, 2018

L-SFBT-1

implementing the entire Bay Trail spine that connects Eden Landing Phase I to Coyote Hills Regional Park including the 600-foot-long bridge crossing the Alameda Flood Control Channel shown in Alternative C.

L-SFBT-2

2) As we stated in the NOP/NOI letter that we submitted for this project, Route 1 is the trail alignment that best meets the Bay Trail goal of providing a "Bay" experience and should be the alignment selected for implementation. The Route 3 trail alignment does not meet the goals of completing the Bay Trail spine or providing a "Bay Experience" and should be eliminated as a project option.

L-SFBT-3

3) The Phase 2 Project proposes to remove the Bay Trail alignment that would provide a "Blue Water" experience along Old Alameda Creek. We were surprised to read that the draft EIS/EIR described the trails provided with Eden Landing Phase 1 as providing a "similar" experience as the Old Alameda Creek Bay Trail alignment. The trails provided in Phase 1 absolutely do not replace the experience that would have been provided at Old Alameda Creek since none of those trails take you out to the shoreline edge of the Bay or provide a "Blue Water" experience. As such, we continue to see the removal of this alignment as a loss in trail and public access experience that must be mitigated.

L-SFBT-4

In addition, the new trails in Phase 1 still have not been officially submitted for inclusion as part of the Bay Trail alignment despite several requests.

L-SFBT-5

4) We were surprised that the draft EIS/EIR did not include a long-term maintenance plan or a specific proposal to ensure that the Bay Trail implemented as part of the project would be maintained for the long term and would be constructed to survive the anticipated sea level rise in the Bay. Other than the trails proposed in Alternative B and Route 2 in Alternative D, none of the trail proposals include improvement of the existing levees to widen them to Bay Trail standards and to ensure that the trails will survive long term including from the impacts of sea level rise. The very concept of the Bay Trail is predicated on creating interconnected permanent facilities. Much of the trail alternatives discussed in the EIS/EIR involve placing the Bay Trail on unimproved levees that will potentially be lost to deterioration, settlement, or sea level rise. This is patently unacceptable. The Phase 2 Project must include a long-term plan to maintain the trails implemented with this project and must build the trails to standards that will have longevity and be able to survive sea level rise.

L-SFBT-6

5) Related to long-term maintenance and creating opportunities to raise the proposed trails if necessary to respond to sea level rise, the Phase 2 project must create a buffer zone around the proposed trails to allow for trail rebuilds and raising the trail to address sea level rise. The Phase 2 Project cannot be proposed in a manner where the trails would not be able to be repaired or raised due to habitat being established right to the edge of trail and creating inherent conflicts between habitat and public access.

L-SFBT-7

6) The draft EIS/EIR often cites costs as reasons to not move forward with a trail alignment or trail design. The development of all Bay Trail alignments require partnerships that work together to secure funding from a multitude of funding sources. We consistently work with our partners to successfully find funding to develop trails as long as we have a clear and compelling vision for the trail. Instead of eliminating trail options and designs

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Ms. Brenda Buxton
May 18, 2018

L-SFBT-7 (cont.)

based on perceived cost issues, we believe the Phase 2 Project should work towards a trail alignment and design that addresses the issues that we outlined above and that fairly balances the goals of flood control, restoration, and public access.

The South Bay Salt Pond Project will be a jewel in the Bay and creating trails and access that allows the public to experience these spaces funded with many of their dollars including Measure AA will help to highlight not only this fantastic project but also support for future work like this. As stated in the EIS/EIR, "[t}he mission of CDFW is to manage California's diverse fish, wildlife, and plant resources, and the habitats on which they depend, for their ecological values and for **their use and enjoyment by the public**."

L-SFBT-8

The Bay Trail Project appreciates the opportunity to provide comments on the draft EIS/EIR for the Phase 2 Project and looks forward to working with the South Bay Salt Pond Restoration Project to identify a safe, usable, connected, and direct Bay Trail alignment consistent with Bay Trail goals. Please do not hesitate to call me at (415) 820-7915 if you have any questions regarding the above comments or the Bay Trail.

Sincerely,

Lee Chien Huo
Bay Trail Planner

3

Response to San Francisco Bay Trail Project, Bay Area Metro (L-SFBT)

L-SFBT-1

The goal of Phase 2 of the SBSP Restoration Project at Eden Landing, which was adopted from the 2007 Final EIS/R, is the restoration and enhancement of wetlands in the South Bay while providing for flood risk management and wildlife-oriented public access and recreation. As such, the public access options analyzed in the action alternatives include completing the Bay Trail spine along the eastern edge of southern Eden Landing in several different ways, depending on the Project's ability to acquire external properties or access easements.

As discussed in MCR 1, the Preferred Alternative includes Trail Route 1 and the public access bridge over the ACFCC. Trail Route 1 was chosen in part to provide a more bayward experience for trail users (Trail Route 1 is the westernmost of the three considered) and to minimize the amount of land acquisition or easements or agreements necessary from outside parties that would be necessary to complete it. The public access bridge over the ACFCC is included in the Preferred Alternative; however, it is important to acknowledge a few limits on what that inclusion means. First, neither the CDFW nor any of the other SBSP Restoration Project primary entities (the USFWS or the State Coastal Conservancy) owns the land on either side of the ACFCC. The Project therefore holds no unique ability or influence to obtain the necessary funding, permits, or property rights to actually build it. The construction of such a bridge, as with the completion of a portion of the proposed trail through southern Eden Landing, would require property acquisition at fair market value or a permanent public access easement. Therefore, the SBSP Restoration Project proponents/CDFW are unlikely to be the sole implementer of a public access bridge over the ACFCC on their own. As noted, building that bridge will require a substantial effort to acquire funding for and perform design, permitting, and construction, and to obtain necessary easements or property acquisition. This is very likely to need cooperation between a number of partner agencies to successfully implement. The SBSP Restoration Project has already begun contributing to that effort by providing NEPA and CEQA coverage for a bridge over the ACFCC.

L-SFBT-2

See response to comment L-SFBT-1 regarding the regarding the inclusion of Train Route 1 in the Preferred Alternative.

L-SFBT-3

As discussed in MCR 7, Public Access Trails (Routes, Elevations, and Parking), the action alternatives did not include a new trail all the way to San Francisco Bay along OAC because much of the necessary tidal exchange into the project site would come from OAC along the north perimeter of southern Eden Landing, through multiple breaches into OAC and levee lowering. Tidal exchange along OAC is required because the outer, bay-facing levee along Pond E1 and E2 would be improved and because only controlled openings into southern Eden Landing are possible on its southern boundary with the ACFCC. This makes it infeasible to place a trail to the Bay along that alignment. Section 3.6.4 of the EIR analyses the permanent removal of existing recreational features (trails) in locations that visitors have been accustomed to using and that would not be replaced in the general vicinity of the removed feature (Phase 2 Impact 3.6-2). A trail along OAC, although in the Bay Trail plan developed in the 1980's, is not an existing recreational feature. Therefore, the lack of this feature in the action alternatives does not represent a loss in trail and public access experience, nor does it require mitigation.

Note that MCR 1 describes the Preferred Alternative for Phase 2 at Eden Landing, which includes the Bay Trail through the southern half of Eden Landing to ACFCC on a route that minimizes the amount of land acquisition or easement agreements required from outside parties to complete it, reduces potential adverse impacts on sensitive wildlife species from use of public access features, and addresses as many of the goals or visions of plans such as the Association of Bay Area Governments' Bay Trail Plan as feasible to do while still maintaining existing levels of flood risk management and implementing Phase 2 tidal marsh restoration and enhanced managed ponds. Also note that the existing Alameda Creek Regional Trail extends to the Bay along Eden Landing's southern border. Although the ACFCC would be breached, that breach would be armored and bridged to retain public access to the Bay.

L-SFBT-4

This comment does not pertain to the adequacy or accuracy of this Phase 2 EIR. The project proponents/CDFW will continue to coordinate with the San Francisco Bay Trail Project regarding Phase 1 recreational features, as needed for formal designation of the Bay Trail spurs, and for the new Phase 2 Bay Trail spine segment.

L-SFBT-5

As discussed in MCR 1, Selection of the Preferred Alternative, and MCR 7, Public Access Trails (Routes, Elevations, and Parking), the Preferred Alternative includes a trail alignment through southern Eden Landing that would be located upon levees raised to a minimum elevation of 12 feet NAVD88, which is the same height as the proposed mid-complex levee. Because this trail alignment is intended to extend the Bay Trail spine through southern Eden Landing, the design of the levees would follow Bay Trail design guidelines with respect to trail width and surfacing, as practicable.

As discussed in MCR 3, Sea-Level Rise, although there is considerable uncertainty to the rate of sea level rise, particularly after about 2050 due to uncertainties in global carbon emission rates, there is a general consensus among scientists that sea levels near San Francisco are likely to increase by 4 to 6 inches by 2030, 7 to 13 inches by 2050, and 12 to 41 inches by 2100, relative to levels in 2000 (OPC 2018). Although improved levees may be subject to wave run-up, overtopping, and ponding at some point in the future, trails located on levees improved to 12 feet NAVD88 would generally be protected from coastal inundation from high tides during interim future conditions. Building the levees with wider bases to allow for future increases in elevations without adding more fill in waters of the U.S. and State of California or otherwise affecting endangered species habitat will also be considered during detailed design where feasible and reasonable.

Consistent with project goals and objectives, the intent of the project is to maintain or improve existing levels of flood risk management at adjacent and nearby properties. This project goal is one of the primary design objectives and will continue to be incorporated into the design as the project proceeds. Potential future impacts from long-term sea-level rise in San Francisco Bay are not project impacts for evaluation in the NEPA/CEQA document. MCR 3, Sea-Level Rise, and MCR 8, Maintenance Responsibilities, discuss the limits of CDFW's flood management responsibilities.

Finally, regarding maintenance of public access features, the SBSP Restoration Project proponents and the managers of CDFW's ELER are committed to participating in the ongoing provision of wildlife-compatible public access. The SBSP Restoration Project's approach to doing that at ELER has been for the Project to design, plan, permit, and build the public access features using the funding it has assembled from various sources. Then, one or more local project partners would be actively sought to participate in funding and performing the long-term maintenance of trails, bridges, viewing platforms (including signage, benches, etc.), with CDFW's involvement. This approach was successfully implemented in Phase 1 of the Project in northern Eden Landing during, in which the Project team and CDFW provided several new trails, viewing platforms, a kayak launch, and a public access parking area for ADA compliance. The East Bay Regional Park District provides ongoing operation of the Eden Landing Bay Trail spine and Staging Area, while CDFW provides maintenance of those newer Phase 1 features.

L-SFBT-6

See response to comment L-SFBT-5 regarding levee heights and widths for the Preferred Alternative.

L-SFBT-7

Section 3.6.3 of the EIR describes the trail route options analyzed in the action alternatives and provides an explanation of how and why Trail Route 3 was modified subsequent to the Phase 2 project scoping. Trail Route 3 was modified due to a range of potential environmental issues and costs including potential wetland/biological impacts, berm/fill geotechnical and structural issues, right of way ownership, and other concerns associated with the creation of either a retaining wall or boardwalk. Project costs were not the sole reason this trail route alignment was modified.

As discussed in MCR 7, Public Access Trails (Routes, Elevations, and Parking), Trail Route 1 was selected as the preferred alignment for the Bay Trail spine through southern Eden Landing. It was chosen in part to provide a more bayward experience for trail users (Trail Route 1 is the westernmost of the three considered) and to minimize the amount of land acquisition or easements or agreements necessary from outside parties that would be necessary to complete it. It address many of the goals and visions of regional recreational resource plans, such as the Association of Bay Area Governments' Bay Trail Plan, while still implementing the project's restoration and flood risk management objectives. In addition, the trail variant selected for the Preferred Alternative reduces potential adverse impacts on sensitive wildlife species by avoiding the southern levee at Pond E6C. This trail alignment was not selected due to project costs, nor would it have been the least expensive trail route to implement.

L-SFBT-8

The project proponents will continue to coordinate with the San Francisco Bay Trail Project regarding Phase 2 recreational features at Eden Landing.

2.2.3 Organizations and Businesses

Comments from organizations and businesses and the responses to those comments are presented in this section.

Alameda Creek Alliance (O-ACA)

Alameda Creek Alliance

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April 25, 2018

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Re: Alameda Creek Alliance Comments on Phase 2 Eden Landing DEIR

O-ACA-1

These are the comments of the Alameda Creek Alliance on the draft Environmental Impact Report/Statement for the Phase 2 Eden Landing project.

The Alameda Creek Alliance is a community watershed group with over 2,000 members, dedicated to protecting and restoring the natural ecosystems of the Alameda Creek watershed. Our organization has been working to restore steelhead trout and protect endangered species in the Alameda Creek watershed since 1997. A consortium of local, state and federal agencies has been working since 1999 to restore steelhead trout and salmon to Alameda Creek, which is considered an "anchor watershed" for salmonid restoration in the entire Bay Area.

We generally support project Alternative B, restoration of all 11 southern Eden Landing phase 2 salt ponds to full tidal marsh, in one stage. Restoring the entire project area to tidal marsh would be the most beneficial alternative for steelhead trout in Alameda Creek.

We support multiple points of access to the restored tidal marshes from lower Alameda Creek, the Bay, and Old Alameda Creek channel, to increase connectivity between fish habitats and reduce predation risk for steelhead. We support breaches of existing levees or levee alterations to provide maximum connectivity for fish from the Alameda Creek Flood Control Channel, the Bay and Old Alameda Creek channel to the restored wetlands.

We support construction of a pilot channel to allow passage of steelhead from Alameda Creek into the Bay Ponds E2 and E4. Rather than a water control structure at this location, we support a larger breach of the levee (which we understand has been determined not to increase flooding risk) to improve fish access to and from the restored marsh.

We support raising any levees in the project area where required to manage flood risk, to safely allow maximum connection of tidal marshes to lower Alameda Creek. We specifically support the proposed raising and improvement of approximately 2 miles of the existing Bay-facing levees of Ponds E1 and E2. This would prevent wave overtopping and subsequent scour and erosion of the restoring marsh in the Bay Ponds behind it; provide a habitat transition zone; and could make it possible to breach more of the interior levees to improve fish movement. We support the proposed placement of root wads and logs outside of Pond E2 to help trap sediment and form beach-like areas while providing some erosion protection.

We support all feasible levee lowering that does not cause flooding risk, to increase hydraulic and fish connectivity between channels and marshes.

O-ACA-1 (cont.)

We support connections to Union Sanitary District treated water and ACWD Aquifer Reclamation Program wells to allow for freshwater and brackish water inputs to restored marshes, to create water habitat transition zones beneficial to fish.

O-ACA-2

Attached is a memo prepared by expert fish biologists (Tim Caldwell and Scott McBain of McBain Associates, and Natalie Stauffer-Olsen, California staff scientist with Trout Unlimited) regarding Eden Landing restoration plan alternatives, relative to benefits and impacts to anadromous steelhead trout. The McBain Associates memo summarizes relevant literature and expert opinions on how steelhead may use the restored Eden Landing salt ponds and risks to steelhead which may be associated with project alternatives, such as predation risk, connectivity, and water quality. McBain Associates provides recommendations of project elements that could benefit steelhead, as well as monitoring and research that could better inform final design and implementation.

McBain Associates reviewed literature and solicited expert opinion on the use of California coastal estuaries by juvenile steelhead, with the assumption that steelhead may utilize restored ponds similarly to estuarine habitat. While restored salt ponds will not necessarily function the same way that an estuary would, they expect some similarities during certain seasons and hydrological conditions. Their main suggestions involve reducing predation risk, increasing habitat connectivity and providing suitable water quality for steelhead.

McBain Associates note that if juvenile steelhead can access restored salt ponds effectively and with suitable habitat conditions (i.e. dissolved oxygen, salinity, and water temperature) they have the potential to grow at a higher rate. This is significant because juvenile rearing habitat is currently limiting in Alameda Creek and salt pond restoration has the potential to increase the rearing habitat available and increase juvenile fish growth rates, and subsequent survival.

McBain Associates recommend that multiple points of connectivity between the Alameda Creek Flood Control Channel, the Bay and Old Alameda Creek channel with the restored ponds are critical for juvenile steelhead to best utilize the restored marsh habitat when suitable environmental conditions exist. Multiple points of access will increase connectivity between habitats and allow steelhead to move freely and efficiently between potentially fertile nursery areas in restored marshes and freshwater habitats.

McBain Associates recommend identifying potential freshwater sources and inputs to the restored ponds that could dilute salinity and create a brackish system which would likely result in more suitable rearing habitat for juvenile steelhead. Since there is uncertainty about the salinity levels that juvenile steelhead will be able to endure, they recommend water quality modeling or monitoring to determining the suitability for juvenile steelhead rearing in the restored ponds. Steelhead are adapted to thrive in certain temperature and dissolved oxygen ranges, and seek refuge in freshwater when conditions became unfavorable. Water quality monitoring and/or water quality modeling could determine the sub-daily levels of dissolved oxygen and temperatures that would occur in the restored ponds.

McBain Associates note that predation by introduced fish could be high at levee breach and water control structure access points to restored ponds, where predators are likely to congregate. Providing more than one breach, wider breaches or the maximum number of breaches possible along the Alameda Creek Flood Control Channel and on the bay side of the ponds would likely dilute predation pressure. McBain Associates suggest monitoring predator use of breaches, water control structures and restored ponds if a phased approach is taken, to help inform design of phase two.

O-ACA-3

Finally, McBain Associates recommend addition of pools (with cover) with a residual depth of 2–3 feet to provide juvenile steelhead refugia should they become entrained within restored ponds. Structure cover, such as large wood, could also be added to these areas to provide cover to juvenile steelhead to reduce predation risk by birds, mammals, or other fish.

O-ACA-3 (cont.) Habitat and depth diversity is important for native fish, but very deep, straight channels should be minimalized. Monitoring of the Napa River salt marsh restoration found that only non-native fish species such as striped bass used man-made, deeper channels, while native fishes generally used shallow margins.

O-ACA-4 We also support investigating whether high food production habitat areas can be created in the restored ponds which do not get flushed each tidal cycle, without causing entrainment of fish. Slowing down water movement and allowing water and food to spread out and accumulate in shallows and finger channels is essential to food production and can provide rich foraging opportunities for many native fish species. We note that potential entrainment of salmonids and estuarine fish would likely be higher in managed ponds than in restored tidal marsh.

O-ACA-5 As far as proposed recreational trails, we generally support all proposed recreation and public access where it does not severely impact native wildlife or habitats. One way to reduce anticipated trail impacts to snowy plovers, such as along the Bay Trail spine, would be to seasonally close those trail segments during plover nesting season or require docent-led access during that period, with open access the rest of the year.

Thank you for your consideration of these comments.

Sincerely,

Jeff Miller
Director

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June 23, 2017

Comments on the Eden Landing Salt Pond Complex Restoration Plan Alternatives Relative to Anadromous Steelhead *(Onchorhynchus mykiss)*

Prepared for: Alameda Creek Alliance

Prepared by: Tim Caldwell, McBain Associates
Natalie Stauffer-Olsen, Trout Unlimited
Scott McBain, McBain Associates

O-ACA-6

INTRODUCTION

A large purchase of solar salt production ponds in the Southern San Francisco Bay by the United States Fish and Wildlife Service and the California Department of Fish and Wildlife was done to restore the salt ponds to tidal marshes. This has become known as the South Bay Salt Pond Restoration Project. The goals of this project are to restore the salt ponds to ecologically functional tidal marshes and wetlands that provide habitat for wildlife, birds, and aquatic organisms, provide public access for wildlife viewing and recreation, and flood management in the Southern San Francisco Bay. There are three pond complexes that are undergoing restoration, Alviso, Ravenwood, and Eden Landing. The subject of this comment is the Eden Landing complex, which is currently in phase 2 of restoration planning. Phase 2 of the Eden Landing Complex is steered at restoring and enhancing ponds south of Old Alameda Creek. The purpose of this document is to provide comment on the restoration alternatives for the Eden Landing Complex on behalf of the Alameda Creek Alliance, specifically on the potential benefits and risks associated with the alternatives to steelhead (*Onchorhynchus mykiss*) and other anadromous fish that may use the restored ponds.

There is very little scientific information available that describes the use of restored salt ponds by juvenile *O. mykiss*. To prepare these comments, we reviewed literature on the use of coastal estuaries by juvenile *O. mykiss*, with a focus on systems from California, with the assumption that *O. mykiss* may utilize restored ponds similarly. Secondarily, we initiated correspondence with many of the lead authors on these papers to get their current opinion and hypotheses on the role the salt pond restoration may play in benefiting juvenile *O. mykiss* through increased growth, survival, and fitness.

First, we summarize the relative literature and expert opinions on how *O. mykiss* may use the restored salt ponds and risks to *O. mykiss* which may be associated with project alternatives. We also provide a recommendation of the preferred alternative and comment on potential changes that could be made based on the reviews of literature and expert opinion, with a focus on benefits for *O. mykiss*. We then conclude with recommendations on monitoring and research that could be done in the near term to better inform final design and implementation of Eden Landing Phase 2 that may better benefit *O. mykiss*.

O-ACA-6 (cont.)

SUMMARY OF LITERATURE PERTINENT TO THE USE OF TIDAL MARSHES AND RESTORED PONDS BY SALMONIDS IN THE SOUTHERN SAN FRANCISCO BAY

1) **Hobbs, J, (2015). Steelhead smolt outmigration and survival study: Year 2 Stream Surveys.**

   Summary of research: Researchers attempted to determine how juvenile *O. mykiss* from Guadalupe River would utilize a water control structure on managed salt ponds in the Alviso Salt Pond Complex Restoration project. Ultimately, the goal was to understand if juvenile *O. mykiss* were at a risk of entrainment or if they successfully utilized the habitat as a rearing area that increased growth rates, survival and population. They also determined how predators such as striped bass may have utilized water control structures for predation. In 2014, 32 juvenile *O. mykiss* were PIT tagged in Guadalupe River and tracked with PIT antennae placed at 3 of the 5 slots on the water control structure at the A8 pond notch. In addition, 18 Striped Bass (*Morone saxatilis*) were tagged near the notch. Unfortunately, the antennae did not cover the entire A8 notch and one of their antenna was destroyed by high flows, thus they were only able to asses 2 of the 5 slots in the water control structure. None of the *O. mykiss* tagged in Guadalupe River were detected at the A8 notch; however, the researchers suggest that it may have been due to poor coverage (3 slots were not instrumented) of the antennae. While none of the tagged *O. mykiss* were detected, 3 different *M. saxatilis* were detected, and one of the fish was detected multiple times, suggesting it was spending significant time in the notch habitat. This provides evidence to suggest that predators will target breaches, and with only one breach per pond, the risk of predation to juvenile *O. mykiss* would be high. The researchers also interviewed anglers that frequent the notch and reported that *M. saxatilis* up to 50 lbs have been caught there and sometimes 50 fish per day.

   Potential implications for the Eden Landing Complex restoration: This paper suggests that predation rates could be high at breaches and water control structures, and it is unclear if *O. mykiss* will access the restored ponds or how they could become entrained. The maximum number of breaches possible would likely dilute predation pressure at any one water control structure/breach.

O-ACA-7

2) **Hayes, S.A., et al. (2008). Steelhead growth in a small central California watershed: Upstream and estuarine rearing patterns. Transactions of the American Fisheries Society. 137:114–128.**

   Summary of research: The goals of this paper were to assess and compare growth rates in stream rearing habitat and estuary rearing habitat in a typical coastal California watershed (Scott Creek). The authors tagged and recaptured juvenile *O. mykiss* to determine growth rates among habitats. The *O. mykiss* that were rearing in the stream grew at 0.01% per day during summer, while those rearing in the estuary grew at a significantly higher rate (0.2–0.8% per day). This suggests that *O. mykiss* which reared in the estuary grew larger and had a higher probability of ocean survival and returning to spawn as an adult.

O-ACA-7 (cont.)

Potential implications for the Eden Landing Complex restoration: This paper suggests that if juvenile *O. mykiss* could access the salt ponds effectively and with suitable habitat conditions (i.e. dissolved oxygen, salinity, and water temperature) they have the potential to grow at a higher rate. This is significant because juvenile rearing habitat is currently limiting in Alameda Creek and salt pond restoration has the potential to increase the rearing habitat available. However, there is considerable uncertainty in the salinity levels that the fish will be able to physiologically endure. The current design may not allow enough freshwater to enter the restored ponds, which may reduce the ability of *O. mykiss* to rear within the restored ponds.

O-ACA-8

3) **Bond, M.H., et. al., (2008). Marine survival of steelhead (*Oncorhynchus mykiss*) enhanced by a seasonally closed estuary. Canadian Journal of Fish and Aquatic Sciences. 65: 2242–2252.**

Summary of research: In this publication, the researchers continued analysis from Hayes et. al. (2008), and determined the adult spawning return rate and size of ocean entry by juveniles from estuary reared and stream reared *O. mykiss* in Scott Creek, CA. This was done using PIT tagged fish and by back calculating the size of juvenile at ocean entry from returning adults via a fish scale radius to fish length regression. Based on the tagged fish analysis, 87% of returning adults had spent time rearing in the estuary. Via the scale and length analysis, the authors estimate that 95% of the returning adults were estuary reared fish. This suggests that fish which rear in the estuary for the summer before entering the ocean in the fall grow to a significantly larger size and have a higher probability of ocean survival than those which only reared in the estuary.

Potential implications for the Eden Landing Complex restoration: This study supports a hypothesis that if juvenile *O. mykiss* can access the restored tidal pond without significant predation, entrainment associated mortality, and with favorable water quality conditions, then restoration may help alleviate a likely juvenile rearing constraint on the Alameda Creek water shed. Higher growth rates and larger size smolts will increase their probability of ocean survival and returning to spawn as adults. However, in the current design, salinity levels may be too high for juvenile *O. mykiss* to utilize the habitat.

O-ACA-9

4) **Cannata, S.P. (1998). Observations of steelhead trout (*Oncorhynchus mykiss*), Coho Salmon (*O. kisutch*) and water quality of the Navarro River Estuary/Lagoon, May 1996 to December 1997.**

Summary of research: This paper described the use of a coastal estuary/lagoon system in Northern California by *O. mykiss* and Coho Salmon (*Oncorhynchus kisutch).* In addition, the research assessed dissolved oxygen, salinity, and temperature to determine if parts of the estuary became unable to sustain salmonid life (i.e. anoxic or hyper-saline environments). The research documented use of the estuary system throughout the entire year by young-of-year, age-1 and age-2 juvenile *O. mykiss.* In a comparison between estuary reared and river reared *O. mykiss* that were greater than 110 mm in length, fish from the estuary had a higher body weight. The authors also suggest that a large proportion of the juvenile *O. mykiss* population utilizes the estuary for rearing year-round.

O-ACA-9 (cont.)

Water quality was measured with the goal of relating temperature, dissolved oxygen, and salinity to fish abundance. They observed that once the estuary became completely closed off from tidal influences from sand bar formation, a halocline forms. A halocline forms when there is a difference in salinity levels along a depth gradient, with the warmer and denser saline water settled below the cooler and less dense freshwater is at the top. This is most apparent in the areas closest to the ocean. Because of this phenomenon, habitat can increase or decrease relative to streamflow. For example, in years with low streamflow, areas stratified by the halocline may be larger relative to years with higher streamflow, because less freshwater is delivered and the potential of the halocline breaking down decreases. When the estuary is stratified by levels of salinity, concentration of dissolved oxygen and temperature reach lethal levels for juvenile salmonids in the deeper waters and fish mush seek out refuge in surface waters, nearshore zones, or areas further upstream, which was observed by this study.

Potential implications for the Eden Landing Complex restoration: This study provides evidence to suggest that *O. mykiss* would utilize tidal areas if they are provided safe access. In addition, this study highlights the importance of water quality within the tidal area. Water quality models should be developed for the ponds being restored to determine if environmental conditions would be suitable for *O. mykiss* if they were in the ponds.

O-ACA-10

5) **Zedonis, P.A. (1990). The biology of juvenile steelhead (*Oncorhynchus mykiss*) in the Mattole River estuary/lagoon. Master's Thesis. Humboldt State University.**

Summary of research: This study was similar in design and outcome to Cannata et. al. (1998). Juvenile *O. mykiss* catch per unit effort and population estimates were made for lower and upper areas along the Mattole River Estuary. Results suggest that juvenile *O. mykiss* utilize the estuary for rearing year-round. However, during summer and when the estuary becomes closed off, the formation of a halocline can limit habitat as dissolved oxygen concentration and temperature reach lethal levels in the deep-water areas closest to the ocean. This effect is particularly problematic during low streamflow years. This study also examined diet of juvenile *O. mykiss* in the estuary, which were dominated by invertebrates and there was no evidence of food limitation.

Potential implications for the Eden Landing Complex restoration: This study suggests that estuaries (most comparable habitat to restored salt ponds with information on *O. mykiss*) are highly fertile nursery areas, and under the right water quality conditions could increase growth rates of juvenile *O. mykiss*. Water quality modeling or monitoring would be beneficial in determining the suitability for juvenile *O. mykiss* rearing in the restored ponds. Similarly, identification of a freshwater source that would dilute salinity and create a brackish system would likely result in more suitable rearing habitat for juvenile *O. mykiss*. In the current plan, salinity maybe too high for *O. mykiss* to successfully utilize the restored ponds. Monitoring of fish movement and habitat selection would be beneficial in determine how well they could utilize the restored ponds.

O-ACA-11 **SUMMARY OF EXPERT OPINIONS PERTINENT TO THE USE OF TIDAL MARSHES AND RESTORED PONDS BY SALMONIDS IN THE SOUTHERN SAN FRANCISCO BAY**

1) Dr. James Hobbs (University of California – Davis)

Dr. Hobbs was the author on the first paper reviewed above which was the only study that examined use of the salt ponds by *O. mykiss*. His main concerns about design were predation risks at breach points, which was observed from his study which noted the presence of predators at breach points and water control structures. To avoid this, multiple breach points for each pond are ideal so that *O. mykiss* avoid congregating in one location where they are vulnerable to predators. Dr. Hobbs also recommends not doing any managed ponds and to use the full tidal restoration alternatives. In addition, he suggests that breaching ponds in order furthest from bay to closest to bay is recommended so that sediment does not accumulate in the closest to bay pond and block natural restoration of those furthest from the bay. Dr. Hobbs also suggests that if the ponds are designed to benefit *O. mykiss, O. tshawtscha* (Chinook Salmon) would also benefit.

O-ACA-12 **2) Mike Wallace (California Department of Fish and Wildlife)**

Mike Wallace has authored reports on the use of juvenile *O. kisutch* (Coho Salmon) in Humboldt Bay. Based on his observations and studies on *O. kisutch,* Mr. Wallace stressed considerable uncertainty about how *O. mykiss* may use the restored ponds, but would likely result in some use. His primary concern was about the water quality issues that may arise in the restored ponds, and that it is possible that short term anoxic conditions could be detrimental to any *O. mykiss*, and suggests that water quality be modeled. He also suggests adding deeper pools and large wood cover to the restored tidal ponds, which may act as refugia for juvenile *O. mykiss* to reduce stranding mortality and predation during the tidal cycles.

O-ACA-13 **3) Dr. Morgan Bond (NOAA)**

Dr. Bond was an author of one of the peer reviewed papers above (Bond et al. 2008), and suggests that there is no real comparable habitat to the tidal ponds, so finding peer-reviewed literature and white papers may be difficult. She reiterated her results from the paper and suggests there could be considerable movements between the streams and restored ponds over a large variety of time scales (i.e. from daily to annual movement). The ability to search for and forage in preferred habitat likely increases growth through increased food availability, and condition through improved water quality conditions such as temperature, DO, and salinity.

O-ACA-14

COMMENTS ON PLAN ALTERNATIVES

We feel that it is beneficial that the plan alternatives included designs that could facilitate the use of the restored ponds by juvenile *O. mykiss* as rearing habitat through breaches and tidal restoration. Based on our literature reviews and interviews, we believe that providing adequate access to the ponds and ensuring favorable water quality would likely allow juvenile *O. mykiss* to grow at a faster rate and out-migrate at a larger size, which increases the probability of ocean survival and returning to spawn. However, based on our review of literature, contact with experts, and our own opinions we do have some comments to the plan alternatives. Below we summarize our concerns with the plan alternatives: predation risk, connectivity, and water quality.

1) Predation Risk

Alternative plans B–D included various breaches and channel constructions that have the potential to be utilized by juvenile *O. mykiss* for rearing habitat. However, these plans included only one breach for each pond, which may increase the risk for predation on juvenile *O. mykiss* as predators are likely to congregate at the breaches (Hobbs 2015). We suggest that along the Alameda Creek Flood Control Channel (ACFCC) and on the bay side of the ponds, multiple breaches be put in place on each pond to decrease the potential of predation at pond breaches. The addition of the bay side breach would allow easier out migration and connectivity with the Bay, while simultaneously reducing the risk of predation. Monitoring predator use could also be done in the current Phase 1 portion of the Eden Complex to better understand the risk of predation to juvenile *O. mykiss* and help inform design of Phase 2.

O-ACA-15

2) Connectivity

The breaches and channel construction in the current plan alternatives provide only a single location in and out of each pond. Based on our literature review, we feel that multiple points of connectivity are critical for juvenile *O. mykiss* to best utilize the pond habitat when suitable environmental conditions exist. For example, Bond et al. (1998) and Cannata (1998) suggest that in most estuaries, *O. mykiss* must be able to move freely and efficiently between estuary and freshwater habitats to successfully utilize the fertile environments provided by the estuary. While salt ponds will not necessarily function the same way that an estuary will, we expect some similarities during certain seasons and hydrological conditions. Thus, we suggest creating multiple points of access to each pond along the ACFCC and the bay to increase connectivity between habitats. To help inform the design of Phase 2, monitoring of juvenile *O. mykiss* habitat use of Phase 1 could be done. This would determine the level of connectivity required to make the habitat suitable and be valuable in the design of breaches.

O-ACA-16

3) Water Quality

O. mykiss are adapted to thrive in certain temperature and dissolved oxygen ranges, and levels too far outside of those ranges can be stressful or lethal. Studies have found that *O. mykiss* utilize estuaries, but seek refuge in freshwater when conditions became unfavorable (Hayes et al. 2008, Cannata 1998). To address this concern, we suggest water quality monitoring and/or water quality modeling to determine the sub-daily levels of dissolved oxygen and temperatures that would occur in the restored ponds. The Eden Landing Phase

O-ACA-16 (cont.)

1 project provides a unique opportunity to conduct this type of monitoring and research. For example, water quality monitoring (particularly water temperature and salinity) could be performed to evaluate seasonal rearing habitat suitability at a nearby site to inform Phase 2 designs. We also suggest the addition of pools (with cover) with a residual depth of 2–3 feet to provide juvenile *O. mykiss* refugia should they become entrained within the ponds. Structure cover, such as large wood, should also be added to these areas to provide cover to juvenile *O. mykiss* to reduce predation risk by birds, mammals, or other fish.

O-ACA-17

RECOMMENDATIONS

Based on current information available on potential *O. mykiss* use of restored tidal marsh/ponds, Alternative B would be most likely to benefit to juvenile *O. mykiss* because it provides full tidal restoration and does not include any managed ponds, thus providing the most amount of habitat for juvenile salmonids. We would like to see uncertainties regarding predation, connectivity, and water quality can be addressed in the upcoming design phases (30% to 100% designs). We also support a phased restoration approach with an adaptive management plan and S.M.A.R.T. (specific, measurable, achievable, relevant and time-bound) goals and objectives to measure success of the first phase(s) and to inform subsequent phases of the restoration.

O-ACA-18

Given the considerable uncertainty about how *O. mykiss* will utilize the newly restored habitat, we recommend monitoring and research which will aid in the adaptive management plan for the pond restorations. For example, we suggest considering fish tagging efforts on the Eden Landing Phase 1 followed by monitoring after the Phase 2 monitoring restoration project to help better understand how fish utilize the restored ponds and better inform the design and monitoring or modeling of water quality within the restored ponds to determine habitat suitability for *O. mykiss*. Directly tagging *O. mykiss* would be the most effective way of monitoring *O. mykiss* use of the restored salt ponds; however, Alameda Creek has a very small population of wild *O. mykiss,* thus any tag-induced mortality could be very detrimental. Similarly, tagging hatchery produced *O. mykiss* and releasing them would dilute the genetic pool of the current wild population, and is therefore not recommended. As an alternative, we suggest that tagging hatchery juvenile *O. tshawytscha* (Chinook Salmon) be considered to monitor the use of the restored ponds by anadromous salmonids. While *O. tshawytscha* and *O. mykiss* will likely utilize the restored habitat differently for their different life stages, monitoring juvenile *O. tshawytscha* habitat use would still provide improved understanding of how anadromous salmonids may utilize restored salt ponds.

O-ACA-19

Given the substantial amount of resources and time spent restoring the Eden Landing Complex salt ponds, we believe that it is best to review all plans in detail to best inform the design so that it will be beneficial ecologically. Based on our literature review and input from experts, this restoration project, with the appropriate design, could help support the recovery of an *O. mykiss* population in Alameda Creek, as well as benefit anadromous salmonid production from other bay area streams. We look forward to continuing our engagement in the design and plans by providing relevant scientific and design input.

Response to Alameda Creek Alliance (O-ACA)

O-ACA-1

See MCR 5, Fish Habitat Restoration, which provides a broad explanation of the types of fish habitat restoration and enhancements included in the Preferred Alternative for implementation as part of the Phase 2 project at Eden Landing. To facilitate fish passage between the ACFCC and the restored ponds, the Preferred Alternative includes the maximum number of connections outlined in the Draft EIS/R: two connections to the Bay Ponds and one to the Southern Ponds. One of the connections between the Bay Ponds and the ACFCC will no longer be through large culverts, as initially described, but instead through a full breach. The other two connections would be through culverts. The Bay Ponds would be opened to tidal flows from several breaches on the northern border with OAC and from two locations along the southern border with the ACFCC and there would be interior breaches to connect the four Bay Ponds to each other. The Southern Ponds would be opened to muted tidal flows through a culvert system, making them accessible to salmonids as well. Pilot channels, lowered levees at Ponds E1 and E2, and improvements to the bay-facing levee, are also included in the Preferred Alternative.

The Inland Ponds (E5, E6, and E6C) are not planned for tidal restoration in the Preferred Alternative during the first phase of restoration because of the Project's need to balance multiple types of habitat restoration and enhancement actions. The long-term operation of those ponds as enhanced managed ponds may be necessary to achieve the full balance of the Project's intended ecological goals unless monitoring and implementation of the Adaptive Management Plan provide a basis for determining that tidal restoration of Ponds E6 and E5 is most beneficial. Similarly, Pond E6C is proposed to be enhanced and maintained as seasonal habitat for western snowy plover and other pond nesting birds in the summer, while providing deeper open water for overwintering diving ducks and dabbling ducks, among other migratory shorebird species during the spring and fall migration periods. Although connections to Union Sanitary District treated water and ACWD Aquifer Reclamation Program wells are not currently proposed, later connections by others would not be prevented by project actions.

O-ACA-2

The attachment was reviewed and considered during selection of the Preferred Alternative. Specific issues raised by McBain Associates are addressed below in response to comments O-ACA-6 through O-ACA-19. As discussed in response to comment O-ACA-1, the Preferred Alternative includes fish habitat restoration and enhancement features intended to reduce predation risk and increase habitat connectivity between the ACFCC and the ponds, within the ponds themselves, and between the ponds and OAC.

O-ACA-3

The addition of pools and structural cover will be further considered during detailed design. As discussed in MCR 2, Details of Designs, the SBSP Restoration Project Management Team is committed to implementing lessons learned through its own Adaptive Management Plan as well as through the insights and contributions of knowledgeable people in regulatory agencies, research bodies, nongovernmental or advocacy organizations, and the public. As designs proceed, many of the suggested refinements will be incorporated into the design where feasible and appropriate. Also note that a bottom elevation of -4 feet NAVD88 was chosen for many of the pilot channels in the Bay Ponds to allow for about 1 foot of water in the channels during the lowest spring tide to prevent fish stranding (discussed in Appendix D). During mean lower low water (-1.1 feet NAVD88), about 3 feet of water would remain in the channels.

O-ACA-4

One of the primary design goals for the tidally restored ponds is to regularly fill and drain. The filling increases exchange and allows sediment accretion throughout the pond's interior, while the draining allows for vegetation growth in the restored marsh. As bottom elevations increase, pools and pockets may develop that hold water. Even in the short-term, transition zones to upland areas may not be fully flushed on a daily basis and differential settling may create some areas that pool. The SBSP Restoration Project proponents support adaptive management and science-based monitoring. Estuarine fish would be monitored as per the Adaptive Management Plan. Species richness and abundance of native fish species would be monitored in a range of habitats including restored marshes and associated unvegetated shallow water areas, major and minor sloughs, and deep and shallow-water ponds. Some of these habitats would likely be high food-production habitat.

O-ACA-5

As discussed in MCR 1, Selection of the Preferred Alternative, and MCR 7, Public Access Trails (Routes, Elevations, and Parking), the trail route chosen for the Preferred Alternative was selected, in part, to reduce potential adverse impacts on sensitive wildlife species from use of the spine trail open year-round (no long-term seasonal closures, except for approximately 10 days in November through January for sport waterfowl hunting).

O-ACA-6

As discussed in response to comment O-ACA-1 and MCR 5, Fish Habitat Restoration, ACFCC would have two connections to the Bay Ponds and one to the Southern Ponds in the Preferred Alternative. One of the connections between the Bay Ponds and the ACFCC will no longer be through large culverts, as initially described, but instead through a full breach. The other two connections would be through culverts. Because the Southern Ponds would have a single connection which can have higher predation rates than multiple connections, CDFW intends to operate the water control structure there under careful monitoring in the early years to evaluate whether this dynamic occurs. If adverse conditions develop, the Southern Ponds could be operated more as managed ponds and not left open to constant muted tidal flows, consistent with an adaptive management approach to the phased restoration by the SBSP Restoration Project.

O-ACA-7

As discussed in MCR 5, Fish Habitat Restoration, the Preferred Alternative includes multiple connections between the ACFCC and the southern Eden Landing ponds which would provide increased habitat connectivity for migrating salmonids and other native fish. As per the Adaptive Management Plan, estuarine fish would be monitored in foraging and rearing habitats within the project. Water quality parameters such as dissolved oxygen would also be monitored. Note that salinity and water temperature would be set by ambient conditions: the estuarine environment would reflect the combined mixture of fluvial flows and water from the Bay that passes through breaches and culverts, with the interior of the ponds generally expected to be well mixed due to tidal exchange. As such, salinity is expected to be lower when there is high fluvial outflow.

O-ACA-8

See response to comment O-ACA-7.

O-ACA-9

As described in response to comment O-ACA-4, one of the primary design goals for the restored tidal ponds is to regularly fill and drain. The filling increases exchange and allows sediment accretion throughout the pond's interior, while the draining allows for vegetation growth in the restored marsh. The creation of pilot channels would facilitate the filling and draining of the ponds. Small channels are expected to form on the pond bottoms which also facilitate drainage. Although sediment accretion would raise bottom elevations, the formation of a feature such as a sand bar that inhibits tidal exchange throughout the pond interior and creates a halocline is not expected when regularly inundated. When marsh habitat is fully developed, some pools and pockets may develop that hold water which does not get regularly flushed with the tides, but channel development should occur allowing smaller channels and pond interiors to drain to deeper channels expected to fully drain to the Bay. This expectation of a well-mixed environment is supported by the results of the two dimensional hydrodynamic modeling conducted for the preliminary design (see Appendix D, Attachment 1). As discussed in Section 3.3.3 of the EIR, dissolved oxygen concentrations are correlated with hydraulic residence time and when mixing is high, hydraulic residence times are typically short and dissolved oxygen concentrations remain high.

O-ACA-10

See response to comments O-ACA-7 and O-ACA-9. Also note that the Navarro River and Mattole River estuaries/lagoons have limited tidal exchange due to long-shore transport of beach sand which blocks the opening at the mouth of the estuary. This differs from restored tidal ponds where the tidal prism would be increased due to breaches in the Bay Ponds and where the downgradient habitat is predominately mudflats (not sandy beaches). Conditions near the breach locations are expected to be erosional, not depositional, after restoration due to the increased tidal prism. (This has been the case at other restored ponds, such as the Island Ponds in Alviso, Napa Plant site, and North Bay salt ponds.) As such, the Bay Ponds are expected to well mixed and fill and drain with water from Alameda Creek, OAC, and the Bay, on a twice daily basis.

O-ACA-11

See response to comments O-ACA-1 and MCR 5, Fish Habitat Restoration, regarding the fisheries restoration features of the Preferred Alternative. Implementing the suggested breaching sequence for the ponds will be further considered during detailed design, but the restoration of the Bay Ponds is expected to be first, then other pond groupings.

O-ACA-12

As per the Adaptive Management Plan, estuarine fish would be monitored in foraging and rearing habitats within the project. Water quality parameters such as dissolved oxygen would also be monitored. Note that anoxic conditions are not expected to develop in the Bay Ponds if it fully fills and drains with the tides and multiple connections to OAC and to the ACFCC will facilitate tidal exchange. As discussed in response to comment O-ACA-6, if adverse conditions develop, the Southern Ponds could be operated more as managed ponds and not left open to constant muted tidal flows, consistent with an adaptive management approach to the phased restoration by the SBSP Restoration Project.

O-ACA-13

As discussed in response to comment O-ACA-1 and MCR 5, Fish Habitat Restoration, multiple connections between ACFCC and the Bay Ponds are intended to provide habitat connectivity and access to potential foraging and rearing habitat in the ponds.

O-ACA-14

As discussed in MCR 5, Fish Habitat Restoration, the Preferred Alternative includes multiple connections between the ACFCC and the southern Eden Landing ponds which would provide increased habitat connectivity for migrating salmonids and other native fish. However, the bay-facing levee, including Pond E2 west levee, would be improved, rather than breached. The improved levees are expected to maintain or improve flood risk management and reduce the potential for scour of the restored habitat.

Estuarine fish would be monitored in the restored area as per the Adaptive Management Plan. As discussed in response to comment O-ACA-6, because the Southern Ponds would have a single connection which can have higher predation rates than multiple connections, the SBSP Restoration Project team intends to operate the water control structure there under careful monitoring in the early years to evaluate whether this dynamic occurs. If adverse conditions develop, the Southern Ponds could be operated more as managed ponds and not left open to constant muted tidal flows, consistent with an adaptive management approach to the phased restoration by the SBSP Restoration Project.

O-ACA-15

See response to comments O-ACA-1 and MCR 5, Fish Habitat Restoration, regarding habitat connectivity. See response to comment O-ACA-14 regarding improvement to the bay-facing levee. Also note that steelhead and estuarine fish were monitored in the Phase 1 area, per the Adaptive Management Plan.

O-ACA-16

See response to comment O-ACA-7 and O-ACA-9 regarding salinity, temperature, water quality monitoring, and modeling. See response to comment O-ACA-3 regarding the addition of pools and structural cover.

O-ACA-17

See response to comment O-ACA-1, MCR 1, Selection of the Preferred Alternative, and MCR 5, Fish Habitat Restoration, regarding the types of fish habitat restoration and enhancements included in the Preferred Alternative. See also OACA-3 and MCR 2, Details of Designs, regarding the SBSP Restoration Project Management Team's commitment to implementing lessons learned through its own Adaptive Management Plan as well as through the insights and contributions of knowledgeable people in regulatory agencies, research bodies, nongovernmental or advocacy organizations, and the public.

O-ACA-18

See response to comment O-ACA-14 regarding monitoring of estuarine fish in the restored ponds per the Adaptive Management Plan. See also O-ACA-4 regarding the SBSP Restoration Project proponent's support of science-based monitoring. It should also be noted that CDFW fisheries staff generally do not support the use of hatchery fish as a proxy for wild run fish; this issue was addressed in the Phase 1 Pond A8 studies.

O-ACA-19

The project proponents will continue to coordinate with interested parties during design and construction of SBSP Restoration Project, Phase 2 at the ELER. See response to comment O-ACA-3 and MCR 2, Details of Designs, regarding the SBSP Restoration Project Management Team's commitment to implementing lessons learned through its own Adaptive Management Plan as well as through the insights and contributions of knowledgeable people in regulatory agencies, research bodies, nongovernmental or advocacy organizations, and the public.

Bay Planning Coalition (O-BPC)

Bay Planning Coalition

June 5, 2018

Ms. Brenda Buxton, Deputy Program Manager
California State Coastal Conservancy
1515 Clay Street
Oakland, CA 94111
VIA E-MAIL TO: phase2comments@southbayrestoration.org

Re: Comments on the South Bay Salt Pond Restoration Project Phase 2 Draft Environmental Impact Statement/Environmental Impact Report for Eden Landing Ecological Reserve

Dear Ms. Buxton:

O-BPC-1

Bay Planning Coalition (BPC) writes to express its support for the South Bay Salt Pond (SBSP) Restoration Project Phase 2 Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the Eden Landing Ecological Reserve (ELER). BPC is a nonprofit, member organization that advocates for sustainable commerce, industry, infrastructure, recreation and the natural environment connected to the San Francisco Bay and its watershed. Together with our nearly 150 member organizations, we work diligently to ensure, among other things, that land on the Bay is used wisely and developed in economically and environmentally sound ways.

The Phase 2 actions described in this Draft EIS/EIR tier from the 2007 Final EIS/EIR and consist of projects in some of the areas of the ELER. Phase 2 would incrementally advance the 50-year plan to convert up to 90% of the former salt ponds to tidal marsh, while at least 10% would remain as enhanced managed ponds.

BPC actively promotes the restoration of tidal marsh and the vital opportunity to beneficially reuse dredged sediment to achieve restoration goals, including, but not limited to, flood risk management. The continuation of the SBSP Restoration Project and its new actions in Phase 2 will be achieved more expeditiously with the beneficial use of dredged sediment.

For example, the ELER tidal salt marsh restoration alternatives under consideration include construction of a large earthen bayfront feature as well as upland transition zones and/or raised pond bottom elevations. All of these restoration and/or flood protection features could make use of dredged material from nearby port navigation channels, the ports of Oakland and Richmond, and the closest in proximity being the Port of Redwood City's federal channel.

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Bay Planning Coalition

O-BPC-1 (cont.)

The beneficial use of dredged material is a common action for all alternatives and will assist to improve habitat complexity and allow appropriate ELER management. The proposed construction design concept(s) is described in the Draft EIS-EIR's Appendix E, "*Preliminary Design Memorandum of Dredged Material Placement at Southern Eden Landing*".

Another important related project, supported by BPC, is the California State Coastal Conservancy's non-federal cost-sharing proposal, *Resilient San Francisco Bay Project*, for consideration as one of the ten selected projects in the beneficial use pilot program established by the U.S. Army Corps of Engineers pursuant to Section 1122 of the Water Resources Development Act of 2016.

Montezuma, Cullinan Ranch, Eden Landing and Bel Marin Keyes are the four placement sites in the proposal with Eden Landing and Bel Marin Keyes awaiting permits and all would then be eligible for dredged material placement under the Resilient San Francisco Bay Project (if selected as one of the ten).

BPC fully endorses the ELER Phase 2 project and accompanying Draft EIS/EIR and Appendix E. We look forward to the Final certified environmental document so that the ELER site permitting can be accomplished as soon thereafter as possible to enable dredged material placement for restoration and shoreline resilience.

Sincerely yours,

J AC

John A. Coleman
Chief Executive Officer
Bay Planning Coalition

Cc: LTC Travis Rayfield, San Francisco District, U.S. Army Corps of Engineers
Jason Brush, U.S. EPA, Region IX
Larry Goldzband, San Francisco Bay Conservation and Development Commission
Bruce Wolfe, San Francisco Bay Regional Water Quality Control Board
John Krause, California Department of Fish and Wildlife
John Bourgeois, South Bay Salt Pond Restoration Project

Response to Bay Planning Coalition (O-BPC)

O-BPC-1

The project proponents appreciate BPC's support of the project. As discussed in MCR 1, Selection of the Preferred Alternative, and MCR 4, Beneficial Reuse of Dredge Material, including Placement Locations, Purpose, Timing, and Impacts, the Preferred Alternative for Phase 2 at Eden Landing includes the potential beneficial reuse of dredge material to raise pond bottom elevations and to build habitat transition zones in several ponds. Dredge material would be placed in the Bay Ponds (E1, E2, E4, and E7) and may be used to raise portions of Ponds E5 and E6, depending on the eventual Adaptive Management Plan-informed decision about the long-term restoration of those ponds to tidal marsh.

Also note that, the SBSP Restoration Project proponents intend to accept dredge material for the beneficial reuse in project restoration actions if materials are available in the time frame needed for successful project implementation. As such, the project was developed such that if dredge materials were not available in an appropriate time frame, project implementation can proceed without such material. The project would benefit from the incorporation of dredge material but does not depend on it. The inclusion of beneficial reuse of dredge material in the Phase 2 Preferred Alternative at Eden Landing should not be interpreted as a commitment to wait indefinitely for that material to be supplied to the project site.

Citizen's Committee to Complete the Refuge, CA Audubon, SF Baykeeper and Ohlone Audubon Society (O-CR1)

Comments submitted via electronic mail only

Anne Morkill, Project Leader
U.S. Fish and Wildlife Service
Don Edwards San Francisco Bay NWR
1 Marshlands Road, Fremont, CA 94555

21 May 2018

Brenda Buxton
Deputy Project Manager, Bay Conservancy Program
State Coastal Conservancy
1515 Clay St., 10th Floor
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Electronic Mail address: *phase2comments@southbayrestoration.org*

Re: Draft Environmental Impact Statement/Report (DEIS/DEIR), Phase 2, Eden Landing Ecological Reserve Complex, South Bay Salt Pond Restoration Project

Dear Ms. Morkill and Ms. Buxton,

O-CR1-1

This responds to the DEIS/R for proposed Phase 2 actions of the South Bay Salt Pond Restoration Project (SBSPRP) at the Eden Landing Ecological Reserve. We thank you for the opportunity to provide comments and incorporate by reference comments submitted on behalf of the Citizens Committee to Complete the Refuge by Dr. Peter Baye.

Our environmental organizations have been involved in the South Bay Salt Pond Restoration Project (SBSPRP) from the beginning. We support the restoration of tidal marsh in the South Bay and have been pleased to see the progress being made during the Interim Stewardship Program and during the implementation of Phase 1 actions. We appreciate the contribution of scientific information stemming from the applied science studies of the project.

We strongly support tidal marsh restoration in the South Bay, and understand the important ecological functions and values of tidal marshes (e.g. fisheries, nutrient recycling, water quality, flood control). Equally important however, is the project objective of maintaining current migratory and resident waterbird species that have come to utilize the existing salt ponds and associated structures such as levees. As has been reported by Warnock et al[1],

> "San Francisco Bay contains the most important salt pond complexes for waterbirds in the United States, supporting more than a million waterbirds through the year (Accurso 1992; Page et al. 1999; Takekawa et al. 2001). Single day counts of waterbirds in the salt ponds during winter months can exceed 200,000 individuals (Harvey et al. 1992), and single day counts during peak spring migration have exceeded 200,000 shorebirds in a single salt evaporation pond (Stenzel and Page 1988)."

[1] Warnock, N., Page, G.W., Ruhlen, T.D., Nur, N., Takekawa, J.Y., and Hanson, J.T., 2002, Management and conservation of San Francisco Bay salt ponds: Effects of pond salinity, area, tide, and season on pacific flyway waterbirds: v. 25, iss. SPECIAL PUBL.2, p. 79-92.

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O-CR1-2 Based upon the importance of managed ponds to migratory and resident waterbirds, the uncertainty of how many of the SBSPRP ponds will ultimately be converted to tidal marsh and the uncertainty of whether ponds not converted in Phases 1 and 2 will have sufficient carrying capacity to maintain the species diversity and abundance of our migratory and resident waterbirds, we recommend Alternative D as the preferred Alternative for Phase 2 at the Eden Land Ecological Reserve (ELER).

O-CR1-3 Public access alternatives:

Due to the uncertainty regarding the suite of waterbirds the Inland and Southern ponds will be managed for, we strongly urge that Proposed Trail Route 3 is selected. If, as the restoration proceeds, monitoring reveals human disturbance will not be an issue for foraging, roosting or nesting waterbirds, additional trails could be incorporated to the project. Currently, there is regular usage of the trail along the Alameda Creek Flood Control Channel (ACFCC) by pet owners walking dogs off-leash. Connection of public access routes to the trail along the flood control channel could result in unintended management issues. As an example, posted restrictions were found to provide no deterrence to dog owners walking their dogs off-leash on Bair Island trails. The lack of compliance with posted restrictions ultimately resulted in the prohibition of dog walking on Bair Island trails.

We strongly oppose the proposed alignment of the proposed trail (purple slashed lines) depicted in Alternative C as this alignment (e.g. human disturbance) could have adverse impacts to California Black Rail and Ridgway's Rail use of occupied habitat in Old Alameda Creek.

O-CR1-4 Levee breach of Alameda Creek Flood Control Channel into Bay Ponds E2 and E4:

This action has been proposed in Alternative B. What are the ramifications of including this component under Alternative D?

O-CR1-5 Additional questions and comments:

We appreciate the inclusion of some of the information requested in our scoping comments, e.g. existing pond salinities, pond bed elevations, identification of bird guilds currently utilizing the ponds. However, we do have questions, comments and concerns regarding the actions proposed in Phase 2.

- Alternative D is described as the phased implementation of tidal marsh restoration, with the caveat that "…if ongoing wildlife monitoring conducted under the AMP shows that the pond-associated wildlife species continue to require pond habitat, the Inland Ponds and Southern Ponds could be retained in that managed pond configuration indefinitely."

The description of the beneficial reuse of dredged material indicates that the target elevation of pond bottoms will be 6.5 feet NAVD88 and that both the Bay and Inland ponds will be filled. There is no indication this aspect of implementation will be phased. If that is the case, will it still be possible to manage the Inland ponds for diving or piscivorous bird guilds as those are the major guilds that will be displaced by conversion of the Bay ponds to tidal marsh?

O-CR1-6

- Habitat Islands – What methodology will be employed to prevent the development of cracks in habitat islands created from dredged materials? Bay mud can form deep cracks as it dries which could pose a threat to chicks of nesting birds.

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O-CR1-6 (cont.)

Ground cloth may be required under gravel, oyster shells or sand to prevent vegetation on islands designed for use by nesting Western Snowy Plovers or California Least Terns.

O-CR1-7

- Page 3.5-17 lists the California Least Tern as an "uncommon to rare forager." Page 3.5-13 states, Ponds E1 and E2 and the shallow bay outboard of the ponds are regularly used as foraging areas by the California Least Terns during the post-breeding period in late summer. Please correct the inconsistency and also describe what suitable pond replacement habitat exists locally for the E1 and E2 ponds.

O-CR1-8

- Table 3.5-2 Special-Status Animal Species and Their Potential to Occur in the Phase 2 Eden Landing Ponds: The text pertaining to the Black Skimmer (*Rynchops* niger) should be revised to reflect that a few individuals of this species have been regularly observed nesting on ponds at the Hayward Shoreline. Dave Riensche of the East Bay Regional Park District can be contacted for additional information. This information has also been documented in the Colonial Waterbird Nesting Summaries for the South San Francisco Bay conducted by the San Francisco Bay Bird Observatory dating back at least to 2008.

O-CR1-9

- Page 3.5-56:

  "San Francisco Bay is one of the most important stopover and wintering areas on the west coast for these species. Within San Francisco Bay, the majority of these birds are typically found in the South Bay. In the South Bay, these small shorebirds forage primarily on intertidal mudflats at low tide and to a lesser extent along the margins of ponds or in shallow ponds. These birds roost and nest on sandy or gravel islands, salt flats, and levees.

  Conversion of former salt ponds to tidal habitats is expected to increase the availability of intertidal mudflat foraging area at low tide in the short term, as some of the breached ponds would provide intertidal mudflat and shallow water habitats for some time before accreting enough sediment to become vegetated. *However, in the long term, sedimentation patterns of the South Bay are expected to result in a loss of intertidal mudflat, both due to conversion to emerging fringe marsh and conversion to subtidal habitat due to scour as a result of increased tidal flux and eventually because of sea-level rise.* The latter of these is expected to occur even in the absence of the SBSP Restoration Project, but mudflat loss is expected to be greater if ponds are breached and tidal habitats restored (2007 Final EIS/R) as part of the SBSP Restoration Project. However, intertidal mudflats are the dominant habitat of the South Bay, and only a small percentage of the total area of mudflats is within or adjacent to the Phase 2 areas and even a small portion of those are expected to be adversely affected by Phase 2 actions at southern Eden Landing.

  ...Overall, the staged and sequential transition of all of southern Eden Landing's ponds to tidal marsh over a decade or more, with opportunities under the AMP to retain *some of those ponds as enhanced managed ponds to provide suitable habitat for small shorebirds would provide maximum flexibility in providing shorebird habitat (as well as habitat for other guilds of birds)* while still moving toward full tidal restoration here. While some adverse effects on small shorebird population are expected, the implementation of Alternative Eden D is unlikely to reduce flyway-level populations 20 percent below baseline levels and would thus have a less-than-significant impact on small shorebirds." [emphasis added]

Plans such as the The Southern Pacific Shorebird Conservation Plan (SPSCP) (2003)[2] highlight the importance of manage ponds for small and medium shorebirds. That plan identified historic, natural salt pan habitat as "open areas amongst

[2] Hickey, C., W.D. Shuford, G.W. Page, and S. Warnock. 2003. Version 1.1. The Southern Pacific Shorebird Conservation Plan: A Strategy for supporting California's Central Valley and coastal shorebird populations. PRBO Conservation Science, Stinson Beach, CA.

CCCR Comments SBSPRP ELER Phase 2 DEIS/DEIR 5-21-18 Page 3 of 8

O-CR1-9 (cont.) the marshes" that "once served as supra-tidal foraging and roosting sites for many shore species, and as nesting areas for plovers, stilts, and avocets." Naturally occurring salt pans were subsequently replaced by man-made salt ponds that have "displaced their natural forerunners." However, "*very shallow ponds often contain drier areas that serve as excellent salt panne mimics*." [emphasis added]

O-CR1-10 In addition to pond depth as a limiting factor for small and medium shorebirds, the distance of day and night roosting sites to foraging mudflat habitat in the Bay requires research. A study conducted by Matt Leddy of plovers in a crystallizer pond in Redwood City, indicates there may be diurnal and nocturnal differences in roosting site selection, as well as differences in the amount of space required. [study attached]

O-CR1-11 According to the DEIS/R, the Bay ponds also support diving ducks, piscivorous birds and California Least Tern foraging habitat. The Southern ponds are reported to support dabbling ducks and diving ducks. The Inland and Southern ponds represent 40% of the total Phase 2 footprint, what is the carrying capacity of these ponds and the Phase 1 managed ponds? How can the remaining ponds be managed to support the divergent needs of waterbird species that currently use the Phase 2 ponds. What species diversity and abundance of pond-dependent waterbirds is possible within the remaining managed pond footprint (at ELER Phase 2)?

O-CR1-12

- Impact 3.5-4 Loss of intertidal mudflats and reduction of habitat for mudflat-associated wildlife species.

Is funding available to study the impacts of the proposed actions at ELER on the intertidal mudflats adjacent to the project? Similar studies at other pond locations were constrained by funding limitations. How will monitoring of the mudflats occur adjacent to the ELER complex?

O-CR1-13

- Phase 2 Impact 3.5-5: Potential habitat conversion impacts to Western Snowy Plover. Page 3.5-65 has the comment "…the Inland Ponds and Southern Ponds would be retained as managed ponds and enhanced to provide similar, though slightly less flexible control over water depth, salinity and other characteristics."

Please explain what is meant by this statement and how this impacts the ability of the Inland and Southern ponds to support the needs of bird guilds displaced by conversion of the Bay ponds to tidal marsh habitat.

O-CR1-14 Do Western Snowy Plover utilize Pond E6C and other Inland or Southern ponds for nesting? If so, what mitigation measures would be implemented during the introduction of dredged material to the Inland ponds?

O-CR1-15

- Phase 2 Impact 3.5-6: Potential reduction in the numbers of breeding, pond-associated waterbirds (avocets, stilts, and terns) using the South Bay due to reduction in habitat, concentration effects, displacement by nesting California gulls, and other project-related effects.

We concur with the observation:

> "Restoration of managed ponds to tidal marsh could result in a loss of nesting and foraging habitat for some of these species [*American Avocets, Black-necked Stilts, Forster's Terns, Caspian Terns listed previously*]. Large areas of unoccupied nesting habitat are available and could offset habitat loss due to conversion to tidal marsh. If available habitat is concentrated, it could make populations more vulnerable to predation. California Gulls use the same habitat type as avocets, stilts, and terns. Gulls displaced by loss of nesting habitat due to tidal marsh restoration could disrupt avocet, stilt, and tern colonies (2007 EIS/R)." [emphasis added]

One question that comes to mind is whether "unoccupied nesting habitat" is actually nesting habitat, or whether it is unoccupied because it is perceived by the species as unsuitable. If available habitat is concentrated, not only are

O-CR1-15 (cont.)

populations more vulnerable to predation, individuals may also have to expend increased investments of energy due to interspecific competition for nesting territory and food, which could also have adverse impacts on populations. And while nesting islands may provide separation from terrestrial predators, they provide no deterrence for avian predators such as raptors, and in the case of chicks – raptors, corvids, California Gulls and large waders such as Great Blue Heron.

O-CR1-16

The DEIS/R mentions gull control. This certainly can be effective, but is also labor intensive in general and difficult to implement where islands are involved.

O-CR1-17

Of particular concern is the comment, "Recent and ongoing monitoring of converted ponds indicates that populations of avocets and stilts are in decline, potentially as a result of loss of historic nesting islands. In general these species are not moving as the ponds are restored." Is this a referring to a South Bay regional phenomenon or a trend that is being observed in managed ponds that are converted to tidal marsh?

O-CR1-18

- Phase 2 Impact 3.5-7: Potential reduction in the numbers of non-breeding, salt-pond-associated birds (e.g., phalaropes, Eared Grebes, and Bonaparte's Gulls) as a result of habitat loss.

The DEIS/R notes that currently "there is moderate use of the southern Eden Landing Ponds by phalaropes and somewhat higher use by eared grebes." The document does not indicate which ponds are used by these species. To what extent do these species utilize the Phase 1 ponds? To what extent could the remaining and altered (Inland ponds - raised pond bottoms) provide suitable habitat?

De La Cruz et al.[3] have reported, "Within the Project ponds, those with deeper water or greater area supported higher abundances of foraging and roosting eared grebes…Optimal depths for foraging and roosting eared grebes in Project ponds were >0 m and 1.29 m, respectively." Eared Grebes also require ponds of higher salinities (approximately 109 ppt) while De La Cruz et al. report that "foraging and roosting dabbling and diving ducks (including northern shoveler and ruddy duck), piscivores, terns and waders were most abundant in ponds with relatively low salinity (≤33 ppt)."

O-CR1-19

This gets back to the question of how many different habitat requirements can be fulfilled within the remaining managed ponds (including those in Phase 1) and can these ponds support sufficient numbers of birds to prevent population decline?

- Phase 2 Impact 3.5-8: Potential reduction in foraging habitat for diving ducks, resulting in a substantial decline in flyway-level populations.

See comment above.

O-CR1-20

- Phase 2 Impact 3.5-9: Potential reduction in foraging habitat for ruddy ducks, resulting in a substantial decline in flyway-level populations.

In the discussion of the impact under Alternative C the EIS/R states, "…the ability to manage water quality, quantity, and circulation would be enhanced and foraging habitat for ruddy duck is expected to be maintained to provide moderately deep open water similar to or improved relative to the existing conditions." Under Alternative D however, the pond bottoms of the Inland ponds would be elevated with the introduction of dredged material. It is not clear from the

[3] De La Cruz, S.E.W., Smith, L.M., Moskal, S.M., Strong, C., Krause, J., Wang, Y., and Takekawa, J.Y., 2018, Trends and habitat associations of waterbirds using the South Bay Salt Pond Restoration Project, San Francisco Bay, California: U.S. Geological Survey Open-File Report 2018–1040, 136 p., https://doi.org/10.3133/ofr20181040.

O-CR1-20 (cont.) discussion provided what impact this difference would have on the ability to provide roosting and foraging habitat for Ruddy Duck populations.

O-CR1-21 The Alternative D analysis includes the comment, "Also, ruddy ducks may be able to forage in other adjacent managed ponds, including the northern Eden Landing." We do not question that the northern Eden Landing ponds may provide habitat for Ruddy Ducks, but we would emphasize the words "may provide" for ponds that are still being used for salt production. Caution is necessary regarding any assumptions that ponds currently used for salt production will supply alternative habitat for species displaced by restoration of managed ponds to tidal marsh, as we have no control over the salinities, or pond depths for salt production ponds and conditions within these ponds may shift as needed for salt production.

O-CR1-22

- Phase 2 Impact 3.5-10: Potential habitat conversion impacts on California least terns.

According to Google Earth estimates, the Hayward Regional Shoreline Park nesting colony is less than 3 miles from the northern levee of Pond E1 and just over 4 miles from the southern levee of Pond E2. If foraging terns from the Hayward colony are foraging at the Eden Landing ponds, the distance is consistent with that observed at the Alameda NWR colony. While foraging habitat may be available in the Bay the fact that this species is regularly seen foraging in Ponds E1 and E2 indicates a preference for habitat provided by these ponds. Will removal of these managed ponds have an impact on the energy required to relocate and travel to new foraging grounds, or result in an increase in the length of time adults are absent from the nesting colony? What impacts would this have on chick survival and have these impacts been considered in making the level of significance determination?

O-CR1-23

- Phase 2 Impact 3.5-11: Potential loss of pickleweed-dominated tidal salt marsh habitat for the salt marsh harvest mouse and salt marsh wandering shrew and further isolation of these species' populations due to breaching activities and scour.

The conceptual figure for Alternative D depicts a wide habitat transition zone along the bayward edge of Ponds E1 and E2, habitat mounds adjacent to the pilot channel between Ponds E1-E7 and E2-E4, as well as breached internal levees between E1-E2 and E7-E4. Will flood refuge habitat for species like the salt marsh harvest mouse be provided within the interior of the vast 680+ acre E1 pond? Will this be incorporated into the project design or is it this hoped this would develop naturally over time? We would urge incorporation of flood refuge for species like the salt marsh harvest mouse within the marsh plain, rather than just at the edges of the current salt pond footprint. Detailed comments are provided in the Technical Memorandum submitted by Dr. Peter Baye.

O-CR1-24

- Phase 2 Impact 3.5-12: Potential disturbance to or loss of sensitive wildlife species due to ongoing monitoring, maintenance, and management activities.

Is it correct to assume vector control activities would be carried out only with coordination with California Department of Fish and Wildlife staff to ensure timing and manner in which these activities are conducted will not adversely impact listed species or waterbirds?

O-CR1-25

- Phase 2 Impact 3.5-13: Potential effects of habitat conversion and pond management on steelhead. Phase 2 Impact 3.5-14: Potential impacts to estuarine fish.

We support the creation of tidal marsh habitat to support fish populations. Is there a particular reason the levee breaches from Alameda Creek Flood Control Channel have not been included in Alternative D?

O-CR1-26

- Phase 2 Impact 3.5-15: Potential impacts to piscivorous birds.

The EIS/R emphasizes that "American White Pelicans do not forage in open waters of the Bay, preferring instead non-tidal waterbodies." Other than Pond SF2, what other ponds, not including those used for salt production, support American White Pelicans? As we stated earlier, caution must be used in relying on salt production ponds as management for wildlife is not the primary function of these ponds. Will the Inland ponds, Southern ponds and Phase 1 managed ponds be able to sustain existing ELER waterbird diversity and abundance and habitat for pond specialists such as the American White Pelican?

O-CR1-27

- Phase 2 Impact 3.5-16: Potential impacts to dabbling ducks.

Our comments remain consistent with questions raised for other waterbird guilds. The EIS/R reports:

> "Based on long-term monitoring data, the winter populations of dabbling ducks doubled from 2002 to 2006 during Initial Stewardship Plan operations in the SBSP Restoration Project ponds. The fall and spring pond counts have increased during the same period and since implementation of Phase 1 have leveled with some fluctuations. *These results may indicate the ponds have reached carrying capacity (De La Cruz et al., in press), alternatively, the spatial and temporal redistribution of dabbling duck use of tidal restoration areas, enhanced managed ponds and other remaining managed ponds have reached equilibrium*. Additional tidal restoration could result in similar dispersion of some dabbling ducks over the entire SBSP Restoration Project area. A possible exception to this expected dispersion is the northern shoveler, the most abundant wintering dabbling duck, which appears to prefer ponds to open bay or tidal marsh habitat. The response of this species to Phase 2 actions will be monitored under the AMP, but this species has been observed in large numbers using a wide range of salinity in the ponds, from low (30 ppt) to moderately high (120 ppt) which will remain available throughout Eden Landing and the South Bay." [emphasis added]

The information provided above raises the question of what other managed pond restorations have taught us regarding length of time it takes before a pond converted to tidal marsh is able to provide habitat for dabbling ducks and other waterbird guilds. As an example, and based upon information provided in the EIS/R, it would appear the Bay ponds will not provide any foraging habitat benefit until they have been filled with dredge material and opened to tidal action. If the managed ponds have reached carrying capacity for the dabbling duck guild or the use of tidal restoration areas, enhanced ponds and managed ponds have reached equilibrium, what impact will the temporal loss of foraging habitat have on the population? This is an issue that may become more important in the future as additional ponds are converted to tidal marsh, particularly for species with higher fidelity to managed ponds.

O-CR1-28

- Phase 2 Impact 3.5-17: Potential impacts to harbor seals.

We strongly support the requirement for an underwater noise analysis prior to project implementation to avoid potential underwater noise impacts to harbor seals. We also urge that cushion blocks or bubble curtains and the use of the "soft start" technique be required.

O-CR1-29

- Phase 2 Impact 3.5-18: Potential recreation-oriented impacts to sensitive species and their habitats.

We urge the SBSPRP project team to identify the proposed trail alignment and Route 3 alternative as identified in Alternative D to avoid adverse impacts to listed species, species of concern, migratory, nesting and roosting waterbirds.

O-CR1-30

- Phase 2 Impact 3.5-19: Potential Impacts to special-status plants.

We support the implementation of protective measures identified in this section.

O-CR1-30 (cont.)

- Phase 2 Impact 3.5-20: Colonization of mudflats and marsh plain by non-native Spartina and its hybrids.

We support utilizing the Invasive Spartina Project's 2010 BMPs to inform restoration and management actions.

- Phase 2 Impact 3.5-21: Colonization by non-native Lepidium.

Colonization of the Phase 2 action area by *Lepidium* poses a significant adverse threat and BMPs and measures identified in the Adaptive Management Program must be implemented.

O-CR1-31

Closing remarks:

The SBSPRP has collected an extensive amount of data through literature search, cooperative exchanges of data or directed field studies specific to addressing key uncertainties. Much of this information is available in the Technical Document section of the SBSPRP website. However, until very recently this data has not been summarized for public consumption (We were just informed today that a summary document of some of the Phase 1 scientific study data has been released). Information such as trends in waterbird use of ponds outside the SBSPRP footprint does not appear to have been summarized, so it is difficult for members of the public to understand the backdrop against which the proposed restoration projects are occurring (e.g. What are the trends of waterbird populations throughout the South Bay and San Francisco Bay region?) It would be extremely helpful if more of this information could be synthesized, to enable the public to provide substantive comments to proposed restoration designs.

O-CR1-32

With respect to waterbird populations, monitoring over a long period of time and at a broad scale (i.e. not just within the project area) is critical. A positive response may be indicated in years 1 and 2, years 3 and 5 could show different responses and may be more indicative of long-term responses. USGS recently published a document that analyzes trends of waterbird abundance and diversity across differing physical environmental conditions. Studies such as these are crucial to informing our understanding of waterbird needs and potentially to their responses to actions taken. Does funding exist to continue this work in the long-term?

Does adequate funding exist to continue monitoring and scientific studies intended to address key uncertainties?

As we stated at the beginning of our letter, we are strongly supportive of tidal marsh restoration within the south bay, but we are also deeply committed to sustaining habitat and species diversity. Thank you for the opportunity to provide comments. We ask that we be kept informed of any additional opportunities to provide public comments.

Sincerely,

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A Comparison of Diurnal and Nocturnal Use of a Salt Pond Roosting Site by Semipalmated Plovers

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Introduction

Former salt ponds in central and southern San Francisco Bay are currently being converted or being considered for conversion to alternative habitats or are at risk from urban development. Analyses of these salt ponds as a biological resource for high-tide roosting shorebirds have been limited to diurnal observations (Athearn et al., 2012; Ackerman et al., 2014; SBSPRP, 2015; Washburn et al., 2015). However, not taking nocturnal roosting needs into account may fail to identify an important resource, since roost selection and roosting behavior of shorebirds may be very different at night compared to the daytime. These differences include:

· A particular site being used only for night roosting (Spencer, 2010; Sanders et al., 2013),

· Species composition and abundances at a roost differing between night and day (Rohweder, 2001),

· Night-roosting birds occupying individual roosting sites compared to aggregated day-roosting birds (Thibault and McNeil, 1994; Colwell, 2010), requiring more space on a geographical scale,

· Individuals being more spread out from each other (Spencer, 2010), and in smaller flocks (Conklin and Cowell 2007; Spencer, 2010) at night, requiring a greater amount of space on a local scale, and

· A greater distance between foraging grounds and night roosts compared to daytime roosts due to predation pressure (Conklin and Cowell 2007; Rogers 2003; Sanders et al. 2013; Piersma et al. 2006).

It seems clear given these differences, that the ecological requirements of nocturnal roosting shorebirds should be taken into consideration prior to any conversion of nocturnal roosting habitat for alternate uses.

The objective of this study was to determine if there are differences in the high-tide roosting behavior of semipalmated plovers (*Charadrius semipalmatus*) on a former salt pond at night compared to daytime. Various aspects were examined, including comparison of night and day abundance, temporal patterns of abundance, and spatial patterns of distribution. Since former salt ponds will ultimately be preserved as roosting habitat, converted to alternate aquatic habitats (i.e., salt marsh) or to urban uses, the benefits of adding nocturnal observations to understanding the importance former salt ponds utilized for high-tide roosting by shorebirds are discussed.

Crystallizer Pond 1 (CRY1), is an approximately 24-ha (60-acre) former salt pond in Redwood City, San Mateo County, CA located in southern San Francisco Bay (Fig.1). It is within the approved expansion boundary for the Don Edwards National Wildlife Refuge, so could potentially be purchased and converted from salt pond to alternate wetland habitat (i.e., salt marsh), but is currently in private ownership and so could also be converted to urban uses. The extent to which waterbirds use this pond is likely to be a factor in any future decision on mitigation for loss of CRY1 from either of these conversions.

1

Figure 1. Location of Crystallizer Pond 1 and the Redwood City Salt Pond Complex.

Semipalmated plovers occur as both fall and spring migrants and winter residents on San Francisco Bay. On CRY1, the birds arrive in early August and use the pond as a high-tide roost until rainwater begins filling the pond late October to November.

Within San Francisco Bay, a large proportion of the plover population occurs south of the San Mateo Bridge (Stenzel et al. 2002; Wood et al. 2010). High-tide surveys made on CRY1 from 2010-2017 document the pond's continuous use, with as many as 1700 plovers counted at a single time (pers. obs.). To put that number into perspective, San Francisco Bay-wide surveys at 320 roosting sites had totals of 3267, 1970, and 1485 plovers in November of 2006, 2007 and 2008 respectively (Wood et al., 2010). Crystallizer Pond 1 may be a significant seasonal roost site for semipalmated plovers on San Francisco Bay.

Methods Summary

This study utilized paired day/night counts of high-tide roosting semipalmated plovers in permanent photoquadrats. To ensure that all observations could be completed within two hours of high tide, and that a large enough geographic area of the pond was represented, thirty quadrats, spaced 100' apart were established. Photoquadrat depth ranged from 185 to 252 meters, resulting in quadrats of unequal area (444-605 m^2), although quadrats in which plovers were present ranged from 444-526 m^2. Ten paired daytime/nighttime observations were made from August 2015 to January 2016, and ten from August to December 2016. Each paired observation consisted of a daytime photo series followed by a series on the next high tide that night, or a nighttime series followed by a series on the next high tide the following day. Day and night digital photos for each quadrat were used to document bird abundance. Each daytime observation consisted of a photo series followed by an actual count of all birds on the entire pond. The highest number of plovers on one count was 900 birds. Details of the methods used are in the second part of this report.

Results

I utilized plovers/quadrat as a unit of measurement to analyze the data because of the close linear relationship between the actual number of plovers on the pond vs. the total number of plovers/quadrat during the daytime ($R^2 = 0.9073$), whereas for density (plovers/m^2), $R^2 = 0.9011$ ($N = 15$; dates when there were no plovers both day and night were excluded from this analysis). In addition, utilizing plovers/quadrat allowed for the calculation of Morisita's index of dispersion (Morisita, 1959), whereas fractions generated by using plovers/m^2 did not.

2

The night/day difference in abundance of plovers varied by year (Table 1), with no statistically significant differences. In the absence of nocturnal surveys, CRY1 would have been identified as a high-tide day roost, but its identity as a night roost, and the relative abundance of plovers at night would have remained unknown.

Year(s)	Sample size	Nighttime total number of plovers in all quadrats	Daytime total number of plovers in all quadrats	Mann-Whitney U (two-tailed) [1.]	Mann-Whitney U Test critical value of U at $p \leq 0.05$ [1.]
2015	8	225	350	21	13
2016	6	93	43	8.5	5
Both years	14	318	393	93.5	55

Table 1. Abundace of semipalmated plovers on CRY1. [1.] Dates when no birds were present both day and night were excluded from the test.

Temporal Patterns of Abundance

Roosting semipalmated plovers consistently used CRY1 both day and night until rainfall began filling the pond (Fig. 2), a pattern consistent with other studies that have found water depth to be an important factor in the presence or absence of individual shorebird species (Long and Ralph, 2001; Dias 2009; Colwell and Taft 2000; Canepuccia et al. 2007).

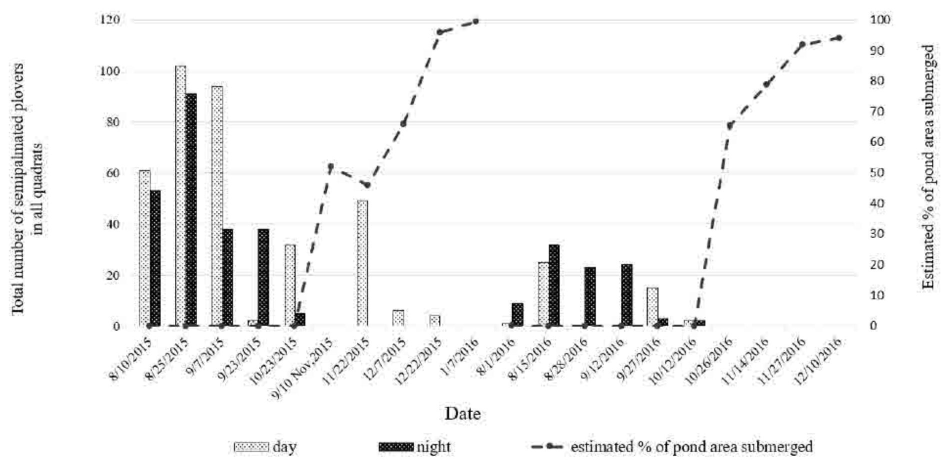

Figure 2. Daytime and nighttime number of semipalmated plovers on Crystallizer Pond 1 and average percent of all quadrat areas submerged (visually estimated from photoquadrats).

Differences between night and daytime behavior of the plovers may explain two patterns seen in Figure 2. Firstly, warm dry weather persisted into late November in 2015, resulting in evaporation of water from the pond, reemergence of pond bottom, and the return of daytime roosting plovers but not nighttime birds. One possible explanation would be that nocturnal roosting plovers may respond differently to surface water at night, and that water is more of a limiting factor at night for roost selection.

3

Secondly, the night population was more stable in 2016 and in 2015 prior to the beginning of rain in November, although when data for the entire 2015 season is included, the daytime population was more stable (Table 2). Conklin and Cowell (2007) found that individual dunlin had higher fidelity to primary night roosts compared to day, and used fewer roosts. Although this current study did not track individual birds, these preliminary findings suggest that the semipalmated plover population may have greater fidelity to the pond at night compared to day.

Nighttime		Daytime	
Year and pond conditions	Proportional Variability (PV)	Year and pond conditions	Proportional Variability (PV)
2015 (prior to rains, pond dry)	0.574	2015 (prior to rains, pond dry)	0.651
2015 (includes dates when pond partially submerged)	0.882	2015 (includes dates when pond partially submerged)	0.768
2016 (pond dry)	0.648	2016 (pond dry)	0.905

Table 2. Proportional Variability (PV) of semipalmated abundance on CRY1. PV = 0 when there is no fluctuation in abundance over time; as variation increases PV increases up to a value of 1.

Proportional Variability was selected for this analysis rather than the Coefficient of Variation because it is nonparametric and proportional, with a maximum value of one. The difference between the two is that the Coefficient of Variation compares data points to the average, whereas Proportional Variability compares data points directly to each other (Heath and Borowski, 2013).

Spatial Patterns of Distribution

Within Crystallizer Pond 1, the plovers roosted exclusively at the north end of the pond during both night and day (Fig. 3). Selective use of the north end could be due to a number of reasons, such as proximity to nearby mudflat foraging areas, variation in water depth, safety from predators, wind patterns, or other unknown factors. Semipalmated plovers forage on mudflats in Westpoint Slough less than a kilometer away at low tide (pers. obs.), and predatory birds are present. On one observation day, a peregrine falcon caught a least sandpiper from a mixed flock of roosting least sandpipers and plovers on CRY1.

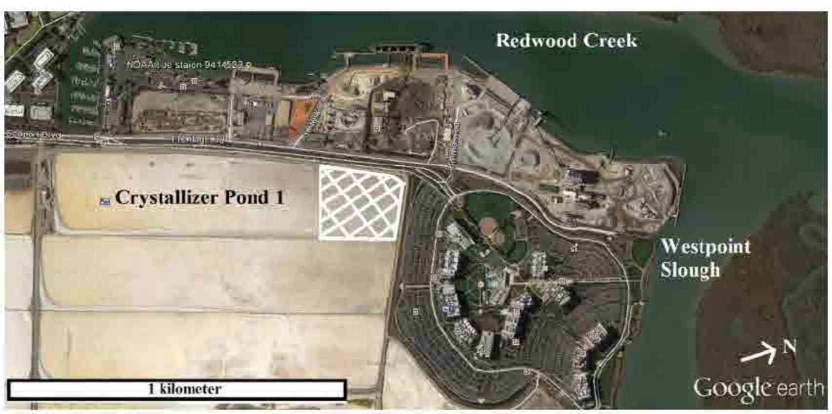

Figure 3. Area of Crystallizer Pond 1 used by roosting semipalmated plovers (cross-hatched).

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At night, the roosting plovers were more dispersed in the pond than during the daytime. The average Morisita's index during the night (8.84), was less than during the day (21.36). This difference was highly significant (Mann-Whitney U Test, two-tailed, U = 20, critical value of U at $p \leq 0.01$ is 21, N = 14). If organisms are distributed uniformly, this index = 0 (maximum dispersion), values greater than 1 occur when organisms are aggregated, with the maximum aggregation value being the number of samples (in this case, 30 if all the birds were in a single quadrat). An index value of 1 = random distribution.

As a result of being more dispersed at night, the plovers used more of the pond area at night compared to daytime (Fig. 4).

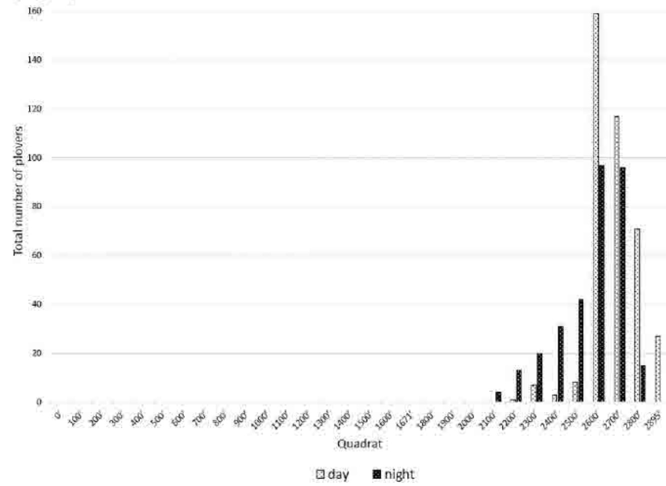

Figure 4. Distribution of semipalmated plovers on Crystallizer Pond 1. Composite data from 14 day/night paired counts when birds were present, August - December 2015 and August - October 2016.

Regarding the actual size of the area used by the birds, 95% of the total number of night-roosting plovers utilized 3.1 hectares of CRY1, whereas 95% of the daytime birds utilized only 1.93 hectares (Fig. 5).

Figure 5. Area in Crystallizer Pond 1 utilized by 95% of night (left) and day (right) roosting semipalmated plovers.

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Discussion

The South San Francisco Bay Salt Pond Restoration Project is in the process of converting about 15,100 acres of former salt ponds into various habitats (salt marsh and various types of managed ponds) for various species (waterfowl and shorebirds) and for various uses (nesting, foraging and roosting). This complex project relies on field observations to generate science-based models in order to determine the optimum ratio of habitats and their management for all the waterbirds, and to determine which ponds will be converted for which uses. The benefits of including night-roosting data into the decision making process are discussed below.

Identifying Nocturnal Roosts

Since shorebirds may roost at locations where they don't occur during the daytime, at the very least, all nocturnal shorebird roosts in San Francisco Bay should be identified. In addition to roost locations, ideally the composition of waterbird species and abundances would also be documented. Without this information, roosts that are only used at night could be lost.

To put the identification of night roosts into the context of CRY1, without nocturnal observations this pond would be compared to other ponds, ponds which might or might not be used as a night roost. Its biological importance would be undervalued.

Documenting CRY1 as both a night and day roost located less than a kilometer from foraging habitat on Westpoint Slough identifies this pond as a high-value roost for semipalmated plovers, since the birds don't have to fly farther at night to find a safe roost than they do during the day. Warnock and Takekawa (1996) found that radio-marked individual western sandpipers moved the same distance between night and day locations in southern San Francisco Bay, so salt ponds suitable for both day and night use may be present in this region for other shorebird species as well.

Prior to any consideration of converting this pond to alternate wetland habitats or urban uses, similar observations would need to be made on other ponds within the home range of the semipalmated plover.

Nocturnal and Diurnal Roost Fidelity

Consistent use of a pond should be higher at night compared to day if shorebirds exhibit a higher fidelity to night roosts as found by Conklin and Cowell (2007), and suggested by this study. As a biological resource, a pond with greater abundance of birds has greater value than one with lower abundance; however the consistency of use (fidelity) should also be taken into consideration. One possible metric would be to divide abundance at a site by the Proportional Variance (a non-parametric test with a maximum value of one) over time. In this way, a pond with fewer birds but greater consistency of use would increase in value compared to a pond with higher abundance but less consistent use.

Data from the many diurnal surveys that have already been completed on roosting shorebirds could be used to explore the possible advantage of using abundance/proportional variance as a unit of measurement to indicate the resource value of a roost. If this metric is found to better characterize the biological value of a pond, it would incorporate the importance of roost fidelity into the environmental assessment of both night and day roosts.

Pond Water at Night vs. Day

The presence of water is an important factor in shorebird roost site selection. The difference between night and day in the pattern of use of CRY1 by semipalmated plovers, with the submergence and re-

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emergence of pond bottom, suggests that the bird's response to water may differ between night and day. The results from this study are very preliminary and need to be further investigated over a range of conditions and for additional species. For example, unlike the plovers, black-necked stilts were observed foraging in CRY1 both night and day when the pond began to fill with rain water, so stilts may be less affected by water conditions at night than are semipalmated plovers. One important comparison, however, the abundance of stilts night and day, could not be determined using the methods of this study.

Roosting shorebirds reacting differently to water at night compared to day could have implications for the presence of water in ponds being managed for roosting. Additional studies on the current diurnal and nocturnal shorebird use of the existing "island ponds" SF2 and A16 in San Francisco Bay (SBSPRP, 2008) at existing water conditions would be invaluable in this respect.

It should be noted that the absence of semipalmated plovers with the advent of winter rainfall in November is not a reflection of the overall suitability of CRY1; from August into March it is utilized by roosting and foraging snowy plovers, least and western sandpipers, dunlin, American avocets and black-necked stilts during the day, and by foraging stilts at night (pers. obs.).

Spatial Requirements of Nocturnal and Diurnal Roosting Shorebirds

The results of this study others and suggest that roosting shorebirds may need more area at night compared to daytime, either within a pond or within a region. In the context of the South Bay Salt Pond Restoration Project, field work identifying night roosts and quantifying species and abundances would be invaluable. This would eliminate the possibility of underestimating roosting requirements, which could occur if surveys are conducted only during the daytime.

Understanding the amount of area in a salt pond needed for roosting may allow for more flexibility when a pond is converted to alternate wetland habitats. In the case of Crystallizer Pond 1, only the northern portion is used by roosting plovers, which could make the remainder of the pond available for conversion to alternate wetland habitats such as salt marsh (if physically feasible).

When designing an area-use study for bird distribution within a pond, the spacing and size of sampling units will be important for discriminating between night/day space uses. In CRY1, the plovers roosted on a total of 5 ha, and the 100-foot resolution of this study revealed the differences in space use between night and day. In this particular case, other scales, such as a 6.25 ha grid (Athearn et al., 2012; Ackerman et al. 2014) would not distinguish between the two, but the 50X50m grid of Ackerman et al. (2014) would provide the needed level of detail.

Conclusions

Understanding nocturnal roosting requirements is essential to an appreciation of the ecology of migratory shorebirds. Adding nocturnal observations of roosting shorebirds requires additional resources, and so needs to provide significant new information regarding night roosts as a biological resource. Commitment of resources seems well warranted since limiting observations to diurnal roost counts may completely fail to identify ponds utilized at night, document relative importance in terms of abundance and fidelity, and underestimate the amount of acreage needed by night roosting shorebirds.

Nocturnal observations provide the following information about Crystallizer Pond 1 as a biological resource for shorebirds on San Francisco Bay:

· CRY1 is a night roost as well as a day roost for semipalmated plovers. In the absence of nocturnal observations, as a biological resource CRY1 would have been compared to other ponds being used as day roosts which may or may not be used nocturnally.

· CRY1 is consistently used as both a night and day roost by semipalmated plovers, and being located less than a kilometer from foraging habitat on Westpoint Slough may be a high-value roost for these birds.

· Night roosting semipalmated plovers on CRY1 utilize more of the pond area than day roosting birds.

· Day and night roosting semipalmated plovers stop using CRY1 when rainfall begins filling the pond; nocturnal roosting birds may be more sensitive to the presence of water than are diurnal roosting birds.

· CRY1 is used both day and night by foraging black-necked stilts, although the relative abundance and amount of area utilized night and day within the pond are unknown.

Additionally observation:

· The wall separating CRY1 from CRY2 is used as a roost by black-bellied plovers during the day, but not at night (based on photoquadrats). Without nocturnal observations, conclusions drawn from diurnal observations alone would suggest that CRY1 provides for the high-tide roosting requirements of the plovers. In contrast, black-bellied plovers roost night and day on the oyster shell beaches adjacent to mudflats in Foster City, about 6.5 km northwest of CRY1 (pers. obs.). Without nocturnal observations, these two roosting sites would seem to be equally important to the plovers.

Given the dearth of information on night-roosting shorebirds, mitigation measures for the potential loss of Crystallizer Pond 1 as a night roost would be a difficult task. Utilizing an existing night roost site as mitigation is insupportable. Any site not currently used for night roosting that is being considered must undergo alteration and demonstrate that it has become a new night roost prior to the loss of the old one.

<u>Methods Details</u>

Thirty photo location reference points were established along Seaport Blvd at 100' intervals, starting with a 0' marker near the south end of the pond and going north to a 2900' marker near the end of the pond .Two exceptions were at 1700' and 2900', where photo locations were shifted 29' and 5' respectively to avoid fences blocking photos (Fig. 6). No birds were observed in the pond south of the 0' marker (night and day photos and day direct observations).

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Figure 6. Location of photo locations along Seaport Boulevard

At each photo location, a Nikon D5200 digital SLR camera was set up on a tripod oriented perpendicular to the sidewalk with the camera positioned a reference mark. A Nikon 55 – 300mm lens was used, set at a focal length of 130mm, allowing the entire depth of the pond to fit into photos at all the photo locations. At night, camera shutter speed was 30 seconds, the f-stop was 4.8 – 5.6, the ISO 100, and manual focus was used. Each photo was reviewed in the field and retaken as needed until an in-focus photo was obtained.

Nocturnal photos were taken after astronomical twilight as determined by the Astronomical Applications Department of the U.S. Naval Observatory. Light sources were the moon on some nights, and urban sources on all nights. All observations were made within two hours of high tide.

Photoquadrats were created using basic principles of perspective drawing. Crystallizer Pond 1 has a wooden wall along its east side, and adjacent to CRY1 is Crystallizer Pond 2 with a similar east wall. These two walls are parallel to each other (Fig. 7) and have posts spaced four feet apart as measured from a Google earth image.

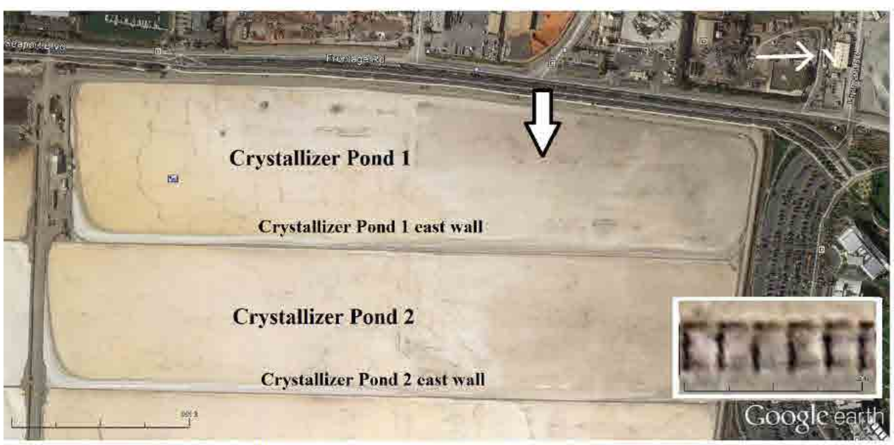

Figure 7. Parallel east walls of CRY1 and CRY2. Arrow indicates direction photos were taken from Seaport Boulevard. Inset shows post spacing on CRY1 east wall.

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In each photo, the two parallel east walls and four-foot post spacing allowed for the creation of an 8' (2.4 meter) wide photoquadrat at each observation point, with the centerline of the photo as the quadrat center (Figs. 8-10).

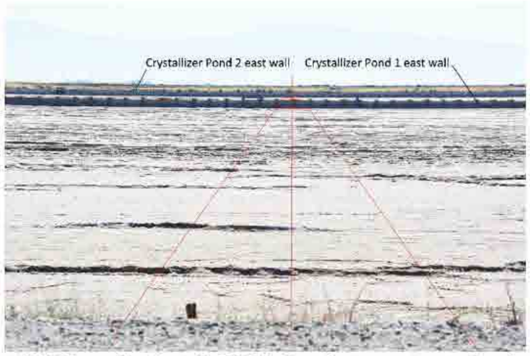

Figure 8. Photoquadrat at 2700' mark, Sept 7, 2015. Quadrat constructed using 4' spaced posts and parallel east walls of Crystallizer Pond 1 and Crystallizer Pond 2. Lines drawn thicker for illustration.

Figure 9. 2700' photoquadrat during daytime, August 25, 2015

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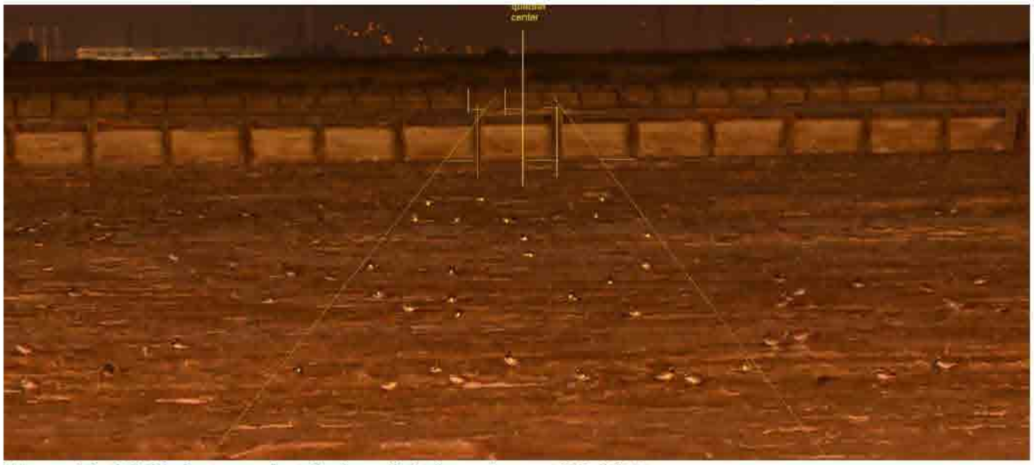

Figure 10. 2700' photoquadrat during nighttime, August 25, 2015

If a photoquadrat on a particular date had birds in it both day and night, any horizontal variation in camera orientation between day and night was compensated for by shifting one photo centerline to the right and the other to the left the same distance so that both photoquadrats had the same centerline. The maximum distance photos centerlines were shifted to line them up was 5.2 meters, the minimum was 0.05 meters and the average was 1.87 meters.

Within each photoquadrat, the plovers found within, or touching the lines of the quadrat, were counted. Objects that were not readily identifiable but may have been birds were counted and marked with a question mark. The difference in the number of "unidentifiable" objects between night (total 17) and day (total 19) was not statistically different (Mann-Whitney U Test, two-tailed, U = 167.5, critical value of U at $p \leq 0.05$ is 127, N = 20).

Basic perspective drawing principles were used to divide each photoquadrat as needed to estimate the proportion of each quadrat that was submerged.

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Response to Citizen's Committee to Complete the Refuge, CA Audubon, SF Baykeeper and Ohlone Audubon Society (O-CR1)

O-CR1-1

The overarching goal of the SBSP Restoration Project is the restoration and enhancement of wetlands in the South Bay while providing for flood risk management and wildlife-oriented public access and recreation. As such, the Preferred Alternative was selected to maximize tidal marsh restoration while still balancing multiple restoration goals.

Comments from Dr. Peter Baye are addressed in I-PB1-1 to I-PB2-16.

O-CR1-2

See MCR 1, Selection of the Preferred Alternative, regarding common components in Alternative Eden D and the Preferred Alternative. The Inland Ponds (E5, E6, and E6C) are not planned for tidal restoration in the Preferred Alternative during the first phase of restoration because of the project's need to balance multiple types of habitat restoration and enhancement actions. The long-term operation of those ponds as enhanced managed ponds may be necessary to achieve the full balance of the project's intended ecological goals. Pond E6C is proposed to be enhanced and maintained as seasonal habitat for western snowy plover and other pond nesting birds in the summer, while providing deeper open water for overwintering diving ducks and dabbling ducks, among other migratory shorebird species during the spring and fall migration periods. The Southern Ponds would be opened to muted tidal flows through a culvert system during the first phase of restoration; however, those ponds could be operated more as true managed ponds and not left open to constant muted tidal flows if ongoing monitoring shows that more managed ponds are needed for bird habitat. This is consistent with an adaptive management approach to the phased restoration of the Southern Ponds.

O-CR1-3

Potential recreation-oriented impacts to sensitive species and their habitats are discussed in Section 3.5.3 of the EIR. As discussed in MCR 7, Public Access Trails (Routes, Elevations, and Parking), the preferred trail alignment through southern Eden Landing is Trail Route 1. Trail Routes 2 and 3, the community connector at Westport Way, and the spur trail shown in Alternative Eden C are not included in the Preferred Alternative. Trail Route 1 was chosen in part to provide a more bayward experience for trail users (Trail Route 1 is the westernmost of the three considered) and to minimize the amount of land acquisition or easements or agreements necessary from outside parties that would be necessary to complete it. Trail Route 3 and the associated "community connector" trail to Union City Boulevard are not included in the Preferred Alternative because of a strong negative response to it by others and because of the concern that the community connector would draw more outside trail users to the area and encourage them to park on existing streets. Bicycle and pedestrian links would still connect to the south via the Alameda Creek Regional Trail. The new trails would have restricted hours (sunrise to sunset in ELER), but the spine trail would be open year-round except for approximately 10 days in November through January for sport waterfowl hunting. If East Bay Regional Park District agrees to operate the Bay Trail spine, dogs would be prohibited as is the case for their current operation of the spine along northern Eden Landing.

O-CR1-4

Although Alternative Eden D remains as described in the Draft EIS/R, the Preferred Alternative is comprised of individual components selected from the various action alternatives as discussed in MCR 1; however, the connection between ACFCC and Pond E2 will no longer be through large culverts, as initially described, but instead through a full breach. This breach would be armored to prevent additional scour and uncontrolled widening that could undercut a new public access bridge on the Alameda Creek Regional Trail. Because effects from levee breaches are analyzed in each of the action alternatives and because a connection between ACFCC and Pond E2 is analyzed with Alternative Eden B, the effects of breaching the ACFCC are within the range of conditions analyzed in the EIR.

O-CR1-5

Alternative Eden D includes the beneficial reuse of up to 6 MCY of dredged material in the Bay and Inland Ponds. The preliminary design does not include prioritization sequencing for the ponds; however, the Bay Ponds would likely receive the dredge material before the Inland Ponds to minimize disruption to pond operations and to minimize the amount of infrastructure needed to transport the dredge material. As discussed in MCR 4, Beneficial Reuse of Dredge Material, including Placement Locations, Purpose, Timing, and Impacts, the Preferred Alternative includes the potential beneficial reuse of dredge material to raise pond bottom elevations and to build habitat transition zones in the Bay Ponds (Ponds E1, E2, E4, and E7) and potentially in Ponds E5 and E6, depending on the eventual Adaptive Management Plan-informed decision about the long-term restoration of those ponds to tidal marsh. Dredge materials would not be placed in Ponds E5 and E6 if they remain managed ponds during the time period of dredge material placement. Ponds E5 and E6 could be operated to provide deep, open water habitat suitable for diving ducks, depending on whether those ponds would be restored to full tidal action at a later stage (e.g., if diving duck use does not increase substantially). Pond E6C would retained and enhanced as a managed pond and be seasonally dry or flooded, for snowy plover and other breeding waterbirds in spring and summer, and for overwintering diving ducks.

Divers and piscivorous birds are expected to use deeper ponds until they fill in with sediment and become too shallow. Even then, they would likely use the deeper channels to some extent. Fish habitat would be improved by Phase 2 action, which in turn should help the piscivores. In addition, some of the northern Eden Landing ponds and nearby Cargill-managed ponds (such as ponds N1A and N2A) provide for some deeper water habitat.

O-CR1-6

Habitat islands would be made from remnant levees, not dredge materials, and would be designed appropriately and treated as needed to prevent deep cracking, as was done for Phase 1 pond enhancements in Ponds E12, E13, and in E14. Vegetation management would occur as needed to for suitable habitat for plovers and terns.

O-CR1-7

The sentence indicating “regular use” was revised in Section 3.5.1 of the Final EIR. Note that Ponds E1 and E2 are used intermittently by least terns, but not in large numbers and not every year. Other nearby ponds with higher numbers of least terns include Ponds N1A and N2A (both Cargill managed ponds, south of Eden Landing). For the most part, least terns use the South Bay as post-breeding dispersal, after they have finished nesting at nearby colonies such as Alameda Point and Hayward Shoreline, and new breeding and post breeding staging at the recently established colony at Pond E14, and on their way south for the winter.

O-CR1-8

Clarifying text included in Table 3.5-2 of the Final EIR.

O-CR1-9

See response to comment O-CR1-2 regarding the project's need to balance multiple types of habitat restoration and the mix of ponds and tidal restoration included in the Preferred Alternative.

O-CR1-10

The SBSP Restoration Project proponents have monitored waterbirds over multiple years and De La Cruz (2018) has summarized trends and habitat associations for waterbirds in the South Bay. Our research indicates no effect on distance of ponds to the Bay for foraging shorebirds. This study can be found at https://pubs.er.usgs.gov/publication/ofr20181040

O-CR1-11

See response to comment O-CR1-2 regarding the mix of managed ponds and tidal restoration included in the Preferred Alternative. Ponds managed in northern Eden Landing, such as Ponds E8, E6B and E6A, and Ponds E10 and E11 all provide suitable diving duck habitat in the winter. Pond E6C is proposed to be maintained as seasonal habitat for western snowy plover and other pond-nesting birds in the summer, while providing deeper open water for overwintering diving ducks and dabbling ducks, among other migratory shorebird species during the spring and fall migration periods. The other Inland Ponds and the Southern Ponds would be adaptively managed. Monitoring and assessment would be conducted as per the Adaptive Management Plan which would inform potential operational changes for those ponds.

As discussed in Section 3.5.3 of the EIR and response to comment O-CR1-5, divers and piscivorous birds that currently use the Bay Ponds are expected to continue to use those ponds until they fill in with sediment and become too shallow which may take years (even then, they will use the deeper channels to some extent), but some may disperse from the Phase 2 area at ELER into other Eden Landing ponds as noted above, into Cargill operated ponds or other areas in the South Bay and North Bay.

O-CR1-12

Monitoring will be conducted as per the Adaptive Management Plan. As with all publicly provided facilities, services, and potential experiences, agency funding levels can vary over time. As such, SBSP Restoration Project and CDFW management will actively seek to ensure that costs and funding are appropriately considered, estimated, and aggressively sought through various federal, state, regional and local funding sources.

O-CR1-13

This sentence was comparing the differences between Alternative Eden C and Alternative Eden D. Alternative Eden C includes a water control structure in the mid-complex levee that could be used for operations of the Inland Ponds.

As discussed in Section 3.5.3 of the EIR and response to comment O-CR1-5, divers and piscivorous birds that currently use the Bay Ponds are expected to continue to use those ponds until they fill in with sediment and become too shallow which may take years (even then, they will use the deeper channels to some extent), but some may disperse from the Phase 2 area at ELER.

O-CR1-14

Western snowy plovers have not been recorded nesting in the Bay Ponds or Pond E5, but they have nested in Pond E6 (1 nest each in 2015 and 2018), along the north eastern border, on higher ground, and they have nested in Pond E6C in 2015 (8 nests), 2016 (8 nests), 2017 (2 nests), and 2018 (1 nest).

The Preferred Alternative includes the potential placement of dredge material in the Bay Ponds and in Ponds E5 and E6. If dredge material is added into these ponds, it would either not happen during the nesting season, surveys would be done to ensure no nesting birds, or the area would be flooded prior to nesting season to prevent the loss of nesting birds.

O-CR1-15

Section 3.5.3 of the EIR discusses potential effects to avocets, stilts, and terns from the long-term transition of ponds to tidal marsh habitat as well how levee lowering and habitat islands could provide new nesting opportunities in the interim. Issues raised regarding suitability and predation are being considered in the design. With the possible exception of northern harriers, avian predators are not expected to increase due to project actions.

O-CR1-16

Gull control would be implemented if California gulls attempted to begin a new colony in areas where snowy plovers currently nest. It is labor intensive, and requires a long-term, concerted effort. However, the Restoration Project has been successful in the past hazing gulls out of sensitive areas.

O-CR1-17

The SBSP Restoration Project proponents have seen a loss of avocets and stilts throughout the South Bay. While they have lost some historic nesting sites (such as Pond A8), other sites (such as New Chicago Marsh) have also had lower numbers. It is not clear if this is a South Bay issue, or something happening at a larger, flyway scale. The SBSP Restoration Project is currently developing a large-scale survey to determine locations and numbers of nesting avocets , stilts and terns that will be conducted in SBSP Restoration Project area as well as other areas around the South Bay, consistent with a similar study conducted previously in the 2001 to 2002.

O-CR1-18

See the discussion under Impact 3.5-7 for an analysis of potential effects to phalaropes, Eared Grebes, and Bonaparte's Gulls.

Based on SFBBO/USGS counts for 2003-2015, phalaropes are most abundant on ponds M4, M1, N4AA, N7, and N3 (greater than 600 total birds counted, all Cargill managed ponds) and Eared Grebes are most abundant on ponds M4, M3, A15, N3, N1 (greater than 25,000 total birds counted, all ponds except A15 are Cargill managed ponds). As both of these species/guilds like higher salinity ponds, it is not unusual that they are using these ponds.

As referred to in the comment, different species/guilds have different optimal salinities and pond depths and therefore the southern Eden Landing Ponds are not currently, nor would they be in the future, the ideal habitat for every species/guild. As discussed in response to comment O-CR1-11, the Preferred Alternative has a mix of tidal restoration and adaptively managed ponds. Monitoring and assessment would be conducted as per the Adaptive Management Plan to inform potential operational changes for the Inland and Southern Ponds.

O-CR1-19

See the discussion under Impact 3.5-8 for an analysis of potential effects to diving ducks. See also response to comment O-CR1-18.

O-CR1-20

As discussed under Impact 3.5-9, foraging occurs primarily in ponds, with relatively few individuals using tidal habitats. With the introduction of dredge materials into the Inland Ponds under Alternative Eden D, pond elevations would increase and foraging habitat could be reduced. However, the improved water control structures would allow operational flexibility when managing water depth; and therefore maintaining seasonal habitat or flooding the ponds would continue to be an operational decision.

O-CR1-21

Impact 3.5-9 provides a discussion of the change in ruddy duck use in Pond E9, E2, E4, E6A, E6E, E7, E8, E8X, and E10 as well as variations found in the San Francisco Estuary as a whole. These observations support the statement that ruddy ducks have been found to forage in nearby managed ponds when tidal flows are restored to adjacent areas.

O-CR1-22

Impact 3.5-10 provides a discussion of observed foraging distances for least terns and approximate distances from nearby colonies to the ELER Phase 2 area. As noted in that section and discussed in response to comment O-CR1-7, Ponds E1 and E2 are used intermittently by least terns, but not in large numbers and not every year. For the most part, least terns use Ponds E1 and E2 and the larger South Bay as post-breeding dispersal, after they have finished nesting at nearby colonies such as Alameda Point and Hayward Shoreline, and new breeding and post breeding staging at the recently established colony at Pond E14, and on their way south for the winter.

O-CR1-23

Refuge habitat has been incorporated at internal levees to maximum extent possible. Additional habitat is expected to develop over time as elevations increase.

O-CR1-24

As discussed in Section 3.9.1 of the EIR, mosquito control techniques employed by the ACMAD are implemented at ELER and emphasize control of larvae through source reduction, source prevention, larviciding, use of predatory fish, and/or other chemical and biological means, as opposed to the spraying of adults. The existing need for mosquito abatement has been limited, as very few areas in ELER have had mosquito issues.

O-CR1-25

See response to comment O-CR1-4. Although Alternative Eden D remains as described in the Draft EIS/R, the Preferred Alternative includes a the connection between ACFCC and Pond E2 which will no longer be through large culverts, as initially described, but instead through a full breach. This breach would be armored to prevent additional scour and uncontrolled widening that could undercut a new public access bridge on the Alameda Creek Regional Trail.

O-CR1-26

As discussed in Impact 3.5-15, pond-associated piscivores, such as the American white pelican, would likely redistribute locally as a result of the loss of managed pond habitat (e.g., to Cargill-managed ponds or to retained managed ponds in northern Eden Landing). Although there is opportunity for them to redistribute to northern Eden Landing, they may prefer Cargill or Refuge ponds. According to data taken from SFBBO/USGS counts for 2003-2015, American white pelicans are most abundant on ponds N3A, A5, AB2, A17, and A1 (greater than 8,500 total birds counted, all but one are Refuge managed ponds; N3A is a Cargill managed pond).

As discussed in response to comment O-CR1-18, different species/guilds have different optimal conditions and therefore the southern Eden Landing Ponds are not currently, nor would they be in the future, the ideal habitat for every species/guild. The Preferred Alternative includes a mix of tidal restoration and adaptively managed ponds. Monitoring and assessment would be conducted as per the Adaptive Management Plan to inform potential operational changes in the Inland and Southern Ponds.

O-CR1-27

As discussed in Impact 3.5-16, dabbling ducks forage in a variety of habitats in the South Bay, including mudflats, shallow subtidal habitats, tidal sloughs and marsh channels, marsh ponds, managed and muted tidal marsh, seasonal wetlands, managed ponds, and water treatment plants. With tidal restoration of the Bay Ponds, open water pond foraging habitat for dabbling ducks would decline, but tidal marsh and mudflat foraging habitat would increase. Pond elevations may be raised relatively quickly by dredge material placement or relatively slowly by sediment accretion over a period of many years, but because dabbling ducks forage in a wide variety of habitat types, it may be misleading to assume a temporal loss in foraging habitat as they would likely utilize the ponds with either configuration.

O-CR1-28

As discussed in Impact 3.5-17, an underwater noise analysis would be completed during later stages of design and project permitting and would reflect more refined estimates for the size and composition of temporary mooring piles required for the offloading facility and booster pump(s).

O-CR1-29

See response to comment O-CR1-3.

O-CR1-30

As indicated in Section 3.5.3 of the EIR, project actions include preconstruction surveys for special-status plant species, implementation of the Adaptive Management Plan, and collaboration with the Invasive Spartina Project.

O-CR1-31

SBSP Restoration Project proponents support adaptive management and science-based monitoring. Periodic science updates as well as recent literature and technical studies are posted on the SBSP Restoration Project website.

O-CR1-32

Monitoring would be conducted as per the Adaptive Management Plan. As discussed in response to comment O-CR1-12, as with all publicly provided facilities, services, and potential experiences, agency funding levels can vary over time. As such, SBSP Restoration Project management actively seek to ensure that costs and funding are appropriately considered, estimated, and aggressively sought through various federal, state, regional and local funding sources.

Citizen's Committee to Complete the Refuge, CA Audubon, SF Baykeeper, and Ohlone Audubon Society (O-CR2)

Comments submitted via electronic mail only

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Re: Draft Environmental Impact Statement/Report (DEIS/DEIR), Phase 2, Eden Landing Ecological Reserve Complex, South Bay Salt Pond Restoration Project

Dear Ms. Morkill and Ms. Buxton,

O-CR2-1

This responds to the DEIS/R for proposed Phase 2 actions of the South Bay Salt Pond Restoration Project (SBSPRP) at the Eden Landing Ecological Reserve. We thank you for the opportunity to provide comments and incorporate by reference comments submitted on behalf of the Citizens Committee to Complete the Refuge by Dr. Peter Baye.

Our environmental organizations have been involved in the South Bay Salt Pond Restoration Project (SBSPRP) from the beginning. We support the restoration of tidal marsh in the South Bay and have been pleased to see the progress being made during the Interim Stewardship Program and during the implementation of Phase 1 actions. We appreciate the contribution of scientific information stemming from the applied science studies of the project.

We strongly support tidal marsh restoration in the South Bay, and understand the important ecological functions and values of tidal marshes (e.g. fisheries, nutrient recycling, water quality, flood control). Equally important however, is the SBSPRP objective of maintaining current migratory and resident waterbird species that have come to utilize the existing salt ponds and associated structures such as levees. As has been reported by Warnock et al. 2002[1],

> "San Francisco Bay contains the most important salt pond complexes for waterbirds in the United States, supporting more than a million waterbirds through the year (Accurso 1992; Page et al. 1999; Takekawa et al. 2001). Single day counts of waterbirds in the salt ponds during winter months can exceed 200,000 individuals (Harvey et al. 1992), and single day counts during peak spring migration have exceeded 200,000 shorebirds in a single salt evaporation pond (Stenzel and Page 1988)."

[1] Warnock, N., Page, G.W., Ruhlen, T.D., Nur, N., Takekawa, J.Y., and Hanson, J.T., 2002, Management and conservation of San Francisco Bay salt ponds: Effects of pond salinity, area, tide, and season on pacific flyway waterbirds: v. 25, iss. SPECIAL PUBL.2, p. 79-92.

CCCR Comments SBSPRP ELER Phase 2 DEIS/DEIR 6-5-18 Page 1 of 9

O-CR2-1 (cont.)

Takekawa et al. 2006[2] cautioned,

> "converting from one wetland habitat type to another, such as converting salt ponds to tidal marsh, will likely benefit some species at the expense of others. Most shorebirds prefer more open habitats rather than tidal marsh plain habitats (Warnock & Takekawa 1995). Development of coastal zones and interior valley wetlands have resulted in fewer areas available for migratory waterbirds in the flyway, and alternative wetlands may not exist outside of the San Francisco Bay estuary to compensate for loss of waterbird habitats in the ecosystem...**Eliminating artificial salt ponds without providing alternative habitats may reduce or extirpate avian species from the ecosystem**"

O-CR2-2

Based upon the importance of managed ponds to migratory and resident waterbirds, the uncertainty of how many of the SBSPRP ponds will ultimately be converted to tidal marsh, the uncertainty of whether ponds not converted in Phases 1 and 2 will have sufficient carrying capacity to maintain the species diversity and abundance of our migratory and resident waterbirds, and the lack of alternative suitable habitats outside of the SF Bay estuary, we recommend Alternative D as the preferred Alternative for Phase 2 at the Eden Land Ecological Reserve (ELER). However, we refer you to the comment letter provided by Dr. Peter Baye regarding components of Alternative D such as the proposed location of the habitat transition zone and the need for areas of high tide refuge within the interior of Pond E2 for species such as the salt marsh harvest mouse.

O-CR2-3

Public access alternatives:

Due to the uncertainty regarding the suite of waterbirds the Inland and Southern ponds will be managed for, we strongly urge that Proposed Trail Route 3 is selected. If, as the restoration proceeds, monitoring reveals human disturbance will not be an issue for foraging, roosting or nesting waterbirds, additional trails could be incorporated to the project. Currently, there is regular usage of the trail along the Alameda Creek Flood Control Channel (ACFCC) by pet owners walking dogs off-leash. Connection of public access routes to the trail along the flood control channel could result in unintended management issues. As an example, posted restrictions were found to provide no deterrence to dog owners walking their dogs off-leash on Bair Island trails. The lack of compliance with posted restrictions ultimately resulted in the prohibition of dog walking on Bair Island trails.

We strongly oppose the proposed alignment of the proposed trail (purple slashed lines) depicted in Alternative C as this alignment (e.g. human disturbance) could have adverse impacts to California Black Rail and Ridgway's Rail use of occupied habitat in Old Alameda Creek.

O-CR2-4

Levee breach of Alameda Creek Flood Control Channel into Bay Ponds E2 and E4:

This action has been proposed in Alternative B. What are the ramifications of including this component under Alternative D?

O-CR2-5

Additional questions and comments:

[2] Takekawa, J. Y., Miles, A. K., Schoellhamer, D. H., Athearn, N. D., Saiki, M. K., Duffy, W. D., ... & Jannusch, C. A. (2006). Trophic structure and avian communities across a salinity gradient in evaporation ponds of the San Francisco Bay estuary. Hydrobiologia, 567(1), 307-327.

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O-CR2-5 (cont.)

We appreciate the inclusion of some of the information requested in our scoping comments, e.g. existing pond salinities, pond bed elevations, identification of bird guilds currently utilizing the ponds. However, we do have questions, comments and concerns regarding the actions proposed in Phase 2.

- Alternative D is described as the phased implementation of tidal marsh restoration, with the caveat that "...if ongoing wildlife monitoring conducted under the AMP shows that the pond-associated wildlife species continue to require pond habitat, the Inland Ponds and Southern Ponds could be retained in that managed pond configuration indefinitely."

The description of the beneficial reuse of dredged material indicates that the target elevation of pond bottoms will be 6.5 feet NAVD88 and that both the Bay and Inland ponds will be filled. There is no indication this aspect of implementation will be phased. If that is the case, will it still be possible to manage the Inland ponds for diving or piscivorous bird guilds as those are the major guilds that will be displaced by conversion of the Bay ponds to tidal marsh?

O-CR2-6

- Habitat Islands – What methodology will be employed to prevent the development of cracks in habitat islands created from dredged materials? Bay mud can form deep cracks as it dries which could pose a threat to chicks of nesting birds.

  Ground cloth may be required under gravel, oyster shells or sand to prevent vegetation on islands designed for use by nesting Western Snowy Plovers or California Least Terns.

O-CR2-7

- Page 3.5-17 lists the California Least Tern as an "uncommon to rare forager." Page 3.5-13 states, Ponds E1 and E2 and the shallow bay outboard of the ponds are regularly used as foraging areas by the California Least Terns during the post-breeding period in late summer. Please correct the inconsistency and also describe what suitable pond replacement habitat exists locally for the E1 and E2 ponds.

O-CR2-8

- Table 3.5-2 Special-Status Animal Species and Their Potential to Occur in the Phase 2 Eden Landing Ponds: The text pertaining to the Black Skimmer (*Rynchops* niger) should be revised to reflect that a few individuals of this species have been regularly observed nesting on ponds at the Hayward Shoreline. Dave Riensche of the East Bay Regional Park District can be contacted for additional information. This information has also been documented in the Colonial Waterbird Nesting Summaries for the South San Francisco Bay conducted by the San Francisco Bay Bird Observatory dating back at least to 2008.

O-CR2-9

- Page 3.5-56:

  "San Francisco Bay is one of the most important stopover and wintering areas on the west coast for these species. Within San Francisco Bay, the majority of these birds are typically found in the South Bay. In the South Bay, these small shorebirds forage primarily on intertidal mudflats at low tide and to a lesser extent along the margins of ponds or in shallow ponds. These birds roost and nest on sandy or gravel islands, salt flats, and levees.

  Conversion of former salt ponds to tidal habitats is expected to increase the availability of intertidal mudflat foraging area at low tide in the short term, as some of the breached ponds would provide intertidal mudflat and shallow water habitats for some time before accreting enough sediment to become vegetated. *However, in the long term, sedimentation patterns of the South Bay are expected to result in a loss of intertidal mudflat, both due to conversion to emerging fringe marsh and conversion to subtidal habitat due to scour as a result of increased tidal flux and eventually because of sea-level rise.* The latter of these is expected to occur even in the absence of the SBSP Restoration Project, but mudflat loss is expected to be greater if ponds are breached and tidal habitats restored (2007 Final EIS/R) as part

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O-CR2-9 (cont.)

of the SBSP Restoration Project. However, intertidal mudflats are the dominant habitat of the South Bay, and only a small percentage of the total area of mudflats is within or adjacent to the Phase 2 areas and even a small portion of those are expected to be adversely affected by Phase 2 actions at southern Eden Landing.

...Overall, the staged and sequential transition of all of southern Eden Landing's ponds to tidal marsh over a decade or more, with opportunities under the AMP to retain *some of those ponds as enhanced managed ponds to provide suitable habitat for small shorebirds would provide maximum flexibility in providing shorebird habitat (as well as habitat for other guilds of birds)* while still moving toward full tidal restoration here. While some adverse effects on small shorebird population are expected, the implementation of Alternative Eden D is unlikely to reduce flyway-level populations 20 percent below baseline levels and would thus have a less-than-significant impact on small shorebirds." [emphasis added]

Plans such as the Southern Pacific Shorebird Conservation Plan (SPSCP) (2003)[3] highlight the importance of manage ponds for small and medium shorebirds. That plan identified historic, natural salt pan habitat as "open areas amongst the marshes" that "once served as supra-tidal foraging and roosting sites for many shore species, and as nesting areas for plovers, stilts, and avocets." Naturally occurring salt pans were subsequently replaced by man-made salt ponds that have "displaced their natural forerunners." However, "*very shallow ponds often contain drier areas that serve as excellent salt panne mimics*." [emphasis added]

O-CR2-10

In addition to pond depth as a limiting factor for small and medium shorebirds, the distance of day and night roosting sites to foraging mudflat habitat in the Bay requires research. A study conducted by Matt Leddy of plovers in a crystallizer pond in Redwood City, indicates there may be diurnal and nocturnal differences in roosting site selection, as well as differences in the amount of space required. [study attached]

O-CR2-11

According to the DEIS/R, the Bay ponds also support diving ducks, piscivorous birds and California Least Tern foraging habitat. The Southern ponds are reported to support dabbling ducks and diving ducks. The Inland and Southern ponds represent 40% of the total Phase 2 footprint, what is the carrying capacity of these ponds and the Phase 1 managed ponds? How can the remaining ponds be managed to support the divergent needs of waterbird species that currently use the Phase 2 ponds? What level of species diversity and abundance is possible for pond-dependent waterbirds within the remaining managed pond footprint (at ELER Phase 2)? De La Cruz et al. 2018[4] recently published a report on the importance of managed ponds within the SBSPRP for birds, showing that bird diversity and abundance increased within project ponds over the study period compared to a decreasing trend within salt production ponds. Results from this study highlight the need for managed ponds to enhance waterbird habitat. For example, larger ponds have higher bird abundance and ponds with at least one island support "higher abundances of all roosting guilds as well as of foraging dabbling and diving ducks, piscivores, terns, and waders."[5] Results from the De La Cruz et al. 2018 report justify the need for managed ponds and should be used to inform pond configurations for ELER Phase 2.

O-CR2-12

- Impact 3.5-4 Loss of intertidal mudflats and reduction of habitat for mudflat-associated wildlife species.

Is funding available to study the impacts of the proposed actions at ELER on the intertidal mudflats adjacent to the project? Similar studies at other pond locations were constrained by funding limitations. How will monitoring of the mudflats occur adjacent to the ELER complex?

[3] Hickey, C., W.D. Shuford, G.W. Page, and S. Warnock. 2003. Version 1.1. The Southern Pacific Shorebird Conservation Plan: A Strategy for supporting California's Central Valley and coastal shorebird populations. PRBO Conservation Science, Stinson Beach, CA.
[4] De La Cruz et al. op.cit

O-CR2-13
- Phase 2 Impact 3.5-5: Potential habitat conversion impacts to Western Snowy Plover. Page 3.5-65 has the comment "...the Inland Ponds and Southern Ponds would be retained as managed ponds and enhanced to provide similar, though slightly less flexible control over water depth, salinity and other characteristics."

Please explain what is meant by this statement and how this impacts the ability of the Inland and Southern ponds to support the needs of bird guilds displaced by conversion of the Bay ponds to tidal marsh habitat. As noted in the EIS/R, and by Takekawa et al. 2006[5], pond salinity is an important driver of fish populations and maintaining adequate pond depth is important for diving avian benthivores. If they are to provide suitable habitat for macroinvertebrates and fish prey species, the inland and southern ponds should be carefully managed with *more* rather than "*less* flexible control."

O-CR2-14
Do Western Snowy Plovers utilize Pond E6C and other Inland or Southern ponds for nesting? If so, what mitigation measures would be implemented during the introduction of dredged material to the Inland ponds?

O-CR2-15
- Phase 2 Impact 3.5-6: Potential reduction in the numbers of breeding, pond-associated waterbirds (avocets, stilts, and terns) using the South Bay due to reduction in habitat, concentration effects, displacement by nesting California gulls, and other project-related effects.

We concur with the observation:

> "Restoration of managed ponds to tidal marsh could result in a loss of nesting and foraging habitat for some of these species [*American Avocets, Black-necked Stilts, Forster's Terns, Caspian Terns listed previously*]. Large areas of unoccupied nesting habitat are available and could offset habitat loss due to conversion to tidal marsh. If available habitat is concentrated, it could make populations more vulnerable to predation. California Gulls use the same habitat type as avocets, stilts, and terns. Gulls displaced by loss of nesting habitat due to tidal marsh restoration could disrupt avocet, stilt, and tern colonies (2007 EIS/R)." [emphasis added]

One question that comes to mind is whether "unoccupied nesting habitat" is actually nesting habitat, or whether it is unoccupied because it is perceived by the species as unsuitable. If available habitat is concentrated, not only are populations more vulnerable to predation, individuals may also have to expend increased investments of energy due to interspecific competition for nesting territory and food, which could also have adverse impacts on populations. And while nesting islands may provide separation from terrestrial predators, they provide no deterrence for avian predators such as raptors, and in the case of chicks – raptors, corvids, California Gulls and large waders such as Great Blue Heron.

O-CR2-16
The DEIS/R mentions gull control. This certainly can be effective, but is also labor intensive in general and difficult to implement where islands are involved.

O-CR2-17
Of particular concern is the comment, "Recent and ongoing monitoring of converted ponds indicates that populations of avocets and stilts are in decline, potentially as a result of loss of historic nesting islands. In general these species are not moving as the ponds are restored." Is this a referring to a South Bay regional phenomenon or a trend that is being observed in managed ponds that are converted to tidal marsh?

O-CR2-18
- Phase 2 Impact 3.5-7: Potential reduction in the numbers of non-breeding, salt-pond-associated birds (e.g., phalaropes, Eared Grebes, and Bonaparte's Gulls) as a result of habitat loss.

[5] Takekawa et al. op. cit.

O-CR2-18 (cont.)

The DEIS/R notes that currently "there is moderate use of the southern Eden Landing Ponds by phalaropes and somewhat higher use by eared grebes." The document does not indicate which ponds are used by these species. To what extent do these species utilize the Phase 1 ponds? To what extent could the remaining and altered (Inland ponds - raised pond bottoms) provide suitable habitat?

De La Cruz et al.[6] have reported, "Within the Project ponds, those with deeper water or greater area supported higher abundances of foraging and roosting eared grebes...Optimal depths for foraging and roosting eared grebes in Project ponds were >0 m and 1.29 m, respectively." Eared Grebes also require ponds of higher salinities (approximately 109 ppt) while De La Cruz et al. report that "foraging and roosting dabbling and diving ducks (including northern shoveler and ruddy duck), piscivores, terns and waders were most abundant in ponds with relatively low salinity (≤33 ppt)."

O-CR2-19

This gets back to the question of how many different habitat requirements can be fulfilled within the remaining managed ponds (including those in Phase 1) and can these ponds support sufficient numbers of birds to prevent population decline?

- Phase 2 Impact 3.5-8: Potential reduction in foraging habitat for diving ducks, resulting in a substantial decline in flyway-level populations.

See comment above.

O-CR2-20

- Phase 2 Impact 3.5-9: Potential reduction in foraging habitat for ruddy ducks, resulting in a substantial decline in flyway-level populations.

In the discussion of the impact under Alternative C the EIS/R states, "...the ability to manage water quality, quantity, and circulation would be enhanced and foraging habitat for ruddy duck is expected to be maintained to provide moderately deep open water similar to or improved relative to the existing conditions." Under Alternative D however, the pond bottoms of the Inland ponds would be elevated with the introduction of dredged material. It is not clear from the discussion provided what impact this difference would have on the ability to provide roosting and foraging habitat for Ruddy Duck populations.

O-CR2-21

The Alternative D analysis includes the comment, "Also, ruddy ducks may be able to forage in other adjacent managed ponds, including the northern Eden Landing." We do not question that the northern Eden Landing ponds may provide habitat for Ruddy Ducks, but we would emphasize the words "may provide" for ponds that are still being used for salt production. Caution is necessary regarding any assumptions that ponds currently used for salt production will supply alternative habitat for species displaced by restoration of managed ponds to tidal marsh, as we have no control over the salinities, or pond depths for salt production ponds and conditions within these ponds may shift as needed for salt production.

O-CR2-22

- Phase 2 Impact 3.5-10: Potential habitat conversion impacts on California least terns.

According to Google Earth estimates, the Hayward Regional Shoreline Park nesting colony is less than 3 miles from the northern levee of Pond E1 and just over 4 miles from the southern levee of Pond E2. If foraging terns from the Hayward colony are foraging at the Eden Landing ponds, the distance is consistent with that observed at the Alameda NWR colony. While foraging habitat may be available in the Bay the fact that this species is regularly seen foraging in Ponds E1

6 De La Cruz, S.E.W., Smith, L.M., Moskal, S.M., Strong, C., Krause, J., Wang, Y., and Takekawa, J.Y., 2018, Trends and habitat associations of waterbirds using the South Bay Salt Pond Restoration Project, San Francisco Bay, California: U.S. Geological Survey Open-File Report 2018–1040, 136 p., https://doi.org/10.3133/ofr20181040.

O-CR2-22 (cont.)

and E2 indicates a preference for habitat provided by these ponds. Will removal of these managed ponds have an impact on the energy required to relocate and travel to new foraging grounds, or result in an increase in the length of time adults are absent from the nesting colony? What impacts would this have on chick survival and how were these impacts considered when making the level-of-significance determination?

O-CR2-23

- Phase 2 Impact 3.5-11: Potential loss of pickleweed-dominated tidal salt marsh habitat for the salt marsh harvest mouse and salt marsh wandering shrew and further isolation of these species' populations due to breaching activities and scour.

The conceptual figure for Alternative D depicts a wide habitat transition zone along the bayward edge of Ponds E1 and E2, habitat mounds adjacent to the pilot channel between Ponds E1-E7 and E2-E4, as well as breached internal levees between E1-E2 and E7-E4. Will flood refuge habitat for species like the salt marsh harvest mouse be incorporated within the interior of the vast 680+ acre E1 pond, or is it hoped this would develop naturally over time? We would urge incorporation of flood refuge for species like the salt marsh harvest mouse within the marsh plain, rather than just at the edges of the current salt pond footprint. Detailed comments are provided in the Technical Memorandum submitted by Dr. Peter Baye.

O-CR2-24

- Phase 2 Impact 3.5-12: Potential disturbance to or loss of sensitive wildlife species due to ongoing monitoring, maintenance, and management activities.

Is it correct to assume vector control activities would be carried out in close coordination with California Department of Fish and Wildlife staff to ensure the manner in which these activities are conducted will not adversely impact listed species or waterbirds?

O-CR2-25

- Phase 2 Impact 3.5-13: Potential effects of habitat conversion and pond management on steelhead. Phase 2 Impact 3.5-14: Potential impacts to estuarine fish.

We support the creation of tidal marsh habitat to support fish populations. Is there a particular reason the levee breaches from Alameda Creek Flood Control Channel have not been included in Alternative D?

O-CR2-26

- Phase 2 Impact 3.5-15: Potential impacts to piscivorous birds.

The EIS/R emphasizes that "American White Pelicans do not forage in open waters of the Bay, preferring instead non-tidal waterbodies." Other than Pond SF2, what other ponds, not including those used for salt production, support American White Pelicans? As we stated earlier, caution must be used in relying on salt production ponds as management for wildlife is not the primary function of these ponds. Will the Inland ponds, Southern ponds and Phase 1 managed ponds be able to sustain existing ELER waterbird diversity and abundance and habitat for pond specialists such as the American White Pelican?

O-CR2-27

- Phase 2 Impact 3.5-16: Potential impacts to dabbling ducks.

Our comments remain consistent with questions raised for other waterbird guilds. The EIS/R reports:

> "Based on long-term monitoring data, the winter populations of dabbling ducks doubled from 2002 to 2006 during Initial Stewardship Plan operations in the SBSP Restoration Project ponds. The fall and spring pond counts have increased during the same period and since implementation of Phase 1 have leveled with some fluctuations. *These results may indicate the ponds have reached carrying capacity (De La Cruz et al., in press),*

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O-CR2-27 (cont.)

alternatively, the spatial and temporal redistribution of dabbling duck use of tidal restoration areas, enhanced managed ponds and other remaining managed ponds have reached equilibrium. Additional tidal restoration could result in similar dispersion of some dabbling ducks over the entire SBSP Restoration Project area. A possible exception to this expected dispersion is the northern shoveler, the most abundant wintering dabbling duck, which appears to prefer ponds to open bay or tidal marsh habitat. The response of this species to Phase 2 actions will be monitored under the AMP, but this species has been observed in large numbers using a wide range of salinity in the ponds, from low (30 ppt) to moderately high (120 ppt) which will remain available throughout Eden Landing and the South Bay." [emphasis added]

The information provided above raises the question of what other managed pond restorations have taught us regarding length of time it takes before a pond converted to tidal marsh is able to provide habitat for dabbling ducks and other waterbird guilds. As an example, and based upon information provided in the EIS/R, it would appear the Bay ponds will not provide any foraging habitat benefit until they have been filled with dredge material and opened to tidal action. If the managed ponds have reached carrying capacity for the dabbling duck guild or the use of tidal restoration areas, enhanced ponds and managed ponds have reached equilibrium, what impact will the temporal loss of foraging habitat have on the population? This is an issue that may become more important in the future as additional ponds are converted to tidal marsh, particularly for species with higher fidelity to managed ponds.

O-CR2-28

- Phase 2 Impact 3.5-17: Potential impacts to harbor seals.

We strongly support the requirement for an underwater noise analysis prior to project implementation to avoid potential underwater noise impacts to harbor seals. We also urge that cushion blocks or bubble curtains and the use of the "soft start" technique be required.

O-CR2-29

- Phase 2 Impact 3.5-18: Potential recreation-oriented impacts to sensitive species and their habitats.

We urge the SBSPRP project team to identify the proposed trail alignment and Route 3 alternative as identified in Alternative D to avoid adverse impacts to listed species, species of concern, migratory, nesting and roosting waterbirds.

O-CR2-30

- Phase 2 Impact 3.5-19: Potential Impacts to special-status plants.

We support the implementation of protective measures identified in this section.

- Phase 2 Impact 3.5-20: Colonization of mudflats and marsh plain by non-native Spartina and its hybrids.

We support utilizing the Invasive Spartina Project's 2010 BMPs to inform restoration and management actions.

- Phase 2 Impact 3.5-21: Colonization by non-native Lepidium.

Colonization of the Phase 2 action area by *Lepidium* poses a significant adverse threat and BMPs and measures identified in the Adaptive Management Program must be implemented.

O-CR2-31

Closing remarks:

The SBSPRP has collected an extensive amount of data through literature search, cooperative exchanges of data or directed field studies specific to addressing key uncertainties. Much of this information is available in the Technical Document section of the SBSPRP website. However, until very recently, these data have not been summarized for public consumption (We were just informed on 5/21/2018 that a summary document of some of the Phase 1 scientific study data has been released). Information such as trends in waterbird use of ponds outside the SBSPRP footprint does not

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O-CR2-31 (cont.)

appear to have been summarized, so it is difficult for members of the public to understand the backdrop against which the proposed restoration projects are occurring (e.g. what are the trends of waterbird populations throughout the South Bay and San Francisco Bay region?) It would be extremely helpful if more of this information could be synthesized, to enable the public to provide substantive comments to the proposed restoration designs.

O-CR2-32

With respect to waterbird populations, monitoring over a long period of time and at a broad scale (i.e. not just within the project area) is critical. A positive response may be indicated in years 1 and 2, but years 3 and 5, or 10 and 15 could reveal a different trend, which may be more indicative of the long-term response. The recent report by De La Cruz et al. 2018[7] analyzes trends of waterbird abundance and diversity within managed ponds and in salt evaporation ponds across differing physical environmental conditions. Studies such as these are crucial to informing our understanding of waterbird needs and potentially to their responses to actions taken. Does funding exist to continue this work in the long-term? The De La Cruz et al. 2018 study could be updated with data from 2016 and 2017 to further inform the status of birds within project ponds and salt production ponds. The authors also lacked invertebrate data at an appropriate scale to address relationships between prey and waterbird abundance. Future monitoring should include invertebrate sampling to determine if key prey species are present and available for birds with in the SBSPRP. Overall, managed ponds provide important habitat for diverse avian groups and must be maintained as the SBSPRP progresses.

Does adequate funding exist to continue monitoring and scientific studies intended to address key uncertainties?

As we stated at the beginning of our letter, we are strongly supportive of tidal marsh restoration within the south bay, but we are also deeply committed to sustaining habitat and species diversity. Thank you for the opportunity to provide comments. We ask that we be kept informed of any additional opportunities to provide public comments.

Sincerely,

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[7] De La Cruz, et al. op. cit

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Response to Citizen's Committee to Complete the Refuge, CA Audubon, SF Baykeeper, and Ohlone Audubon Society (O-CR2)

O-CR2-1

See response to comment O-CR1-1. Note that the Adaptive Management Plan includes numerous measures that track waterbird densities in the South Bay and potential management actions are triggered depending on the monitoring outcome. Also note that the Preferred Alternative included adaptive management of both the Inland and Southern Ponds, allowing operational flexibility depending on the outcome and response to phased restoration.

O-CR2-2

See response to comment O-CR1-2. See also response to comment O-CR1-23 regarding high tide refuge habitat.

O-CR2-3

See response to comment O-CR1-3. The Preferred Alternative does not include the “spur” trails along, and bridge over, OAC.

O-CR2-4

See response to comment O-CR1-4.

O-CR2-5

See response to comment O-CR1-5.

O-CR2-6

See response to comment O-CR1-6.

O-CR2-7

See response to comment O-CR1-7.

O-CR2-8

See response to comment O-CR1-8.

O-CR2-9

See response to comment O-CR1-9.

O-CR2-10

See response to comment O-CR1-10.

O-CR2-11

See response to comment O-CR1-11. De La Cruz’s finding that SBSP Restoration Project ponds provide higher bird abundance and diversity than salt production ponds is consistent with the project’s restoration goals and objectives. Also note that the Preferred Alternative includes numerous habitat islands and mounds in the Bay Ponds and the Southern Ponds.

As discussed in MCR 2, Details of Designs, the SBSP Restoration Project Management Team is committed to implementing lessons learned through its own Adaptive Management Plan as well as through the insights and contributions of knowledgeable people in regulatory agencies, research bodies, nongovernmental or advocacy organizations, and the public. As designs proceed, many of the suggested refinements will be incorporated into the design where feasible and appropriate.

O-CR2-12

See response to comment O-CR1-12.

O-CR2-13

See response to comment O-CR1-13.

O-CR2-14

See response to comment O-CR1-14.

O-CR2-15

See response to comment O-CR1-15.

O-CR2-16

See response to comment O-CR1-16.

O-CR2-17

See response to comment O-CR1-17.

O-CR2-18

See response to comment O-CR1-18.

O-CR2-19

See response to comment O-CR1-19.

O-CR2-20

See response to comment O-CR1-20.

O-CR2-21

See response to comment O-CR1-21.

O-CR2-22

See response to comment O-CR1-22.

O-CR2-23

See response to comment O-CR1-23.

O-CR2-24

See response to comment O-CR1-24.

O-CR2-25

See response to comment O-CR1-25.

O-CR2-26

See response to comment O-CR1-26.

O-CR2-27

See response to comment O-CR1-27.

O-CR2-28

See response to comment O-CR1-28.

O-CR2-29

See response to comment O-CR1-29.

O-CR2-30

See response to comment O-CR1-30.

O-CR2-31

See response to comment O-CR1-31.

O-CR2-32

See response to comment O-CR1-32. Note that monitoring is conducted as per the Adaptive Management Plan and additional science-based monitoring is used to address key uncertainties.

California Trout (O-CT)

CALIFORNIA TROUT

FISH · WATER · PEOPLE

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1 May 2018

Attn: Brenda Buxton, Deputy Program Manager
State Coastal Conservancy
1515 Clay Street, 10th Floor
Oakland, CA 94612
brenda.buxton@scc.ca.gov

Dear Ms. Buxton,

O-CT-1

Thank you for the opportunity to comment on the DEIS for the Eden Landing Phase 2 Project.

California Trout has been based in San Francisco since 1971 and continues to advocate for balancing the needs of wild fish and people for a better California. I am not an expert on salt marsh restoration or estuarine function, but I do have input on the project alternatives and some considerations from a native fish perspective to raise. I have read fisheries consultant Scott McBain's June 23, 2017 letter on salmonid considerations for this specific project (attached) and talked to Dr. Jim Hobbs at UC Davis who has done fish sampling work in tidelands in the North and South Bay for years. My comments on the Eden Landing Phase 2 Project are based upon my research evaluating status and trends of all 31 of California's extant runs of native salmonids: www.caltrout.org/sos/.

The San Francisco Bay of today is highly altered, with its nursery and rearing areas largely destroyed and full of invasive predators. We don't have good information or studies looking at how estuarine habitats are currently utilized by native fishes (McBain's literature review was likely complete but highlighted just how little recent data is available for drawing informed conclusions), making predictions of how certain restoration designs will be used simply best guesses based largely on expert opinion.

The Napa River salt marsh restoration work of a decade ago had fish sampling that may teach us some valuable lessons about restoring bay tidelands for salmonids: http://scc.ca.gov/projects/san-francisco-bay/napa-river-salt-marsh-restoration-project/ Jim Hobbs and other researchers doing the monitoring found that only non-native species

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O-CT-1 (cont.)

used the man-made, deeper channels in the project area, such as striped bass and others. Native fishes tended overwhelmingly to use the shallow margin habitats, perhaps for refuge from myriad non-native predators that patrol the deeper habitats. The fact is that we just do not know why salmonids were not utilizing these restored habitats.

O-CT-2

From a salmonid perspective, estuarine habitats serve two primary purposes: 1) rich foraging opportunities and 2) nursery areas with predator refuge for juveniles. Changing proportions of the portfolio of salmonid life histories utilize different estuarine habitats for varying amounts of time depending upon many factors such as water year type, environmental conditions, seasonality, density dependence, and others. However, salt marsh/estuarine habitats serve primarily as areas for juvenile fish to grow for their arduous journey to the Pacific or to return to freshwater to eventually spawn. With this in mind, I raise some points for design consideration for the Eden Landing Phase 2 Project:

1. To the extent practicable, deep, straight channels should be avoided in favor of diverse channels with some deeper holes, large woody cover, meanders, and habitat diversity. This gives juvenile fishes opportunities to escape predators.

O-CT-3

2. We need areas for the water to slow down and back up into fingers that don't get flushed every tidal cycle to provide food for juvenile salmonids. By slowing the water down and increasing residence time of the water for a few days to days to weeks (especially from February - April, when the majority of our juvenile salmonids are entering the bay from tributaries or the delta), food can concentrate in areas and provide rich foraging opportunities for many species. If each little channel is constructed to connect to one another in study design, then the water and food gets flushed too frequently via tidal cycles to accumulate. The water must be spread out in shallow tidal fingers to get plenty of sunlight to drive primary production and provide food for juvenile fishes. Historically, a large proportion of juvenile salmonids likely spent days to weeks in the bay putting on weight before emigrating to the Pacific: we should create some diverse habitats (that are severely lacking in the bay now) to allow some segment of the remaining populations the habitat to encourage them to stick around and feed and grow to increase survival at sea if we want to have any hope of recovery for our salmonids. This life history has probably been lost, because juvenile fish that dally in the bay are probably not surviving in large numbers to complete their life cycles and spawn successfully, so we must try to re-create the habitats the led to this life history expression in the first place. This idea is a central tenet of building resilience in populations and is a key to recovering native salmonids.

O-CT-4

3. Multiple entrances and exits to restored tidelands, managed ponds, etc. should be incorporated to ensure that non-native predators, such as striped bass, don't stack up at the mouths of the inlet/outlet channels ready to ambush juvenile salmonids or other native fishes, as they tend to do now in Alviso Slough in the South Bay.

O-CT-5

4. A variety of levee breaches should be explored in the phased approach suggested so certain habitats become inundated in succession, rather than all at once. “Notched" levees or "benches" at different elevations on a levee spill at different locations during different storm and tide levels, ensuring one section of levee

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O-CT-5 (cont.)

doesn't bear the entire brunt of flood flows, such as during king tides, and also avoid stranding of fish and other aquatic species, especially in managed ponds.

O-CT-6

In terms of specific recommendations, "Alternative Eden D" seems like the best alternative from a native fish perspective because of its extensive tidal marsh and managed pond restoration, as well as its temporary use of levees as part of an adaptive management framework. However, I think incorporating some of the pilot channels for fish habitat connectivity that are currently lacking in alternative D would be beneficial for native fishes, especially if such channels incorporate large woody debris refuge strategically placed near the entrance to these channels and where they meet smaller fingers to provide refuge from predators, such as the root wads shown in Figure ES-4. Large wood structures should be placed adjacent to flowing water in/adjacent to channels to encourage scouring to create some depth complexity, and should be sized so they do not wash away in the course of regular tidal cycles or even fairly regular storms.

O-CT-7

I also recommend exploration of utilizing different breach techniques in all adjacent parcels to the existing flood control channel to allow juveniles being flushed out of the existing Alameda Creek fire hose a chance to seek velocity refuge at multiple locations during different types of flows. This would include breaching/levee work at E1C, E2C, E4, and E2, at a minimum, plus any parcels adjacent to pilot channel work.

O-CT-8

Finally, the phased approach outlined in the project proposal, along with implementation of an adaptive management plan, is the best approach for this work. The reality is we don't know enough about how native fishes utilize restored estuarine habitat in California at this time because we have not funded sufficient monitoring and there are so few remaining juvenile salmonids rearing in the bay today that it is hard to study their habits at all. I encourage the design and implementation team to be thoughtful about designing and incorporating long-term monitoring of native fish utilization of different habitat types both pre- and post-project for the benefit of recovery for all salmonids and the lessons to be learned before expenditure of significant amounts of taxpayer funds that will follow in bay tidelands and estuary restoration in the future.

Thank you for your consideration and for the opportunity to comment on the project.

Respectfully,

Patrick Samuel

/s/ Patrick Samuel
Bay Area Program Manager
California Trout

Cc: Evan Buckland, Alameda County Water District
Jeff Miller, Alameda Creek Alliance
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Comments on the Eden Landing Salt Pond Complex Restoration Plan Alternatives Relative to Anadromous Steelhead *(Onchorhynchus mykiss)*

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O-CT-9

INTRODUCTION

A large purchase of solar salt production ponds in the Southern San Francisco Bay by the United States Fish and Wildlife Service and the California Department of Fish and Wildlife was done to restore the salt ponds to tidal marshes. This has become known as the South Bay Salt Pond Restoration Project. The goals of this project are to restore the salt ponds to ecologically functional tidal marshes and wetlands that provide habitat for wildlife, birds, and aquatic organisms, provide public access for wildlife viewing and recreation, and flood management in the Southern San Francisco Bay. There are three pond complexes that are undergoing restoration, Alviso, Ravenwood, and Eden Landing. The subject of this comment is the Eden Landing complex, which is currently in phase 2 of restoration planning. Phase 2 of the Eden Landing Complex is steered at restoring and enhancing ponds south of Old Alameda Creek. The purpose of this document is to provide comment on the restoration alternatives for the Eden Landing Complex on behalf of the Alameda Creek Alliance, specifically on the potential benefits and risks associated with the alternatives to steelhead (*Onchorhynchus mykiss*) and other anadromous fish that may use the restored ponds.

There is very little scientific information available that describes the use of restored salt ponds by juvenile *O. mykiss*. To prepare these comments, we reviewed literature on the use of coastal estuaries by juvenile *O. mykiss*, with a focus on systems from California, with the assumption that *O. mykiss* may utilize restored ponds similarly. Secondarily, we initiated correspondence with many of the lead authors on these papers to get their current opinion and hypotheses on the role the salt pond restoration may play in benefiting juvenile *O. mykiss* through increased growth, survival, and fitness.

First, we summarize the relative literature and expert opinions on how *O. mykiss* may use the restored salt ponds and risks to *O. mykiss* which may be associated with project alternatives. We also provide a recommendation of the preferred alternative and comment on potential changes that could be made based on the reviews of literature and expert opinion, with a focus on benefits for *O. mykiss*. We then conclude with recommendations on monitoring and research that could be done in the near term to better inform final design and implementation of Eden Landing Phase 2 that may better benefit *O. mykiss*.

O-CT-9
(cont.)

SUMMARY OF LITERATURE PERTINENT TO THE USE OF TIDAL MARSHES AND RESTORED PONDS BY SALMONIDS IN THE SOUTHERN SAN FRANCISCO BAY

1) **Hobbs, J, (2015). Steelhead smolt outmigration and survival study: Year 2 Stream Surveys.**

Summary of research: Researchers attempted to determine how juvenile *O. mykiss* from Guadalupe River would utilize a water control structure on managed salt ponds in the Alviso Salt Pond Complex Restoration project. Ultimately, the goal was to understand if juvenile *O. mykiss* were at a risk of entrainment or if they successfully utilized the habitat as a rearing area that increased growth rates, survival and population. They also determined how predators such as striped bass may have utilized water control structures for predation. In 2014, 32 juvenile *O. mykiss* were PIT tagged in Guadalupe River and tracked with PIT antennae placed at 3 of the 5 slots on the water control structure at the A8 pond notch. In addition, 18 Striped Bass (*Morone saxatilis*) were tagged near the notch. Unfortunately, the antennae did not cover the entire A8 notch and one of their antenna was destroyed by high flows, thus they were only able to asses 2 of the 5 slots in the water control structure. None of the *O. mykiss* tagged in Guadalupe River were detected at the A8 notch; however, the researchers suggest that it may have been due to poor coverage (3 slots were not instrumented) of the antennae. While none of the tagged *O. mykiss* were detected, 3 different *M. saxatilis* were detected, and one of the fish was detected multiple times, suggesting it was spending significant time in the notch habitat. This provides evidence to suggest that predators will target breaches, and with only one breach per pond, the risk of predation to juvenile *O. mykiss* would be high. The researchers also interviewed anglers that frequent the notch and reported that *M. saxatilis* up to 50 lbs have been caught there and sometimes 50 fish per day.

Potential implications for the Eden Landing Complex restoration: This paper suggests that predation rates could be high at breaches and water control structures, and it is unclear if *O. mykiss* will access the restored ponds or how they could become entrained. The maximum number of breaches possible would likely dilute predation pressure at any one water control structure/breach.

O-CT-10

2) **Hayes, S.A., et al. (2008). Steelhead growth in a small central California watershed: Upstream and estuarine rearing patterns. Transactions of the American Fisheries Society. 137:114–128.**

Summary of research: The goals of this paper were to assess and compare growth rates in stream rearing habitat and estuary rearing habitat in a typical coastal California watershed (Scott Creek). The authors tagged and recaptured juvenile *O. mykiss* to determine growth rates among habitats. The *O. mykiss* that were rearing in the stream grew at 0.01% per day during summer, while those rearing in the estuary grew at a significantly higher rate (0.2–0.8% per day). This suggests that *O. mykiss* which reared in the estuary grew larger and had a higher probability of ocean survival and returning to spawn as an adult.

O-CT-10 (cont.)

Potential implications for the Eden Landing Complex restoration: This paper suggests that if juvenile *O. mykiss* could access the salt ponds effectively and with suitable habitat conditions (i.e. dissolved oxygen, salinity, and water temperature) they have the potential to grow at a higher rate. This is significant because juvenile rearing habitat is currently limiting in Alameda Creek and salt pond restoration has the potential to increase the rearing habitat available. However, there is considerable uncertainty in the salinity levels that the fish will be able to physiologically endure. The current design may not allow enough freshwater to enter the restored ponds, which may reduce the ability of *O. mykiss* to rear within the restored ponds.

O-CT-11

3) Bond, M.H., et. al., (2008). Marine survival of steelhead (*Oncorhynchus mykiss*) enhanced by a seasonally closed estuary. Canadian Journal of Fish and Aquatic Sciences. 65: 2242–2252.

Summary of research: In this publication, the researchers continued analysis from Hayes et. al. (2008), and determined the adult spawning return rate and size of ocean entry by juveniles from estuary reared and stream reared *O. mykiss* in Scott Creek, CA. This was done using PIT tagged fish and by back calculating the size of juvenile at ocean entry from returning adults via a fish scale radius to fish length regression. Based on the tagged fish analysis, 87% of returning adults had spent time rearing in the estuary. Via the scale and length analysis, the authors estimate that 95% of the returning adults were estuary reared fish. This suggests that fish which rear in the estuary for the summer before entering the ocean in the fall grow to a significantly larger size and have a higher probability of ocean survival than those which only reared in the estuary.

Potential implications for the Eden Landing Complex restoration: This study supports a hypothesis that if juvenile *O. mykiss* can access the restored tidal pond without significant predation, entrainment associated mortality, and with favorable water quality conditions, then restoration may help alleviate a likely juvenile rearing constraint on the Alameda Creek water shed. Higher growth rates and larger size smolts will increase their probability of ocean survival and returning to spawn as adults. However, in the current design, salinity levels may be too high for juvenile *O. mykiss* to utilize the habitat.

O-CT-12

4) Cannata, S.P. (1998). Observations of steelhead trout (*Oncorhynchus mykiss*), Coho Salmon (*O. kisutch*) and water quality of the Navarro River Estuary/Lagoon, May 1996 to December 1997.

Summary of research: This paper described the use of a coastal estuary/lagoon system in Northern California by *O. mykiss* and Coho Salmon (*Oncorhynchus kisutch).* In addition, the research assessed dissolved oxygen, salinity, and temperature to determine if parts of the estuary became unable to sustain salmonid life (i.e. anoxic or hyper-saline environments). The research documented use of the estuary system throughout the entire year by young-of-year, age-1 and age-2 juvenile *O. mykiss*. In a comparison between estuary reared and river reared *O. mykiss* that were greater than 110 mm in length, fish from the estuary had a higher body weight. The authors also suggest that a large proportion of the juvenile *O. mykiss* population utilizes the estuary for rearing year-round.

O-CT-12 (cont.)

Water quality was measured with the goal of relating temperature, dissolved oxygen, and salinity to fish abundance. They observed that once the estuary became completely closed off from tidal influences from sand bar formation, a halocline forms. A halocline forms when there is a difference in salinity levels along a depth gradient, with the warmer and denser saline water settled below the cooler and less dense freshwater is at the top. This is most apparent in the areas closest to the ocean. Because of this phenomenon, habitat can increase or decrease relative to streamflow. For example, in years with low streamflow, areas stratified by the halocline may be larger relative to years with higher streamflow, because less freshwater is delivered and the potential of the halocline breaking down decreases. When the estuary is stratified by levels of salinity, concentration of dissolved oxygen and temperature reach lethal levels for juvenile salmonids in the deeper waters and fish mush seek out refuge in surface waters, nearshore zones, or areas further upstream, which was observed by this study.

Potential implications for the Eden Landing Complex restoration: This study provides evidence to suggest that *O. mykiss* would utilize tidal areas if they are provided safe access. In addition, this study highlights the importance of water quality within the tidal area. Water quality models should be developed for the ponds being restored to determine if environmental conditions would be suitable for *O. mykiss* if they were in the ponds.

O-CT-13

5) **Zedonis, P.A. (1990). The biology of juvenile steelhead (*Oncorhynchus mykiss*) in the Mattole River estuary/lagoon. Master's Thesis. Humboldt State University.**

Summary of research: This study was similar in design and outcome to Cannata et. al. (1998). Juvenile *O. mykiss* catch per unit effort and population estimates were made for lower and upper areas along the Mattole River Estuary. Results suggest that juvenile *O. mykiss* utilize the estuary for rearing year-round. However, during summer and when the estuary becomes closed off, the formation of a halocline can limit habitat as dissolved oxygen concentration and temperature reach lethal levels in the deep-water areas closest to the ocean. This effect is particularly problematic during low streamflow years. This study also examined diet of juvenile *O. mykiss* in the estuary, which were dominated by invertebrates and there was no evidence of food limitation.

Potential implications for the Eden Landing Complex restoration: This study suggests that estuaries (most comparable habitat to restored salt ponds with information on *O. mykiss*) are highly fertile nursery areas, and under the right water quality conditions could increase growth rates of juvenile *O. mykiss*. Water quality modeling or monitoring would be beneficial in determining the suitability for juvenile *O. mykiss* rearing in the restored ponds. Similarly, identification of a freshwater source that would dilute salinity and create a brackish system would likely result in more suitable rearing habitat for juvenile *O. mykiss*. In the current plan, salinity maybe too high for *O. mykiss* to successfully utilize the restored ponds. Monitoring of fish movement and habitat selection would be beneficial in determine how well they could utilize the restored ponds.

O-CT-14

SUMMARY OF EXPERT OPINIONS PERTINENT TO THE USE OF TIDAL MARSHES AND RESTORED PONDS BY SALMONIDS IN THE SOUTHERN SAN FRANCISCO BAY

1) Dr. James Hobbs (University of California – Davis)

Dr. Hobbs was the author on the first paper reviewed above which was the only study that examined use of the salt ponds by *O. mykiss*. His main concerns about design were predation risks at breach points, which was observed from his study which noted the presence of predators at breach points and water control structures. To avoid this, multiple breach points for each pond are ideal so that *O. mykiss* avoid congregating in one location where they are vulnerable to predators. Dr. Hobbs also recommends not doing any managed ponds and to use the full tidal restoration alternatives. In addition, he suggests that breaching ponds in order furthest from bay to closest to bay is recommended so that sediment does not accumulate in the closest to bay pond and block natural restoration of those furthest from the bay. Dr. Hobbs also suggests that if the ponds are designed to benefit *O. mykiss, O. tshawtscha* (Chinook Salmon) would also benefit.

O-CT-15

2) Mike Wallace (California Department of Fish and Wildlife)

Mike Wallace has authored reports on the use of juvenile *O. kisutch* (Coho Salmon) in Humboldt Bay. Based on his observations and studies on *O. kisutch,* Mr. Wallace stressed considerable uncertainty about how *O. mykiss* may use the restored ponds, but would likely result in some use. His primary concern was about the water quality issues that may arise in the restored ponds, and that it is possible that short term anoxic conditions could be detrimental to any *O. mykiss*, and suggests that water quality be modeled. He also suggests adding deeper pools and large wood cover to the restored tidal ponds, which may act as refugia for juvenile *O. mykiss* to reduce stranding mortality and predation during the tidal cycles.

O-CT-16

3) Dr. Morgan Bond (NOAA)

Dr. Bond was an author of one of the peer reviewed papers above (Bond et al. 2008), and suggests that there is no real comparable habitat to the tidal ponds, so finding peer-reviewed literature and white papers may be difficult. She reiterated her results from the paper and suggests there could be considerable movements between the streams and restored ponds over a large variety of time scales (i.e. from daily to annual movement). The ability to search for and forage in preferred habitat likely increases growth through increased food availability, and condition through improved water quality conditions such as temperature, DO, and salinity.

O-CT-17

COMMENTS ON PLAN ALTERNATIVES

We feel that it is beneficial that the plan alternatives included designs that could facilitate the use of the restored ponds by juvenile *O. mykiss* as rearing habitat through breaches and tidal restoration. Based on our literature reviews and interviews, we believe that providing adequate access to the ponds and ensuring favorable water quality would likely allow juvenile *O. mykiss* to grow at a faster rate and out-migrate at a larger size, which increases the probability of ocean survival and returning to spawn. However, based on our review of literature, contact with experts, and our own opinions we do have some comments to the plan alternatives. Below we summarize our concerns with the plan alternatives: predation risk, connectivity, and water quality.

1) Predation Risk

Alternative plans B–D included various breaches and channel constructions that have the potential to be utilized by juvenile *O. mykiss* for rearing habitat. However, these plans included only one breach for each pond, which may increase the risk for predation on juvenile *O. mykiss* as predators are likely to congregate at the breaches (Hobbs 2015). We suggest that along the Alameda Creek Flood Control Channel (ACFCC) and on the bay side of the ponds, multiple breaches be put in place on each pond to decrease the potential of predation at pond breaches. The addition of the bay side breach would allow easier out migration and connectivity with the Bay, while simultaneously reducing the risk of predation. Monitoring predator use could also be done in the current Phase 1 portion of the Eden Complex to better understand the risk of predation to juvenile *O. mykiss* and help inform design of Phase 2.

O-CT-18

2) Connectivity

The breaches and channel construction in the current plan alternatives provide only a single location in and out of each pond. Based on our literature review, we feel that multiple points of connectivity are critical for juvenile *O. mykiss* to best utilize the pond habitat when suitable environmental conditions exist. For example, Bond et al. (1998) and Cannata (1998) suggest that in most estuaries, *O. mykiss* must be able to move freely and efficiently between estuary and freshwater habitats to successfully utilize the fertile environments provided by the estuary. While salt ponds will not necessarily function the same way that an estuary will, we expect some similarities during certain seasons and hydrological conditions. Thus, we suggest creating multiple points of access to each pond along the ACFCC and the bay to increase connectivity between habitats. To help inform the design of Phase 2, monitoring of juvenile *O. mykiss* habitat use of Phase 1 could be done. This would determine the level of connectivity required to make the habitat suitable and be valuable in the design of breaches.

O-CT-19

3) Water Quality

O. mykiss are adapted to thrive in certain temperature and dissolved oxygen ranges, and levels too far outside of those ranges can be stressful or lethal. Studies have found that *O. mykiss* utilize estuaries, but seek refuge in freshwater when conditions became unfavorable (Hayes et al. 2008, Cannata 1998). To address this concern, we suggest water quality monitoring and/or water quality modeling to determine the sub-daily levels of dissolved oxygen and temperatures that would occur in the restored ponds. The Eden Landing Phase

O-CT-19 (cont.)

1 project provides a unique opportunity to conduct this type of monitoring and research. For example, water quality monitoring (particularly water temperature and salinity) could be performed to evaluate seasonal rearing habitat suitability at a nearby site to inform Phase 2 designs. We also suggest the addition of pools (with cover) with a residual depth of 2–3 feet to provide juvenile *O. mykiss* refugia should they become entrained within the ponds. Structure cover, such as large wood, should also be added to these areas to provide cover to juvenile *O. mykiss* to reduce predation risk by birds, mammals, or other fish.

O-CT-20

RECOMMENDATIONS

Based on current information available on potential *O. mykiss* use of restored tidal marsh/ponds, Alternative B would be most likely to benefit to juvenile *O. mykiss* because it provides full tidal restoration and does not include any managed ponds, thus providing the most amount of habitat for juvenile salmonids. We would like to see uncertainties regarding predation, connectivity, and water quality can be addressed in the upcoming design phases (30% to 100% designs). We also support a phased restoration approach with an adaptive management plan and S.M.A.R.T. (specific, measurable, achievable, relevant and time-bound) goals and objectives to measure success of the first phase(s) and to inform subsequent phases of the restoration.

O-CT-21

Given the considerable uncertainty about how *O. mykiss* will utilize the newly restored habitat, we recommend monitoring and research which will aid in the adaptive management plan for the pond restorations. For example, we suggest considering fish tagging efforts on the Eden Landing Phase 1 followed by monitoring after the Phase 2 monitoring restoration project to help better understand how fish utilize the restored ponds and better inform the design and monitoring or modeling of water quality within the restored ponds to determine habitat suitability for *O. mykiss*. Directly tagging *O. mykiss* would be the most effective way of monitoring *O. mykiss* use of the restored salt ponds; however, Alameda Creek has a very small population of wild *O. mykiss,* thus any tag-induced mortality could be very detrimental. Similarly, tagging hatchery produced *O. mykiss* and releasing them would dilute the genetic pool of the current wild population, and is therefore not recommended. As an alternative, we suggest that tagging hatchery juvenile *O. tshawytscha* (Chinook Salmon) be considered to monitor the use of the restored ponds by anadromous salmonids. While *O. tshawytscha* and *O. mykiss* will likely utilize the restored habitat differently for their different life stages, monitoring juvenile *O. tshawytscha* habitat use would still provide improved understanding of how anadromous salmonids may utilize restored salt ponds.

O-CT-22

Given the substantial amount of resources and time spent restoring the Eden Landing Complex salt ponds, we believe that it is best to review all plans in detail to best inform the design so that it will be beneficial ecologically. Based on our literature review and input from experts, this restoration project, with the appropriate design, could help support the recovery of an *O. mykiss* population in Alameda Creek, as well as benefit anadromous salmonid production from other bay area streams. We look forward to continuing our engagement in the design and plans by providing relevant scientific and design input.

Response to Response to California Trout (O-CT)

O-CT-1

See MCR 5, Fish Habitat Restoration, which provides a broad explanation of the types of fish habitat restoration and enhancements included in the Preferred Alternative for implementation as part of the Phase 2 project at Eden Landing. Note that one of the primary design goals for the restored tidal ponds is to regularly fill and drain to allow for tidal exchange and for vegetation growth in the restored marsh. The pilot channels would assist with the filling and draining of the ponds. For the preliminary design, the bottom elevation of the deeper pilot channels in the Bay Ponds was set at -4 feet NAVD88 to allow for about 1 foot of water in the channel during the lowest spring tide to prevent fish stranding. Smaller spur channels would have bottom elevations of 0 feet NAVD88, and once breached, additional shallow channels are expected to form on the bottom of the ponds that connect back to these main drainage channels. As such, a variety of bottom channel elevations are expected in the ponds.

O-CT-2

See response to comment O-CT-1 regarding bottom elevations for channels. The inclusion of deeper holes and large woody cover would be considered during detailed design. As discussed in MCR 2, Details of Designs, the SBSP Restoration Project Management Team is committed to implementing lessons learned through its own Adaptive Management Plan as well as through the insights and contributions of knowledgeable people in regulatory agencies, research bodies, nongovernmental or advocacy organizations, and the public. As designs proceed, many of the suggested refinements will be incorporated into the design where feasible and appropriate.

O-CT-3

See response to comments O-CT-1 and O-CT-2 regarding design considerations.

O-CT-4

As discussed in MCR 5, Fish Habitat Restoration, the Preferred Alternative includes the maximum number of connections between the ACFCC and the restored ponds outlined in the Draft EIS/R: two connections to the Bay Ponds and one to the Southern Ponds. One of the connections between the Bay Ponds and the ACFCC will no longer be through large culverts, as initially described, but instead through a full breach. The other two connections would be through culverts. Because the Southern Ponds would have a single connection which can have higher predation rates than multiple connections, the SBSP Restoration Project team intends to operate the water control structure there under careful monitoring in the early years to evaluate whether this dynamic occurs. If adverse conditions develop, the Southern Ponds could be operated more as managed ponds and not left open to constant muted tidal flows, consistent with an adaptive management approach to the phased restoration by the SBSP Restoration Project.

O-CT-5

As discussed in MCR 1, the Preferred Alternative includes levee lowering as well as levee breaches. Levee lowering would occur at Pond E1's northern levee and Pond E2's southern levee west of the breaches. The levee lowering is expected to increase hydraulic connectivity between channels and marshes.

O-CT-6

As discussed in response to comment O-CT-4 and MCR 5, Fish Habitat Restoration, ACFCC would have two connections to the Bay Ponds and one to the Southern Ponds in the Preferred Alternative. One of the connections between the Bay Ponds and the ACFCC will no longer be through large culverts, as initially described, but instead through a full breach. The other two connections would be through culverts. These connections also include their associated pilot channels. See also response to comment O-CT-2 regarding consideration of deeper holes and large woody cover during detailed design.

O-CT-7

See response to comment O-CT-6 regarding the different types of connections proposed between ACFCC and the restored ponds.

O-CT-8

As described in response to comment O-CT-4, the Preferred Alternative includes an adaptive management approach for restoration of the Southern Ponds. Note that the SBSP Restoration Project proponents support adaptive management and science-based monitoring. Estuarine fish in foraging and rearing habitats within the ponds would be monitored as per the Adaptive Management Plan. Water quality parameters such as dissolved oxygen would also be monitored.

O-CT-9

As discussed in response to comment O-CT-4, ACFCC would have two connections to the Bay Ponds and one to the Southern Ponds in the Preferred Alternative. One of the connections between the Bay Ponds and the ACFCC will no longer be through large culverts, as initially described, but instead through a full breach. The other two connections would be through culverts. Because the Southern Ponds would have a single connection which can have higher predation rates than multiple connections, the SBSP Restoration Project team intends to operate the water control structure there under careful monitoring in the early years to evaluate whether this dynamic occurs. If adverse conditions develop, the Southern Ponds could be operated more as managed ponds and not left open to constant muted tidal flows, consistent with an adaptive management approach to the phased restoration by the SBSP Restoration Project.

O-CT-10

As discussed in MCR 5, Fish Habitat Restoration, the Preferred Alternative includes multiple connections between the ACFCC and the southern Eden Landing ponds which would provide increased habitat connectivity for migrating salmonids and other native fish. As per the Adaptive Management Plan, estuarine fish would be monitored in foraging and rearing habitats within the project. Water quality parameters such as dissolved oxygen would also be monitored. Note that salinity and water temperature would be set by ambient conditions: the estuarine environment would reflect the combined mixture of fluvial flows and water from the Bay that passes through breaches and culverts, and the interior of the ponds are generally expected to be well mixed due to tidal exchange. As such, salinity is expected to be lower when there is high fluvial outflow.

O-CT-11

See response to comment O-CT-10.

O-CT-12

As described in response to comment O-CT-1, one of the primary design goals for the restored tidal ponds is to regularly fill and drain. The filling increases exchange and allows sediment accretion throughout the pond's interior, while the draining allows for vegetation growth in the restored marsh. The creation of pilot channels would facilitate the filling and draining of the ponds. Small channels are expected to form on the pond bottoms which also facilitate drainage. Although sediment accretion would raise bottom elevations, the formation of a feature such as a sand bar that inhibits tidal exchange throughout the pond interior and creates a halocline is not expected when regularly inundated. When marsh habitat is fully developed, some pools and pockets may develop that hold water which does not get regularly flushed with the tides, but channel development should occur allowing smaller channels and pond interiors to drain to deeper channels expected to fully drain to the Bay. This expectation of a well-mixed environment is supported by the results of the one dimensional and two dimensional hydrodynamic modeling conducted for the preliminary design (see Appendix D, Attachment 1). As discussed in Section 3.3.3 of the EIR, dissolved oxygen concentrations are often correlated with hydraulic residence time and when residence time is short, dissolved oxygen concentrations are generally high.

O-CT-13

See response to comments O-CT-10 and O-CT-12. Also note that the Navarro River and Mattole River estuaries/lagoons have limited tidal exchange which differs from restored tidal ponds which are expected to fill and drain with water from Alameda Creek, OAC, and the Bay, on a twice daily basis.

O-CT-14

See MCR 5, Fish Habitat Restoration, regarding the fisheries restoration features of the Preferred Alternative. Implementing the suggested breaching sequence for the ponds will be considered during detailed design.

O-CT-15

As per the Adaptive Management Plan, estuarine fish would be monitored in the restored ponds. Anoxic conditions are not expected to develop in the Bay Ponds if it fully fills and drains with the tides. Multiple connections to OAC and to the ACFCC would facilitate tidal exchange. Dissolved oxygen concentrations will be monitored in the Inland and Southern Ponds. As discussed in response to comment O-CT-4 and O-CT-9, if adverse conditions develop, the Southern Ponds could be operated more as managed ponds and not left open to constant muted tidal flows, consistent with an adaptive management approach to the phased restoration by the SBSP Restoration Project.

O-CT-16

As discussed in MCR 5, Fish Habitat Restoration, multiple connections between ACFCC and the Bay Ponds are intended to provide habitat connectivity and access to potential foraging and rearing habitat in the ponds.

O-CT-17

As discussed in MCR 5, Fish Habitat Restoration, the Preferred Alternative includes multiple connections between the ACFCC and the southern Eden Landing ponds which would provide increased habitat connectivity for migrating salmonids and other native fish. However, the bay-facing levee, including

Pond E2 west levee, would be improved, rather than breached. The improved levees are expected to maintain or improve flood risk management and reduce the potential for scour of the restored habitat.

Estuarine fish would be monitored in the restored ponds as per the Adaptive Management Plan. As discussed in response to comment O-CT-4 and O-CT-9, because the Southern Ponds would have a single connection which can have higher predation rates than multiple connections, the SBSP Restoration Project team intends to operate the water control structure there under careful monitoring in the early years to evaluate whether this dynamic occurs. If adverse conditions develop, the Southern Ponds could be operated more as managed ponds and not left open to constant muted tidal flows, consistent with an adaptive management approach to the phased restoration by the SBSP Restoration Project.

O-CT-18

See MCR 5, Fish Habitat Restoration, regarding habitat connectivity. See response to comment O-CT-17 regarding improvement to the bay-facing levee. Also note that steelhead and estuarine fish are monitored in the Phase 1 area, as per the Adaptive Management Plan.

O-CT-19

See response to comment O-CT-10 and O-CT-12 regarding salinity, temperature, water quality monitoring, and modeling. See also response to comment O-CT-1 and O-CT-2 regarding design considerations.

O-CT-20

See MCR 1, Selection of the Preferred Alternative, and MCR 5, Fish Habitat Restoration, regarding the types of fish habitat restoration and enhancements included in the Preferred Alternative. See also O-CT-19 and MCR 2, Details of Designs, regarding the SBSP Restoration Project Management Team's commitment to implementing lessons learned through its own Adaptive Management Plan as well as through the insights and contributions of knowledgeable people in regulatory agencies, research bodies, nongovernmental or advocacy organizations, and the public.

O-CT-21

See response to comment O-CT-17 regarding monitoring of estuarine fish in the restored ponds per the Adaptive Management Plan. See also O-CT-8 regarding the SBSP Restoration Project proponent's support of science-based monitoring.

O-CT-22

The project proponents will continue to coordinate with interested parties during design and construction of SBSP Restoration Project, Phase 2 at the ELER. See MCR 2, Details of Designs, regarding the SBSP Restoration Project Management Team's commitment to implementing lessons learned through its own Adaptive Management Plan as well as through the insights and contributions of knowledgeable people in regulatory agencies, research bodies, nongovernmental or advocacy organizations, and the public.

Friends of Five Creeks (O-FFC)

Friends of Five Creeks *Volunteers preserving and restoring watersheds of North Berkeley, Albany, Kensington, south El Cerrito and Richmond since 1996*
1236 Oxford St., Berkeley, CA 94709
510 848 9358 *f5creeks@gmail.com* *www.fivecreeks.org*

Brenda Buxton, Deputy Program Manager, State Coastal Conservancy
1515 Clay Street, 10th Floor
Oakland, CA 94612

Dear Ms. Buxton,

O-FFC-1

Friends of Five Creeks strongly supports the South Bay Salt Pond Restoration Project. Our all-volunteer nonprofit group has been restoring and maintaining creek habitat from Berkeley to Richmond for 22 years, and we urge you to approve this Project, which helps keep hopes alive that with the right care, our native salmon species could again flourish.

The Salt Pond Restoration Project will restore 2,270 acres of tidal marsh near the mouth of Alameda Creek, where several steelhead were again seen this April, to provide better nursery habitat for young steelhead before they migrate, and improve their passage to the ocean. The most effective measure to accomplish this is Alternative B, to restore all 11 Eden Landing phase 2 salt ponds to full tidal marsh, in one stage.

To bring about enhanced habitat for juvenile steelhead, as well as flood prevention and control, we advocate creating connections between restored wetlands and surrounding waterways (Alameda Creek Flood Control Channel, Old Alameda Creek channel, and SF Bay). Constructing a pilot channel between Alameda Creek and Bay Ponds E2 and E4 and breaching the levee will enable fish to reach restored marsh. Connecting to the Union Sanitary District treated water and ACWD Aquifer Reclamation Program wells can allow fresh and brackish water to flow into restored marshes, enabling transitions between water habitats for the fish.

We support raising any levees where needed to manage flood risk, as well as lowering any levee where feasible to increase water and fish transport between channels and marshes. Specifically, raising and improving 2 miles of existing levee between the Bay and Ponds E1 and E2 will both improve the new habitat, and prevent its loss from erosion in the future.

Your support for this Project will help to bring new natural life and human benefits to this region.

Sincerely, Susan Schwartz President, Friends of Five Creeks

Response to Friends of Five Creeks (O-FFC)

O-FFC-1

See MCR 5, Fish Habitat Restoration, which provides a broad explanation of the types of fish habitat restoration and enhancements included in the Preferred Alternative for implementation as part of the Phase 2 project at Eden Landing. To facilitate fish passage between the ACFCC and the restored ponds, the Preferred Alternative includes two connections to the Bay Ponds and one to the Southern Ponds. One of the connections between the Bay Ponds and the ACFCC will no longer be through large culverts, as initially described, but instead through a full breach. The other two connections would be through culverts. The Bay Ponds would be opened to tidal flows from several breaches on the northern border with OAC and from two locations along the southern border with the ACFCC and there would be interior breaches to connect the four Bay Ponds to each other. The Southern Ponds would be opened to muted tidal flows through a culvert system, making them accessible to salmonids as well. Pilot channels, lowered levees at Ponds E1 and E2, and improvements to the bay-facing levee, are also included in the Preferred Alternative.

The Inland Ponds (E5, E6, and E6C) are not planned for tidal restoration in the Preferred Alternative during the first phase of restoration because of the Project's need to balance multiple types of habitat restoration and enhancement actions. The long-term operation of those ponds as enhanced managed ponds may be necessary to achieve the full balance of the Project's intended ecological goals unless monitoring and implementation of the Adaptive Management Plan provide a basis for determining that tidal restoration of Ponds E6 and E5 is most beneficial. Similarly, Pond E6C is proposed to be enhanced and maintained as seasonal habitat for western snowy plover and other pond nesting birds in the summer, while providing deeper open water for overwintering diving ducks and dabbling ducks, among other migratory shorebird species during the spring and fall migration periods. Although connections to Union Sanitary District treated water and ACWD Aquifer Reclamation Program wells are not currently proposed, later connections by others would not be prevented by project actions.

Public Sediment Team via SCAPE / Landscape Architecture DPC (O-PST)

SCAPE LANDSCAPE ARCHITECTURE DPC
277 BROADWAY NINTH FLOOR
NEW YORK NY 10007

Tuesday, June 5th, 2018

Brenda Buxton, Deputy Program Manager
State Coastal Conservancy
1515 Clay St, 10th Floor
Oakland, CA 94612

Re: Support and Comments for the South Bay Salt Ponds Restoration Project at Eden Landing Phase II

Dear Ms. Brenda Buxton, Deputy Program Manager,

O-PST-1

The Public Sediment team strongly supports the South Bay Salt Pond (SBSP) restoration project objectives and their advancement at Eden Landing Phase II, particularly the goals related to the restoration of tidal action and sediment flows to the Eden Landing Phase II ponds, the goals to provide public access and recreational opportunities within the complex, and the goals that relate to creating habitats that support all phases of the life cycles of critical species, including anadromous fish within the watershed.

O-PST-2

The Public Sediment team is composed of national and Bay Area design and engineering firms, academic groups, and non-profit organizations and was formed for the regional resilience design challenge, Resilient By Design. The team is led by SCAPE Landscape Architecture, with the Dredge Research Collaborative, Arcadis, UC Davis Department of Human Ecology and Department of Design, Cy Keener, TS Studio, and the Architectural Ecologies Lab. Resilient by Design is a year-long collaborative design challenge bringing together local residents, public officials and local, national and international experts to develop 10 innovative designs around the Bay Area that will strengthen the region's resilience to sea level rise, severe storms, flooding and earthquakes.

As part of the Resilient by Design challenge, the Public Sediment team developed a proposal titled *Unlock Alameda Creek* that links Alameda Creek with the proposed Eden landing Phase II baylands. The proposal provides a sustainable supply of sediment to the baylands for sea level rise adaptation, reconnects migratory fish with their historic spawning grounds, and introduces a network of community spaces that reclaim the creek as a place for people, building an ethos and awareness around our public sediment resources. A conceptual design proposal was developed for this effort, and significant stakeholder support was generated through the design collaboration, including support from the Alameda County Flood Control and Water Conservation District, the State Coastal Conservancy, the East Bay Regional Park District, and the Alameda Creek Alliance. Community participation and support was generated through interactions and co-design events with local middle and high schools, senior centers, and community centers.

Unlock Alameda Creek builds upon the work and alternatives outlined in the DEIS for the SBSP Eden Landing Phase II project and suggests a preferred suite of components for selection. A list of the recommended alternatives and preferred suite of components, and modifications to these components, is listed on the next page. Following this list is a longer description of the *Unlock Alameda Creek* project that illustrates the full vision of these combined options.

SCAPE LANDSCAPE ARCHITECTURE DPC

O-PST-2 (cont.)

Alternatives:

The Public Sediment team supports Alternatives B, C, and D. *Unlock Alameda Creek* was developed assuming that alternative C or D would advance, with the Bay Ponds opened up to tidal action and tidal marsh restoration first (Alternative C), and potential to expand tidal restoration to inland and/or southern ponds in the future (alternative D).

O-PST-3

Components:

Levee Modifications for Flood Risk Management: The Public Sediment team supports a modification to the design elevation of the mid-complex levee developed for Alternative C that would enable a 100' wide breach of the Alameda Flood Control Channel (ACFCC) levee directly to the Bay ponds. In this preferred scenario, the mid-complex levee would need to be raised to mitigate flood risks to adjacent communities. Other modifications to levee structures may be needed, like the lowering of portions of the Old Alameda Creek flood control channel to prevent water buildup in a combination high tide / high rainfall event. Public Sediment supports interventions necessary to mitigate flood risks to achieve the 100' wide breach of the ACFCC. Should Alternative B or D be pursued, our team supports further modifications to these systems to enable the 100' wide breach of the ACFCC to Eden Landing.

In all scenarios, the team supports the modification of the western edge of ponds E1 and E2, known as the 'landmass' proposal, to reduce flood risk and enable a 100' wide breach of the ACFCC. The Public Sediment team strongly believes that the 'landmass' concept can be designed as a hybrid system that incorporates elements of a dynamic gravel or cobble beach and provides habitat for critical species that use these ecosystems. There is historic precedent for these habitats in this region and these habitats have the ability to respond and adapt to increased storm frequency and intensity. See the full *Unlock Alameda Creek* proposal below for details.

O-PST-4

Levee Breaches and Water Control Structures: The Public Sediment team supports a 100' wide breach of the northern portion of the Alameda Creek Flood Control Channel levee into the Bay Ponds. This is a modification to the proposed water control structure in the current document that links the ACFCC with pond E2. A 100' wide breach is needed for sediment delivery to the baylands by the ACFCC. Alameda Creek is the largest supplier of sediment to the South Bay and this resource is critical for the long term survival of the baylands with sea level rise. A 100' wide breach is equally critical for habitat reasons, including the creation of significant transitional space for out-migrating juvenile salmonid species. See the full *Unlock Alameda Creek* proposal below for details.

O-PST-5

Trails and Public Access and Bridges: The Public Sediment team supports a configuration of the Bay trail and public access trails as shown later in this document. This is a modification of proposed trail route 2 shown in option B and includes the acquisition of the Cargill-owned properties at Turk Island, Cal Hill and adjacent ponds. The Public Sediment team supports the removal of the public access trail along the portion of the ACFCC that is made inaccessible with the proposed 100' wide breach of the ACFCC (northern levee only) and proposes to replace this access with expanded trails throughout Eden Landing (as shown in drawing), the acquisition of Turk Island and Cal Hill and adjacent pond properties from Cargill, and a new bridge that would span the ACFCC and connect Cal Hill with Coyote Hills Park. See the full *Unlock Alameda Creek* proposal below for details.

O-PST-6

Dredge Material Placement Infrastructure: The Public Sediment team strongly supports the proposed offloading facility in the Bay's deep-water channel and the use of dredge material for elevation raising of the ponds. While the beneficial use of dredge via offloader is critical at this stage of work, the Public Sediment team also strongly suggests that additional methods of sediment dispersal, like strategic placement or tributary seeding, be included in this work. Eden Landing requires a long-term plan for sediment supply for long term survival, and due to its location in the South Bay, its proximity to Alameda Creek, and its connection to Old Alameda Creek, is an idea testing ground for new pilots around sediment placement in and around the bay, including strategic placement (mudflat feeding), thin layer placement, and tributary seeding. The team supports public events, like walking tours, that make the process of beneficial reuse of dredge material visible to the wider public.

O-PST-7

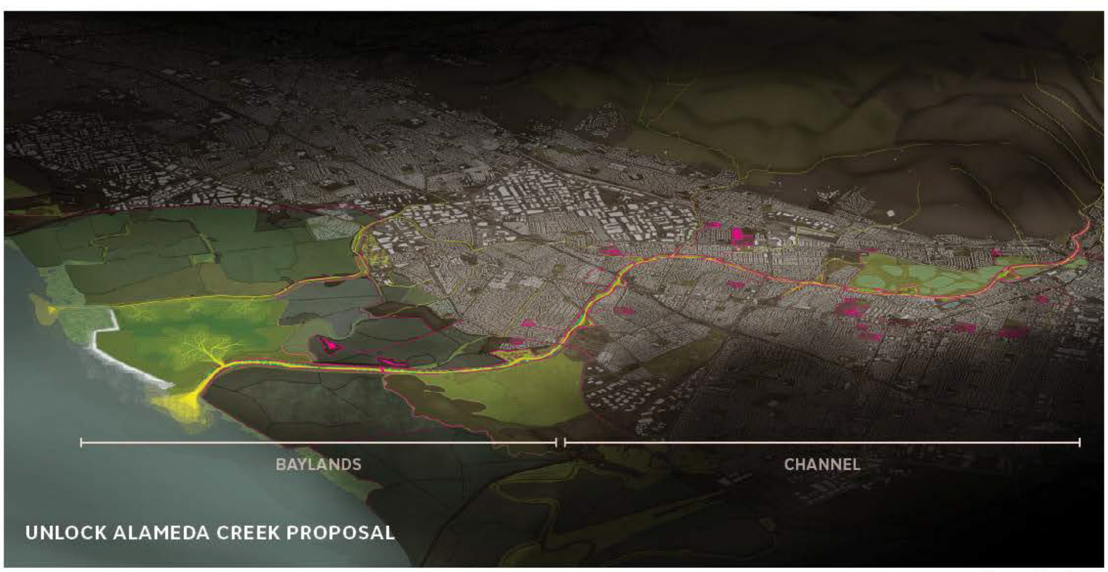
UNLOCK ALAMEDA CREEK

The portions of the *Unlock Alameda Creek* project relating to the alternatives and components for Eden Landing Phase II (*Unlock Alameda Creek*: The Baylands) are summarized below. Please contact gena@scapestudio.com for further information.

A full description, video, and introduction to *Unlock Alameda Creek* can be found here: http://www.resilientbayarea.org/alameda-creek/

INTRODUCTION

Tidal ecosystems are protective infrastructure that cushion the urban edges of the San Francisco Bay. Yet the Bay Area's tidal ecosystems—its marshes, mudflats—are at risk. These systems require sediment to grow vertically in response to sea level rise – without sediment, our baylands will drown. Low sediment supply and bayland drowning represents a slow but devastating scale of loss that threatens ecosystems, recreational landscapes, and places hundreds of thousands of residents and the region's critical drinking water, energy, and transportation systems at risk. To creatively adapt to this challenge our team has focused on sediment, the building block of resilience in the Bay. *Unlock Alameda Creek* is an implementable project that links the creek with the baylands. It provides a sustainable supply of sediment to baylands for sea level rise adaptation, reconnects migratory fish with their historic spawning grounds, and introduces a network of community spaces that reclaim the creek as a place for people, building an ethos and awareness around our public sediment resources.



O-PST-7
(cont.)

THE BAYLANDS

Unlock Alameda Creek proposes to directly connect the sediment flows of the fluvial creek system with the future tidal baylands of the Eden Landing South Bay Salt Ponds (SBSP), an ongoing large-scale restoration project. Breaching the creek (and Old Alameda Creek) is critical for long term tidal bayland survival – even in its compromised state, the Alameda Creek watershed moves enough sediment downstream to nourish the restored tidal marshes with slower rates of sea level rise. Although breaching appears simple, it requires the complex choreography of physical and regulatory conditions to balance flood risks, liability, habitat tradeoffs, public access, and sediment planning. *Unlock Alameda Creek* proposes to reconnect the creek to the baylands while balancing the needs of sediment, people, and fish through a set of multi-benefit interventions.

View of proposed breach and pebble dune

PROPOSED BREACH

Today's creek bypasses the Eden Landing Ponds, which host important habitats but are currently cut off from tidal inundation. Because of this disconnection, the ponds are subsiding at an extreme rate, and without action these areas are vulnerable to erosion and overtopping with sea level rise, exposing adjacent neighborhoods to flooding.

Unlock Alameda Creek proposes a multi-part strategy to connect sediment with the baylands. First, large volumes of sediment must be imported to lift the subsided lower ponds to marsh plain elevation before breaching. This provides immediate flood protection benefit and gives marshes a head start on sea level rise. Up to seven million cubic yards of sediment are needed. Potential sources of mud come from dredge material, sediment harvested from upstream reservoirs like Don Castro, and upland construction fill. Sourcing this volume of sediment is no easy task and depends upon an uncertain timeline – even if this volume can't be imported in time, the ponds should be breached as soon as permitting allows to begin slower accretion by tidal means and stop subsidence.

While breaching improves long term flood protection through the creation of sustainable tidal baylands, near-term fluvial and tidal flood risks must be addressed. To breach Alameda a series of interventions must occur. These include modifications to the Old Alameda Creek levee to allow fluvial floodwater to leave the system, the construction of a mid-complex levee to separate managed ponds from tidal ponds, and the construction of a Pebble Dune at the perimeter of the ponds, that performs like a barrier island, by reducing tidal forces and protecting the baylands from wave action and erosion.

With these interventions in placed, the lower northern levee can retire, the creek can be breached, and a new delta can begin to form in the Bay.

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O-PST-7 (cont.)

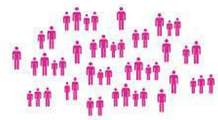

EXISTING ALAMEDA CREEK FLOOD CONTROL CHANNEL
EDEN LANDING
SEDIMENT LOAD AT HEAD OF TIDE
UNION CITY
SEDIMENT ENTERING THE BAY
FREMONT
CARGILL
COYOTE HILLS
PROPOSED BREACH OF ALAMEDA CREEK FLOOD CONTROL CHANNEL
EDEN LANDING
4. MODIFY AND BREACH OLD ALAMEDA CREEK
3. CONSTRUCT MID COMPLEX LEVEE
6. INCREASE SEDIMENT FLOWS FROM CHANNEL
UNION CITY
5. BREACH
1. IMPORT SEDIMENT
2. BUILD PEBBLE DUNE
FREMONT
CARGILL
COYOTE HILLS

O-PST-8

PROPOSED PUBLIC ACCESS

There are very few places in the Bay area to directly access the open water. Although the current Bay trail extends to the water's edge, the north side of the creek trail does not connect to southern paths, and the experience can be flat and monotonous to the average user. Coyote Hills is an incredible resource, it remains difficult to access from the North side of the channel.

Unlock Alameda Creek proposes to create a series of new destinations in the baylands that unlock the larger ecological investments at Eden Landing to the wider public. A new segment of the Bay Trail is expanded into the baylands connecting to the Alameda Creek Levee trail. Turk Island, an exciting topographic destination in a horizontal landscape, becomes a stopover point for travelers on the Bay Trail. At Alameda Creek, the Breach Bridge jumps the channel and moves with the tides, linking the greater path network of Eden Landing and providing a clear overlook to the newly forming delta.



PEOPLE

BAYLAND BRIDGE

The Bayland Bridge enables access across the creek, directly linking the trails of Eden Landing and Coyote Hills. Inspired by the bundling and weaving of the historic tule reeds that populated this landscape, the Bayland Bridge is a clear destination in the Bay that reveals the subtle changes of this dynamic environment. The structure is supported by two landings – a vertical tower and an immersive mudroom- that house support structures and provide new experiences in the Bay. The span itself is supported by floating pontoons that rise and fall with the tides, creating a breathing bridge that responds to the patterns of the creek. The Breach Bridge frames the moment where the creek and bay mix, creating a space for people to watch this new tributary delta form over time.

View looking to Turk Island, Cal Hill, Bayland Bridge, and Coyote Hills

Page 6 of 13

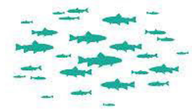
O-PST-8
(cont.)


EXISTING ALAMEDA CREEK FLOOD CONTROL CHANNEL
EDEN LANDING
TO CREEK TRAIL
UNION CITY
DISCONNECTED
TRAILS AT BAYS EDGE
FREMONT
CARGILL
COYOTE HILLS
PROPOSED BREACH OF ALAMEDA CREEK FLOOD CONTROL CHANNEL
EDEN LANDING
ALVARADO SALT STRUCTURES
TO CREEK TRAIL
TURK ISLAND
UNION CITY
OVERLOOK
BAY TRAIL
FLOODROOM
FREMONT
CARGILL
BAYLAND BRIDGE
COYOTE HILLS

O-PST-9

PROPOSED HABITAT CONNECTIONS

Bayland species require estuarine environments, where fresh and salt water mixes. Juvenile steelhead require this transitional space to adapt to a salt water environment. Other threatened species, like the Salt Marsh Harvest Mouse and the Black Rail depend on these habitats for long-term survival. The channelization of the creek to the bay's edge has severely limited this estuarine zone, transforming what was historically a wide marsh plain of shallow meandering sloughs into a single linear channel.



FISH

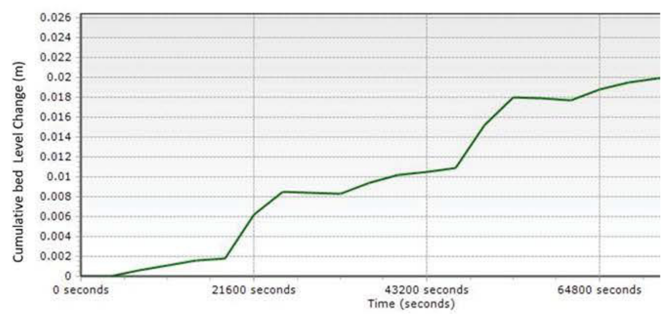
Unlock Alameda Creek aims to link flood protection interventions with habitat creation potential. The Pebble Dune is designed to create a shifting coarse grain beach over time. Secluded from people, the Pebble Dune is ideal for nesting pairs of terns. Large mudflats fed by Alameda Creek's sediment break waves while expanding pupping zones for harbor seals. The Breach is wide and strategically located for fish to find it on their migration routes, expanding into a new tributary delta at the Bay's edge.

THE PEBBLE DUNE

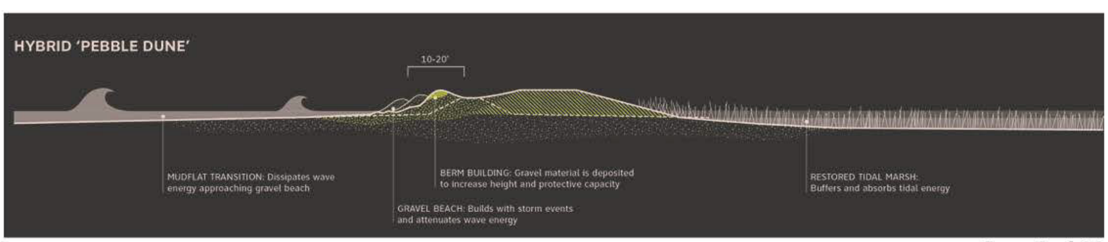
The Pebble Dune is a hybrid between a landmass barrier and a cobble beach. It is a barrier in that it reduces tidal velocity, breaks waves, and protects against erosion that would threaten the salt marshes and neighborhoods beyond. But it also a highly resilient coarse grain beach, that grows vertically with increasing storm energy and wave action while providing critical habitat to nesting terms. Coarse grain beaches were once found in this environment, but the impounding of the watershed and channelization of the creek has prevented this material from making it to the Bay. We propose to revive this lost ecosystem and harvest the creek's gravel during channel construction upstream, bringing it to the bay to create new, shifting habitat at the bay's edge that grows with time to respond to sea level rise.

X BEACH MODELING

For the pebble dune feature, a preliminary analysis of beach response to storm conditions was conducted. The primary focus of this analysis was to understand the potential response of the pebble dune to storm wave conditions at various water levels. This model is intended to be exploratory of the possible responses a pebble beach face may have to the storm wave conditions in the vicinity of the Eden Landing Wetland Restoration Project.



The Deltares XBeach-G program was utilized to conduct the preliminary analysis based on historic storms within the South Bay. XBeach-G is a 1-dimension model which is similar to the SWASH model that solves wave-by-wave flow and surface elevation variations due to short waves in intermediate and shallow water depths. This is particularly important for application on gravel beaches, where due to steep slopes swash motion is mainly at incident wave frequencies.
Beach response to storm wave conditions were modeled for varying beach slopes and grain sizes (D50). The beach profile, wave conditions and water levels used in the analysis included:



O-PST-9
(cont.)


EXISTING ALAMEDA CREEK FLOOD CONTROL CHANNEL
EDEN LANDING
CONSTRAINED TO FLOOD CONTROL CHANNEL
UNION CITY
LIMITED TRANSITION MARSH BEFORE ENTERING THE BAY
FREMONT
CARGILL
COYOTE HILLS
PROPOSED BREACH OF ALAMEDA CREEK FLOOD CONTROL CHANNEL
EDEN LANDING
CONNECTION TO CREEK AND SPAWNING GROUNDS
TRANSITION ZONE
UNION CITY
PEBBLE DUNE HABITAT
FLOODROOM
FREMONT
CARGILL
COYOTE HILLS

O-PST-10

ADAPTIVE MANAGEMENT

A dynamic and ecological system requires adaptive management. *Unlock Alameda Creek* proposes to monitor this changing landscape through a range of sensing strategies, including the monitoring of suspended and deposited sediment, accretion rates, tidal fluxes, vegetative establishment, and pebble dune migration over time. We must plan for uncertainty today, creating a system that can be modified as the climate changes. Marsh restoration targets may need to be adjusted to meet sediment inputs. Managed ponds may need to transition to tidal environments. Edges and inland areas may need nourishment over time. Monitoring and sensing of this environment will inform future adaptive management practices and connect people with critical but remote living infrastructure.

MONITORING AND SENSING

A comprehensive monitoring strategy is needed to both learn from and adaptively manage our living infrastructure. A range of sensing strategies are proposed for learning more about the current dynamics of Alameda Creek, for supporting the adoption *Unlock Alameda Creek* designs, and testing methods for tributary monitoring throughout the Bay. Across these strategies, the sensors and monitoring devices are designed to engage multiple publics--creating visible and didactic moments along the creek for residents, engaging local schools in monitoring activities and creek stewardship, and supporting scientific research.

In the short-term, sensing stations will be deployed throughout the tidal range where there are currently no permanent sensing installations to study tidal sediment flows and the potential breach location. In the long-term, a comprehensive monitoring strategy is deployed alongside the living infrastructure interventions to ask critical questions about creek and bay morphology as well as ecological health. In the fluvial reach, how does sediment move past head of tide and where does it get deposited in the channel? In the tidal reach, how does sediment move? And at the Bay-tidal interface, how quickly is accretion occurring, and how mobile is the gravel barrier?

The monitoring goals are threefold. One, to create a baseline of pre-intervention data to help inform our proposed interventions and measure their effectiveness. Two, to match instrumentation approaches, sampling frequencies, and physical sample collection so that our data will complement existing research efforts within the watershed and throughout the Bay. And three, to make this monitoring infrastructure and the underlying processes it reveals legible to a broader public.

Proposed monitoring points along the system

O-PST-11

BAY STAKEHOLDER CHARRETTE

Currently there is almost no connection between Alameda Creek, Old Alameda Creek, and the baylands. The former tidal wetlands in the area are leveed salt ponds, no longer in production, and hydrologically separated from the flood control channel, a potential source for tidal flows and suspended sediment. The focus of our work was to find ways to reconnect tidal flow between the creeks, the ponds, and the Bay while facilitating current efforts to recreate tidal wetlands at Eden Landing.

The Public Sediment team organized a charrette between the Alameda County Flood Control District, South Bay Salt Ponds Restoration project, CA Fish and Wildlife, and Public Sediment team to discuss how to breach Alameda Creek into the Eden Landing Wetlands. While breaching appears simple, it requires a highly complex series of fluvial, tidal, and combined flood control event considerations for it to occur. A breach scenario, with associated flood control improvements, was developed at this meeting and is articulated in the above description.

O-PST-12

PROPOSED PILOTS

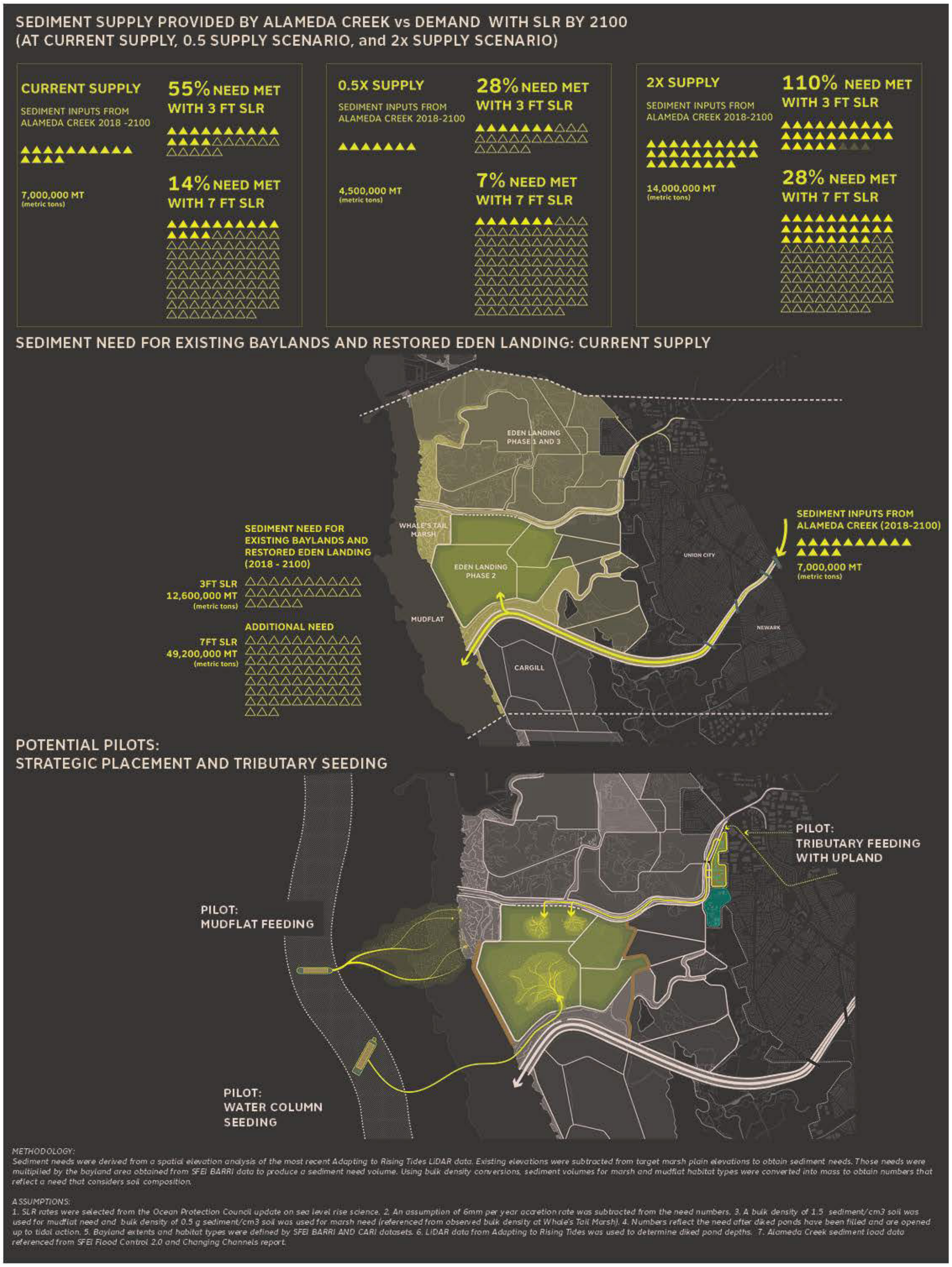
Unlock Alameda Creek challenges the idea that Bayland investment should occur only at the edge. Measure AA, intended to restore Bay Area wetlands, passed as an example of a truly regional ballot measure. As these funds are spent, it is critical to consider future sediment supply as a factor in this equation and invest in new methods of bayland sustenance, including tributary unlocking and alternative methods of actively dispersing sediment.

Our team has prepared concept calculations that compare potential sediment inputs for Alameda Creek and potential sediment needs for its associated wetland sink, Eden Landing. While there are many unknowns, these calculations are shown across a range of sea level rise projections and potential variabilities in local sediment supply (current, 50% of current, and 200% of current) to incorporate future uncertainties. These calculations assume an accretion rate of 6mm/ year from the Bay annually, and that all of Alameda Creek's sediment is depositing in Eden Landing baylands, a highly unlikely scenario, as much of the sediment moves directly into the Bay.

The discrepancy between supply and need shown below is clear and demands more open dialogue around how we plan and invest in Bayland edges. We can start this process now by investing in projects like Eden Landing Phase II restoration and *Unlock Alameda Creek*. But we also must think bigger and scale up these ideas and developing a

Page 11 of 13

O-PST-12 (cont.)


SEDIMENT SUPPLY PROVIDED BY ALAMEDA CREEK vs DEMAND WITH SLR BY 2100
(AT CURRENT SUPPLY, 0.5 SUPPLY SCENARIO, and 2x SUPPLY SCENARIO)
CURRENT SUPPLY
SEDIMENT INPUTS FROM ALAMEDA CREEK 2018 -2100
7,000,000 MT (metric tons)
55% NEED MET WITH 3 FT SLR
14% NEED MET WITH 7 FT SLR
0.5X SUPPLY
SEDIMENT INPUTS FROM ALAMEDA CREEK 2018-2100
4,500,000 MT (metric tons)
28% NEED MET WITH 3 FT SLR
7% NEED MET WITH 7 FT SLR
2X SUPPLY
SEDIMENT INPUTS FROM ALAMEDA CREEK 2018-2100
14,000,000 MT (metric tons)
110% NEED MET WITH 3 FT SLR
28% NEED MET WITH 7 FT SLR
SEDIMENT NEED FOR EXISTING BAYLANDS AND RESTORED EDEN LANDING: CURRENT SUPPLY
EDEN LANDING PHASE 1 AND 3
WHALE'S TAIL MARSH
EDEN LANDING PHASE 2
MUDFLAT
CARGILL
UNION CITY
NEWARK
SEDIMENT NEED FOR EXISTING BAYLANDS AND RESTORED EDEN LANDING (2018 - 2100)
3FT SLR 12,600,000 MT (metric tons)
ADDITIONAL NEED
7FT SLR 49,200,000 MT (metric tons)
SEDIMENT INPUTS FROM ALAMEDA CREEK (2018-2100)
7,000,000 MT (metric tons)
POTENTIAL PILOTS:
STRATEGIC PLACEMENT AND TRIBUTARY SEEDING
PILOT: TRIBUTARY FEEDING WITH UPLAND
PILOT: MUDFLAT FEEDING
PILOT: WATER COLUMN SEEDING
METHODOLOGY:
Sediment needs were derived from a spatial elevation analysis of the most recent Adapting to Rising Tides LiDAR data. Existing elevations were subtracted from target marsh plain elevations to obtain sediment needs. Those needs were multiplied by the bayland area obtained from SFEI BARRI data to produce a sediment need volume. Using bulk density conversions, sediment volumes for marsh and mudflat habitat types were converted into mass to obtain numbers that reflect a need that considers soil composition.
ASSUMPTIONS:
1. SLR rates were selected from the Ocean Protection Council update on sea level rise science. 2. An assumption of 6mm per year accretion rate was subtracted from the need numbers. 3. A bulk density of 1.5 sediment/cm3 soil was used for mudflat need and bulk density of 0.5 g sediment/cm3 soil was used for marsh need (referenced from observed bulk density at Whale's Tail Marsh). 4. Numbers reflect the need after diked ponds have been filled and are opened up to tidal action. 5. Bayland extents and habitat types were defined by SFEI BARRI AND CARI datasets. 6. LiDAR data from Adapting to Rising Tides was used to determine diked pond depths. 7. Alameda Creek sediment load data referenced from SFEI Flood Control 2.0 and Changing Channels report.

O-PST-12 (cont.)

design/science framework for action that invests wisely in living infrastructure in an era of sediment scarcity and climate change. Collaboration, open discussion, and design/science partnerships are fundamental in meeting this challenge and developing a resilient Bay for all.

The Public Sediment Team is working across disciplines to study new sediment management practices in the Bay Area and consider the planning and management of sediment flows holistically, as an interconnected system that spans uplands and lowlands, incorporating natural processes and human inputs. The SBSP Eden Landing Phase II project aligns closely with the Public Sediment goals- to design with mud for a more resilient Bay and to make sediment a valued and understood public resource. We hope our work with *Unlock Alameda Creek* advances and informs the larger South Bay Salt Pond Restoration Project and we look forward to advancing these works together.

Sincerely,

The Public Sediment Team

Gena Wirth
SCAPE Landscape Architecture

Brett Milligan
Dredge Research Collaborative

Adam Marcus
Architectural Ecologies Lab

Christopher Devick
Arcadis

Brett Snyder
UC Davis Department of Human Ecology and Department of Design

Lee Wright
TS Studio

Response to Public Sediment Team via SCAPE / Landscape Architecture DPC (O-PST)

O-PST-1

The project proponents appreciate your support of the project.

O-PST-2

See MCR 1, Selection of the Preferred Alternative, regarding common components in the action alternatives and the Preferred Alternative.

O-PST-3

The Preferred Alternative is intended to maximize tidal marsh restoration while still balancing multiple restoration goals. As such, the Bay Ponds would be converted to tidal marsh in the initial phase of restoration under the Preferred Alternative. The Preferred Alternative includes the mid-complex levee, levee improvements to the outboard and inland levee, habitat transition zones at multiple locations including the eastern side of Pond E2's outboard levee, and levee breaches at OAC. Several connections are also planned for the ACFCC, with one of the connections between the Bay Ponds and the ACFCC no longer through large culverts, as initially described, but instead through a full breach. This breach would be armored to prevent additional scour and uncontrolled widening that could undercut a new public access bridge on the Alameda Creek Regional Trail.

O-PST-4

As described in O-PST-3, one of the connections between the Bay Ponds and the ACFCC no longer through large culverts, as initially described, but instead through a full breach. The breach would be sized to facilitate sediment transport to the Bay Ponds as well as fish passage. Although the exact breach width will be developed during detailed design, the breach is expected to be less than 200 feet in width.

O-PST-5

As discussed in MCR 7, Public Access Trails (Routes, Elevations, and Parking), the preferred trail alignment through southern Eden Landing is Trail Route 1. Trail Routes 2 and 3, the community connector at Westport Way, and the spur trail shown in Alternative Eden C were not included in the Preferred Alternative. Trail Route 1 was chosen in part to provide a more bayward experience for trail users (Trail Route 1 is the westernmost of the three considered) and to minimize the amount of land acquisition or easements or agreements necessary from outside parties that would be necessary to complete it. Trail Route 3 and the associated "community connector" trail to Union City Boulevard was not included in the Preferred Alternative because of a strong negative response to it by stakeholders and because of the concern that the community connector would draw more outside trail users to the area and encourage them to park on existing streets. Bicycle and pedestrian links would still connect to the south via the Alameda Creek Regional Trail.

The preferred trail alignment does not exclude the possibility of future acquisition of the Cargill-owned properties at Turk Island, Cal Hill and adjacent ponds, but it does not rely on it. Also, as mentioned in response to comment O-PST-3, the ACFCC breach would be armored to allow for a new public access bridge on the Alameda Creek Regional Trail.

O-PST-6

As discussed in MCR 4, Beneficial Reuse of Dredge Material, including Placement Locations, Purpose, Timing, and Impacts, the Preferred Alternative for Phase 2 at Eden Landing includes the potential beneficial reuse of dredge material to raise pond bottom elevations and to build habitat transition zones in several ponds. Dredge material would be placed in the Bay Ponds (Ponds E1, E2, E4, and E7) and may be used to raise portions of Ponds E5 and E6, depending on the eventual Adaptive Management Plan-informed decision about the long-term restoration of those ponds to tidal marsh.

The Preferred Alternative does not exclude the possibility of mudflat feeding or tributary seeding being developed at a future date, but it does not include these features.

O-PST-7

As discussed in response to comment O-PST-6, the Preferred Alternative for Phase 2 at Eden Landing includes the potential beneficial reuse of dredge material to raise pond bottom elevations. The SBSP Restoration Project proponents intend to accept dredge material for the beneficial reuse in project restoration actions if materials are available in the time frame needed for successful project implementation. As such, the project was developed such that if dredge materials were not available in an appropriate time frame, project implementation can proceed without such material.

See also response to comment O-PST-3 for a discussion of other components of the Preferred Alternative, including the mid-complex levee, levee breaches at OAC and the ACFCC. The Preferred Alternative also includes rootwads at Pond E2's outboard levee to help trap sediment and form beach-like areas as a habitat enhancement while providing some erosion protection. Gravels or other coarse materials would be placed at or near the rootwads to provide habitat complexity. These gravels are expected to be placed along approximately 300 linear feet at the toe of the bay-facing levee to form a small, pilot-scale gravel beach. The Preferred Alternative does not exclude the possibility of development of a larger-scale pebble dune/barrier island at a future date, but it does not include this feature.

O-PST-8

See response to comment O-PST-5 regarding the trail alignment selected for the Preferred Alternative. The Preferred Alternative also includes a public access bridge over the ACFCC. However, it is important to acknowledge a few limits on what that inclusion means. First, neither the CDFW nor any of the other SBSP Restoration Project primary entities (the USFWS or the State Coastal Conservancy) owns the land on either side of the ACFCC. The Project therefore holds no unique ability or influence to obtain the necessary funding, permits, or property rights to actually build it. The construction of such a bridge, as with the completion of a portion of the proposed trail through southern Eden Landing, would require property acquisition at fair market value or a permanent public access easement. Therefore, the SBSP Restoration Project proponents/ CDFW are unlikely to be the sole implementer of a public access bridge over the ACFCC on their own. As noted, building that bridge will require a substantial effort to acquire funding for and perform design, permitting, and construction, and to obtain necessary easements or property acquisition. This is very likely to need cooperation between a number of partner agencies to successfully implement.

O-PST-9

See response to comment O-PST-7 for a discussion of the enhancement features proposed in the Preferred Alternative on the western side of the Pond E2's outboard levee. As discussed above, gravels or other coarse materials are expected to be placed along approximately 300 linear feet at the toe of the bay-facing levee to form a small, pilot-scale gravel beach. The Preferred Alternative does not exclude the possibility of development of a larger-scale pebble dune/barrier island at a future date, but it does not include this feature.

O-PST-10

Monitoring and adaptive management actions are integral components of the SBSP Restoration Project Adaptive Management Plan. The monitoring and sensing program envisioned and described in the comment would likely require coordination with a variety of stakeholders and agency groups. Phase 2 project actions at ELER would not preclude development of such a system at a future date.

O-PST-11

See response to comment O-PST-3 regarding the inclusion of a breach at the ACFCC in the Preferred Alternative.

O-PST-12

Your comments have been reviewed and considered during the formation of the Preferred Alternative and in preparation of the Final EIR.

San Francisco Bay Bird Observatory (O-SFBBO)

Benjamin Pearl, Plover Program Director
San Francisco Bay Bird Observatory (SFBBO)
524 Valley Way
Milpitas, CA 95035

Brenda Buxton, Deputy Program Manager
State Coastal Conservancy
1515 Clay St., 10th floor
Oakland, CA 94612

June 5th, 2018

To whom it may concern:

O-SFBBO-1 As the Program Director for Snowy Plover projects at the San Francisco Bay Bird Observatory, I would like to provide comments for the proposed actions as listed in the Eden Landing Phase 2 Draft Environmental Impact Statement/Report. Specifically, I am addressing how the proposed actions may affect recovery of the federally threatened Western Snowy Plover (*Charadrius nivosus nivosus*; hereafter Plover) on project lands.

Alternative B, in which the Bay Ponds, Inland Ponds, and Southern Ponds would all be restored to full tidal action, would result in the permanent loss of suitable Snowy Plover habitat. Specifically, ponds E6 and E6C in the Inland Ponds, and ponds E1C, E2C, E4C, and E5C in the Southern Ponds, have supported or currently support breeding Plovers. In 2017, these ponds collectively supported four nests, mainly due to higher water levels throughout the season rendering the habitat mostly unsuitable for nesting Plovers. In 2014, 2015, and 2016, when lower water levels provided more habitat for a longer period of time, these ponds supported at least eight, fifteen, and nine nests, respectively. These ponds provide important alternative habitat to high density breeding ponds in Central (E8, E6B) and Northern Eden Landing (E12-14, E16B), where predators may key in on breeding Plovers, resulting in lowered breeding success. As such, SFBBO considers Alternative B to be the least attractive.

O-SFBBO-2 Alternatives C and D, in which the Bay Ponds would be restored to full tidal action, and the Inland Ponds and Southern Ponds would be enhanced for management, either permanently (Alternative C) or temporarily (Alternative D), represent the preferred alternatives for SFBBO with respect to breeding Plovers. With restoration and appropriate water management afforded by new water control structures, any one of the

O-SFBBO-2 (cont.)

aforementioned Inland or Southern Ponds could become more productive Plover breeding habitat. In turn, this would contribute to the USFWS Recovery Plan goal of 500 breeding Plovers in the San Francisco Bay. Under either Alternatives C or D, we would recommend continued monitoring of the newly enhanced ponds, along with the rest of Eden Landing. This will allow us to collect the necessary data to determine how recent project actions have affected the recovery of breeding Plovers and other pond dependent species, thus greatly informing future project actions.

Thank you very much for considering my comments.

Regards,

Benjamin Pearl, Plover Program Director
San Francisco Bay Bird Observatory

Response to San Francisco Bay Bird Observatory (O-SFBBO)

O-SFBBO-1

As described in MCR 1, Selection of the Preferred Alternative, Pond E6C is proposed to be enhanced and maintained as seasonal habitat for western snowy plover and other pond nesting birds in the summer, while providing deeper open water for overwintering diving ducks and dabbling ducks, among other migratory shorebird species during the spring and fall migration periods. The adjacent Inland Ponds (E5 and E6) would also remain managed ponds during the first phase of restoration; however, if monitoring and implementation of the Adaptive Management Plan determines that tidal restoration of Ponds E6 and E5 is most beneficial, then Ponds E5 and E6 would be open to muted tidal flow. Conversely, the Southern Ponds would be opened to muted tidal flows through a culvert system during the first phase of restoration; however, those ponds could be operated more as true managed ponds and not left open to constant muted tidal flows if ongoing monitoring shows that more managed ponds are needed for bird habitat.

O-SFBBO-2

With the Preferred Alternative, additional water control structures would be constructed in the Inland and Southern Ponds and some of the existing structures would be repaired. These improved water control structures would allow increased operational flexibility (relative to existing conditions) to manage water depth in managed ponds. Monitoring of western snowy plover would continue as per the Adaptive Management Plan.

Trout Unlimited, John Muir Chapter (O-JMTU)

TROUT UNLIMITED

May 8, 2018

Brenda Buxton, Deputy Program Manager
State Coastal Conservancy
1515 Clay Street, 10th Floor
Oakland, CA 94612

Re: Phase 2 South Bay Salt Pond Restoration Project Draft EIR

Dear Ms Buxton:

O-JMTU-1 The John Muir Chapter of Trout Unlimited (JMTU) welcomes the opportunity to comment on the State Coastal Conservancy's South Bay Salt Pond Restoration Project Draft EIR. JMTU has 900 members in the Alameda and Contra Costa Counties. We are dedicated to conserving, protecting, and restoring cold water fisheries and their watersheds. In keeping with our mission, JMTU supports the various districts and non-profit organizations working to restore steelhead to Alameda Creek.

JMTU supports Alternative B, restoration of all 11 southern Eden Landing Phase 2 salt ponds to full tidal marsh, in one stage; this alternative has the greatest potential to provide critical estuarine rearing habitat for out-migrating smolts. We also support multiple points of access between Alameda Creek and restored tidal marshes, in order to increase connectivity between fish habitats and reduce predation risk to steelhead. JMTU strongly support breaches of existing levees to provide maximum connectivity for fish from the Alameda Creek Flood Control Channel, the Bay and Old Alameda Creek channel to the restored wetlands.

More specifically, JMTU supports the proposed raising and improvement of approximately 2 mile of the the existing Bay-facing levees along Ponds E! and E2 (formerly known at the land mass concept). This would prevent wave overtopping and subsequent scour and erosion of the restored marsh behind the levee; provide for a habitat transition zone; and allow for more breaches of the interior levees to improve

O-JMTU-1 (cont.)

fish movement. We also support all feasible lowering of interior levees that does not increase flood risk, to again increase the hydraulic and fish connectivity between channels and marshes.

Lastly, we support connections to Union Sanitary District treated water and the Alameda County Water District Aquifer Reclamation Program wells to allow for freshwater and brackish water inputs to restored marshes, to create water quality and habitat transition zones beneficial to fish.

Thank you for this opportunity to comment on the DEIR, please do not hesitate to contact me if you have any questions regarding the above comments.

Sincerely,

Peter Mangarella

Peter Mangarella
President
John Muir East Bay Chapter of Trout Unlimited
510 289 8163 (m)
info@JohnMuirTU.org

Response to Trout Unlimited, John Muir Chapter (O-JMTU)

O-JMTU-1

See MCR 5, Fish Habitat Restoration, which provides a broad explanation of the types of fish habitat restoration and enhancements included in the Preferred Alternative for implementation as part of the Phase 2 project at Eden Landing. To facilitate fish passage between the ACFCC and the restored ponds, the Preferred Alternative includes two connections to the Bay Ponds and one to the Southern Ponds. One of the connections between the Bay Ponds and the ACFCC will no longer be through large culverts, as initially described, but instead through a full breach. The other two connections would be through culverts. The Bay Ponds would be opened to tidal flows from several breaches on the northern border with OAC and from two locations along the southern border with the ACFCC and there would be interior breaches to connect the four Bay Ponds to each other. The Southern Ponds would be opened to muted tidal flows through a culvert system, making them accessible to salmonids as well. Pilot channels, lowered levees at Ponds E1 and E2, and improvements to the bay-facing levee, are also included in the Preferred Alternative.

The Inland Ponds (E5, E6, and E6C) are not planned for tidal restoration in the Preferred Alternative during the first phase of restoration because of the Project's need to balance multiple types of habitat restoration and enhancement actions. The long-term operation of those ponds as enhanced managed ponds may be necessary to achieve the full balance of the Project's intended ecological goals unless monitoring and implementation of the Adaptive Management Plan provide a basis for determining that tidal restoration of Ponds E6 and E5 is most beneficial. Similarly, Pond E6C is proposed to be enhanced and maintained as seasonal habitat for western snowy plover and other pond nesting birds in the summer, while providing deeper open water for overwintering diving ducks and dabbling ducks, among other migratory shorebird species during the spring and fall migration periods. Although connections to Union Sanitary District treated water and ACWD Aquifer Reclamation Program wells are not currently proposed, later connections by others would not be prevented by project actions.

Trout Unlimited (O-TU)

May 11th, 2018

Brenda Buxton, Deputy Program
Manager State Coastal Conservancy
1515 Clay Street, 10th
Floor Oakland, CA 94612

Re: **Phase 2 South Bay Salt Pond Restoration Project Draft EIR**

Dear Ms Buxton:

O-TU-1 Thank you for the opportunity to comment on the DEIS for the Eden Landing Phase 2 Project. Trout Unlimited (TU) is a national coldwater fisheries conservation organization with over 150,000 members nationwide (over 10,000 in California) and over 200 professional staff nationwide (17 in California) dedicated to conserving, protecting, and restoring North America's trout and salmon fisheries and their watersheds for the next generation. TU was established in 1959 and has a long history of successful restoration work and cooperative projects throughout the United States, in California, and especially around the Bay Area A simple yet effective framework guides our work: Where rivers are intact, we protect them. Where they are fragmented by dams or dewatering, we reconnect them. Where they are degraded, we restore them. And to sustain these efforts into the future, we invest in youth education and outreach, creating a new generation of stream champions to continue our work.

TU, in collaboration with McBain Associates, conducted an extensive literature review and got the opinions on experts on the use of coastal estuaries by juvenile *Oncorhynchus mykiss*, with a focus on systems from California, to inform and support the design of the Phase 2 South Bay Salt Pond Restoration Project. We submitted our comments to the Alameda Creek Alliance in June, 2017.

While we like the design components of Alternative Eden B, we believe a phased approach will allow the implementation of an adaptive management plan that can incorporate lessons learned along the way and inform uncertainties associated with a large-scale and complicated project like this one. Thus, **we support Alternative Eden D**.

Trout Unlimited
4221 Hollis St. Emeryville, CA

O-TU-1 (cont.)

The phased approach is important because we do not know much about how native fishes, specifically *O. mykiss*, will react to this restoration project. Given their small number, it is crucial that the project limit impact and maximize benefit of native fish. For example, multiple breaches will spread out the predation pressure (by striped bass on juvenile *O. mykiss*, for example) beyond a single location. Monitoring predator use could also be done in initial phases to better understand the risk of predation and help inform subsequent phases. Increased connectivity will better allow native fish to move around to find suitable habitat and food and avoid poor water quality (high salinity, low dissolved oxygen, or high temperature).).

O-TU-2

To address concerns related to water quality and native fish, we suggest water quality monitoring and/or water quality modeling to determine the sub-daily levels of dissolved oxygen and temperatures that would occur in the project area.

O-TU-3

To maximize benefit, incorporating some of the pilot channels for fish habitat connectivity that are currently lacking in Alternative Eden D would be beneficial for native fish.

O-TU-4

These channels should incorporate large woody material to provide habitat heterogeneity, refuge from predators, and cover. We suggest that large wood structures be placed adjacent to flowing water to encourage scouring that will create small that can provide suitable refuge for *O. mykiss*. Wood structures should be sized so they do not wash away in the course of regular tidal cycles or storms.

O-TU-5

Given the limited knowledge of native fish in the area of the proposed project, we suggest incorporating monitoring of native fish utilization of different habitat types throughout the life of the project, and after its completion. Such information will be useful in the phased approach of Alternative Eden D and will inform bay tidelands and estuary restoration in the future.

Thank you for your consideration and for the opportunity to comment on the project.

Respectfully,

Natalie J Stauffer

Natalie Stauffer-Olsen, PhD
Staff Scientist
Trout Unlimited

Trout Unlimited
4221 Hollis St. Emeryville, CA

Response to Trout Unlimited (O-TU2)

O-TU-1

As discussed in MCR 5, Fish Habitat Restoration, the Preferred Alternative uses a phased approach for tidal restoration. Tidal flows would be restored to the Bay Ponds and the Southern Ponds would be opened to muted tidal flows through culverts. To facilitate fish passage between the ACFCC and the restored ponds, the Preferred Alternative includes two connections to the Bay Ponds and one to the Southern Ponds with the associated pilot channels. One of the connections between the Bay Ponds and the ACFCC will no longer be through large culverts, as initially described, but instead through a full breach. The other two connections would be through culverts. Because the Southern Ponds would have a single connection which can have higher predation rates than multiple connections, the SBSP Restoration Project team intends to operate the water control structure there under careful monitoring in the early years to evaluate whether this dynamic occurs. If adverse conditions develop, the Southern Ponds could be operated more as managed ponds and not left open to constant muted tidal flows, consistent with an adaptive management approach to the phased restoration by the SBSP Restoration Project.

O-TU-2

As per the Adaptive Management Plan, estuarine fish would be monitored in foraging and rearing habitats within the project. Water quality parameters such as dissolved oxygen would also be monitored. Note that salinity and water temperature would be set by ambient conditions: the estuarine environment would reflect the combined mixture of fluvial flows and water from the Bay that passes through breaches and culverts, and the interior of the ponds are generally expected to be well mixed due to tidal exchange. This expectation of a well-mixed environment is supported by the results of the two dimensional hydrodynamic modeling conducted for the preliminary design (see Appendix D, Attachment 1). As discussed in Section 3.3.3 of the EIR, dissolved oxygen concentrations are correlated with hydraulic residence time and when mixing is high, hydraulic residence times are typically short and dissolved oxygen concentrations remain high.

O-TU-3

As discussed in response to comment O-TU-1 and MCR 5, Fish Habitat Restoration, ACFCC would have two connections to the Bay Ponds and one to the Southern Ponds in the Preferred Alternative. One of the connections between the Bay Ponds and the ACFCC will no longer be through large culverts, as initially described, but instead through a full breach. The other two connections would be through culverts. These connections also include the associated pilot channels.

O-TU-4

The addition of large woody debris at the pilot channels will be considered during detailed design. As discussed in MCR 2, Details of Designs, the SBSP Restoration Project Management Team is committed to implementing lessons learned through its own Adaptive Management Plan as well as through the insights and contributions of knowledgeable people in regulatory agencies, research bodies, nongovernmental or advocacy organizations, and the public. As designs proceed, many of the suggested refinements will be incorporated into the design where feasible and appropriate.

O-TU-5

Steelhead, salmonids, and estuarine fish would be monitored in the restored areas as per the Adaptive Management Plan.

Haley & Aldrich, Inc. on behalf of Pacific Gas and Electric Company (B-HA)

HALEY & ALDRICH, INC.
1956 Webster Street
Suite 300
Oakland, CA 94612
510.879.4544

5 June 2018
File No. 131132

State Coastal Conservancy
1515 Clay St., 10th Floor
Oakland, CA 94612

Attention: Brenda Bruxton
Deputy Program Manager

Subject: Comments Regarding Eden Landing Phase 2 Draft Environmental Impact Report

Dear Ms. Buxton:

B-HA-1

On behalf of Pacific Gas and Electric Company (PG&E), Haley & Aldrich, Inc. has reviewed the Draft Environmental Impact Statement/Report, Phase 2, Eden Landing Ecological Reserve (DEIR; April 2018) and has assembled the following comments for consideration:

1. The Draft EIR states that the average annual rate of dredged sediment delivery to the Bay and Inland Ponds is expected to range from 0.9 to 1.8 MCY per year. This volume represents approximately 25 to 50% of the average annual volume of sediment dredged for navigation purposes in the Bay. If that import rate cannot be achieved, how will it affect project design plans and construction schedule?

B-HA-2

2. As stated in the 2nd paragraph of the Dredge Material Import and Placement sub-section of Section 2.2.4 (and elsewhere in the draft EIR), only material meeting the San Francisco Bay Regional Water Quality Control Board's (RWQCB) wetland cover suitability criteria would be accepted. These criteria are established in the RWQCB's Draft Report: *Beneficial Reuse of Dredged Materials: Sediment Screening and Testing Guidelines,* which specifies that cover suitability determinations will be based on best professional judgment, using a preponderance of evidence approach. However, the RWQCB has issued site-specific Waste Discharge Requirements for current wetlands restoration projects that typically prohibit use of sediments if they exhibit contaminant concentrations that exceed what are considered to be ambient in San Francisco Bay sediments. Will there be any consideration given to working with the RWQCB to develop criteria using effects-based data or a preponderance of ecological evidence approach that would include biological testing or other tools available to predict bioavailability? This approach would increase the volume of material available for beneficial reuse while ensuring the material posed no adverse ecological threat in the wetlands environment.

B-HA-3

3. In the second paragraph of the Dredge Material Import and Placement sub-section of Section 2.2.4 (and elsewhere), the Draft EIR states that San Francisco Bay dredging projects typically provide a range of fine and coarse material. Is it anticipated that a portion of the Eden Landing

www.haleyaldrich.com

State Coastal Conservancy
5 June 2018
Page 2

B-HA-3 (cont.)

project will specifically require coarse-grained sediments? If so, is there an estimate for the quantity needed?

B-HA-4

4. According to Appendix E (Preliminary Design Memorandum of Dredged Material Placement at Southern Eden Landing), the current bottom elevations of the Inland and Bay Ponds range from 4.8 to 5.6 ft. NAVD88, and target average elevation to be achieved by importing dredged material is 6.0 or 6.5 ft. NAVD88. With this objective, the increase in pond elevation ranges from 0.4 to 1.7 ft. NAVD88. If this is correct, does it preclude any consideration for accepting dredged material determined to be *non-cover* quality since non-cover material beneficially reused for wetlands restoration must typically be topped by two to three feet of acceptable cover material?

5. In the second paragraph of the Dredge Material Import and Placement sub-section of Section 2.2.4 (and elsewhere), the Draft EIR states: *"Dredging projects wishing to dispose of material at the southern Eden Landing ponds would obtain separate environmental review and permits to dredge and to transport their material to a deep-water transfer point located in the Bay. Only material meeting the San Francisco Bay Regional Water Quality Control Board's (RWQCB) wetland cover suitability criteria would be accepted."* It was indicated at the public meeting on May 8, 2018, that foundation (non-cover) quality material would be accepted as well. Like the figures provided in Appendix E (see previous comment), this wording appears to limit all accepted material to cover quality material.

Please contact Scott Bodensteiner at sbodensteiner@haleyaldrich.com or 925.949.1026 with any requests for clarification.

Sincerely yours,
HALEY & ALDRICH, INC.

Scott Bodensteiner
Client Leader

Document1

HALEY ALDRICH

Response to Haley & Aldrich, Inc on behalf of Pacific Gas and Electric Company (B-HA)

B-HA-1

As discussed in MCR 4, Beneficial Reuse of Dredge Material, including Placement Locations, Purpose, Timing, and Impacts, the SBSP Restoration Project proponents intend to accept dredge material for the beneficial reuse in project restoration actions if materials are available in the time frame needed for successful project implementation. As such, the project was developed such that if dredge materials were not available in an appropriate time frame, project implementation can proceed without such material.

B-HA-2

Site-specific waste discharge requirements are expected to be obtained prior to dredge material activities and the quality of the dredge materials would be required to meet permit requirements. This is clarified in Section 2.2 and Section 3.3 of the EIR. Development of a permitting approach would occur during later stages of design and permitting.

B-HA-3

There are no specific estimates for a need of coarse vs fine grain materials at this time.

B-HA-4

The Southern Eden Landing Preliminary Design Memorandum (Appendix E; Figure 3.1) provides a cumulative frequency plot of the bottom elevations in the ponds. Although a small portion of the Bay and Inland Ponds are depths greater than two feet below target elevations, these areas are small, and therefore we generally expect that the need would be (almost exclusively) for wetland cover material.

McBain Associates (B-MBA)

McBain Associates
APPLIED RIVER SCIENCES
980 7th Street, Arcata, CA 95521 · PO Box 663, Arcata, CA 95518 · ph (707) 826-7794 · fax (707)826-7795

June 4, 2017

Brenda Buxton,
Deputy Program Manager
State Coastal Conservancy
1515 Clay Street, 10th Floor
Oakland, CA 94612

RE: Comments on South Bay Salt Pond Restoration Project Drat EIS

Dear Ms Buxton:

B-MBA-1

Thank you for providing the opportunity to review and provide comments on the Draft Environmental Impact Statement for Eden Landing Phase 2.

McBain Associates, in collaboration with Trout Unlimited, conducted and extensive literature review and interviewed experts with intent of developing an informed opinion on how to best design the restoration for the benefits of anadromous *Oncorhynchus mykiss.* Our review focused on the current studies of juvenile salmonid use in estuary environments that have been published and interviews with lead authors from those papers. We developed a formal comment on behalf of the Alameda Creek Alliance for the design of the Phase 2 South Bay Restoration Project, for the Eden Landing location, which we finished in June 2017.

Based on our review, we support Alternatives Eden B and D, full tidal restoration either in phased or a non-phased implementation. Alternative D would better allow the implementation of an adaptive management plan that can incorporate data and experiences found at each stage of implementation.

We feel that full tidal restoration would provide the most amount habitat for juvenile salmonids. Tidal and estuary zones are highly productive and have been shown to be important rearing habitats for juvenile salmonids in other systems. However, predation and poor water quality have also been shown to adversely affect salmonids in these systems. Given these risks we recommend the following:

B-MBA-2

1. The incorporation of multiple breach points to avoid predator congregation at break points, effectively reduced risk of predation to juvenile salmonids. Multiple breach points will also reduce risk of entrainment to anadromous salmonids in the event of poor water quality.

2. The construction of pilot channels to increase connectivity between Alameda Creek and Bay Ponds E2 and E4. We also support a breach of the levee instead of a water control structure to improve fish access to and from the restored marsh. These channels should incorporate structure for fish habitat, such as large woody debris, to create habitat complexity for salmonids and to provide deep water refuge under poor habitat conditions.

B-MBA-3

3. We support water quality, food availability and fish use monitoring in the restored area before, during and after project implementation. These data will be valuable to determine the risk of fish to adverse conditions and how beneficial the restored habitat is for salmonids. Additionally, this data will be useful for other similar projects.

We feel that the incorporation of these features and monitoring protocols would maximize the benefit and minimize the risk to anadromous *O. mykiss* in the restored area.

Thank you for again for the opportunity to review and comment on the project, we look forward to seeing it move forward.

Sincerely yours,

Timothy Caldwell
Fisheries Biologist

2

Response to McBain Associates (B-MBA)

B-MBA-1

As discussed in MCR 5, Fish Habitat Restoration, the Preferred Alternative uses a phased approach for tidal restoration. Tidal flows would be restored to the Bay Ponds and the Southern Ponds would be opened to muted tidal flows through culverts. To facilitate fish passage between the ACFCC and the restored ponds, the Preferred Alternative includes two connections to the Bay Ponds and one to the Southern Ponds with the associated pilot channels. One of the connections between the Bay Ponds and the ACFCC will no longer be through large culverts, as initially described, but instead through a full breach. The other two connections would be through culverts. Because the Southern Ponds would have a single connection which can have higher predation rates than multiple connections, the SBSP Restoration Project team intends to operate the water control structure there under careful monitoring in the early years to evaluate whether this dynamic occurs. If adverse conditions develop, the Southern Ponds could be operated more as managed ponds and not left open to constant muted tidal flows, consistent with an adaptive management approach to the phased restoration by the SBSP Restoration Project.

B-MBA-2

See response to comment B-MBA-1 regarding incorporation of a breach in the ACFCC and the inclusion of pilot channels at each opening to the ACFCC. The addition of pools and structural cover will be considered during detailed design. As discussed in MCR 2, Details of Designs, the SBSP Restoration Project Management Team is committed to implementing lessons learned through its own Adaptive Management Plan as well as through the insights and contributions of knowledgeable people in regulatory agencies, research bodies, nongovernmental or advocacy organizations, and the public. As designs proceed, many of the suggested refinements will be incorporated into the design where feasible and appropriate.

B-MBA-3

The SBSP Restoration Project proponents support adaptive management and science-based monitoring. As per the Adaptive Management Plan, estuarine fish would be monitored in foraging and rearing habitats within the project. Water quality parameters such as dissolved oxygen would also be monitored. Monitoring of high food production habitat can be considered.

Staten Solar (B-SS)

From: utility@sfei.org
To: SBSP Question
Subject: An SBSP question or comment
Date: Tuesday, May 01, 2018 2:15:23 PM

First Name : Steve
Last Name : Stout
Organization : Staten Solar
Street Address : 1627 South Main Street
Street Address2 :
City : Milpitas
State : CA
Zip Code : 95035
Email : steve@statensolar.com

This is regarding:
Other

B-SS-1

Question or comment:
Wetland restoration is not the only way salt ponds can benefit the local environment. A small portion of this area could be set aside for a floating solar farm. Here are some reasons for going this route:

1.) no land purchase or allocation, saving land for other purposes;
2.) no need to clear, contour and maintain the land;
3.) no steel/aluminum mounts and their associated install costs;
4.) reduces water weeds, algae, bacteria and other unwanted growth through shading;
5.) reduces water evaporation in drought prone areas;
6.) a cooler/less dusty environment makes solar panels more efficient, while reducing maintenance;
7.) easier relocation, if the need arises;
8.) works at wastewater treatment plants and similar locations unsuited for wildlife;
9.) can sit on ground prone to flooding.

Staten Solar is one of few companies in the USA who install floating solar.

Response to Staten Solar (B-SS)

B-SS-1

Section 1.2 of the EIR describes the overarching goal and objectives for the SBSP Restoration Project and Phase 2 actions at ELER. Setting aside a portion of the ponds to develop a floating solar farm would not meet purpose and need for the project.

2.2.5 Individuals

Comments from individuals and the responses to those comments are presented in this section.

Baye, Peter (I-PB1)

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Brenda Buxton,
Deputy Program Manager, State Coastal Conservancy,
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Subject: Draft Environmental Impact Statement/Environmental Impact Report (DEIS/EIR) for Phase 2 of the South Bay Salt Pond Restoration Project at the Eden Landing Ecological Reserve; NEPA comments submitted on behalf of Citizen's Committee to Complete the Refuge.

May 21, 2018

Dear Ms. Buxton:

I-PB1-1 I would like to submit the following comments on selected aspects of the subject EIS/R. My comments are submitted on behalf of the Citizen's Committee to Complete the Refuge, Palo Alto, but they reflect my independent best professional and scientific judgment in tidal marsh restoration ecology. These comments are provided with the intention of supporting the project as a whole by identifying both problems and solutions that resolve issues regarding specific design alternatives, impacts, and project descriptions. Comments are focused on tidal marsh habitat restoration features, and related flood control features, that differ among alternatives.

Alternatives

The EIR/S volume I explicitly incorporates by reference (p. 2-1) the "details" of project alternative descriptions in Appendices B, C, and D in Volume II. Appendix B (preliminary alternatives analysis report) provides accounts (p. 6 et seq., and p. 27-28) of a "land mass" as a "high and wide earthen feature" designed to preclude catastrophic failure of traditional levees. Yet a word search for "land mass" in the pdf document of volume I of the EIR/S confirms that it is not explicitly addressed in any alternative, nor explicitly excluded or rejected from any alternative. Moreover, this design objective is expressly inconsistent with Appendix D, Preliminary Design Report description of the Bay Levee purpose in context of alternatives C and D (p. 21):

I-PB1-1 (cont.)

> The Bay Levee will be raised for habitat enhancement, not flood protection. Hydrodynamic modeling results …show that tide waters will enter southern Eden Landing through the OAC breaches and lowered levees, and therefore increasing the height of the Bay levee will not reduce the water surface elevation within the Bay and Inland Ponds. Raising this Bay levee may reduce wave overtopping…

This is an apparent inconsistency between the EIR volumes (main text and supporting documents) that is unresolved, and results in an incomplete project description and comparison of alternatives. It is ambiguous whether the very broad description of bay levee "improvements" described for Alternative D (p. 2-43) include, may include, or preclude a "land mass". This is highly significant, because the potential impacts and restoration feasibility and compatibility issues of the "land mass" are indeed massive. The HTZ outline of the bay levee in Alternative D is similar to the vague "land mass" proposal, but the description of Alternative D does not explain whether the "land mass" it is encompassed in it or not.

I-PB1-2

A further problem with the status of the "land mass" in the alternatives analysis and project description is the statement that geotechnical analysis specific to the site – including the analysis of whether the bay muds in the footprint of the "land mass" are even feasible and ripe for comparison with alternatives that are feasible. Appendix D, pp. 14-15, affirms that no site-specific geotechnical analysis has yet been performed for the EIR/S. The geotechnical attachment (Attachment 2, p. 4) indicates that some levee segments cannot even be built to the 12 foot elevation standard without failing stability standards for safety at end of construction. This begs the question of how an vastly larger land mass could be placed without inducing intensive subsidence of low-strength bay mud, and mudwaves that could destabilize salt marsh restoration.

I-PB1-3

Appendix B (p. 27) indicates that the concept of the "land mass" is "much like a barrier island". There is ample evidence that natural marsh-fringing barrier beaches did indeed occur near the project site (e.g. U.S. Coast Survey T-sheet 481 North, 1855, multiple-ridge recurved spit at the end of Alameda Island, near modern Otis Drive; width ranging from approximately 90 – 270 ft at widest; T-591, Fleming Point barrier beach, south of modern Golden Gate Fields, Berkeley, a single dune ridge barrier approximately 40-70 ft wide). Modern analogs of historical barrier beaches that meet or exceed elevation targets for the Bay levee have spontaneously regenerated at Radio Beach (Oakland Bay Bridge toll plaza north shore; 50-60 ft wide beachface, 70-90 ft wide foredune with crest over 5 ft above MHHW), and a wide sand barrier spit with limited sand supply persists even closer at Roberts Landing, San Leandro. The Radio Beach dune also has a double-ridge profile that encloses a non-tidal lagoon – a profile type that would provide even greater flood protection (overwash detention) at Eden Landing than a single dune ridge.

These reference San Francisco Bay barrier beaches have demonstrated habitat value for terns (roosts at Radio Beach north end spit), western snowy plovers (vagrants at Roberts Landing), and potential suitable habitat for endangered California sea-blite (USFWS pilot

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I-PB1-3 (cont.)

reintroduction project at Roberts Landing, terminated due to unfortunate timing of extreme storm erosion ten years ago). Barrier beaches, especially those with gravel berms, "self-seal" rather than fail and tidally breach during storm erosion events, as artificial bay levees do. Barrier beaches with sufficient sediment supply retreat landward while building vertically (foredune accretion) and retaining geomorphic integrity (profile migration landward by "barrier rollover" – dune and washover migration), instead of eroding in place and leaving a lag of immobile residual rocky fill (land mass failure legacy). In relation to restoration and flood control objectives, a barrier beach restoration would provide an environmentally superior alternative to an earthen "land mass", and require less fill. Like Aramburu Island beach, the beach could be designed to "self-construct" by wave and wind action following profile nourishment (hydraulic placement in the foreshore), rather than engineered fill placement. Alternatively, it could be placed hydraulically behind the existing levee, which could be allowed to fail and "activate" wave and wind processes that would mobilize beach sediment and form the barrier beach after the Bay levee erodes and fails – eliminating a major cost and impact of bay levee reconstruction. The potential coarse sediment supplies – Port of Oakland and Alameda Flood Control Channel dredging – are the same as for other alternatives described. The "root wad" design of Alternative B actually requires a barrier beach in order to function.

Therefore, the final EIR should explicitly reject the poorly defined "land mass" concept and replace it with an actual barrier beach restoration with multiple ecological benefits (tern, shorebird, western snowy plover, California sea-blite), recreational benefits (limited public access and recreation for some segments) and flood control benefits (reduction of breach risk, wave runup, and dynamic, sustainable increase in wave attenuation).

I-PB1-4

Habitat Transition Zones ("Upland Transition Zones"; HTZ, UTZ). HTZ are broadly defined in Appendix B (p. 7) as "another enhancement" to increase flood protection, buffer sea level rise, and "add diversity". Appendix D (p. 28) describes habitat transition zones as

> …areas with a wide transition in elevation from upland zones to tidal marsh zones. Low marsh, high marsh, tidal fringe, and upland habitats will develop over a habitat transition zone. The design goal of habitat transition zones is to provide areas varying in elevation to increase habitat diversity and complexity.

The EIR/S defines HTZ on p. 2-15 as "A habitat transition zone is a constructed feature with a relatively gentle slope (up to 30:1 [horizontal:vertical]) intended to provide a natural and ecologically beneficial connection between uplands or levees and the adjacent pond bottom" without reference to flood protection or sea level rise buffering. Because this is a critical feature of the project design and objectives, the HTZ and its design goals need to be consistently and comprehensively defined so alternatives can be compared accurately in relation to project objectives. Incomplete definitions and objectives may

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I-PB1-4 (cont.)

cause or contribute to imbalanced comparisons of alternatives among HTZs located in variously at back-side, interior pond ("mid-complex") levee, and bay levee positions.

The EIR/S's broad-brush description of terrestrial HTZs as a project "enhancement" does not accurately reflect the fundamental, essential role that broad, gently sloping supratidal-high intertidal gradients must provide for stability and ecological function of the restoration of tidal marsh during accelerated sea level rise. They are not optional amenities or enhancements of a tidal restoration project that has objectives for long-term endangered species habitat support during accelerated sea level rise. Properly located and distributed HTZs are arguably *more* essential than raising intertidal fill platforms to Mean Sea Level to Mean Higher High Water, because unlike intertidal marsh platforms, there are no natural, passive processes that could possibly form them, and all long-term tidal marsh restoration objectives would fail without them. Yet the EIR/S dedicates a higher priority to dredge material engineering and placement (a full appendix), while leaving ecological and geomorphic functional assessment of HTZs as a generic and subordinate feature of alternatives.

Essential HTZ ecological design features, such as soil and vegetation criteria related to the stated objectives (habitat diversity, high tide refuge, sea level rise transgression space), are left without sufficient detail to meaningfully compare alternatives. Alternatives variously place terrestrial HTZs at the bay edge and interior of the Eden Landing complex (island-like artificial locations incongruent with sea level rise adaptation or natural tidal marshes) with those at the "back side" (landward edge; natural position and congruent with sea level rise adaptation). Distinguishing HTZ and "island" high tide refuges functions properly (see discussion below) allows for accurate weighting of HTZ flood control and habitat benefits at different landscape positions in the project area, and thus allows for valid comparison of alternatives. The erratic, artificial "bay levee" and "mid-complex" HTZ positions are poorly justified by habitat functions, especially where they are disengaged from potential treated wastewater or well water irrigation.

I-PB1-5

Habitat Transition Zone vegetation establishment. Appendix D (p. 29) states that hydroseeding with native seed mix and/or a planting schema will speed establishment of a range of vegetation, transiting from tidal marsh to upland vegetation, for slope protection. A native annual cover crop composed of a mix of summer and winter annuals with high competitive ability should be hydroseeded (or otherwise broadcast seeded) on all newly graded slopes in fall. Revegetation performed solely by hydroseeding a generic "native seed mix" would predictably result in a transient 1-2 years of target seeded species emergence, followed by rapid succession to weed dominance. This sequence was evident in the first hydroseeding of tidal marsh restoration site levees at Sonoma Baylands, and continues to occur in the Estuary today.

The timing of native annual cover crop sowing should either be prior to germinating rains, or after tillage of rain-germinated weeds from seed banks, depending on the

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4

I-PB1-5 (cont.)

severity of existing weed seed banks or invasions. The dominant native perennial plant species of the transition zone, however, are poorly adapted to establishment by direct seeding. Native perennials and shrub seedlings are subject to high mortality, and survivors would be inherently slow-growing and vulnerable to competition by fast-growing weeds. Vegetative propagules and methods should be used to establish native perennial forbs, grasses and grass-like plants, subshrubs, and shrubs. Most importantly, as explained below, HTZ vegetation design and ecological functions depend on matching compatible substrate (edaphic conditions; soil-vegetation relationships) with ecological objectives. HTZ vegetation designs should include variations matched to both soil and hydrology options ("dry" levee and treated wastewater/well water subirrigation options, different soil texture contingencies). Without matching vegetation design to soil and hydrology, habitat deficiencies or failure (and hence restoration objective deficits) would likely result.

I-PB1-6

HTZ substrate ecological criteria for terrestrial, on-site, and imported estuarine sediments. Appendix D (p. 28) states Appendix D states "Habitat transition zones will be constructed of material generated on-site from excavations of pilot channels, levee breaches, and lowered levees", and that "upland fill material may also be used if available from off-site construction projects, assuming it meets suitability requirements", but it does not state what "suitability requirements" are, or whether they are ecological (based restoration objectives), or merely bulk fill engineering and water quality criteria for contaminants and geotechnical needs unrelated to ecological restoration objectives. Little HTZ substrate information is provided on EIR/S p. 2-43, regarding only compaction and hydroseeding, but no physical soil criteria. The most detailed description of imported terrestrial fill suitability is (inappropriately) in discussion of traffic impacts on EIR/S volume 1 p. 2-60:

> Finding source projects with sufficient quantities of upland fill material is difficult for several reasons. The excavation must occur in a year and season when the SBSP Restoration Project can accept it. Stockpiling material or moving it more than once is cost prohibitive and would increase environmental impacts. Then, to be used in a restoration project, the material must pass a screening to demonstrate its lack of contamination. The source project should also be located close enough to the restoration project that bringing it there would both have fewer environmental impacts and be less expensive than bringing to a landfill or other destination.

The EIR/S contains insufficient description of upland fill, fill sources, or criteria required for a meaningful assessment of impacts or alternatives. This is not a minor detail to be deferred or left to "dirt brokers" with no understanding of tidal marsh restoration. The lack of explicit substrate source and ecological suitability criteria for HTZ is a major omission with potential significant impacts for restoration. The ecological restoration outcomes and impacts of HTZ design are likely to differ significant depending on the source of fill and method of construction. As described, the project could allow fill in the

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I-PB1-6 (cont.)

upper HTZ soil profile that would irreversibly defeat its basic objectives for vegetation and habitat.

I-PB1-7

Terrestrial (upland) fill sources for HTZ. Imported terrestrial substrate suitability criteria for HTZs should be defined ecologically for each alternative, in terms of soil texture, bulk density, and chemistry matched to the target native plant assemblage, and not merely in terms of engineering suitability as bulk fill. Clay loams (clay, sandy clay, silty clay) are appropriate for the top 1.5 ft of all habitat transition zone slopes. Drained bay mud is usually suitable for this purpose. Adverse soil conditions due to use of stony terrestrial subsoils, especially unweathered horizons with high content of cobble or large gravel (such as some newly constructed Bair Island constructed levees), can pose almost insurmountable constraints for growth of suitable vegetation types supporting essential ecological objectives in salt marsh transition zones. Stony subsoils favor effectively irreversible and unmanageable dominance by many annual non-native Mediterranean weeds. Superficial soil amendments could not offset the root zone impacts of stony soils with compacted clay, or sandy soils with high pore volume.

Mitigation for potential significant long-term impacts (and restoration feasibility impairments) of importing ecologically incompatible upland fill for HTZs should include a requirement for a minimum 1 ft (objective: 1.5 ft) cap of either dewatered fine-grained (silt to clay) dredge sediment, low-sulfate on-site bay mud, or comparable silty clay loam as a cover layer on HTZs.

Dredged material sources for HTZ construction. Appendix E states that one potential dredge sediment source, Oakland Inner & Outer Harbor, may contain up to 40% sand. Sand and bay mud are not ecologically equivalent as fill platforms for tidal marsh restoration. Sandy dredged material, especially batches with very high percentage Merritt Sand (Pleistocene beach, dune and shallow lagoon sands, similar to Ocean Beach sand texture) should not be used as bulk fill for tidal marsh platforms or HTZs at Eden Landing. High concentration of Merritt Sand in the upper marsh soil horizons is likely to result in prostrate pickleweed growth habit, and formation of persistent playa-like high salt marsh pans (nearly barren flats, similar to some salt pond flats) in the high salt marsh ecotone, as at Hamilton Wetlands Restoration. This is due to sand's naturally low nutrient retention capacity, low moisture content, and high potential for capillary concentration of salt at the surface. Well-planned high marsh transition habitat design may well include such playa-like sandy flats and high marsh pans, but sandy sediments should not be treated indiscriminately as inert bulk fill, equivalent to bay mud. Sand-dominated dredged material should be prioritized for estuarine beach nourishment at the bay shore of the Bay Ponds, as part of a multi-purpose estuarine barrier beach restoration design component.

I-PB1-8

Appendix E (p. 12) states that dredged material may be also used to construct HTZs, but it does not explain whether this would occur through direct placement of dredged material in cells, or earthmoving of dewatered dredged material after placement.

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I-PB1-8 (cont.)

Appendix E and the EIR/S provide no alternatives including hydraulic placement of sediment for HTZ construction, with deliberate "mounding" (sediment splays, fans) at sediment slurry discharge points. The hydraulic construction of HTZs (dredge pipe mounding) had demonstrated the feasibility of developing beneficial high salt marsh-terrestrial gradients, as well as back-marsh pool habitats. Complex sediment splays, fans and mounds are commonly formed unintentionally at dredge material placement cells for tidal restoration (e.g. Montezuma Wetlands, Sonoma Baylands). At Sonoma Baylands, they formed the earliest and most extensive high marsh habitats at the project site, ahead of all dredge material fill platform areas, which remain predominantly middle to low marsh plain over 20 years after construction. HTZ construction in alternatives using dredge material should incorporate dredge sediment mounding, by timing movement of the dredge discharge pipe points to develop a series of sediment splays or fans, distributary channels, and discharge point scour pools.

I-PB1-9

On-site HTZ substrate sources. If HTZs are constructed from on-site excavated bay mud from ancient salt marsh soils that have been converted to salt pond beds, substrate suitability criteria must include testing for acid sulfate or sulfide content. Unlike freshly dredged bay mud dominated by mineral sediments, bay mud from old salt marsh soils in diked baylands may have high organic matter content, and past exposure to alternating prolonged flooding and drawdown. Under these conditions, old salt marsh soils may likely form horizons of highly elevated acid sulfates that can be toxic to vegetation. Acid sulfate soils in levee slopes designed as transition zones may cause persistent inhibition of vegetation and even barren zones, supporting sparse cover of a few acid-tolerant, mostly weedy species, until acid sulfates are neutralized (a process that may take up to five years or more). Recent examples of severe localized inhibition of vegetation by acid sulfates, lasting over five years, occurred at the Petaluma Marsh Expansion Project and one portion of the Bahia Wetland Restoration Projects (Novato, Marin County). Less severe but significant examples also occurred more recently at Sears Point and Cullinan Ranch tidal marsh restoration projects, resulting in persistent large local barren areas, weed prevalence, and delayed colonization by most target native species. Feasible mitigation for potential impacts of acid sulfate soil would include testing soils from potential on-site borrow areas, and segregating acid sulfate soils for placement as foundation fill below the surface of HTZ root depth (1-1.5 ft), avoiding near-surface placement.

I-PB1-10

Dredged material fill impacts and mitigation for restoration of tidal drainage patterning. The legacy of preserved prehistoric tidal creek patterns in salt pond beds (diked salt marsh tidal drainage patterns) is a highly valuable asset for tidal marsh restoration: it imprints a tidal creek template on the marsh platform that preserves high sinuosity and density of mature prehistoric tidal marsh at time of diking in 19th c. Slurry is likely to fill and level. Differential settlement (auto-compaction; thicker layer slurry in slough beds; more settlement) of slurried dredge material is likely to revive tidal channel drainage patterns unless cell berm layout cuts them off and consolidates dredge sediment in confined cells. If confinement berms are used for engineered placement of dredged

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I-PB1-10 (cont.)

sediments, they should be aligned to run between tidal drainage networks, like "tidal watersheds" to preserve high drainage density, channel sinuosity of mature ancient tidal marsh. Borrow ditch blocks, and breaches of interior salt pond levees, should be combined with to prevent borrow ditches from dominating tidal flow patterns, and reconnect ancient tidal drainage networks as much as possible. This is not described in preliminary design for any alternatives; all alternatives appear to imply a high risk of burying and erasing major portions of antecedent tidal channel patterns.

I-PB1-11

Dredged material fill elevation targets and fill stabilization with vegetation. The target elevation range between MSL and MHW is appropriate, to ensure rapid vegetative stabilization and retention of placed sediment, minimizing the risk of reworking (resuspension by tidal current and wind-wave turbulence) and net loss during strong spring ebb tides or storm events. However, the limiting habitat in coming decades of accelerated SLR will likely be high salt marsh (approx. MHHW to mean perigee spring high tide elevation, so the EIR/S should specify of dredged sediment volumes (percent) of dredged material allocation to wide HTZ ramps (platforms for higher high salt marsh zones over 20-50 years of sea level rise), and flat intertidal marsh platforms below MHW elevation.

I-PB1-12

Imported dredged material and project timing. There is trade-off in committing to use of dredged material with the intention of accelerating tidal marsh restoration or correcting subsidence, to reach low or middle salt marsh elevation range. The trade-off is between time opportunity for potential tidal sediment accretion (direct breach with no dredge material import), and the equivalent elevation gain from dredge material placement, within a finite amount of time, as the risks of sea level rise acceleration and declining estuarine sediment deficits increase. If the added delay relative to direct breaching and passive tidal sedimentation is short, and tidal suspended sediment concentrations (SSC) are relatively low, the delay in restoration caused by dredged material engineered placement provides a net advantage for tidal restoration. But where SSC is high, and dredge material wait time (tidal restoration/breach delay) is long, dredged material dependence for tidal restoration can become disadvantageous. Very long delays in project scheduling and sediment delivery, such as at Montezuma Wetlands (over decades), have resulted in significant net delay of tidal restoration relative to prompt tidal breaching. As the sea level rise curve steepens, this potential deficit may become more severe. The EIR/S should mitigate this risk by setting a threshold schedule to implement tidal breaching in case of excessive delay in dredged material placement at Eden Landing ponds, if dredged material options are taken. Tidal restoration should not be delayed indefinitely because of a project commitment to accept dredged material; a cut-off is needed to proceed with tidal restoration if dredged material delivery is excessively delayed. Alternative beneficial re-use options for dredged material exist at some Alviso-Mountain View ponds, which are more severely subsided, may be a better alternative site for dredged material in case of Eden Landing project delay.

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I-PB1-13 **Imported Alameda Flood Control Channel sediment placement**. The EIR/S covers dredged material offloading and placement (Appendix E) in detail. It also proposes and evaluates details for pipeline connections for delivering brackish groundwater from wells, and tertiary treated wastewater from Union Sanitary District, to support restoration construction and maintenance activities. These are appropriate and informative for the project description and alternatives. But there appears to be no alternative or module, however, for long-term infrastructure (pipeline and booster pump delivery) of Alameda Flood Control Channel excavated sediment, which is a highly significant long-term, recurrent source of both coarse and fine sediment nourishment for bay shorelines, marshes, and habitat transition zones. Flood control sediment should be integrated into the project design just as dredge sediment and water sources are.

San Francisco Estuary Institute (SFEI 2017) provided data on the highly variable annual sediment load of Alameda Creek, which averages approximately 100,000 tons/year. The bed sediments that are actively excavated are richer in coarse sand and gravel than the total sediment load, with the proportion of gravel increasing upstream above the Niles Canyon gauge (about 40% gravel, 25% coarse silt and sand; SFEI 2017). Most channel maintenance sediment removed is in tidal reaches, close to the project site, where the proportion of silt and clay is about 60%. All these sediment classes, volumes and the cyclic nature of supply are extraordinarily important assets for tidal restoration and long-term adaptation (management, maintenance) to sea level rise, and no less important than single-event construction fill import sources (Goals Project 2015, SFEI 2017).

The EIR/S should include this highly significant marsh and shoreline sediment nourishment resource as a part of the restoration infrastructure. Sediment dredged from Alameda Creek should be piped to the site with a system of booster pumps (as proposed for offshore import and delivery of dredged material) and delivered for restoration construction, and for long-term "thin-lift" slurry deposits along habitat transition zones, high marsh zones, and especially bay shorelines (for gravel and sand-dominated sediment batches). The long-term restoration and marsh maintenance value of this permanent watershed sediment supply would be greater than one-time dredged sediment subsidies during project construction, especially when sea level rise rates accelerate. The ongoing channel maintenance activities of Alameda Flood Control channel should be integrated with the restoration design and infrastructure in at least one alternative, even if not to a level of detail comparable with Appendix E.

I-PB1-14 **Habitat Islands and sand and shell capping for special-status wildlife habitat enhancement.** "Habitat islands" are proposed as either shorebird roost or high tide salt marsh refuge features. Shorebird islands suitable for terns and plovers are proposed to be kept suitably barren by substrate design:

> A select group of islands will be treated to create nesting habitat for western snowy plover, California least tern, or other bird species. The top surface of the islands will be treated with a 12-inch thick sand layer underlain by a 6-inch thick

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I-PB1-14 (cont.)

> crushed rock to minimize weed establishment. The sand layer will include oyster shells or other materials to provide a primarily unvegetated, diverse landscape that is typically preferred by nesting birds. (Appendix D, p. 31)

The capping of islands with sand, shell, and impermeable layers would preclude subsequent conversion to high salt marsh vegetation capable of providing dense cover of tall vegetation that functions as high tide refuge for wildlife during extreme high tide marsh submergence events. Sand surface layers naturally promote cover of relatively low, prostrate salt marsh vegetation (mats of pickleweed, saltgrass, alkali-heath; stunted gumplant or none; see Hamilton Wetlands Restoration example below). Habitat islands constructed with sand and shell for shorebird roosts, even if feasible and sustainable (which is not the case), would require reconstruction and conversion to high salt marsh features with a different substrate if they were to function as high tide refuge cover in a salt marsh.

Capping emergent islands with sand and shell as habitat enhancement feature for terns and plovers habitat is very likely to be infeasible and counter-productive in the long term, and even short-term (> 2 yr); it would fail to meet objectives to "enhance" islands or "land mass" to become surrogate habitats for high-albedo unvegetated habitats in salt ponds, levees, or beaches. This is a potential significant impact if these features are proposed to compensate for restoration project-induced habitat loss of special-status species such as western snowy plovers, least terns, or important high tide roosts for shorebirds. The EIR/S appears to mistake the ecological processes that maintain barren sand and shell substrates in the Estuary, and assumes that substrate design alone will provide suitable habitat conditions.

In the absence of wave action, physically stable sand or shell deposits 12" thick, even with road base/crushed rock below, would predictably become rapidly colonized by annual weeds at high density and cover, which would persist indefinitely or undergo succession to dominant weedy perennials or scrub. Bare sand or shell habitats capable of attracting and supporting snowy plovers, or shorebird roosts, are formed and maintained by recurrent disturbance or stress sufficient to preclude colonization and persistence of vegetation. The prevailing natural disturbances and physiological stresses that maintain barren sand, shell, or pan beds are either (a) daily high tide wave action (beaches), or (b) alternation between prolonged seasonal alternation of flooding and desiccation in saline depressions and flats (pan or playa in salt ponds or high salt marsh edges).

Positively drained, convex sandy or shelly topographic features (mounds or berms with no hypersaline salt accumulation, seasonal hypersaline desiccation, or seasonal flooding) in either salt marshes or managed non-hypersaline lagoons/ponds inevitably become colonized and dominated by thick cover of annual weeds (and a few native plants) that are adapted to sand substrates. The colonization and accumulation of weed seed banks occurs rapidly, within 1-2 years. Barren high-albedo sand or shell surfaces would need chronic high maintenance, which is not feasible in the long term or consistent with

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I-PB1-14 (cont.)

"restoration". Sand and shell surfaces within hypersaline basins, or wave-exposed shorelines, maintain dynamic barren high-albedo surfaces. On levee roads, routine vehicle use and compaction of hypersaline sediments maintain barrens. In the absence of vegetation suppressing dynamic influences like these, sand and shell barrens are unstable and become vegetated landforms.

Outstanding examples of permanently vegetated well-drained stabilized sand and shell berms (relict beach ridges cut off from wave action) and mounds, and their rapid formation after stabilization, are evident around Foster City, Point Pinole, Brisbane, Oakland, and elsewhere. In context of dredged material placement, Port of Oakland Merritt Sand deposited at Montezuma Wetlands initially formed barren active deflation plains and dunes that attracted western snowy plovers beyond their historical range. The Montezuma sands, which were placed over relatively impermeable and hypersaline bay mud (root barrier to terrestrial weeds, analogous with an impermeable road base layer) subsequently became colonized by vegetation that caused the site to be abandoned by plovers and terns, despite intensive short-lived unsustainable efforts to suppress vegetation and maintain artificial sandy barrens.

The target tidal elevations of habitat islands in salt marsh restoration areas should not exceed the highest spring tide elevations because <u>perennial</u> <u>vegetation canopy cover</u> above the substrate surface, not the substrate surface itself, provides wildlife emergent high tide cover during extreme high tides. Island elevations and substrates should have objectives to maintain tall, dense perennial native vegetation cover above the extreme high tide water surface, distributed near tidal channels. Conversion of islands to supratidal, terrestrial substrate elevations may result in dominance of annual weeds above the high tide line, which would provide inferior cover during winter high tides. Similarly, if supratidal elevations target terrestrial shrubs as cover, these would likely be subject to mass mortality (dieback and degeneration of cover) after extreme high tides saline soils when sea level rises, shifting cover back to weedy annuals until high salt marsh succession occurs. Habitat islands dedicated to provide high tide salt marsh wildlife cover should set design substrate and elevation objectives to produce tall, dense, semi-evergreen gumplant canopies would remain above the extreme high tide water surface (i.e., separate but related tidal elevation objectives for substrate and vegetation canopy cover). High tide flood refuge cover could be supplemented by installation of large woody debris that can trap smaller floating debris, and provide dynamic refuges independent of vegetation canopy structure and elevation.

I-PB1-15

Habitat Transition Zones and "Islands" as high tide refuge. The EIR/S does not explicitly compare the critical high tide refuge habitat designs among alternatives, or the configuration and relative contribution of high tide refuge functions provided by HTZs and "islands". The two constructed features differ significantly in relation to high tide movements of endangered California Ridgway's rails and salt marsh harvest mice during extreme high tides.

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I-PB1-15 (cont.)

When flooded out of tallest available salt marsh vegetation cover during high tides, SMHM move vertically to the nearest emergent cover within their home ranges, or are forced to swim to floating or emergent cover, which exposes them to risk of avian predation or drowning (wind-wave turbulence). Ridgway's rails move through tidal creeks and take cover in the tallest vegetation in home ranges, which is normally creek-bank gumplant directly connected to primary creek travel corridors. Cross-marsh movements during marsh submergence to alternative "upland" (landward edge) transition zones is a last resort when no other cover is available within or near home range, which is a characteristic trait of degraded, narrow salt marshes bordered by levees – not restored extensive tidal marsh plains. There is no basis to assign primary high tide refuge functions to HTZs; they are catastrophic alternative flood refuge habitats, back-up refuges of last resort when internal home-range refugia are submerged. In a restoration design, primary high tide refugia should be well-distributed within home ranges of sensitive wildlife, in relation to tidal creek bank patterns - where the tallest vegetation naturally occurs. Well-distributed, extensive high intertidal salt marsh "islands" (emergent high marsh mounds or berms) should be interpreted and designed as the first line of normal high tide refuge habitat (perigee spring high tides, storm high tides, with HTZs as infrequent "worst case" flood refuge (storm, perigee high spring tide, and warm Pacific sea level anomalies or extreme ENSO events).

The environmentally superior/preferable alternative should provide the maximum creek-parallel distribution of effective high tide refuge habitat (tall high intertidal marsh vegetation) in restored tidal marsh. Alternatives should not excessively weigh benefits of peripheral HTZs as high tide refuge habitat over internal high tide refuge habitat of the salt marsh plain.

If high tide refuge designs internal to the restored tidal marsh are adequate, the flood protection designs of the alternatives (B, C, D) are largely and properly decoupled from the different alignments of HTZs at artificial "mid-complex" and "bay levee" locations. The alternative, unnatural HTZ locations at the bay levee and mid-complex (Alternative D) are unjustified by habitat benefits, and become essentially flood control primary-purpose designs, if the alternatives properly rely primarily on internal marsh "island" high tide refuge designs.

I-PB1-16

Tree root wads as shoreline enhancements: incomplete or infeasible design

The DEIR and Appendix D propose to use "root wads" of trees as bay shoreline treatment (alternative B), but without incorporating placement of coarse sediment (sand, gravel). The stated purpose (Alternative B) for tree root wads on the Bay levee was "to help create high tide refuge and help protect the levee from wave erosion. Tree "rootwads" are a natural slope stabilization technique often used in stream restoration design". This is an error of interpretation out of context. Root wads of trees are ordinarily used as scour objects in stream restoration to create erosional pool habitats where turbulent streamflow is concentrated, as well as components of bank stabilization when combined with other stabilization features.

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I-PB1-16 (cont.)

Without coarse sediment to trap and buffer the logs and root wads, wave action at the bay shore would be reflected and concentrated, intensifying storm wave erosion. In order to function as a protective shoreline features, log or rootwad groins would need to be combined with a source of coarse sediment to trap. This was the basis of log groins at Aramburu Island habitat restoration project, which placed groins to check longshore drift of gravel. Most of the log groins there continue to perform this function six years after construction. Log groins on the exposed bay shoreline, subject to intensive wave action at high tide during storms, do not themselves provide "high tide refuge" for shorebirds or salt marsh wildlife. Unless large woody debris is embedded in the banks of tidal creeks within the salt marsh, where it may trap other debris or provides a foundation to elevate the vegetation canopy of climbing pickleweed, alkali-heath, or saltgrass, it will not act as any meaningful tidal flooding refuge.

Thank you for your attention to these comments, and for your laudable long-term efforts at managing the unprecedented regional tidal wetlands restoration project, of which Eden Landing is one part. I will provide a supplemental illustrated version of this comment letter to clarify major points, before close of CEQA comment deadline, after this letter is submitted within posted NEPA deadlines.

Respectfully submitted,

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Cc: Citizen's Committee to Complete the Refuge

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Response to Baye, Peter (I-PB1)

I-PB1-1

As described in Section 2 of the EIR, the Preliminary Alternatives Analysis Report (Appendix B) contains the full description of the initial alternatives, the screening criteria, the selection of alternatives carried over into the Draft EIS/R, and the alternatives considered but eliminated from detailed study. Because it is a report that describes the development of the project alternatives, elements that were eliminated and did not move forward into the environmental alternatives analysis are also described therein.

Chapter 2 of the EIR describes each of the project alternatives and the project elements. Alternative Eden D includes a habitat transition zone on the eastern side of the outboard levee. It does not include a “land mass” or barrier island on the outboard side of the levee.

I-PB1-2

As discussed in response to comment I-PB1-1, Alternative Eden D does not include a “land mass” or barrier island on the outboard side of the Bay Ponds to provide coastal flood risk protection. Instead, a habitat transition zone would be built on the eastern side of Pond E2’s outboard levee.

The Eden Landing Geotechnical Investigation and Analyses (Appendix D, Attachment 2) provides the results of the site-specific geotechnical analyses. The analyses indicates that if a specific levee section were to be overbuilt to a 15 feet elevation, a 5 to 1 (horizontal to vertical) slope would be needed. Alternatively, staged construction to an elevation of 12 feet followed by periodic maintenance may be needed.

During future design phases, this geotechnical data will be used to assess the existing levees’ ability to support construction equipment, to perform seepage and slope stability analysis for raised levees, to evaluate the potential magnitude of consolidation settlement induced by placement of additional levee fill, and to design foundation elements for water control structures, bridge abutments, and boardwalks. Consolidation settlement will also be evaluated in areas designated for habitat transition zone fill; placement of additional fill may be required to account for settlement and achieve the proposed finished grade. For the preliminary design, conservative assumptions were made for proposed slopes and bulking factors. Later design phases will be based off the geotechnical investigation results.

I-PB1-3

See response to comment I-PB1-1 regarding purpose of the Preliminary Alternatives Analysis Report (Appendix B), its relationship to the Draft EIS/R, and the lack of a “land mass” in the action alternatives. Alternative Eden B does include placement of rootwads and logs outside of Pond E2 to help trap sediment and form beach-like areas as a habitat enhancement while providing some erosion protection. The Preferred Alternative includes rootwads and other enhancement features on the western side of Pond E2’s outboard levee. Gravels would be placed at or near the rootwads along approximately 300 linear feet at the toe of the bay-facing levee to form a small, pilot-scale gravel beach. Although an extensive barrier beach is not included, the Preferred Alternative does not exclude the possibility of development of a larger-scale barrier beach at a future date.

I-PB1-4

See response to comment I-PB1-1 regarding purpose of the Preliminary Alternatives Analysis Report (Appendix B), its relationship to the Draft EIS/R, and how certain elements in Appendix B have not been brought forward into the Draft EIS/R. Section 2.2 of the EIR describes the primarily purpose of the habitat transition zone as it relates to habitat diversity and complexity. Secondary effects may include the de facto enhancement of flood risk management and habitat resiliency in the face of sea-level rise. See MCR 3, Sea-Level Rise, regarding estimates of future sea-level rise and climate change impacts on marsh restoration, and regarding sea-level rise and habitat restoration planning.

See also MCR 2, Details of Designs, regarding the level of detail required under CEQA and NEPA for analysis of the environmental impacts of the project. Both NEPA and CEQA require the development and analysis of a range of alternatives. The comparison of alternatives is not required by NEPA or CEQA so that the “best” alternative for assuring the project's “success” can be identified, but rather so that the adverse impacts from different alternatives can be identified and compared. Note that the Preferred Alternative includes three habitat transition zones, each of which can provide various benefits depending on landscape position.

Habitat transition zone could be built from onsite materials, dredge materials, or from the import of upland fill materials. As such, the construction impacts associated with dredge material placement is also relevant to this feature. Soil and vegetation criteria for the habitat transition zones will be developed during later stages of design.

I-PB1-5

The suggested seed mix and the timing for its sowing, as well as suggestions for planting propagules and development of wet and dry planting plans, will be considered during detailed design. Suggestions regarding how to make the outcome of the project better, such as how to increase the chance of getting favorable types of vegetation communities, are not about adverse impacts on the existing environment. Therefore, while the SBSP Restoration Project proponents appreciate these inputs and points and will consider them in the next step of the design process, they are not impacts to address in a NEPA/CEQA document.

As discussed in MCR 2, Details of Designs, the SBSP Restoration Project Management Team is committed to implementing lessons learned through its own Adaptive Management Plan as well as through the insights and contributions of knowledgeable people in regulatory agencies, research bodies, nongovernmental or advocacy organizations, and the public. As designs proceed, many of the suggested refinements will be incorporated into the design where feasible and appropriate.

I-PB1-6

Section 2.2 of the EIR indicates that the suitability criteria for dredge materials would be based on the Regional Water Quality Control Board’s screening guidelines for wetland cover material and Section 3.3 of the EIR describes these criteria in detail. Sediment quality in inundation areas is expected to meet the wetland cover suitability criteria and/or site-specific waste discharge requirements regardless of alternative or location for the habitat transition zone. The Regional Water Quality Control Board also has quality guidelines for foundation materials that may be applicable for dredge materials placed below wetland cover materials, depending on future permit requirements. The quality of upland fill materials is also expected to meet permit requirements. Sources for upland fill materials need not be identified at this time.

I-PB1-7

Physical soil properties and vegetation criteria for the habitat transition zones will be developed during later stages of design. Suggestions regarding the exclusion of stony terrestrial subsoil and materials with high sand content within the top layer (1.5 feet) of the habitat transition zones will be considered during detailed design.

I-PB1-8

The Preliminary Design Memorandum of Dredged Material Placement at Southern Eden Landing (Appendix E) describes how the secondary pipelines could be used to allow for mounding along the proposed habitat transition zone locations. Suggestions regarding timing movement of the dredge discharge pipe points to develop a series of sediment splays or fans, distributary channels, and discharge point scour pools will be considered during detailed design.

I-PB1-9

Suggestions regarding the testing and exclusion of materials with high sulfate/sulfide content within the top layer (1.5 feet) of the habitat transition zones will be considered during detailed design.

I-PB1-10

Suggestions regarding the placement of cell berm layouts (if used) will be considered during detailed design. Note that some historical oxbows would be re-connected where feasible, but in general, the relatively linear OAC and ACFCC levees and the internal pond levees have disconnected many of the historic channels.

I-PB1-11

The suggested allocation of the dredge material for habitat transition zones vs. pond bottoms (as a percentage) will be considered during detailed design.

I-PB1-12

As noted in MCR 4, Beneficial Reuse of Dredge Material, including Placement Locations, Purpose, Timing, and Impacts, the SBSP Restoration Project proponents intend to accept dredge material for the beneficial reuse in project restoration actions if materials are available in the time frame needed for successful project implementation. As such, the project was developed such that if dredge materials were not available in an appropriate time frame, project implementation can proceed without such material. The project would benefit from the incorporation of dredge material but does not depend on it. The inclusion of beneficial reuse of dredge material in the Phase 2 Preferred Alternative at Eden Landing should not be interpreted as a commitment to wait indefinitely for that material to be supplied to the project site.

I-PB1-13

Although the transport of dredge materials originating in upstream areas of the ACFCC (via a slurry pipeline) is not incorporated into the project design, such materials can be accepted at the site and placed with other dredge materials in the Bay (and possibly Inland) Ponds. These materials would need to meet project requirements for cleanliness and the source project would need to cover the NEPA/CEQA, and regulatory concerns of generating the slurry material and transporting it to the site. Also note that some sediment in Alameda Creek is expected to be transported via natural processes through the connection between the ACFCC and the Bay Ponds.

I-PB1-14

Suggestions regarding target elevations and the exclusion of unvegetated habitat islands will be considered during detailed design.

I-PB1-15

Refuge habitat has been incorporated in the preliminary design at internal levees. The Preferred Alternative (and each of the action alternatives) includes both habitat islands and habitat transition zones; therefore, an explicit comparison that weighs the benefits of how each type of feature would function as high tide refugia is not needed. See also MCR 2, Details of Designs, regarding the comparison of alternatives under CEQA and NEPA.

I-PB1-16

Rootwads are intended to create drag, allowing an opportunity for suspended sediment to settle out of the water column. Rootwads would be anchored in place and coarse sediment would be used as backfill areas near the structure. Additional debris and coarse material is expected to collect near the structure and form beach-like areas as a habitat enhancement while providing some erosion protection. This clarifying information as included in Section 2.2.2 of the Final EIR. As further discussed in Chapter 6 of the Final EIR, gravels would be placed at or near the rootwads along approximately 300 linear feet at the toe of the bay-facing levee to form a small, pilot-scale gravel beach in the Preferred Alternative. Although, an extensive barrier beach is not included, the Preferred Alternative does not exclude the possibility of development of a larger-scale barrier beach at a future date.

See also response to comment I-PB1-4 and MCR 2, Details of Designs, regarding the level of detail required under CEQA and NEPA for analysis of the environmental impacts of the project.

Baye, Peter (I-PB2)

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Subject: Draft Environmental Impact Statement/Environmental Impact Report (DEIS/EIR) for Phase 2 of the South Bay Salt Pond Restoration Project at the Eden Landing Ecological Reserve; CEQA comments submitted on behalf of Citizen's Committee to Complete the Refuge.

May 30, 2018

Dear Ms. Buxton:

I-PB2-1 I would like to submit the following comments on selected aspects of the subject EIS/R. My comments are submitted on behalf of the Citizen's Committee to Complete the Refuge, Palo Alto, but they reflect my independent best professional and scientific judgment in tidal marsh restoration ecology. These comments are provided with the intention of improving the project as a whole by identifying both problems and solutions that resolve issues regarding specific design alternatives, impacts, and project descriptions. Comments are focused on tidal marsh habitat restoration features, and related flood control features, that differ among alternatives.

An earlier text-only version of this comment letter was submitted for the separate EIS (NEPA) comment deadline schedule. This CEQA (EIR) comment version is completed with figures and captions, including relevant additional "text box" discussion. The two versions are substantially the same, with minor additional corrections.

Alternatives

The EIR/S volume I explicitly incorporates by reference (p. 2-1) the "details" of project alternative descriptions in Appendices B, C, and D in Volume II. Appendix B (preliminary alternatives analysis report) provides accounts (p. 6 *et seq*., and p. 27-28) of a "land mass" as a "high and wide earthen feature" designed to preclude catastrophic failure of traditional levees. Yet a word search for "land mass" in the pdf document of volume I of the EIR/S confirms that it is not explicitly addressed in any alternative, nor

I-PB2-1 (cont.)

explicitly excluded or rejected from any alternative. Moreover, this design objective is expressly inconsistent with Appendix D, Preliminary Design Report description of the Bay Levee purpose in context of alternatives C and D (p. 21):

> The Bay Levee will be raised for habitat enhancement, not flood protection. Hydrodynamic modeling results …show that tide waters will enter southern Eden Landing through the OAC breaches and lowered levees, and therefore increasing the height of the Bay levee will not reduce the water surface elevation within the Bay and Inland Ponds. Raising this Bay levee may reduce wave overtopping…

This is an apparent inconsistency between the EIR volumes (main text and supporting documents) that is unresolved, and results in an incomplete project description and comparison of alternatives. It is ambiguous whether the very broad description of bay levee "improvements" described for Alternative D (p. 2-43) include, may include, or preclude a "land mass". This is highly significant, because the potential impacts and restoration feasibility and compatibility issues of the "land mass" are indeed massive. The HTZ outline of the bay levee in Alternative D is similar to the vague "land mass" proposal, but the description of Alternative D does not explain whether the "land mass" it is encompassed in it or not.

I-PB2-2

A further problem with the status of the "land mass" in the alternatives analysis and project description is the statement that geotechnical analysis specific to the site – including the analysis of whether the bay muds in the footprint of the "land mass" are even feasible and ripe for comparison with alternatives that are feasible. Appendix D, pp. 14-15, affirms that no site-specific geotechnical analysis has yet been performed for the EIR/S. The geotechnical attachment (Attachment 2, p. 4) indicates that some levee segments cannot even be built to the 12 foot elevation standard without failing stability standards for safety at end of construction. This begs the question of how a vastly larger land mass could be placed without inducing intensive subsidence of low-strength bay mud, and mudwaves that could destabilize salt marsh restoration.

Small mud waves (left) leave uplifted, tilted mudflat "crusts" in the wake of onshore-migrating small, light barrier shell beaches at Foster City, 2010. In contrast, heavy loads of high dunes migrating in rapid pulses

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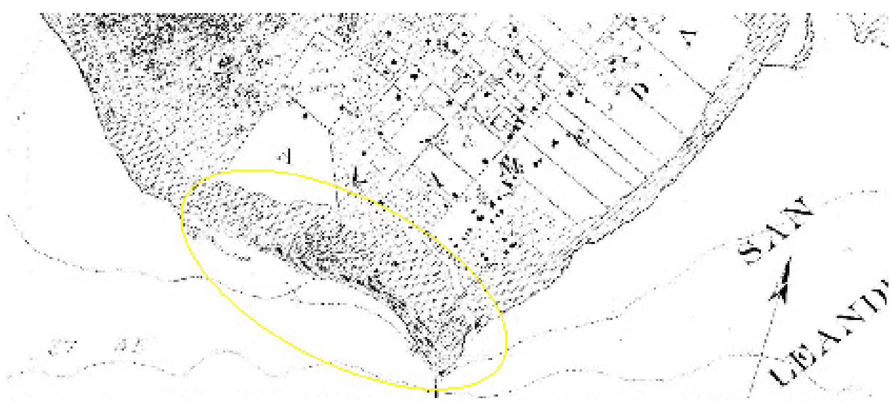
I-PB2-2 over salt marsh at Morro Bay, Shark Inlet (right, 2018), cause more massive uplift, heaving, and drying of salt marsh blocks, and extrusion of underlying soft, low strength estuarine muds. Rapid placement of high earthen fill "land masses" over bay mud would require geotechnical analysis to assess the risk and magnitude of mudwave instability of adjacent restored marsh.

I-PB2-3 Appendix B (p. 27) indicates that the *concept* of the "land mass" is "much like a barrier island". There is ample evidence that actual, natural marsh-fringing barrier beaches did indeed occur near the project site: for example,

- U.S. Coast Survey T-sheet 481 North, 1855, multiple-ridge recurved spit at the end of Alameda Island, near modern Otis Drive; width ranging from approximately 90 – 270 ft at widest; T-591,
- Fleming Point barrier beach, south of modern Golden Gate Fields, Berkeley, a single dune ridge barrier approximately 40-70 ft wide).

Modern analogs of historical barrier beaches that meet or exceed elevation targets for the Bay levee have spontaneously regenerated at Radio Beach (Oakland Bay Bridge toll plaza north shore; 50-60 ft wide beachface, 70-90 ft wide foredune with crest over 5 ft above MHHW). A wide, low sand barrier spit, with limited sand supply persists even closer to Eden Landing at Roberts Landing, San Leandro, north of the San Lorenzo Creek mouth. The Radio Beach dune also has a double-ridge profile that encloses a non-tidal lagoon – a profile type that would provide even greater flood protection (overwash detention) at Eden Landing than a single dune ridge. These examples of historical and modern SF Bay barrier beaches are shown below. These are presented as models of environmentally superior alternative constructed (or "self-constructed", sediment-nourished) types of shore landforms that would provide functional equivalence of an earthen fill "land mass", in habitat transition zones at the Bay Pond levee shoreline position.



U.S. Coast Survey T-sheet 481 North, 1855, multiple-ridge recurved spit at the end of Alameda Island, near modern Otis Drive. This is an historical reference analog for a barrier beach with dimensions and flood attenuation functions similar to an artificial earthen fill "land mass", but with high potential habitat value, and dynamic geomorphic processes that allow self-maintenance and self-construction with nourishment of suitable sediment size range (sand and gravel).

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I-PB2-3
(cont.)

U.S. Coast Survey T-sheet 591 (1856), Fleming Point barrier beach, south of modern Golden Gate Fields, Berkeley, a linear single dune ridge barrier beach (tombolo; barrier beach connected to an upland island) sheltering a tidal salt marsh.

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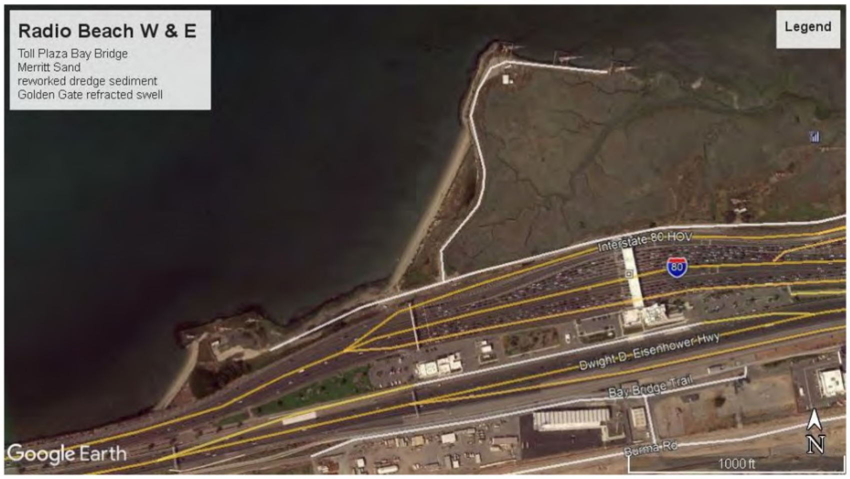

Radio Beach, estuarine barrier beach reference site, north shore of Oakland Bay Bridge toll plaza. Medium sand beach with dynamically stable, gradually retreating foredune, variably 3-6 ft above the high tide line. The vegetated foredune retreats over a small backbarrier lagoon and salt marsh. The barrier beach functions as a dynamic self-repairing natural "levee" that reduces wave runup and overwash if its sediment budget is maintained.

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(cont.)

Radio Beach, north end: short-term beach erosion exposes a "core" of gravel and cobble berm over which the sand berm and foredune is deposited. The gravel-cobble berm is a storm deposit that resists beach erosion and buffers foredune undercutting and retreat in response to wave action.

Radio Beach, backbarrier non-tidal lagoon and salt marsh. This swale depressional wetland formed between the foredune and a remnant levee seaward of the tidal salt marsh. The wide swale functions as a basin that detains storm overwash. This feature is a potential flood attenuation design feature that does not require fill across the entire profile, and may be applicable to the Eden Landing shoreline.

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I-PB2-3 (cont.)

The north sand spit of Radio Beach has provided an attractive roosting habitat for elegant and Caspian terns. Wave action and sand mobility maintain barren substrate attractive to terns and shorebirds.

These and other San Francisco Bay barrier beaches provide reference conditions demonstrating habitat value for terns (roosts at Radio Beach north end spit), western snowy plovers (vagrants at Roberts Landing), and potential suitable habitat for endangered California sea-blite. A USFWS pilot reintroduction project in 2008 included Roberts Landing, but was terminated due to unfortunate timing of extreme storm erosion after transplanting. Barrier beaches, especially those with gravel berms, "self-seal" rather than fail and tidally breach during storm erosion events, as artificial bay levees do. Barrier beaches with sufficient sediment supply retreat landward while building vertically (foredune accretion) and retaining geomorphic integrity (profile migration landward by "barrier rollover" – dune and washover migration), instead of eroding in place and leaving a lag of immobile residual rocky fill (land mass failure legacy). In relation to restoration and flood control objectives, a barrier beach restoration would provide an environmentally superior alternative to an earthen "land mass" of imported upland fill. Beach restoration would provide multiple benefits naturally compatible with the restored tidal marsh platform, and would require less fill. Like Aramburu Island beach, the beach could be designed to "self-construct" by wave and wind action following profile

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nourishment (hydraulic placement in the foreshore), rather than engineered fill placement. Alternatively, it could be placed hydraulically behind the existing levee, which could be allowed to fail and "activate" wave and wind processes that would mobilize beach sediment and form the barrier beach after the Bay levee erodes, replacing it, while eliminating a major cost and impact of bay levee reconstruction. The potential coarse sediment supplies – Port of Oakland and Alameda Flood Control Channel dredging – are the same as for other alternatives described. The "root wad" design of Alternative B actually requires a barrier beach in order to function.

Roberts Landing barrier beach is composed of a washover terrace capped with low foredunes. In the 1970s, prior to degradation by off-road vehicles, it supported vegetated dunes up to about 6 ft high, according to the late Janice and Frank Delfino of CCCR.

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I-PB2-3 (cont.)

Roberts Landing barrier beach, north end, exhibits gradual landward migration over the salt marsh behind it, through dune migration and storm overwash linked to beach shoreline retreat. The barrier prevents direct wave erosion of the salt marsh.

Roberts Landing barrier beach is visited by western snowy plovers, and is a high tide roost for shorebirds that forage on adjacent mudflats during most of the tidal cycle.

Estuarine barrier beach transition drift-lines and salt marsh borders are the primary habitat for recovery of endangered California sea-blite (*Suaeda californica*). USFWS initiated pilot reintroductions at Roberts Landing (above) and an Emeryville site near Radio Beach in March

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I-PB2-3 (cont.)

2008. Storm erosion eliminated the small immature colony at Roberts Landing, but the Emeryville population was successful. A large restored barrier beach at Eden Landing would contribute the largest potential habitat for re-establishment of California sea-blite in the San Francisco Bay recovery unit, consistent with the recovery plan for the species, and potential recovery funding. Valary Bloom (right) of USFWS is shown preparing transplant sites at Roberts Landing.

California sea-blite (*Suaeda californica*) beach transplant 6 months old at Roberts Landing (left), and a mature 13 yr old colony stabilizes a segment of the shoreline at Port of San Francisco Pier 94 (right). Prof. Katharine Boyer, San Francisco State University, is leading research on the ability of sea-blite to provide tall emergent high tide cover for salt marsh wildlife.

Janice Delfino (left, 2006) at Roberts Landing sand spit, recalled history of the barrier beach as a shorebird high tide roost and post-breeding habitat for terns (training juveniles to forage). Citizen's Committee to Complete the Refuge and partner organizations, including Ohlone Audubon, have a long history of habitat conservation for Hayward Shoreline wetlands and beaches, which continues today, and continue to advocate for restoration of sustainable natural shorebird habitats, in addition to intensively managed habitats. Isolated, undisturbed sand spits and beaches still serve as high tide roosts for shorebirds and tern, but such habitats, like Foster City sand and shell spits (right) are now rare because of shoreline stabilization by artificial levees and rip-rap.

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I-PB2-3 (cont.)

Therefore, the final EIR should explicitly reject the poorly defined "land mass" concept and replace it with an actual barrier beach restoration with multiple ecological benefits (tern, shorebird, western snowy plover, California sea-blite), recreational benefits (limited public access and recreation for some segments) and flood control benefits (reduction of breach risk, wave runup, and dynamic, sustainable increase in wave attenuation).

I-PB2-4

Habitat Transition Zones ("Upland Transition Zones"; HTZ, UTZ). HTZ are broadly defined in Appendix B (p. 7) as "another enhancement" to increase flood protection, buffer sea level rise, and "add diversity". Appendix D (p. 28) describes habitat transition zones as

> …areas with a wide transition in elevation from upland zones to tidal marsh zones. Low marsh, high marsh, tidal fringe, and upland habitats will develop over a habitat transition zone. The design goal of habitat transition zones is to provide areas varying in elevation to increase habitat diversity and complexity.

The EIR/S defines HTZ on p. 2-15 as "A habitat transition zone is a constructed feature with a relatively gentle slope (up to 30:1 [horizontal:vertical]) intended to provide a natural and ecologically beneficial connection between uplands or levees and the adjacent pond bottom", without reference to flood protection or sea level rise buffering. Because this is a critical feature of the project design and objectives, the HTZ and its design goals need to be consistently and comprehensively defined so alternatives can be compared accurately in relation to project objectives. Incomplete definitions and objectives may cause or contribute to imbalanced comparisons of alternatives among HTZs located in variously at back-side, interior pond ("mid-complex") levee, and bay levee positions. Potential habitat and flood control functions of HTZ designs vary significantly depending on tidal marsh landscape position (bay edge, marsh interior, landward edge, channel edge), not just engineering design.

The EIR/S's broad-brush description of terrestrial HTZs as a project "enhancement" does not accurately reflect the fundamental, essential role that broad, gently sloping supratidal-high intertidal gradients must provide for stability and ecological function of the restoration of tidal marsh during accelerated sea level rise. They are not optional amenities or enhancements of a tidal restoration project that has objectives for long-term endangered species habitat support during accelerated sea level rise. Properly located and distributed HTZs are arguably *more* essential than raising intertidal fill platforms to Mean Sea Level to Mean Higher High Water, because unlike intertidal marsh platforms, there are no natural, passive processes that could possibly form them, and all long-term tidal marsh restoration objectives would fail without them. Yet the EIR/S dedicates a higher priority to dredge material engineering and placement (a full appendix), while leaving ecological and geomorphic functional assessment of HTZs as a generic and subordinate feature of alternatives.

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I-PB2-4 (cont.)

Essential HTZ ecological design features, such as soil and vegetation criteria related to the stated objectives (habitat diversity, high tide refuge, sea level rise transgression space), are left without sufficient detail to meaningfully compare alternatives. Alternatives variously place terrestrial HTZs at the bay edge and interior of the Eden Landing complex (island-like artificial locations incongruent with sea level rise adaptation or natural tidal marshes) with those at the "back side" (landward edge; natural position and congruent with sea level rise adaptation). Distinguishing HTZ and "island" high tide refuges functions properly (see discussion below) allows for accurate weighting of HTZ flood control and habitat benefits at different landscape positions in the project area, and thus allows for valid comparison of alternatives. The erratic, artificial "bay levee" and "mid-complex" HTZ positions are poorly justified by habitat functions, especially where they are disengaged from potential treated wastewater or well water irrigation.

I-PB2-5

Habitat Transition Zone vegetation establishment. Appendix D (p. 29) states that hydroseeding with native seed mix and/or a planting schema will speed establishment of a range of vegetation, transiting from tidal marsh to upland vegetation, for slope protection. A native annual cover crop composed of a mix of summer and winter annuals with high competitive ability should be hydroseeded (or otherwise broadcast seeded) on all newly graded slopes in fall. Revegetation performed solely by hydroseeding a generic "native seed mix" would predictably result in a transient 1-2 years of target seeded species emergence, followed by rapid succession to weed dominance. This sequence was evident in the first hydroseeding of tidal marsh restoration site levees at Sonoma Baylands, and continues to occur in the Estuary today.

The timing of native annual cover crop sowing should either be prior to germinating rains, or after tillage of rain-germinated weeds from seed banks, depending on the severity of existing weed seed banks or invasions. The dominant native perennial plant species of the transition zone, however, are poorly adapted to establishment by direct seeding. Native perennials and shrub seedlings are subject to high mortality, and survivors would be inherently slow-growing and vulnerable to competition by fast-growing weeds. Vegetative propagules and methods should be used to establish native perennial forbs, grasses and grass-like plants, subshrubs, and shrubs. Most importantly, as explained below, HTZ vegetation design and ecological functions depend on matching compatible substrate (edaphic conditions; soil-vegetation relationships) with ecological objectives. HTZ vegetation designs should include variations matched to both soil and hydrology options ("dry" levee and treated wastewater/well water subirrigation options, different soil texture contingencies). Without matching vegetation design to soil and hydrology, habitat deficiencies or failure (and hence restoration objective deficits) would likely result.

I-PB2-6

HTZ substrate ecological criteria for terrestrial, on-site, and imported estuarine sediments. Appendix D (p. 28) states Appendix D states "Habitat transition zones will be constructed of material generated on-site from excavations of pilot channels, levee

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I-PB2-6 (cont.)

breaches, and lowered levees", and that "upland fill material may also be used if available from off-site construction projects, assuming it meets suitability requirements", but it does not state what "suitability requirements" are, or whether they are ecological (based restoration objectives), or merely bulk fill engineering and water quality criteria for contaminants and geotechnical needs unrelated to ecological restoration objectives. Little HTZ substrate information is provided on EIR/S p. 2-43, regarding only compaction and hydroseeding, but no physical soil criteria. The most detailed description of imported terrestrial fill suitability is (inappropriately) in discussion of traffic impacts on EIR/S volume 1 p. 2-60:

> Finding source projects with sufficient quantities of upland fill material is difficult for several reasons. The excavation must occur in a year and season when the SBSP Restoration Project can accept it. Stockpiling material or moving it more than once is cost prohibitive and would increase environmental impacts. Then, to be used in a restoration project, the material must pass a screening to demonstrate its lack of contamination. The source project should also be located close enough to the restoration project that bringing it there would both have fewer environmental impacts and be less expensive than bringing to a landfill or other destination.

The EIR/S contains insufficient description of upland fill, fill sources, or criteria required for a meaningful assessment of impacts or alternatives. This is not a minor detail to be deferred or left to "dirt brokers" with no understanding of tidal marsh restoration. The lack of explicit substrate source and ecological suitability criteria for HTZ is a major omission with potential significant impacts for restoration. The ecological restoration outcomes and impacts of HTZ design are likely to differ significant depending on the source of fill and method of construction. As described, the project could allow fill in the upper HTZ soil profile that would irreversibly defeat its basic objectives for vegetation and habitat.

I-PB2-7

Terrestrial (upland) fill sources for HTZ. Imported terrestrial substrate suitability criteria for HTZs should be defined ecologically for each alternative, in terms of soil texture, bulk density, and chemistry matched to the target native plant assemblage, and not merely in terms of engineering suitability as bulk fill. Clay loams (clay, sandy clay, silty clay) are appropriate for the top 1.5 ft of all habitat transition zone slopes. Drained bay mud is usually suitable for this purpose. Adverse soil conditions due to use of stony terrestrial subsoils, especially unweathered horizons with high content of cobble or large gravel (such as some newly constructed Bair Island constructed levees), can pose almost insurmountable constraints for growth of suitable vegetation types supporting essential ecological objectives in salt marsh transition zones. Stony subsoils favor effectively irreversible and unmanageable dominance by many annual non-native Mediterranean weeds – a significant long-term impact and management burden, inconsistent with project objectives. Superficial soil amendments could not offset the root zone impacts of stony soils with compacted clay, or sandy soils with high pore volume.

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I-PB2-7 (cont.)

Mitigation for potential significant long-term impacts (and restoration feasibility impairments) of importing ecologically incompatible upland fill for HTZs should include a requirement for a minimum 1 ft (objective: 1.5 ft) cap of either dewatered fine-grained (silt to clay) dredge sediment, low-sulfate on-site bay mud, or comparable silty clay loam as a cover layer on HTZs.

Dredged material sources for HTZ construction. Appendix E states that one potential dredge sediment source, Oakland Inner & Outer Harbor, may contain up to 40% sand. Sand and bay mud are not ecologically equivalent as fill platforms for tidal marsh restoration. Sandy dredged material, especially batches with very high percentage Merritt Sand (Pleistocene beach, dune and shallow lagoon sands, similar to Ocean Beach sand texture) should not be used as bulk fill for tidal marsh platforms or HTZs at Eden Landing. High concentration of Merritt Sand in the upper marsh soil horizons is likely to result in prostrate pickleweed growth habit, and formation of persistent playa-like high salt marsh pans (nearly barren flats, similar to some salt pond flats) in the high salt marsh ecotone, as at Hamilton Wetlands Restoration. This is due to sand's naturally low nutrient retention capacity, low moisture content, and high potential for capillary concentration of salt at the surface. Well-planned high marsh transition habitat design may well include such playa-like sandy flats and high marsh pans, but sandy sediments should not be treated indiscriminately as inert bulk fill, equivalent to bay mud. Sand-dominated dredged material should be prioritized for estuarine beach nourishment at the bay shore of the Bay Ponds, as part of a multi-purpose estuarine barrier beach restoration design component.

Hamilton Wetlands Restoration terrestrial transition zones constructed from Merritt formation sand, dredged from Port of Oakland, have formed persistent playa-like barren flats with capillary salt crusts (hypersaline, desiccated summer substrate conditions) and very sparse, prostrate salt marsh vegetation. This habitat is similar to dried salt pond beds.

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I-PB2-7
(cont.)

Hamilton Wetlands Restoration terrestrial transition zones constructed from Merritt formation sand, promote low, prostrate salt marsh vegetation in the uppermost intertidal zone. This does not support the high salt marsh transition zone habitat objectives (alternative high tide refuge) of Eden Landing.

I-PB2-8

Appendix E (p. 12) states that dredged material may be also used to construct HTZs, but it does not explain whether this would occur through direct placement of dredged material in cells, or earthmoving of dewatered dredged material after placement. Appendix E and the EIR/S provide no alternatives including hydraulic placement of sediment for HTZ construction, such as designs for deliberate "mounding" (sediment splays, fans) at sediment slurry discharge points. The hydraulic construction of HTZs by dredge sediment discharge point mounding has occurred in multiple tidal marsh restoration projects in the region. It has demonstrated the feasibility of developing beneficial high salt marsh-terrestrial gradients, as well as back-marsh pool habitats. Complex sediment splays, fans and mounds are commonly formed, albeit unintentionally, at dredge material placement cells for tidal restoration (e.g. Montezuma Wetlands, Sonoma Baylands). At Sonoma Baylands, they formed the earliest and most extensive high marsh habitats at the project site, well in advance of all dredge material fill platform zones, which remain predominantly middle to low marsh plain over 20 years after construction. HTZ construction in alternatives that involve dredge material placement should incorporate dredge sediment mounding methods, by timing movement of the dredge discharge pipe points to develop a series of sediment splays or fans, distributary channels, and discharge point scour pools.

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"Mounding" of hydraulic dredge sediment slurry forms splays or cone-like sediment fans around the point of discharge at Montezuma Wetlands (left, 2015) and Sonoma Baylands (right, 1996). The mounded sediment fans at Sonoma Baylands formed a transition zone gradient between the constructed levee and adjacent tidal flats, supporting the only rapid development of high salt marsh (less than three years after deposition).

Salt marsh pools formed in dredge discharge pipe locations, originating as scour pools in sediment fans, have persisted over decades at Sonoma Baylands. The hydraulic sediment slurry construction of these HTZ features were unplanned and accidental, but could be advantageously incorporated in Eden Landing tidal marsh restoration where dredge material is applied

I-PB2-9

On-site HTZ substrate sources. If HTZs are constructed from on-site excavated bay mud from ancient salt marsh soils that have been converted to salt pond beds, substrate suitability criteria must include testing for acid sulfate or sulfide content. Unlike freshly dredged bay mud dominated by mineral sediments, bay mud from old salt marsh soils in diked baylands may have high organic matter content, and past exposure to alternating prolonged flooding and drawdown. Under these conditions, old salt marsh soils may likely form horizons of highly elevated acid sulfates that can be toxic to vegetation. Acid sulfate soils in levee slopes designed as transition zones may cause persistent inhibition of vegetation and even barren zones, supporting sparse cover of a few acid-tolerant, mostly weedy species, until acid sulfates are neutralized (a process that may take up to five years or more). Recent examples of severe localized inhibition of vegetation by acid sulfates, lasting over five years, occurred at the Petaluma Marsh Expansion Project and one portion of the Bahia Wetland Restoration Projects (Novato, Marin County). Less severe but significant examples also occurred more recently at Sears Point and Cullinan Ranch tidal marsh restoration projects, resulting in persistent large local barren areas, weed prevalence, and delayed colonization by most target native species. Feasible

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mitigation for potential impacts of acid sulfate soil would include testing soils from potential on-site borrow areas, and segregating acid sulfate soils for placement as foundation fill below the surface of HTZ root depth (1-1.5 ft), avoiding near-surface placement.

Persistent acid sulfate soil impacts on passive revegetation of the high salt marsh and transition zone at Bahia Wetland Restoration Project, San Pablo Bay, November 15, 2012, four years after construction. Left – transition zone constructed from diked salt marsh soils with high acid sulfate content remained mostly barren. Right – same age adjacent transition zone constructed with drained, decades-old dredged material from a former dredge disposal site was rapidly and fully vegetated with native species below the high tide line. The acid sulfate inhibition declined enough for vegetation establishment after 2016, a significant delay.

I-PB2-10

Dredged material fill impacts and mitigation for restoration of tidal drainage patterning. The legacy of preserved prehistoric tidal creek patterns in salt pond beds (diked salt marsh tidal drainage patterns) is a highly valuable asset for tidal marsh restoration: it imprints a tidal creek template on the marsh platform that preserves high sinuosity and density of mature prehistoric tidal marsh, preserved at the time of diking in the 19th century. Dredged sediment slurry is likely to fill and level relict tidal marsh drainage patterns. Differential settlement (auto-compaction; thicker layer slurry in slough beds; more settlement) of slurried dredge material, however, is likely to revive tidal channel drainage patterns unless cell berm layout cuts them off and consolidates dredge sediment in confined cells. This would be an adverse impact of construction design on project hydrologic and ecological objectives for restoration. If confinement berms are used for engineered placement of dredged sediments, they should be aligned to run between tidal drainage networks, like "tidal watersheds" to preserve high drainage density, channel sinuosity of mature ancient tidal marsh. Borrow ditch blocks, and breaches of interior salt pond levees, should be combined with to prevent borrow ditches from dominating tidal flow patterns, and reconnect ancient tidal drainage networks as much as possible. This is not described in preliminary design for any alternatives; all alternatives appear to imply a high risk of burying and erasing major portions of antecedent tidal channel patterns.

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I-PB2-11 **Dredged material fill elevation targets and fill stabilization with vegetation**. The target elevation range between MSL and MHW is appropriate, to ensure rapid vegetative stabilization and retention of placed sediment, minimizing the risk of reworking (resuspension by tidal current and wind-wave turbulence) and net loss during strong spring ebb tides or storm events. However, the limiting habitat in coming decades of accelerated sea level rise will likely be high salt marsh (approx. MHHW to mean perigean spring high tide elevation, so the EIR/S should specify of dredged sediment volumes (percent) of dredged material allocation to wide HTZ ramps (platforms for higher high salt marsh zones over 20-50 years of sea level rise), and flat intertidal marsh platforms below MHW elevation.

I-PB2-12 **Imported dredged material and project timing**. There is trade-off in committing to use of dredged material with the intention of accelerating tidal marsh restoration or correcting subsidence, to reach low or middle salt marsh elevation range. The trade-off is between time opportunity for potential tidal sediment accretion (direct breach with no dredge material import), and the equivalent elevation gain from dredge material placement, within a finite amount of time, as the risks of sea level rise acceleration and declining estuarine sediment deficits increase. If the added delay relative to direct breaching and passive tidal sedimentation is short, and tidal suspended sediment concentrations (SSC) are relatively low, the delay in restoration caused by dredged material engineered placement provides a net advantage for tidal restoration. But where SSC is high, and dredge material wait time (tidal restoration/breach delay) is long, dredged material dependence for tidal restoration can become disadvantageous. Very long delays in project scheduling and sediment delivery, such as at Montezuma Wetlands (over decades), have resulted in significant net delay of tidal restoration relative to prompt tidal breaching. As the sea level rise curve steepens, this potential deficit may become more severe. The EIR/S should mitigate this risk by setting a threshold schedule to implement tidal breaching in case of excessive delay in dredged material placement at Eden Landing ponds, if dredged material options are taken. Tidal restoration should not be delayed indefinitely because of a project commitment to accept dredged material; a cut-off is needed to proceed with tidal restoration if dredged material delivery is excessively delayed. Alternative beneficial re-use options for dredged material exist at some Alviso-Mountain View ponds, which are more severely subsided, may be a better alternative site for dredged material in case of Eden Landing project delay.

I-PB2-13 **Imported Alameda Flood Control Channel sediment placement**. The EIR/S covers dredged material offloading and placement (Appendix E) in detail. It also proposes and evaluates details for pipeline connections for delivering brackish groundwater from wells, and tertiary treated wastewater from Union Sanitary District, to support restoration construction and maintenance activities. These are appropriate and informative for the project description and alternatives. But there appears to be no alternative or module (sub-alternative), however, for long-term infrastructure (pipeline and booster pump delivery) of Alameda Flood Control Channel excavated sediment, which is a highly significant long-term, recurrent source of both coarse and fine sediment nourishment for

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I-PB2-13 (cont.)

bay shorelines, marshes, and habitat transition zones. Flood control sediment should be integrated into the project design just as dredge sediment and water sources are.

San Francisco Estuary Institute (SFEI 2017) provided data on the highly variable annual sediment load of Alameda Creek, which averages approximately 100,000 tons/year. The bed sediments that are actively excavated are richer in coarse sand and gravel than the total sediment load, with the proportion of gravel increasing upstream above the Niles Canyon gauge (about 40% gravel, 25% coarse silt and sand; SFEI 2017). Most channel maintenance sediment removed is in tidal reaches, close to the project site, where the proportion of silt and clay is about 60%. All these sediment classes, volumes and the cyclic nature of supply are extraordinarily important assets for tidal restoration and long-term adaptation (management, maintenance) to sea level rise, and no less important than single-event construction fill import sources (Goals Project 2015, SFEI 2017).

The EIR/S should include this highly significant marsh and shoreline sediment nourishment resource as a part of the restoration infrastructure. Sediment dredged from Alameda Creek should be piped to the site with a system of booster pumps (as proposed for offshore import and delivery of dredged material) and delivered for restoration construction, and for long-term "thin-lift" slurry deposits along habitat transition zones, high marsh zones, and especially bay shorelines (for gravel and sand-dominated sediment batches). The long-term restoration and marsh maintenance value of this permanent watershed sediment supply would be greater than one-time dredged sediment subsidies during project construction, especially when sea level rise rates accelerate. The ongoing channel maintenance activities of Alameda Flood Control channel should be integrated with the restoration design and infrastructure in at least one alternative, even if not to a level of detail comparable with Appendix E.

I-PB2-14

Habitat Islands and sand and shell capping for special-status wildlife habitat enhancement. "Habitat islands" are proposed as either shorebird roost or high tide salt marsh refuge features. Shorebird islands suitable for terns and plovers are proposed to be kept suitably barren by substrate design:

> A select group of islands will be treated to create nesting habitat for western snowy plover, California least tern, or other bird species. The top surface of the islands will be treated with a 12-inch thick sand layer underlain by a 6-inch thick crushed rock to minimize weed establishment. The sand layer will include oyster shells or other materials to provide a primarily unvegetated, diverse landscape that is typically preferred by nesting birds. (Appendix D, p. 31)

The capping of islands with sand, shell, and impermeable layers would preclude subsequent conversion to high salt marsh vegetation capable of providing dense cover of tall vegetation that functions as high tide refuge for wildlife during extreme high tide marsh submergence events. Sand surface layers naturally promote cover of relatively low, prostrate salt marsh vegetation (mats of pickleweed, saltgrass, alkali-heath; stunted

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gumplant or none; see Hamilton Wetlands Restoration example, p. 14-15, this letter). Habitat islands constructed with sand and shell for shorebird roosts, even if feasible and sustainable (which is not the case), would require reconstruction and conversion to high salt marsh features with a different substrate if they were to function as high tide refuge cover in a salt marsh.

Capping emergent islands with sand and shell as habitat enhancement feature for terns and plovers habitat is very likely to be infeasible and counter-productive in the long term, and even short-term (> 2 yr); it would fail to meet objectives to "enhance" islands or "land mass" to become surrogate habitats for high-albedo unvegetated habitats in salt ponds, levees, or beaches. This is a potential significant impact if these features are proposed to compensate for restoration project-induced habitat loss of special-status species such as western snowy plovers, least terns, or important high tide roosts for shorebirds. The EIR/S appears to mistake the ecological processes that maintain barren sand and shell substrates in the Estuary, and wrongly assumes that substrate design alone will provide suitable habitat conditions. This error could result in degraded habitat conditions for both tidal marsh and barren habitats used by shorebirds and terns.

In the absence of wave action, physically stable sand or shell deposits 12" thick, even with road base/crushed rock below, would predictably become rapidly colonized by annual weeds at high density and cover, which would persist indefinitely or undergo succession to dominant weedy perennials or scrub. Positively drained, convex sandy or shelly topographic features (mounds or berms with no hypersaline salt accumulation, seasonal hypersaline desiccation, or seasonal flooding) in either salt marshes or managed non-hypersaline lagoons/ponds inevitably become dominated by thick cover of annual weeds (and a few native plants) that are adapted to sand substrates. The colonization and accumulation of weed seed banks occurs rapidly, within 1-2 years.

Outstanding examples of permanently vegetated well-drained stabilized sand and shell berms (relict beach ridges cut off from wave action) and mounds, and their rapid formation after stabilization, are evident around Foster City, Point Pinole, Brisbane, Oakland, and elsewhere. In context of dredged material placement, Port of Oakland Merritt Sand deposited at Montezuma Wetlands initially formed barren active deflation plains and dunes that attracted western snowy plovers beyond their historical range. The Montezuma sands, which were placed over relatively impermeable and hypersaline bay mud (root barrier to terrestrial weeds, analogous with an impermeable road base layer) subsequently became colonized by vegetation that caused the site to be abandoned by plovers and terns, despite intensive short-lived unsustainable efforts to suppress vegetation and maintain artificial sandy barrens.

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(cont.)

Foster City shoreline supports a sequence of prograding (expanding bayward) oyster shell hash beach ridges with salt marsh swales between them. Relict, stabilized older ridges cut off from wave actions by younger ridges rapidly become colonized by gumplant, pickleweed, alkali-heath, and non-native halophytes.

Stable old oyster shell hash flats and berms rapidly become dominated by either invasive non-native halophytes, or high salt marsh plants, depending on location and seed rain. Massive infestations of invasive Algerian sea-lavender (*Limonium ramosissimum*) dominate shell flats at Foster City dredge disposal areas, and requires intensive management to control. Perennial vegetative cover of gumplant and pickleweed (right) dominate stabilized shell beach ridges at Foster City, with barren substrate restricted to trampled trails. Shell and sand deposits support shallow-rooted, drought-adapted and halophytic annual or perennial plants that grow in the wet season, even when deposits occur over impermeable substrate. Only periodic wave action, extreme hypersalinity, or seasonal ponding and desiccation, maintain dynamic barren sandy or shelly substrates suitable for tern and plover habitat.

Artificial barren high-albedo sand or shell surfaces in wave-sheltered wetland settings would need chronic high maintenance, which is not feasible in the long term or consistent with "restoration". Sand and shell surfaces within hypersaline basins, or wave-exposed

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shorelines, maintain dynamic barren high-albedo surfaces. On levee roads, routine vehicle use and compaction of hypersaline sediments maintain barrens. In the absence of vegetation suppressing dynamic influences like these, sand and shell barrens are unstable and become vegetated landforms.

Natural bare sand or shell habitats capable of attracting and supporting snowy plovers, or shorebird roosts, are formed and maintained by recurrent disturbance or stress sufficient to preclude colonization and persistence of vegetation. The prevailing natural disturbances and physiological stresses that maintain barren sand, shell, or pan beds are either (a) daily high tide wave action (beaches), or (b) alternation between prolonged seasonal alternation of flooding and desiccation in saline depressions and flats (pan or playa in salt ponds or high salt marsh edges).

The target tidal elevations of "habitat islands" (vegetated high tide refuge habitats) in salt marsh restoration areas should not exceed the highest spring tide elevations because perennial vegetation canopy cover above the substrate surface, not the substrate surface itself, provides wildlife emergent high tide cover during extreme high tides. See China Camp Marsh and upper Newark Slough ancient tidal marsh examples below, under discussion of HTZs. Island elevations and substrates should have objectives to maintain tall, dense perennial native vegetation cover above the extreme high tide water surface, distributed near tidal channels. Conversion of islands to supratidal, terrestrial substrate elevations may result in dominance of annual weeds above the high tide line, which would provide inferior cover during winter high tides. Similarly, if supratidal elevations target terrestrial shrubs as cover, these would likely be subject to mass mortality (dieback and degeneration of cover) after extreme high tides saline soils when sea level rises, shifting cover back to weedy annuals until high salt marsh succession occurs. Habitat islands dedicated to provide high tide salt marsh wildlife cover should set design substrate and elevation objectives to produce tall, dense, semi-evergreen gumplant canopies would remain above the extreme high tide water surface (i.e., separate but related tidal elevation objectives for substrate and vegetation canopy cover). High tide flood refuge cover could be supplemented by installation of large woody debris that can trap smaller floating debris, and provide dynamic refuges independent of vegetation canopy structure and elevation.

I-PB2-15

Habitat Transition Zones (HTZs) and "Islands" as high tide refuge. The EIR/S does not explicitly compare the critical high tide refuge habitat designs among alternatives, or the configuration and relative contribution of high tide refuge functions provided by HTZs and "islands". The two constructed features differ significantly in relation to high tide movements of endangered California Ridgway's rails and salt marsh harvest mice during extreme high tides. This restoration design is essential to the long-term success of all project alternatives.

When flooded out of tallest available salt marsh vegetation cover during high tides, SMHM move vertically to the nearest emergent cover within their home ranges, or are

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I-PB2-15 (cont.)

forced to swim to floating or emergent cover, which exposes them to risk of avian predation or drowning (wind-wave turbulence). Ridgway's rails move through tidal creeks and take cover in the tallest vegetation in home ranges during marsh submergence events. The tallest vegetation within rail home ranges is normally emergent creek-bank gumplant canopies directly connected to primary creek travel corridors. Cross-marsh movements over long distances during marsh submergence to alternative "upland" (landward edge) transition zones is a last resort when no other cover is available within or near home ranges, which is a characteristic trait of degraded, narrow salt marshes bordered by levees – not restored extensive tidal marsh plains.

There is no basis to assign <u>primary</u> high tide refuge functions for perigean spring high tides to landward HTZs of a restored, wide tidal marsh platform. Terrestrial-edge HTZs are alternative catastrophic flood refuge habitats, back-up refuges of last resort when internal home-range refugia are submerged. Emphasis on landward-edge HTZs over interior marsh high tide refuge habitat is a misapplication of a conceptual marsh model based on young, narrow fringing salt marshes bordered by artificial bay mud levees that have an unnatural distribution of high tide refuge habitat concentrated along the levee toe. This anthropogenic fringing salt marsh and levee model of high tide refuge habitat distribution is the converse of natural high tide refuge habitat structure of wide, geomorphically mature salt marsh platforms with complex creeks. Paradigmatic examples of natural high tide refuge habitat structure and distribution, suitable for restoration models at Eden Landing, are evident at remnant prehistoric tidal salt marshes of upper Newark Slough (South Bay), and China Camp State Park (North Bay), and elsewhere in the Estuary.

In a restoration design, primary high tide refugia should be well-distributed within home ranges of sensitive marsh wildlife, in relation to tidal creek bank patterns - where the tallest vegetation naturally occurs. Well-distributed, extensive high intertidal salt marsh "islands" (emergent high marsh mounds or berms) should be interpreted and designed as the first line of normal high tide refuge habitat (perigee spring high tides, storm high tides, with HTZs as infrequent "worst case" flood refuge (storm, perigee high spring tide, and warm Pacific sea level anomalies or extreme ENSO events).

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I-PB2-15 (cont.)

Natural distribution patterns of effective, emergent high tide refuge cover is visible in natural, prehistoric tidal salt marsh during marsh submergence events that occur during perigee spring high tides at China Camp State Park, Marin County. A narrow, dense, tall, mostly continuous band of tall gumplant and pickleweed vegetation canopy stands above the water surface in a narrow zone bordering tidal creeks. Long distances of open-water submerged marsh plain separate creek-bank refugia from sparse grassland cover the landward edge of the marsh. The "natural levee" pattern is purely vegetative: the marsh substrate surface is submerged 1-2 feet deep, including higher channel banks. Comparatively localized, sparse high tide cover naturally occurs at the terrestrial grassland ecotone along the landward shoreline.

Like China Camp Marsh, the last prehistoric tidal salt marsh with a natural terrestrial edge and high marsh creeks occurs at upper Newark Slough at the Don Edwards SF Bay National Wildlife Refuge. It similarly exhibits a pattern of well-developed high tide emergent vegetation canopy cover during marsh submergence events along banks of tidal creeks, where tall pickleweed and gumplant delineate the main slough and smaller branch tidal creeks. The landward marsh edge (corresponding with "back side" HTZ of Eden Landing) supports shorter grassland vegetation (including some stands of native perennial grassland) and shorter salt marsh vegetation. This pattern of distribution of high tide refuge habitat, concentrated in the interior marsh along creeks more than the landward edge, is repeated in the Estuary's other natural, prehistoric tidal marsh fragments. In contrast, narrow, young fringing salt marshes bordered by artificial bay mud levees have an unnatural distribution of high tide refuge habitat concentrated along the levee toe – a poor model for large-scale restoration of wide marsh platforms with complex creeks.

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I-PB2-15
(cont.)

Interior tidal marsh patterning of well-developed high tide emergent vegetation canopy cover is evident during marsh submergence events, concentrated along banks of tidal creeks in upper Newark Slough. Island-like patches of tall pickleweed and gumplant delineate smaller branch tidal creeks far from artificial levee or terrestrial shorelines.

The environmentally superior/preferable alternative should provide the maximum creek-parallel distribution of effective high tide refuge habitat (tall high intertidal marsh vegetation) in restored tidal marsh. Alternatives should not excessively weigh benefits of peripheral HTZs as high tide refuge habitat over internal high tide refuge habitat of the salt marsh plain. An early example of a tidal marsh restoration project that integrated both internal high marsh and landward-edge high tide transition zones as high marsh refuge for California Ridgway's rail and SMHM is the Bahia Wetlands Restoration Project in Novato, Marin County (California Department of Fish and Wildlife and Marin Audubon Society). In this case, broad habitat transition zones (non-irrigated horizontal levees, 10:1-20:1 slopes at the landward edge) and high marsh mounds and berms (aligned along constructed pilot channels) were combined, and developed stabilized high marsh to low salt marsh gradients that spread laterally over adjacent mudflats in the first year after construction. Radial marsh progradation from the mounds occurred much sooner and faster than pioneer colonization of mudflats.

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I-PB2-15 (cont.)

Upper intertidal berms and mounds were constructed along the margins of main pilot tidal channels to provide high tide refuge habitat patterns aligned with tidal channels in the example of the Mahoney Spur cell of Bahia Wetlands Restoration project (Novato, Marin County; California Department of Fish and Wildlife lands) in August 2008. By October 2009 (Google Earth image above), the berms and mounds were naturally colonized by salt marsh vegetation sooner than surrounding mudflats and graded levees. This was one of the first constructed high salt marsh mounds of this type and pattern. It is based on natural tidal creek-pattered distribution of high tide refuge habitat in tall creek bank vegetation.

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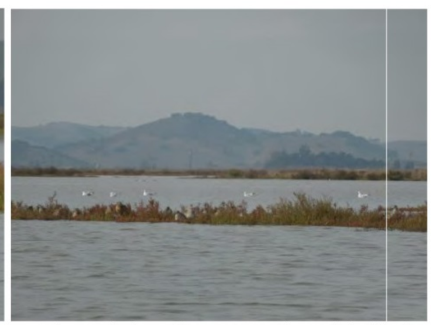
I-PB2-15
(cont.)

High salt marsh mounds and berms at Bahia in 2016, eight years after construction and tidal restoration have matured expanded laterally, and outpaced adjacent mudflats in salt marsh succession. Mudflats remain in early stages of pioneer salt marsh vegetation establishment.

Two examples of high salt marsh mounds at Bahia during a perigee spring high tide in November, 2014. Mounds are fringed with native cordgrass, spreading laterally onto adjacent mudflats. They are capped with pickleweed and gumplant only four years after tidal restoration, with no active planting. The mound substrate is submerged; high tide cover is provided by salt marsh vegetation canopy growing 1-2 ft above ground surface. Substrate elevations do not directly provide high tide cover.



Emergent vegetation cover of high marsh mounds stood above the water surface of shallowly submerged mound crests, and provided high tide roosts for large and small shorebirds (curlews, willets, sandpipers) during a perigee high spring tide, November 2012. Levees and landward-edge transition zones are not used as high tide roosts as frequently as the island-like high marsh mounds during marsh and mudflat submergence.

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I-PB2-15 (cont.)

The constructed wide Habitat Transition Zone (non-irrigated "horizontal levee") at Bahia in 2012 (year 4) supported dense native high salt marsh and transition zone vegetation, but almost pure low-growing non-native vegetation above the high tide line. The supratidal zone here provides sparse, poor winter cover during high tides. The uppermost intertidal zone provides ample tall semi-evergreen vegetation cover, but remote from developing tidal channel networks where primary rail habitat is expected. The HTZ in this position provides a "backstop" of high tide refuge for marsh wildlife when refuges internal to the marsh are submerged during the most exceptional, extreme high tides.

If high tide refuge designs internal to the restored tidal marsh are adequate, the flood protection designs of the alternatives (B, C, D) are largely and properly decoupled from the different alignments of HTZs at artificial "mid-complex" and "bay levee" locations. The alternative, unnatural HTZ locations at the bay levee and mid-complex (Alternative D) are unjustified by habitat benefits, and become essentially flood control primary-purpose designs, if the alternatives properly rely primarily on internal marsh "island" high tide refuge designs.

I-PB2-16

Tree root wads as shoreline enhancements: incomplete or infeasible design

The DEIR and Appendix D propose to use "root wads" of trees as bay shoreline treatment (alternative B), but without incorporating placement of coarse sediment (sand, gravel). The stated purpose (Alternative B) for tree root wads on the Bay levee was "to help create high tide refuge and help protect the levee from wave erosion. Tree "rootwads" are a natural slope stabilization technique often used in stream restoration design". This is an error of interpretation out of context. Root wads of trees are ordinarily used as scour objects in stream restoration to create erosional pool habitats where turbulent streamflow is concentrated, as well as components of bank stabilization when combined with other stabilization features.

Without coarse sediment to trap and buffer the logs and root wads, wave action at the bay shore would be reflected and concentrated, intensifying storm wave erosion. In order to

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I-PB2-16 (cont.)

function as a protective shoreline features, log or rootwad groins would need to be combined with a source of coarse sediment to trap. This was the basis of log groins at Aramburu Island habitat restoration project, which placed groins to check longshore drift of gravel. Most of the log groins there continue to perform this function six years after construction. Log groins on the exposed bay shoreline, subject to intensive wave action at high tide during storms, do not themselves provide high tide refuge for shorebirds or salt marsh wildlife during storm or high wind events. Unless large woody debris is embedded in the banks of tidal creeks within the salt marsh, where it may trap other debris or provides a foundation to elevate the vegetation canopy of climbing pickleweed, alkali-heath, or saltgrass, it will not act as any meaningful tidal flooding refuge.

Thank you for your attention to these comments, and for your laudable long-term efforts at managing the unprecedented regional tidal wetlands restoration project, of which Eden Landing is one part. Please contact me if you have any questions or interest in further information on the subjects covered in my comments.

Respectfully submitted,

Peter Baye

Peter R. Baye, Ph.D.

Cc:
Citizen's Committee to Complete the Refuge
Interested Parties

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Response to Baye, Peter (I-PB2)

I-PB2-1

See response to comment I-PB1-1.

I-PB2-2

See response to comment I-PB1-2.

I-PB2-3

See response to comment I-PB1-3.

I-PB2-4

See response to comment I-PB1-4.

I-PB2-5

See response to comment I-PB1-5.

I-PB2-6

See response to comment I-PB1-6.

I-PB2-7

See response to comment I-PB1-7.

I-PB2-8

See response to comment I-PB1-8.

I-PB2-9

See response to comment I-PB1-9.

I-PB2-10

See response to comment I-PB1-10.

I-PB2-11

See response to comment I-PB1-11.

I-PB2-12

See response to comment I-PB1-12.

I-PB2-13

See response to comment I-PB1-13.

I-PB2-14

See response to comment I-PB1-14.

I-PB2-15

See response to comment I-PB1-15. See also I-PB1-4 for a discussion of the landscape positions for the habitat transition zones in the Preferred Alternative.

I-PB2-16

See response to comment I-PB1-16.

Ervin, Jim (I-JE)

Via email: phase2comments@southbayrestoration.org

To: Southbayrestoration.org

From:
James Ervin
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925-606-5494

Subject: **Comments regarding Phase 2 Planning for Eden Landing Restoration.**

I-JE-1 I reviewed the Eden Landing Phase 2 Draft Environmental Impact Statement & Report and attended the public meeting on May 8th. I greatly appreciate this opportunity to comment on the proposed plan.

I have witnessed ecological impacts resulting from the South Bay Salt Pond Restoration Project in the Alviso Marsh Complex adjacent to Lower Coyote Creek since 2005. As a result of that project, thousands of acres of former salt ponds were first opened to circulation with Bay water around 2004 to 2006, with several later restored to full tidal flow (Ponds A19, 20, and 21 in 2006. Pond A6 in 2010. Pond A17 in 2011.) or managed pond circulation (Pond A16 in 2011, Pond A8 complex in phases on Alviso Slough.) The authors of your Eden Landing reports are familiar with the history of Alviso Marsh Complex restoration. I hope that all the many lessons learned will also continue to guide the Eden Landing restoration. In my personal observation, Alviso Complex restoration appears to have met or exceeded almost all expectations set many years ago. This also is the general conclusion of the 2018 report: "Phase 1 studies summary of major findings of the South Bay Salt Pond Restoration Project" posted on the Salt Pond Restoration and USGS websites (https://pubs.er.usgs.gov/publication/ofr20181039). The report indicates that progress toward most goals are trending positive or exceeding expectations:

Some lessons learned from restoration efforts in the Alviso Marsh Complex:

1. **Sediment** accretion rates meet or exceed expectations. Sediment movement has not decreased mudflat habitat. (pp. 10-13)
2. **Shorebird and waterfowl** abundance and diversity continues to be supported, even expanded, as salt pond acreage decreased with two caveats: managed pond actions to support snowy plover breeding habitat exceeds expectations, but support for California least terns is still uncertain. (pp. 14-19)
3. **Mercury mobilization and methylation** has not increased as a result of opening circulation into former salt ponds, with one cavaet: a short-term increase in mercury was detected in tern eggs following opening of tide gates in Pond A8. However, the elevated mercury load was about one-third the load previously predicted from models and did not persist after initial construction. (pp. 20-28)
4. **Aquatic species (native fish)** do utilize the restored habitats in and adjacent to restored ponds, albeit the trend is still uncertain for steelhead and salmonids. However, it should be noted that data strongly indicate that fully restored "tidal ponds" support more native species of fish and invertebrates. "Managed ponds" and tidally-muted ponds support more non-native species. (pp. 29-33)

I-JE-1 (cont.)

5. **Water Quality** changes in the Alviso Complex resulting from pond restoration is still a mixed bag that bears some discussion. Dissolved oxygen concentrations in a marsh will fluctuate, and in fact have continued to do so in the Alviso Complex after restoration with no apparent ill effects. However, years of experience indicate that ponds with restricted circulation to the Bay suffer from accumulation of algal mats and crashes in dissolved oxygen concentrations, particularly in the warmest months. The 2018 report concludes that nuisance algal blooms causing low Dissolved Oxygen in managed ponds continues to show a negative trend. (pp.34-38)
6. **Invasive and nuisance species.** Marsh vegetation has colonized restored and managed ponds in line with expectations. California gull populations continue to be higher than desired and pose a predation threat to breeding shorebirds.

   Here I would like to note that the 2018 Phase I report falls a little short in this evaluation. In my personal observation, gulls appear to prefer dry pond areas for resting and breeding colony establishment. This is probably identified in other reports I do not have in hand. This should suggest that maximizing tidal restoration is a better strategy for minimizing gull colonization.

   The other shortfall in the Phase I report is that gulls are not the only invasive/nuisance species. There are many invasive aquatic species that should be identified and tracked as pond restoration progresses from Phase I through Phase II: Corbula clams, Yellowfin gobies, Rainwater killifish, and Inland/Mississippi silversides are a few of the endemic non-natives that may be considered "noxious invasive" to the degree they compete with, or displace, native species. (The native versus non-native issue is clouded a bit because we consider some non-native species like Striped bass and American shad to be desirable game fish.) As mentioned in item 4 above, fully restored tidal ponds support more native fishes and invertebrates. Managed ponds with highly muted circulation not only foster nuisance algae blooms, with attendant low dissolved oxygen crashes, but also nurture huge populations of tiny non-native fishes at the expense of native sticklebacks, herring, and longfin smelt, that we should otherwise prefer.

I-JE-2

Overall Comment on Phase 2 Eden Landing Restoration Plan: The plan offers a great set of four restoration alternatives. I strongly recommend "Alternative Eden B" restoration design. Alternative B maximizes the number of ponds that will be restored to fullest tidal circulation and affords sources of freshwater that will be critical to assure the greatest density and diversity of aquatic species.

I-JE-3

Why I don't like Alternatives C and D. Alternatives C and D manifest a desire to control water height by adding levees and hydraulic control structures in the inland and southern ponds (Ponds E5, E6, E6C, etc.). This is understandable as a means to enhance waterfowl habitat for certain species, but lessons learned from the Phase I Alviso Complex Restoration indicate this is ultimately a fool's errand. Managed ponds will have to be managed, and hydraulic control structures will have to be maintained, possibly into perpetuity under Alternative C. Meanwhile, nuisance algal blooms and late-summer crashes in dissolved oxygen will be ongoing problems calling for … more management. Fish screens will have to be installed and periodically cleaned to prevent large predator fish from entering many of these managed

I-JE-3 (cont.)

ponds or there will be huge fish kills in late summer. Much of the Eden Landing Complex will not mimic the natural estuarine function in the absence of tidal circulation and seasonal freshwater flushing. More importantly, the proposed north-south flood control levee may permanently divide and fragment the restored marsh complex. Opportunities to further expand more natural and desirable tidal marsh may be forever obstructed.

I-JE-4

I would like to add a little speculation as well: **We don't know how "managed ponds" will evolve over a long period of time**. With limited circulation and flushing, one would presume that salts and nutrients in the pond continue to build up to some degree. When successful, managed ponds host many thousands of diving and dabbling ducks and hosts of shore birds. A precocious five-year old may ask: "Where does all the bird poop go?" A more sophisticated adult would regard this as a salt and nutrient load problem. If we connect the dots, we may conclude that the nutrient load coupled with limited flushing is exactly why we observe bigger nuisance algal blooms and dissolved oxygen crashes in managed and muted ponds.

My speculation is that this problem may increase as years and decades pass. A similar problem has arisen in City of San Jose municipal and regional parks: Lake Cunningham and Almaden Lake. Lake Cunningham has no flushing whatsoever. Over two decades it has become a toxic cyanobacterial stew. Some tiny fish live in the lake, presumably sticklebacks and some non-natives. Some ducks, cormorants, and pelicans visit the lake, but not many. And, Lake Cunningham has been closed to all human recreation since early 2017 due to documented presence of cyanobacteria toxins. Lake Cunningham was managed for human recreation for decades until salts and nutrients simply overloaded the system. Now, it mainly serves cyanobacteria. The case of Almaden Lake is not so dire. Almaden is only periodically closed to human recreation because seasonal wet weather creek flows allow occasional flushing. Almaden is also deeper, and this helps limit the mass of nuisance algae that can form there. I would like to suggest that you add lessons from Lakes Cunningham and Almaden to your consideration of alternatives for Eden Landing restoration.

With absence or reduction in tidal flushing and mixing, managed ponds will be relatively stagnant. Negative impacts are not so noticeable in bird populations, which simply use managed ponds for roosting or limited foraging. However, there is a profound difference at the microbial level of primary producers (phytoplankton and other forms of algae) and primary and small secondary consumers like bacteria, ciliates, rotifers, cladocerans, copepods, etc. I am not aware of any rigorous study comparing microbial communities in managed versus restored ponds. Water quality data and anecdotal evidence suggest there may be a big difference. Phytoplankton comprising the base of the food web have not been described, but current evidence from circulating or managed ponds A16 and A18 in the Alviso complex is that managed and low-circulating ponds create conspicuously green water. There has been no documented ill-effect resulting from the green water. But we do not know if this may be a harbinger of cyanobacteria blooms or other ecological upsets. We only know that the greenness seems to be characteristic of restricted circulation.

I-JE-5

Why I like Alternative B. The estuarine ecology is based on a dynamic system, not a static system. Tides and seasonal freshwater flows are part of the energy that drives and maintains this system. Absent tidal flushing, stagnant ponds become algal swamps, then alkali flats, then salt pannes or desert. An ideal Alternative B would also maximize flow connections with the adjacent Alameda Flood Control

I-JE-5 (cont.)

Channel to contribute more freshwater flow. Unfortunately, from what I understand, connections to the Alameda Channel fall under Federal jurisdiction making that option unforeseeable for the near future. (How unfortunate that a human bureaucratic convention should block such an attractive option for restoration!) But, absent that connection, Alternative B is superior simply for restoring the maximum marsh area to tidal circulation and better habitat for native fish and benthic organisms.

Although excluded from current planning, the Alternative B option to someday connect a portion of Eden Landing Complex to discharge from the Union Sanitary District wastewater treatment should be given serious consideration. If the wastewater treatment includes nitrification (removal of ammonia) and some amount of denitrification (removal of at least some nitrate), the additional freshwater flow would be extremely beneficial to the future restored marsh complex. The freshwater flow emanating from the San Jose/Santa Clara Regional Wastewater Facility (SJ/SC RWF) has been subject to extensive study in recent years. By all analyses, the treated wastewater is a significant factor that contributes to portions of the Alviso Marsh Complex supporting the highest density and diversity of fishes found in all of San Francisco Bay. Various studies and findings are summarized near the end of each year's facility Annual SMR Report: http://www.sanjoseca.gov/Archive.aspx?AMID=161&Type=&ADID=

I-JE-6

A few specific comments on the Draft EIR and Restoration Plan:

Draft EIR, bottom of page ES-14 to top of ES-15 : Potentially Significant Impacts: Eden Landing Phase 2 Impact 3.5.3: *"Potential habitat conversion impacts to western snowy plovers. ... there would be a reduction of potential western snowy plover habitat under Alternative Eden B. ... the impacts under Alternative Eden B would be potentially significant."*

Comment. It is difficult to assess potentially significant impacts resulting from potential snowy plover habitat that does not currently exist. The impact on western snowy plover is speculatively based on potential nesting or roosting habitat that might prove useful to plovers, or it might not. Managing ponds for plover use is a very uncertain goal and likely could lead to future needs to control predators, experiment with substrates, place decoys and recordings, or a host of other additional management actions as ever more costly efforts to bend nature to our will. The counter-argument is that maintaining the inland and southern salt ponds as managed ponds will deprive native fish and benthic organisms of much needed tidal mudflat and marsh which serves or conveys primary production. These tiny fish and benthic bugs feed both bird and fish communities, including plovers. Most would agree that birds migrate to San Francisco Bay marshes because of the abundant food. We should tune our efforts to maximize restoration that returns ancient marshes to natural food production.

In any case, more complete analysis of potential biological colonization by a host of organisms, in addition to snowy plovers, under either restoration scenario would be useful here. It makes me uneasy that a single species may drive the complexion of the entire restoration unless the argument is very compelling.

I-JE-7

Biological Resources, P. 3.5-13, near top of page: *"Results of bird surveys at ponds managed for salt production by Cargill also suggest ... small and medium shorebirds, gulls, and eared grebes showed an increase in abundance with increases in salinity while piscivorous birds, egrets and herons, and diving*

I-JE-7 (cont.)

ducks showed marked decreases in abundance in in areas of higher salinity. These different responses are likely related to the interactions between water depth, salinity, and dissolved oxygen, and with their prey base. These differences support the assumption that a range of ponds with differing physical characteristics is necessary to support a diverse and robust avian community."

Comment. The above statement needs more elaboration. Portions of the statement regarding affinity of bird guilds to salinity levels do not entirely agree with conclusions by Susan De La Cruz, et al in the 2018 USGS Open File report: "Trends and Habitat Associations of Waterbirds Using the South Bay Salt Pond Restoration Project." (https://pubs.usgs.gov/of/2018/1040/ofr20181040.pdf) That report indicates a stronger correlation between water depth, as opposed to salinity, and presence of certain bird guilds. Grebes and gulls are the only guilds possibly attracted to the highest salinities. Water depth seems to be the major factor for all the other guilds. I am not aware of a study connecting dissolved oxygen concentration to bird utilization of a pond. (I have observed piscivorous birds exploiting fish stressed from low dissolved oxygen: stressed fish swim near the surface and create a temporary pelican, tern, and cormorant feeding frenzy.) I don't think that birds can detect low dissolved oxygen by itself.

Regardless of whether bird guilds are more affected by water depth or salinity, the above paragraph seems to conclude with circular logic: '... because bird guilds prefer different conditions, a range of physical pond types is necessary to support them.' I do not agree. From personal observation, I have seen shorebird guilds mass on Pond A19 mudflats at low tide, for example. Just a few hours later, shorebirds fly off as tide rises, then piscivorous birds, diving ducks and dabblers arrive. The birds evolved in marshes subject to a dynamic tidal cycle. They know that shallow ponds get deep, then shallow again, as tides change. You can create a static system with ponds at fixed water depth, and birds will utilize it: driving the observation that different guilds like certain conditions. But, the restoration will not be natural, and it will not support the microbial food web needed to adequately feed the entire fish and bird community at the top. Let tides control water depth. Birds can jump from one pond to another according to the tidal cycle like they have always done.

I-JE-8

Biological Resources, P. 3.5-23. Table 3.5-2: Bald eagle is evaluated as "Low potential to occur."

Comment. This should be changed to mirror the assessment for Golden eagle: "Potential to occur." There are now at least seven bald eagle nests in San Francisco Bay Area. One of the nests, in Milpitas adjacent to the Alviso Marsh Complex, fledged a chick in 2017 and now hosts two more chicks this year. Residents in Milpitas are daily photographing and Facebook posting photos of the parent eagles carrying ducks, coots, and striped bass from Alviso restored ponds to their growing chicks. I might go so far as to conclude that bald eagles are likely to occur at the restored Eden Landing Complex in the future.

I-JE-9

Comment. Longfin smelt is evaluated as "Known to occur." That statement is true. Given the current declining status of Longfin smelt in the San Francisco Bay and Delta areas, and further given the 2017 finding by Dr. Jim Hobbs that Longfin smelt are spawning in the Alviso Marsh Complex, **I strongly recommend that the overall report give more attention to this threatened native fish.** Furthermore, some specific factors associated with Longfin spawning and recruitment should be given consideration. For example, winter low water temperature and low salinity are the factors that trigger Longfin spawning. Will there be enough freshwater in winter to stimulate Longfins? Recruitment depends to a

I-JE-9 (cont.)

large degree on Mysid shrimp populations and Copepods. Will the restored versus managed ponds foster growth of mysids and copepods? These organisms are the basic food resources for practically all the estuarine fishes, so this is not an exclusively Longfin concern. Mysids and Copepods are barely or only vaguely mentioned as biological resources. If your restoration does not support these tiny critters, it will fail.

I-JE-10

Biological Resources, P. 3.5-94, first paragraph last sentence: *[In the context of Inland Ponds and Southern Ponds being retained and enhanced as managed ponds] "The enhanced managed ponds may increase habitat value for estuarine fish, but also result in increased abundance of non-native species and predation."*

Comment. This conclusion is not supported. A lesson learned from the Alviso Marsh Complex restoration is that managed ponds will support more non-native species at the expense of natives. Predation will not be a factor if fish screens are installed on managed pond hydraulic control structures. If fish screens are not installed, the managed ponds will likely become traps for large predators like striped bass, king salmon, sturgeon, and California halibut. USFWS early experience in Pond A16 around 2013 and 2014 was that king salmon found a way into the pond via an inadequate fish screen and died due to the low dissolved oxygen. City of San Jose experience with circulating pond A18 was that hundreds of striped bass, plus a few halibut, bat rays, and sturgeon entered the pond when the fish screen broke down in 2014. The large fish could not tolerate a late September dissolved oxygen crash in the pond nor could they find their way out via narrow channels. They too died in the pond. Repairs to the broken fish screen were costly, but urgent. There have been no reports of mass fish kills in nearby restored ponds.

I-JE-11

Biological Resources, P. 3.5-56, middle of page: *"... sedimentation patterns of the South bay are expected to result in a loss of intertidal mudflat, both due to conversion to emerging fringe marsh and conversion to subtidal habitat due to scour as a result of increased tidal flux and eventually because of sea-level rise. ... mudflat loss is expected to be greater if ponds are breached and tidal habitats restored (2007 Final EIS/R)."*

Comment. This statement should mention the 2018 Phase I findings that indicate that mudflat loss did not occur as a result of restoration in the Alviso Marsh Complex. Granted, deposition rates may not be as great in the Eden Landing Complex, but studis since 2007 strongly indicates that there was far more sedimentation in tidally restored ponds A6 and A21 than initially expected with practically no associated loss of mudflat.

I-JE-12

Biological Resources, P. 3.5-57, middle of page: For Alternative Eden B - *"Managed ponds would be removed from the Bay, Inland and Southern Ponds, and small shorebirds would have to rely on managed*

I-JE-12 (cont.)

ponds located elsewhere in the South Bay to provide stable environmental conditions that allow longer foraging and roosting periods."

Comment. At the very least, this sentence should be modified to say "small shorebirds MAY have to rely upon managed ponds …" Findings in the 2018 Phase I report seem to indicate that small shorebird survival does not hinge upon the presence of managed ponds.

O-JE-13

Biological Resources, P. 3.5-66 to 77: *"Terns appear to be more mobile and more resilient to these changes, and are moving to new sites as pond are restored to tidal flows, however, they are not moving to newly created pond habitat with islands (Ibid)."*

Comment. Just an observation: The terns are almost certainly attracted to the food (tiny fish) that restored tidal ponds produce. The islands are placed in managed ponds with muted tidal flow, consequently less food. Terns don't like that!

I-JE-14

Biological Resources, P. 3.5-94, near top of page: "The enhanced managed ponds may increase habitat value for estuarine fish, but also result in increased abundance of non-native fish species and predation.

Comment. The enhanced managed ponds are unlikely to increase habitat value for estuarine fish, particularly if fish screens are installed. If fish screens are not utilized there may be high potential for fish kills.

I-JE-15

Biological Resources, P. 3.5-94, near top of page: *"Actions proposed for Alternative Eden C would be slightly less beneficial as those proposed under Alternative Eden B because the, in the former, the Inland or Southern Ponds would provide some limited habitat and access for fish that would not be provided in the latter."*

Comment. Change the word "slightly" to "significantly." There is more than enough information in the 2018 Phase I evaluation of Alviso Marsh Complex, and summarized elsewhere in this report, to boldly conclude that tidally restored ponds support native fishes. Managed ponds provide far less native fish habitat.

I-JE-16

Biological Resources, P. 3.5-120, third paragraph: Potential impacts to bay shrimp populations. … *"At a program level, the SBSP Restoration Project is expected to have a net benefit on bay shrimp by increasing (to Bay levels) the salinities in some freshwater sloughs and channels in the South Bay …"*

Comment. The California Bay Shrimp should be identified by its scientific name: C. fanciscorum. There is also a third native crangon shrimp: C. nigromaculata.

I-JE-16 (cont.)

https://www.nwrc.usgs.gov/wdb/pub/species_profiles/82_11-125.pdf In addition, the above statement regarding salinity is not exactly true. Crangon shrimp show strong recruitment in the Bay when there is a strong winter or springtime freshwater flushing event, as happened in February 2017. In the absence of freshwater flushing, non-native palaemon shrimp tend to dominate. (Jim Hobbs personal communication and observation)

Thank you for this opportunity to comment!

Jim Ervin

I-JE-16
(cont.)

A few photos to illustrate points:

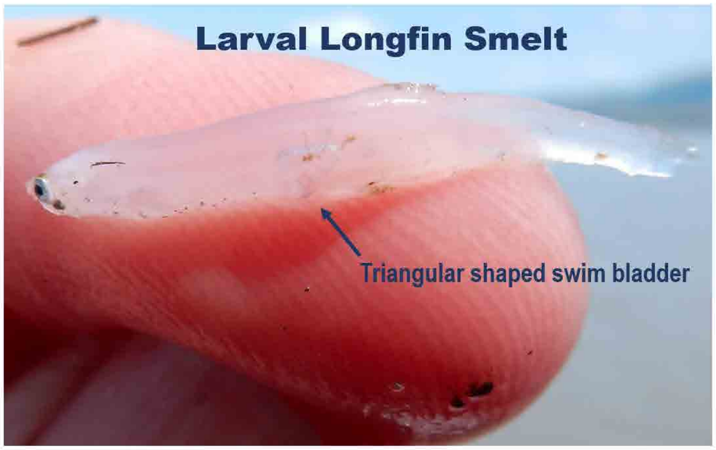
For better or worse, muted and managed ponds tend to produce green water! (no ill effects have been observed – so far!)

I-JE-16
(cont.)

Mysids are critical food for fingerling fish:

I-JE-16 (cont.)

Longfin smelt spawning in and near restored Alviso Marsh Complex ponds was discovered by Dr Jim Hobbs in late winter 2017:



Native Northern Anchovies also recruit in and near restored ponds.

I-JE-16
(cont.)

Native crangon shrimp. (C. franciscorum)

One of the Milpitas bald eagles with striped bass caught in Alviso Marsh restored pond in 2017.

Response to Ervin, Jim (I-JE)

I-JE-1

Monitoring and adaptive management actions are integral components of the SBSP Restoration Project; this approach would continue with implementation of Phase 2 actions in ELER. As per the Adaptive Management Plan, native and non-native estuarine fish will be monitored in tidal habitat, ponds, and sloughs. As discussed in MCR 2, Details of Designs, the SBSP Restoration Project Management Team is committed to implementing lessons learned through its own Adaptive Management Plan as well as through the insights and contributions of knowledgeable people in regulatory agencies, research bodies, nongovernmental or advocacy organizations, and the public. Focused monitoring of invasive/nuisance aquatic species will also be considered.

I-JE-2

See MCR 1, Selection of the Preferred Alternative, regarding common components in Alternative Eden B and the Preferred Alternative. See also MCR 5, Fish Habitat Restoration, regarding the fisheries restoration features of the Preferred Alternative.

I-JE-3

The Inland Ponds (E5, E6, and E6C) are not planned for tidal restoration in the Preferred Alternative during the first phase of restoration because of the project's need to balance multiple types of habitat restoration and enhancement actions. The long-term operation of those ponds as enhanced managed ponds may be necessary to achieve the full balance of the project's intended ecological goals. Pond E6C is proposed to be enhanced and maintained as seasonal habitat for western snowy plover and other pond nesting birds in the summer, while providing deeper open water for overwintering diving ducks and dabbling ducks, among other migratory shorebird species during the spring and fall migration periods. The Southern Ponds would be opened to muted tidal flows through a culvert system during the first phase of restoration; however, those ponds could be operated more as true managed ponds and not left open to constant muted tidal flows if ongoing monitoring shows that more managed ponds are needed for bird habitat. This is consistent with an adaptive management approach to the phased restoration of the Southern Ponds.

I-JE-4

With the Preferred Alternative, additional water control structure would be constructed in the Inland and Southern Ponds and some of the existing structures would be repaired. These improved water control structures would allow increased operational flexibility (relative to the existing conditions) to manage water depth and circulation in managed ponds that can be used to reduce residence time, increase dissolved oxygen concentrations, and reduce the potential for algae blooms.

I-JE-5

See MCR 1, Selection of the Preferred Alternative, regarding common components in Alternative Eden B and the Preferred Alternative. See also MCR 5, Fish Habitat Restoration, which provides a broad explanation of the types of fish habitat restoration and enhancements included in the Preferred Alternative. To facilitate fish passage between the ACFCC and the restored ponds, the Preferred Alternative includes a connection between the Bay Ponds and the ACFCC that will no longer be through large culverts, as initially described, but instead through a full breach. This breach however, would be armored to prevent additional scour and uncontrolled widening that could undercut a new public access bridge on the Alameda Creek Regional Trail. Although connections to Union Sanitary District treated water and ACWD Aquifer Reclamation Program wells are not currently proposed, later connections by others would not be prevented by project actions.

I-JE-6

Western snowy plovers have not been recorded nesting in the Bay Ponds or Pond E5, but they have nested in Pond E6 (1 nest each in 2015 and 2018), along the north eastern border, on higher ground, and they have nested in Pond E6C in 2015 (8 nests), 2016 (8 nests), 2017 (2 nests), and 2018 (1 nest).. Because of the existing use of Pond E6C, this pond is proposed to be enhanced and maintained as seasonal habitat for western snowy plover and other pond nesting birds in the summer, while providing deeper open water for overwintering diving ducks and dabbling ducks, among other migratory shorebird species during the spring and fall migration periods.

The Preferred Alternative is intended to maximize tidal marsh restoration while still balancing multiple restoration goals. Restoration of tidal flow to the Bay Ponds would provide a large area of increased habitat value for salmonids and other native fish, improve conditions in southern Eden Landing, and provide good nursery and forage habitat for juvenile fish.

I-JE-7

Managed ponds have a more stable water surface elevation, and those ponds can be maintained with a certain water level and a certain salinity (to some extent) that can help produce and support specific types of prey (fish, invertebrates) that then attract certain types of foraging birds. It is not circular logic to try and provide a variety of habitats for a variety of bird species.

I-JE-8

The bald eagle is a rare visitor to the ELER Phase 2 area, while the golden eagle has been found to be an occasional forager during the non-breeding season. Although this may change in the future, the list is representative of occurrence frequencies to date.

I-JE-9

Section 3.5.3 (Impact 3.5-14) of the EIR discusses potential effects from the project on estuarine fish, including longfin smelt. Longfin smelt would benefit from the restored tidal marsh and channels which are expected to provide extensive and diverse foraging and nursery habitat for estuarine fish. Within the restored ponds, salinity and water temperature would be set by ambient conditions: the estuarine environment would reflect the combined mixture of fluvial flows and water from the Bay that passes through breaches and culverts, with the interior of the ponds generally expected to be well mixed due to tidal exchange. As such, salinity is expected to be lower when there is high fluvial outflow.

I-JE-10

The comparison being made is between the existing managed ponds and the proposed enhanced managed ponds. This is not a comparison between managed ponds and tidal habitat. Fish screen are not being proposed for control structures in the Inland and Southern Ponds.

I-JE-11

An additional clarifying sentence was included in Section 3.5.3 of the Final EIR that summarizes this Phase 1 finding.

I-JE-12

This sentence is intended to indicate that managed pond habitat would no longer be located in the Bay, Inland, and Southern Ponds with Alternative Eden B; not that small shorebirds are dependent on managed pond habitat. A clarifying phrase is included at the end of the sentence in the Final EIR.

I-JE-13

USGS data indicates that Forster's terns will forage in ponds but prefer tidal sloughs. The quote used is in reference to nesting terns not foraging terns.

I-JE-14

As discussed in response to comment I-JE-4, improved water control structures would allow operational flexibility when managing water depth and circulation in managed ponds and can be used to reduce residence time and increase dissolved oxygen concentrations, minimizing adverse conditions for fish and improving them relative to the existing conditions.

I-JE-15

Text was revised to remove the word slightly from the sentence.

I-JE-16

The scientific name is provided at the first time use the conventional name "California bay shrimp" is used in Section 3.5. The sentence quoted above is not referring to effects from freshwater pulse flows, but instead is referring to overall quantity of estuarine habitat.

Bogios, Constantine (I-CB1)

From: utility@sfei.org
To: SBSP Question
Subject: An SBSP question or comment
Date: Thursday, May 17, 2018 11:23:01 AM

First Name : Constantine
Last Name : Bogios
Organization :
Street Address : 2582 Oak Rd. #217
Street Address2 :
City : Walnut Creek
State : CA
Zip Code : 94597
Email : costabass@hotmail.com

This is regarding:
Habitat;

I-CB1-1

Question or comment:
I support plan B, full restoration of all 11 southern Eden Lannding phase 2 salt ponds to full tidal marsh in one stage

Response to Bogios, Constantine (I-CB1)

I-CB1-1

See MCR 1, Selection of the Preferred Alternative, regarding common components in Alternative Eden B and the Preferred Alternative. See also MCR 5, Fish Habitat Restoration, regarding the fisheries restoration features of the Preferred Alternative.

Bogios, Constantine (I-CB2)

From: Constantine Gus Bogios
To: phase2comments@southbayrestoration.org
Subject: [phase2comments] Protect Native Species
Date: Thursday, May 17, 2018 11:24:11 AM

To Whom It May Convern,

I-CB2-1 I wish to voice my support to Alternative B full restoration of all 11 southern Eden Landing phase 2 salt ponds to full tidal marsh in one stage.

Thank you - Costa

Sent from iCosta!!!!

--
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Response to Bogios, Constantine (I-CB2)

I-CB2-1

See MCR 1, Selection of the Preferred Alternative, regarding common components in Alternative Eden B and the Preferred Alternative. See also MCR 5, Fish Habitat Restoration, regarding the fisheries restoration features of the Preferred Alternative.

Boniello, Ralph (I-RB)

June 5, 2018

South Bay Salt Ponds Restoration Project
Eden Landing Phase 2 Draft EIR/EIS

I-RB-1

I support Alternative B, restoration of all 11 southern Eden Landing phase 2 salt ponds to full tidal marsh, in one stage. I support the recommendation *of* fisheries experts and the Alameda Creek Alliance who recommend full tidal restoration since it will provide the most amount of habitat for juvenile salmonids; and suggest multiple points of access to restored wetlands from lower Alameda Creek, the Bay and Old Alameda Creek channel, to increase connectivity between fish habitats and reduce predation risk for steelhead.

I support breaches of existing levees to provide maximum connectivity for fish from the Alameda Creek Flood Control Channel, the Bay and Old Alameda Creek channel to the restored wetlands.

I support construction of a pilot channel to allow passage of steelhead from Alameda Creek into the Bay Ponds E2 and E4. Rather than a water control structure at this location, we support a breach of the levee to improve fish access to and from the restored marsh, which we understand would not increase flooding risk. I support raising any levees in the project area where required to manage flood risk, to safely allow maximum connection of tidal marshes to lower Alameda Creek. I support all feasible levee lowering that does not cause flooding risk, to increase hydraulic and fish connectivity between channels and marshes.

I specifically support the proposed raising and improvement of approximately 2 miles of the existing Bay-facing levees of Ponds E1 and E2. This would prevent wave overtopping and subsequent scour and erosion of the restoring marsh in the Bay Ponds behind it; provide a habitat transition zone; and could make it possible to breach more of the interior levees to improve fish movement.

I support connections to Union Sanitary District treated water and ACWD Aquifer Reclamation Program wells to allow for freshwater and brackish water inputs to restored marshes, to create water habitat transition zones beneficial to fish.

Sincerely,

Ralph Boniello
Richmond, CA

Response to Boniello, Ralph (I-RB)

I-RB-1

See MCR 1, Selection of the Preferred Alternative, regarding common components in Alternative Eden B and the Preferred Alternative. See also MCR 5, Fish Habitat Restoration, which provides a broad explanation of the types of fish habitat restoration and enhancements included in the Preferred Alternative and the pond's increased habitat connectivity to OAC and the ACFCC. Pilot channels, lowered levees at Ponds E1 and E2, and improvements to the bay-facing levee, are also included in the Preferred Alternative. The Inland Ponds (E5, E6, and E6C) are not planned for tidal restoration in the Preferred Alternative during the first phase of restoration because of the Project's need to balance multiple types of habitat restoration and enhancement actions. The long-term operation of those ponds as enhanced managed ponds may be necessary to achieve the full balance of the Project's intended ecological goals. Although connections to Union Sanitary District treated water and ACWD Aquifer Reclamation Program wells are not currently proposed, later connections by others would not be prevented by project actions.

Clegg, James (I-JC)

From: James S. Clegg
To: phase2comments@southbayrestoration.org
I-JC-1 **Subject:** [phase2comments] Artemia franciscana
Date: Tuesday, June 05, 2018 4:09:00 PM

Is this valuable species still living in the South Bay salterns, or has it been destroyed?

James S. Clegg
Molecular and Cellular Biology
University of California, Davis and
Bodega Marine Laboratory
Bodega Bay, CA 94923

707 875 2010
707 875 2009 (fax)

Response to Clegg, James (I-JC)

I-JC-1

This species is still present and abundant in many of the moderate to higher salinity ponds.

Cook, J. (I-JPC)

From: jack pierce
To: phase2comments@southbayrestoration.org
Subject: [phase2comments] EIR comments
Date: Tuesday, June 05, 2018 1:51:47 PM

I-JPC-1

Who will own and manage the trails? Will they be subject to closure or restrictions, like no dogs?

Are you getting rid of hunting, especially if there is endangered species?

Will the trails be protected from sea level rise?

Why doesn't the trail go to the shoreline as was promised in phase 1?

Will the trail connect to Fremont like was promised in phase 1?

What are the mitigation measures to guarantee the public will be allowed access?

Sincerely,

J. Cook
Union City cyclist

--

Response to Cook, J. (I-JPC)

I-JPC-1

See MCR 8, Maintenance Responsibilities, regarding CDFW's ownership of ELER and how local partnership will likely be sought for the long-term maintenance of trails, bridges, and viewing platforms (including signage, benches, etc.) within ELER. Phase 2 trails would have restricted hours (sunrise to sunset in ELER), but the spine trail would be open year-round except for approximately 10 days in November through January for sport waterfowl hunting. If East Bay Regional Park District agrees to operate the Bay Trail spine, dogs would be prohibited as is the case for their current operation of the spine along northern Eden Landing. As discussed in Section 3.6.4 of the EIR, limited waterfowl hunting at ELER would continue, though there would be a loss of available managed ponds for hunting.

As discussed in MCR 7, Public Access Trails (Routes, Elevations, and Parking), the Preferred Alternative includes a trail alignment through southern Eden Landing that would be located upon levees raised to a minimum elevation of 12 feet NAVD88, which is the same height as the proposed mid-complex levee (see also MCR 3, Sea-Level Rise).

None of the programmatic alternatives in the 2007 Final EIS/R included the construction of new shoreline trails in southern Eden Landing.

As discussed in MCR 7, Public Access Trails (Routes, Elevations, and Parking), the trail route selected in the Preferred Alternative connects to the Alameda Creek Regional Trail, which is located in the City of Fremont southeast of Pond CP3C.

Public access to southern Eden Landing would be provided on the indicated trail route. This access would not be a "mitigation measure" but rather an integral part of the proposed action itself.

Copper, Elizabeth (I-EC)

From: Elizabeth Copper
To: phase2comments@southbayrestoration.org
Cc: gfrost@audubon.org; "Jim Peugh"
Subject: [phase2comments] South San Francisco Bay Salt Pond Restoration Phase 2 - Eden Landing DEIR Comments
Date: Tuesday, June 05, 2018 6:07:40 PM

5 June 2018

Subject: Comments on Eden Landing DEIR -

I-EC-1

The selection of programmatic alternative C, up to 90% tidal marsh, 10% ponds is an extraordinary level of change to what has been identified in its pre-restoration condition as uniquely high value habitat for waterbirds. The efforts to evaluate the potential consequences of these changes have apparently been well-supported but current results are not sufficiently robust to justify Phase 2. Many of the evaluation measures have to date achieved only uncertain results. While some of those measures are tending positive, that should not be sufficient to move on to a level of change that approaches the maximum that would have been allowed in the 50-year programmatic EIS/R under alternative B.

The emphasis on tidal marsh does not reflect acknowledgment that the loss of tidal flats in San Francisco Bay has also been devastating. The importance of available high tide roosting habitat is not quantified. The makeup of high tide roost sites is not described and the distribution of roost sites throughout the bay is not included. The project relies on the ability to render 10% of the ponds of such high value that they can continue to support hundreds of thousands of waterbirds when 90% of the habitat they had will be lost. The results of efforts to date do not justify those assumptions.

The prey base within the salt ponds relied upon by hypersaline species such as eared grebes and phalaropes and to a lesser degree avocets and stilts are not discussed and the predicted outcome for these prey is apparently not addressed.

One of the The most significant measures of change will be the extent and density of vegetation. In the south San Diego Bay Salt Works during tidal restoration of ponds formerly part of a the salt production system, the abundance of many species of waterbirds increased for one or two years post-construction. The fill in those ponds provided expansive unvegetated flats which drew large numbers of foraging birds but as the salt marsh expanded many of the same species showed marked declines.

When issues such as the importance of biofilm are raised it is evident that the depth of understanding of the marine ecosystem is immature. The research supported by this project should be applauded for its breadth and given a chance to provide the guidance that was intended in the project's embrace of adaptive management. This is a Western Hemisphere Shorebird site of global importance. There should not be a rush to change it unless there is a guarantee that the knowledge to preserve the current values can be maintained.

I am concerned that the Programmatic Plan EIS was deemed to sufficient to support these actions by reference without the benefit of review of the research meant to guide adaptive management. That research suggests that the choice of alternatives should be reviewed and revised.

Thank you for the opportunity to comment.

Elizabeth Copper
227 F Avenue
Coronado, CA 92118
ecopper@san.rr.com

--
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Response to Copper, Elizabeth (I-EC)

I-EC-1

This comment is not about the adequacy or accuracy of the Draft EIS/R but rather reflects questions about the 2007 Final EIS/R. Programmatic Alternative C was selected as the Preferred Alternative in the 2007 Final EIS/R, but the selection of the 90-10 alternative for the program as a whole is an upper bound, not a hard and fast goal. The lower bound is the 50-50 alternative, and the plan is to end up somewhere in the middle, depending on how the various ecosystems and species respond.

Many of the specific issues raised in this comment are discussed in the context of the Phase 2 actions at ELER in Section 3.5.3 of the EIR, including the availability of high tide roosting habitats for small birds, preferences of eared grebes and phalaropes for prey in high-salinity ponds, foraging preferences for avocets and stilts, and changes in habitat type from managed ponds to mudflat to vegetated marsh with breaching and natural sediment accretion. Although there is less emphasis on the life history of specific prey species, changes to foraging habitat are discussed for different guilds/groupings of birds.

Waterbird surveys are an integral part of the Adaptive Management Plan and ongoing survey information would to be used during phased restoration at ELER. As described in MCR 1, Selection of the Preferred Alternative, Pond E6C is proposed to be enhanced and maintained as seasonal habitat for western snowy plover and other pond nesting birds in the summer, while providing deeper open water for overwintering diving ducks and dabbling ducks, among other migratory shorebird species during the spring and fall migration periods. The adjacent Inland Ponds (E5 and E6) would also remain managed ponds during the first phase of restoration; however, if monitoring and implementation of the Adaptive Management Plan determines that tidal restoration of Ponds E6 and E5 is most beneficial, then Ponds E5 and E6 would be open to muted tidal flow. Conversely, the Southern Ponds would be opened to muted tidal flows through a culvert system during the first phase of restoration; however, those ponds could be operated more as true managed ponds and not left open to constant muted tidal flows if ongoing monitoring shows that more managed ponds are needed for bird habitat.

The SBSP Restoration Project Management Team is committed to implementing lessons learned through its own Adaptive Management Plan as well as through the insights and contributions of knowledgeable people in regulatory agencies, research bodies, nongovernmental or advocacy organizations, and the public. Current research is regularly evaluated and those insights and major scientific findings guide ongoing restoration actions.

Coyne, Brian (I-BC)

From: Brian Coyne
To: phase2comments@southbayrestoration.org
Subject: [phase2comments] comments on Eden Landing Draft EIR
Date: Tuesday, June 05, 2018 9:42:10 AM

To whom it may concern,

I-BC-1 I'm writing about the draft EIR for Eden Landing.

I am strongly in favor of this project. My primary experience of the area is as a trail user. For that reason, I want to strongly urge you to choose Alternative C. Alternative C is, if I'm reading the documents correctly, the only option that includes a trail bridge over the Alameda Creek Flood Control Channel. This bridge is absolutely crucial for connecting the various trails of the region and completing the Bay Trail through this area. Without this bridge, trail users would have to make a long detour back to the bridge at Ardenwood / Union City Boulevard, a road that is notorious among bicyclists for unsafe car traffic.

Completing the Bay Trail through Eden Landing will create a continuous trail route between Oakland, Palo Alto, and San Jose. This will be an incredible resource for the whole Bay Area, facilitating sustainable transportation and engagement with these restored natural areas. I urge you to move forward with the project and choose Alternative C.

Sincerely,

Brian Coyne
San Francisco

Response to Coyne, Brian (I-BC)

I-BC-1

As discussed in MCR 7, Public Access Trails (Routes, Elevations, and Parking), the Preferred Alternative includes a trail alignment through southern Eden Landing that includes the public access bridge over the ACFCC.

Dalal, Namita (I-ND)

From: "namita dalal" via Phase 2 Comments
To: phase2comments@southbayrestoration.org
Subject: [phase2comments] salt ponds restoration
Date: Thursday, May 17, 2018 4:56:20 PM

I-ND-1

- We generally support Alternative B, restoration of all 11 southern Eden Landing phase 2 salt ponds to full tidal marsh, in one stage.

- Fisheries experts recommended full tidal restoration since it will provide the most amount of habitat for juvenile salmonids; and suggest multiple points of access to restored wetlands from lower Alameda Creek, the Bay and Old Alameda Creek channel, to increase connectivity between fish habitats and reduce predation risk for steelhead.

- We support breaches of existing levees to provide maximum connectivity for fish from the Alameda Creek Flood Control Channel, the Bay and Old Alameda Creek channel to the restored wetlands.

- We support construction of a pilot channel to allow passage of steelhead from Alameda Creek into the Bay Ponds E2 and E4. Rather than a water control structure at this location, we support a breach of the levee to improve fish access to and from the restored marsh, which we understand would not increase flooding risk.

- We support raising any levees in the project area where required to manage flood risk, to safely allow maximum connection of tidal marshes to lower Alameda Creek.

- We specifically support the proposed raising and improvement of approximately 2 miles of the existing Bay-facing levees of Ponds E1 and E2. This would prevent wave overtopping and subsequent scour and erosion of the restoring marsh in the Bay Ponds behind it; provide a habitat transition zone; and could make it possible to breach more of the interior levees to improve fish movement.

- We support all feasible levee lowering that does not cause flooding risk, to increase hydraulic and fish connectivity between channels and marshes.

- We support connections to Union Sanitary District treated water and ACWD Aquifer Reclamation Program wells to allow for freshwater and brackish water inputs to restored marshes, to create water habitat transition zones beneficial to fish.

Thank you
Namita

--
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Response to Dalal, Namita (I-ND)

I-ND-1

See MCR 1, Selection of the Preferred Alternative, regarding common components in Alternative Eden B and the Preferred Alternative. See also MCR 5, Fish Habitat Restoration, which provides a broad explanation of the types of fish habitat restoration and enhancements included in the Preferred Alternative and the pond's increased habitat connectivity to OAC and the ACFCC. Pilot channels, lowered levees at Ponds E1 and E2, and improvements to the bay-facing levee, are also included in the Preferred Alternative. The Inland Ponds (E5, E6, and E6C) are not planned for tidal restoration in the Preferred Alternative during the first phase of restoration because of the Project's need to balance multiple types of habitat restoration and enhancement actions. The long-term operation of those ponds as enhanced managed ponds may be necessary to achieve the full balance of the Project's intended ecological goals. Although connections to Union Sanitary District treated water and ACWD Aquifer Reclamation Program wells are not currently proposed, later connections by others would not be prevented by project actions.

Devine, Timothy (I-TD)

-----Original Message-----
From: utility@sfei.org [mailto:utility@sfei.org]
Sent: Friday, April 13, 2018 7:46 AM
To: SBSP Question
Subject: An SBSP question or comment

First Name : Timothy
Last Name : Devine
Organization :
Street Address : 24702 Broadmore Ave.
Street Address2 :
City : Hayward
State : CA
Zip Code : 94544
Email : goosedevine@yahoo.com

This is regarding:
Habitat; Public Access and Recreation; Other

I-TD-1

Question or comment:
We have an opportunity to recover 2 iconic species to the Alameda Creek watershed: Coho Salmon and Steelhead Trout. Restoration of habitat and stream flows should be focused on saving these fish and allowing them to thrive. I believe these priorities should come before any other use of water from this Creek's watershed. Restoration is the number one priority. Thank you!

Response to Devine, Timothy (I-TD)

I-TD-1

See MCR 5, Fish Habitat Restoration, regarding the fisheries restoration features of the Preferred Alternative.

Galvan, Stonetree (I-SG)

From: stonetree galvan
To: phase2comments@southbayrestoration.org; senator@feinstein.senate.gov
Subject: [phase2comments] NEPA COMMENTS Eden Landing Phase 2 Draft Environmental Impact Statement/Report
Date: Monday, May 21, 2018 4:40:39 PM

To Whom It May Concern:

I-SG-1

1. Did you change the project boundaries from the Phase 1 project from which this project is tiered? If so please provide an analysis of the potential impacts of the affected areas that were excluded from or added to the new project boundaries?
2. The EIR/EIS suggests that recreational trails can only be completed on lands owned by the project, yet I have understood that the Cargill ponds are managed by CDFW, so what is the agreement for use of these private lands? Is hunting allowed on these lands, and by what agreement?
3. Is there an agreement in place to use Alameda County Flood Control facilities for recreational use? Will the project build and manage trails on these lands? Who will manage these trails?
4. Who maintains and manages the recreational facilities in the first phase of the Eden landing Restoration? After it was was completed, I could not go there for a year or more, as I recall. Since construction completion, how many days have these trails been closed, and why?
5. Will trailhead and parking facilities be provided at trail entry points?
6. Who will maintain and manage the new trail facilities? Is there an agreement in place for this? If there is no agreement for use by Alameda County, City of Hayward, Cargill or others, where will the recreational facilities be constructed to meet the project goal?
7. If CDFW manages the trails, how will they be managed to ensure they are kept open? Will CDFW manage the trails on Alameda County or Cargill property?
8. What commitment will the project make to ensure completion of a connected trail segment that connects to the existing Bay Trail at Alameda Creek Flood Control Channel at Ardenwood Blvd.?
9. The report identifies project options, but does not provide a recommended alternative. For recreational facilities, how will that be decided?
10. What percentage of the project construction budget has been allocated to recreation, one of the main project goals?
11. What percentage of Phase 2 land area will be committed to public access for recreational use?
12. Chapter 3.8 and Chapter 4: Land Use and Cumulative Effects. There is no discussion of recreation, public access, or other policies in these plans that relate to shoreline access. Please provide analysis of the policies in each of the general plans related to public access. Please include a discussion of relevant plans as they relate to shoreline access. I thought that some of these plans show a shoreline trail along old Alameda Creek.
13. All three of the options appear to preclude shoreline access to the Bay, as shown on the Bay Plan, Bay Trail Plan, and Alameda County Bicycle and Pedestrian Plans, part of the General Plans. What is the mitigation measure or environmental commitment to address these inconsistencies and help make the project ensure that maximum feasible shoreline access will be provided, and that the Bay Trail will be completed, as promised in the Phase I project.
14. Chapter 3.10. Please provide a discussion of public space as it relates to Environmental Justice.CItizens in this area. Do you think disadvantaged communities have been denied an opportunity to access the shoreline in this region, unlike similar areas on the

I-SG-1 (cont.)

west side of SF Bay. What amount of facilities will be provided to ensure access for healthy outdoor activities along the Bay, and that they will not be closed or degrade due to poor construction?

15. Chapter 5: Other NEPA Considerations. Is there a Park Closure Analysis? Closure of trails may affect the limited recreational facilities in this region.
16. What is the NEPA environmentally preferred alternative?

Response to Galvan, Stonetree (I-SG)

I-SG-1

1) The ELER Phase 2 project area is a subset of the overall SBSP Restoration Project area that focuses on the Phase 2 actions at Eden Landing. The project area also includes an offloader and slurry pipe system within the Bay, which is analyzed in the EIR. The regional setting provides information on a broader area extending beyond the immediate project vicinity. Indirect effects on a larger regional area (such as potential changes in flyover populations) are discussed under the specific resource topic.

2) Each of the trail route options analyzed in the EIR crosses over or includes areas that are owned or managed by others (such as the J-ponds) and would therefore require easements or agreements from outside parties. No arrangement exists between CDFW and Cargill regarding operations of Pond CP3C or any other pond. The lands that remain under Cargill ownership are not open to the general public.

3) An easement or an agreement with the ACFWCD would be developed prior to bridging the J-ponds and providing trail access over the 20-tide gate structure. See MCR 8, Maintenance Responsibilities, regarding local partnership for the long-term maintenance of trails, bridges, and viewing platforms (including signage, benches, etc.).

4) See MCR 8, Maintenance Responsibilities, regarding management of the Phase 1 trails. The trails and kayak launch completed as part of ELER Phase 1 were opened within a few months of their completion. The Phase 1 trails are closed to general use on waterfowl hunt days (currently 10 days per year) to ensure public safety.

5) As discussed in MCR 7, Public Access Trails (Routes, Elevations, and Parking), the preferred trail alignment is more of a through-trail used for longer hikes or bicycle rides to or from existing trailheads, and consequently there would be a reduced need for a new parking area. However, as part of ongoing operational activities at northern Eden Landing, CDFW could expand the parking area built near Phase 1 of the project to accommodate any additional demand by opening and improving the overflow parking area, as appropriate. Currently the lot occasionally fills only for brief periods on certain weekend days, particularly during special events. Weekend and peak demand will continue to be monitored at that site by CDFW, and the overflow area could be opened if significant new demand is supported.

6-7) See MCR 8, Maintenance Responsibilities, regarding local partnership for the long-term maintenance of trails, bridges, and viewing platforms.

8) A preferred trail alignment is selected in the Final EIR, CDFW would then need to approve the project with the selected trail alignment, design drawings would be further developed, project permits would be obtained, necessary easements or agreements would be obtained, design drawings and contractor specification would be finalized, and contractor bids would be solicited. Each of these permitting, design, and pre-construction elements would be required prior to construction of the public access trail through southern Eden Landing.

9) See MCR 7, Public Access Trails (Routes, Elevations, and Parking), for a description of how and why the preferred trail route was selected.

10-11) It would be difficult to allocate project construction costs between different resource areas, as levee improvements and other features can address multiple project goals. However, the import of materials for levee improvements and the construction of habitat transition zones represent one of the most substantial construction elements in the proposed project. With respect to land area, the levees that would support the public access trail also provide habitat separation. Although Phase 2 actions would provide public access to new areas within the ponds, it would not provide access to all the ponds, or all of the perimeter levees.

12) Clarifying text is included in Section 3.8.2 of the Final EIR to discuss shoreline and open space principles of the Alameda County General Plan as it relates to shoreline access. For a general description of the regulatory setting as it relates to recreation and public access, see Section 3.6.2 of the EIR. Note that Section 4.3 of the EIR discuss the effects of the incremental contribution from the project from the development of public access and trails in the context of other reasonably foreseeable projects in the project vicinity.

13) The three possible shoreline (Bay Trail) alignments adjacent to or through the area's wetlands are different from previous planning documents because they are based the restoration goals of the Project, conditions of the existing levees, and the need to avoid sensitive wildlife species. As discussed in Section 3.6.2 of the EIR, the Bay Trail Plan includes a shoreline spur to the Bay at OAC. However, as discussed in MCR 7, Public Access Trails (Routes, Elevations, and Parking), the action alternatives did not include a new trail all the way to San Francisco Bay along OAC because much of the necessary tidal exchange into the project site would come from OAC along the north perimeter of southern Eden Landing, through multiple breaches into OAC and levee lowering. Tidal exchange along OAC is required because the outer, bay-facing levee along Pond E1 and E2 would be improved and because only controlled openings into southern Eden Landing are possible on its southern boundary with the ACFCC. This makes it infeasible to place a trail to the Bay along that alignment. The SBSP Restoration Project proponents have been coordinating with local and regional agencies regarding these Phase 2 actions in southern Eden Landing.

14) See Section 3.10.3 of the EIR for a discussion of how new recreational and public access facilities, which would provide enhanced access to outdoor recreational activities and improve the "livability" for the local communities, could affect the lifestyles and social interactions for the communities near ELER. See also MCR 7, Public Access Trails (Routes, Elevations, and Parking), regarding the type and amount of public access facilities provided in the Preferred Alternative.

15) Phase 2 actions in ELER would not require the closure of an existing park. However, some trail segments may be affected during construction; for example, sections of the Alameda Creek Regional Trail would be closed during construction of a public access bridge over the ACFCC. Effects resulting from the temporary construction-related closure of adjacent public parks or other recreation facilities are discussed in Section 3.6.4 of the EIR.

16) See MCR 1, Selection of the Preferred Alternative, and Chapter 6 of the Final EIR, which identifies the Preferred Alternative (as well as the Environmentally Superior Alternative) for Phase 2 at Eden Landing. The federal lead agency will identify the Environmentally Preferred Alternative as part of its NEPA process.

Johnson, Ralph (I-RJ)

From: Ralph Johnson
To: phase2comments@southbayrestoration.org
Subject: [phase2comments] Draft Environmental Impact Statement/Report for Phase 2 alternative plans at the Eden Landing ponds.
Date: Tuesday, June 05, 2018 10:01:21 AM

Good morning,

I-RJ-1

I have two comments that are related to the flood protection aspects of the project:

- I prefer Alternative Eden B. From a flood protection perspective, an engineered levee may be needed in the future to protect the inland communities from tidal flooding or excessive Flood hazard Insurance. The levee alignment in this alternative is preferable because it has the best underlying soil material (it has a minimum of bay mud under its alignment) which will result in a lower overall cost to construct an engineered levee.
- I would encourage the project to explore trading either pond E4C or CP3C (assuming Cargill is willing to sell) with the Flood Control District for the "J" ponds. The "J" ponds receive storm water from Lines J2 and J3. Line J3 drains into the "J" ponds shown in the alternative. Line J2 drains into a ponding area immediately to the east of pond CP3C. and is not depicted in the alternative. The two ponding areas are joined together by a channel at the base of the old landfill and the only outlet for both ponding areas is into Alameda Creek from the J2 ponding area at a tide gate structure just to the east of Cal Hill. It would make sense to consolidate the ponding areas and make better use of the one existing outfall.

Thank you,

Ralph Johnson

--

Response to Johnson, Ralph (I-RJ)

I-RJ-1

See MCR 1, Selection of the Preferred Alternative, regarding common components in Alternative Eden B and the Preferred Alternative. The Preferred Alternative includes levee improvements at multiple locations (e.g., outboard, mid-complex, and backside levees). The backside levee would be an engineered structure, but it would not be a FEMA-accredited levee designed specifically for flood protection.

There are currently no agreements for land acquisition of Pond CP3C or for a trade between the J-ponds and Pond E4C. Such agreements would not be precluded due to Phase 2 actions at ELER.

Knopf, Clay (I-CK)

From: utility@sfei.org
To: SBSP Question
Subject: An SBSP question or comment
Date: Saturday, May 26, 2018 1:50:14 PM

First Name : clay
Last Name : knopf
Organization : THCGA
Street Address : 2313 S. Fork Rd
Street Address2 :
City : Twain Harte
State : CA
Zip Code : 95383
Email : clayk@att.net

This is regarding:
Habitat;

Question or comment:
I-CK-1 Dear Sirs,
I am writing to encourage your agency to adopt alternative "B" for the South Bay Salt Pond Restoration Project, to restore all eleven Southern Eden Landing phase 2 salt ponds to full tidal marsh in one stage. This is an excellent opportunity to improve functional habitat for anadramous fish, while reducing flood damage risk in lower Alameda Creek.

Please include maximum access points to restored wetlands from the Creek and Bay, including levee breaches wherever feasible.
I also support construction of a pilot channel for Steelhead passage between Alameda Creek and Bay Ponds E-2 and E-4.

I further support all feasible levee lowering and or breaching to increase hydrologic and fish habitat connectivity between stream channels and restored marshes. I encourage improvement and raising of the two miles of existing, Bay-facing levees of Ponds E-1 and E-2. This would allow for important sheltering of sensitive marsh habitats.

I thank you for considering the needs of threatened fish and wildlife populations while improving our human infrastructure. In the end the value of our culture relies on our ability to coexist with, and sustain a robust environment.

Sincerely, Clay Knopf

Response to Knopf, Clay (I-CK)

I-CK-1

See MCR 1, Selection of the Preferred Alternative, regarding common components in Alternative Eden B and the Preferred Alternative. See also MCR 5, Fish Habitat Restoration, which provides a broad explanation of the types of fish habitat restoration and enhancements included in the Preferred Alternative and the pond's increased habitat connectivity to OAC and the ACFCC. Pilot channels, lowered levees at Ponds E1 and E2, and improvements to the bay-facing levee, are also included in the Preferred Alternative.

Marshak, Bob (I-BM)

From: Bob Marshak
To: phase2comments@southbayrestoration.org
Subject: [phase2comments] Comments on Salt Pond Restoration Projects
Date: Tuesday, May 22, 2018 7:47:13 PM

I-BM-1 I want to express my support for the plan. Above all, I support the actions that would be beneficial to native fish and, ultimately, help our steelhead thrive.

I look forward to seeing the projects going forward.

Bob M

--
Bob Marshak
clickandcast@gmail.com

--

Response to Marshak, Bob (I-BM)

I-BM-1

See MCR 5, Fish Habitat Restoration, regarding the fisheries restoration features of the Preferred Alternative.

Morelli, Leslie (I-LM)

From: rlmorelli@comcast.net
To: phase2comments@southbayrestoration.org
Subject: [phase2comments] South Bay Salt Pond Restoration Project comments
Date: Thursday, April 12, 2018 9:45:37 PM

I-LM-1 I generally support Alternative B, restoration of all 11 southern Eden Landing phase 2 salt ponds to full tidal marsh, in one stage.

Fisheries experts recommended full tidal restoration since it will provide the most amount of habitat for juvenile salmonids; and suggest multiple points of access to restored wetlands from lower Alameda Creek, the Bay and Old Alameda Creek channel, to increase connectivity between fish habitats and reduce predation risk for steelhead.

I support breaches of existing levees to provide maximum connectivity for fish from the Alameda Creek Flood Control Channel, the Bay and Old Alameda Creek channel to the restored wetlands.

I support construction of a pilot channel to allow passage of steelhead from Alameda Creek into the Bay Ponds E2 and E4. Rather than a water control structure at this location, we support a breach of the levee to improve fish access to and from the restored marsh, which we understand would not increase flooding risk.

I support raising any levees in the project area where required to manage flood risk, to safely allow maximum connection of tidal marshes to lower Alameda Creek.

I specifically support the proposed raising and improvement of approximately 2 miles of the existing Bay-facing levees of Ponds E1 and E2. This would prevent wave overtopping and subsequent scour and erosion of the restoring marsh in the Bay Ponds behind it; provide a habitat transition zone; and could make it possible to breach more of the interior levees to improve fish movement.

I support all feasible levee lowering that does not cause flooding risk, to increase hydraulic and fish connectivity between channels and marshes.

I support connections to Union Sanitary District treated water and ACWD Aquifer Reclamation Program wells to allow for freshwater and brackish water inputs to restored marshes, to create water habitat transition zones beneficial to fish

Thank you for your consideration.

Sincerely,

Leslie Morelli

460 Center Street #6247

Moraga, CA 94570

Response to Morelli, Leslie (I-LM)

I-LM-1

See MCR 5, Fish Habitat Restoration, which provides a broad explanation of the types of fish habitat restoration and enhancements included in the Preferred Alternative and the pond's increased habitat connectivity to OAC and the ACFCC. Pilot channels, lowered levees at Ponds E1 and E2, and improvements to the bay-facing levee, are also included in the Preferred Alternative. The Inland Ponds (E5, E6, and E6C) are not planned for tidal restoration in the Preferred Alternative during the first phase of restoration because of the Project's need to balance multiple types of habitat restoration and enhancement actions. The long-term operation of those ponds as enhanced managed ponds may be necessary to achieve the full balance of the Project's intended ecological goals. Although connections to Union Sanitary District treated water and ACWD Aquifer Reclamation Program wells are not currently proposed, later connections by others would not be prevented by project actions.

Nicholas, Myasha (I-MN)

From: m n
To: phase2comments@southbayrestoration.org
Subject: [phase2comments] Comments on Salt Ponds Restoration
Date: Saturday, May 26, 2018 8:06:38 PM

To whom it may concern,

I-MN-1 I am a long-time Union City resident, former employee of EBRPD and have worked at Coyote Hills Regional Park as a Naturalist/Park Interpreter for over 4 years. I am a strong supporter of the Salt Ponds Restoration project:

I generally support Alternative B, restoration of all 11 southern Eden Landing phase 2 salt ponds to full tidal marsh, in one stage. Fisheries experts recommended full tidal restoration since it will provide the most amount of habitat for juvenile salmonids; and suggest multiple points of access to restored wetlands from lower Alameda Creek, the Bay and Old Alameda Creek channel, to increase connectivity between fish habitats and reduce predation risk for steelhead. I support breaches of existing levees to provide maximum connectivity for fish from the Alameda Creek Flood Control Channel, the Bay and Old Alameda Creek channel to the restored wetlands.

Thank you very much for your consideration,

Myasha Nicholas

Response to Nicholas, Myasha (I-MN)

I-MN-1

See MCR 1, Selection of the Preferred Alternative, regarding common components in Alternative Eden B and the Preferred Alternative. See also MCR 5, Fish Habitat Restoration, regarding the fisheries restoration features of the Preferred Alternative.

Phillips, Barbara (I-BP)

From: utility@sfei.org
To: SBSP Question
Subject: An SBSP question or comment
Date: Monday, May 14, 2018 10:33:25 PM

First Name : Barbara
Last Name : Phillips
Organization :
Street Address :
Street Address2 :
City : berkeley
State : ca
Zip Code : 94702
Email : etoilerb@pacbell.net

This is regarding:
Habitat;

I-BP-1

Question or comment:
support Alternative B, restoration of all 11 southern Eden Landing phase 2 salt ponds to full tidal marsh, in one stage.

Response to Phillips, Barbara (I-BP)

I-BP-1

See MCR 1, Selection of the Preferred Alternative, regarding common components in Alternative Eden B and the Preferred Alternative. See also MCR 5, Fish Habitat Restoration, regarding the fisheries restoration features of the Preferred Alternative.

Richardson, Matt (I-MR)

-----Original Message-----
From: utility@sfei.org [mailto:utility@sfei.org]
Sent: Friday, April 13, 2018 5:04 PM
To: SBSP Question
Subject: An SBSP question or comment

First Name : Matt
Last Name : Richardson
Organization :
Street Address : 1855 Green St
Street Address2 :
City : San Francisco
State : CA
Zip Code : 94123
Email : richardson034@gmail.com

This is regarding:
Habitat;

I-MR-1 Question or comment:
To Whom it May Concern,

I am a native to the Bay Area and really the Easy Bay. I enjoy the outdoors for its visual beauty but also for activities such as sailing, hiking and fly fishing.

We have done so much to interfere with our native trout and steelhead I really believe we need to do as much as we can to allow them to recover - bc they can.

I strongly encourage you to support Alternative B, restoration of all 11 southern Eden Landing phase 2 salt ponds to full tidal marsh, in one stage.

My understanding is that Fisheries experts recommended full tidal restoration since it will provide the most amount of habitat for juvenile fish; and suggest multiple points of access to restored wetlands from lower Alameda Creek, the Bay and Old Alameda Creek channel, to increase connectivity between fish habitats and reduce predation risk for steelhead.

In addition, I would encourage the construction of a pilot channel to allow passage of steelhead from Alameda Creek into the Bay Ponds E2 and E4. Rather than a water control structure at this location, we support a breach of the levee to improve fish access to and from the restored marsh, which we understand would not increase flooding risk.

Thank you very much for the opportunity to provide public input!!
Regards,
Matt

Response to Richardson, Matt (I-MR)

I-MR-1

See MCR 1, Selection of the Preferred Alternative, regarding common components in Alternative Eden B and the Preferred Alternative. See also MCR 5, Fish Habitat Restoration, regarding the fisheries restoration features of the Preferred Alternative.

Scordelis, Philip (I-PS)

From: "Pal Scor" via Phase 2 Comments
To: phase2comments@southbayrestoration.org
Subject: [phase2comments] Alameda Creek
Date: Friday, May 18, 2018 8:19:17 AM

I-PS-1 I am a retired fisheries biologist whose career spanned 32 years. My first experience with Alameda Creek occurred in 1975 when my UC Berkeley ichthyology class taught by Professor George Barlow visited the creek to collect fish samples. I have followed the efforts to restore the creek for over 25 years now, and fully support all the proposals of the Alameda Creek Alliance:

For the restoration of Eden Landing salt ponds to tidal marsh, the most beneficial alternative for steelhead trout in Alameda Creek would be Alternative B, restoring the entire project area to tidal marsh in one stage by major levee alterations and improvement. Here is what the Alameda Creek Alliance supports:

- We generally support Alternative B, restoration of all 11 southern Eden Landing phase 2 salt ponds to full tidal marsh, in one stage.

- Fisheries experts recommended full tidal restoration since it will provide the most amount of habitat for juvenile salmonids; and suggest multiple points of access to restored wetlands from lower Alameda Creek, the Bay and Old Alameda Creek channel, to increase connectivity between fish habitats and reduce predation risk for steelhead.

- We support breaches of existing levees to provide maximum connectivity for fish from the Alameda Creek Flood Control Channel, the Bay and Old Alameda Creek channel to the restored wetlands.

- We support construction of a pilot channel to allow passage of steelhead from Alameda Creek into the Bay Ponds E2 and E4. Rather than a water control structure at this location, we support a breach of the levee to improve fish access to and from the restored marsh, which we understand would not increase flooding risk.

- We support raising any levees in the project area where required to manage flood risk, to safely allow maximum connection of tidal marshes to lower Alameda Creek.

- We specifically support the proposed raising and improvement of approximately 2 miles of the existing Bay-facing levees of Ponds E1 and E2. This would prevent wave overtopping and subsequent scour and erosion of the restoring marsh in the Bay Ponds behind it; provide a habitat transition zone; and could make it possible to breach more of the interior levees to improve fish movement.

- We support all feasible levee lowering that does not cause flooding risk, to increase hydraulic and fish connectivity between channels and marshes.

- We support connections to Union Sanitary District treated water and ACWD Aquifer Reclamation Program wells to allow for freshwater and brackish water inputs to restored marshes, to create water habitat transition zones beneficial to fish.

Philip Scordelis
3218 Maria Court
Concord, CA 94518

Response to Scordelis, Philip (I-PS)

I-PS-1

See MCR 1, Selection of the Preferred Alternative, regarding common components in Alternative Eden B and the Preferred Alternative. See also MCR 5, Fish Habitat Restoration, regarding the fisheries restoration features of the Preferred Alternative and the pond's increased habitat connectivity to OAC and the ACFCC. Pilot channels, lowered levees at Ponds E1 and E2, and improvements to the bay-facing levee, are also included in the Preferred Alternative. The Inland Ponds (E5, E6, and E6C) are not planned for tidal restoration in the Preferred Alternative during the first phase of restoration because of the Project's need to balance multiple types of habitat restoration and enhancement actions. The long-term operation of those ponds as enhanced managed ponds may be necessary to achieve the full balance of the Project's intended ecological goals. Although connections to Union Sanitary District treated water and ACWD Aquifer Reclamation Program wells are not currently proposed, later connections by others would not be prevented by project actions.

Tepe, Alan (I-AT)

From: utility@sfei.org
To: SBSP Question
Subject: An SBSP question or comment
Date: Tuesday, June 05, 2018 3:27:48 PM

First Name : Alan
Last Name : Tepe
Organization : Mr
Street Address : 327 RIVERSIDE AVE
Street Address2 :
City : FREMONT
State : California
Zip Code : 94536-2920
Email : alan.tepe@gmail.com

This is regarding:
Habitat;

I-AT-1

Question or comment:
I support Salt Ponds Restoration Alternative B, restoration of all 11 southern Eden Landing phase 2 salt ponds to full tidal marsh.

Response to Tepe, Alan (I-AT)

I-AT-1

See MCR 1, Selection of the Preferred Alternative, regarding common components in Alternative Eden B and the Preferred Alternative. See also MCR 5, Fish Habitat Restoration, regarding the fisheries restoration features of the Preferred Alternative.

Thompson, Lawrence (I-LT)

From: utility@sfei.org
To: SBSP Question
Subject: An SBSP question or comment
Date: Saturday, April 21, 2018 1:14:45 PM

First Name : Lawrence
Last Name : Thompson
Organization :
Street Address : 1069 Felicia Ct.
Street Address2 :
City : Livermore
State : CA
Zip Code : 94550
Email : thompson14ster@gmail.com

This is regarding:
Habitat;

I-LT-1

Question or comment:
For the restoration of Eden Landing salt ponds to tidal marsh, the most beneficial alternative for Steelhead Trout in Alameda Creek would be: Alternative B, which restores the entire project area to tidal marsh in one stage by major levee alterations. Specifically, I support:

1. Alternative B, restoring of all 11 southern Eden Landing phase 2 salt ponds to full tidal marsh in one step. This approach will provide the most amount of habitat for juvenile salmonids
2. Breaching of existing levees to provide maximum connectivity for fish from the Alameda Creek Flood Control Channel, the Bay and Old Alameda Creek channel to the restored wetlands.
3. Constructing of a pilot channel to allow passage of steelhead from Alameda Creek into the Bay Ponds E2 and E4. Rather than a water control structure at this location, I support a breach of the levee to improve fish access to and from the restored marsh, which I understand would not increase flooding risk.
4. Raising any levees in the project area where required to manage flood risk, to safely allow maximum connection of tidal marshes to lower Alameda Creek.
5. Raising and improving approximately 2 miles of the existing Bay-facing levees of Ponds E1 and E2. This change would prevent wave over-topping and subsequent scour and erosion of the restoring marsh in the Bay Ponds behind it; provide a habitat transition zone; and could make it possible to breach more of the interior levees to improve fish movement.
6. Lowering of all levees that does not cause flooding risk, to increase hydraulic and fish connectivity between channels and marshes.
7. Making connections to Union Sanitary District treated water and ACWD Aquifer Reclamation Program wells to allow for freshwater and brackish water inputs to restored marshes, to create water habitat transition zones beneficial to fish.

Response to Thompson, Lawrence (I-LT)

I-LT-1

See MCR 1, Selection of the Preferred Alternative, regarding common components in Alternative Eden B and the Preferred Alternative. See also MCR 5, Fish Habitat Restoration, which provides a broad explanation of the types of fish habitat restoration and enhancements included in the Preferred Alternative and the pond's increased habitat connectivity to OAC and the ACFCC. Pilot channels, lowered levees at Ponds E1 and E2, and improvements to the bay-facing levee, are also included in the Preferred Alternative. The Inland Ponds (E5, E6, and E6C) are not planned for tidal restoration in the Preferred Alternative during the first phase of restoration because of the Project's need to balance multiple types of habitat restoration and enhancement actions. The long-term operation of those ponds as enhanced managed ponds may be necessary to achieve the full balance of the Project's intended ecological goals. Although connections to Union Sanitary District treated water and ACWD Aquifer Reclamation Program wells are not currently proposed, later connections by others would not be prevented by project actions.

SV (I-SV)

-----Original Message-----
From: utility@sfei.org [mailto:utility@sfei.org]
Sent: Monday, April 16, 2018 3:43 PM
To: SBSP Question
Subject: An SBSP question or comment

First Name : s
Last Name : v
Organization :
Street Address : e castro valley blvd
Street Address2 :
City : castro valley
State : ca
Zip Code : 94552
Email : frognibble@yahoo.com

This is regarding:
Habitat;

I-SV-1

Question or comment:
Pertaining to the draft environmental review for the South Bay Salt Pond Restoration Project. The draft Environmental Impact Statement evaluates restoration alternatives for 2,270 acres of former salt ponds at Eden Landing, adjacent to the mouth of Alameda Creek. There are many project elements beneficial to native fish that are being considered - Please make these improvements. This is an opportunity to ensure that the restoration project connects Alameda Creek to beneficial nursery habitat for young fish in the restored salt marshes, so our steelhead can grow big before leaving for the Bay and ocean.
Sincerely,
SV

Response to SV (I-SV)

I-SV-1

See MCR 5, Fish Habitat Restoration, regarding the fisheries restoration features of the Preferred Alternative.

Woodcock, Charlene (I-CW)

From: Charlene Woodcock
To: phase2comments@southbayrestoration.org
Subject: [phase2comments] I support South Bay Salt Ponds Restoration Alternative B, restoring the entire project area to tidal marsh
Date: Friday, May 18, 2018 8:49:53 AM

I-CW-1 I wholeheartedly support the goals of the Alameda Creek Alliance. We want to restore the health of our fisheries and ecological balance to our natural environment.

- We generally support Alternative B, restoration of all 11 southern Eden Landing phase 2 salt ponds to full tidal marsh, in one stage.

- Fisheries experts recommended full tidal restoration since it will provide the most amount of habitat for juvenile salmonids; and suggest multiple points of access to restored wetlands from lower Alameda Creek, the Bay and Old Alameda Creek channel, to increase connectivity between fish habitats and reduce predation risk for steelhead.

- We support breaches of existing levees to provide maximum connectivity for fish from the Alameda Creek Flood Control Channel, the Bay and Old Alameda Creek channel to the restored wetlands.

- We support construction of a pilot channel to allow passage of steelhead from Alameda Creek into the Bay Ponds E2 and E4. Rather than a water control structure at this location, we support a breach of the levee to improve fish access to and from the restored marsh, which we understand would not increase flooding risk.

- We support raising any levees in the project area where required to manage flood risk, to safely allow maximum connection of tidal marshes to lower Alameda Creek.

- We specifically support the proposed raising and improvement of approximately 2 miles of the existing Bay-facing levees of Ponds E1 and E2. This would prevent wave overtopping and subsequent scour and erosion of the restoring marsh in the Bay Ponds behind it; provide a habitat transition zone; and could make it possible to breach more of the interior levees to improve fish movement.

- We support all feasible levee lowering that does not cause flooding risk, to increase hydraulic and fish connectivity between channels and marshes.

- We support connections to Union Sanitary District treated water and ACWD Aquifer Reclamation Program wells to allow for freshwater and brackish water inputs to restored marshes, to create water habitat transition zones beneficial to fish.

Thank you.

Charlene M. Woodcock
2355 Virginia Street
Berkeley CA 94709

--

Response to Woodcock, Charlene (I-CW)

I-CW-1

See MCR 1, Selection of the Preferred Alternative, regarding common components in Alternative Eden B and the Preferred Alternative. See also MCR 5, Fish Habitat Restoration, which provides a broad explanation of the types of fish habitat restoration and enhancements included in the Preferred Alternative and the pond's increased habitat connectivity to OAC and the ACFCC. Pilot channels, lowered levees at Ponds E1 and E2, and improvements to the bay-facing levee, are also included in the Preferred Alternative. The Inland Ponds (E5, E6, and E6C) are not planned for tidal restoration in the Preferred Alternative during the first phase of restoration because of the Project's need to balance multiple types of habitat restoration and enhancement actions. The long-term operation of those ponds as enhanced managed ponds may be necessary to achieve the full balance of the Project's intended ecological goals. Although connections to Union Sanitary District treated water and ACWD Aquifer Reclamation Program wells are not currently proposed, later connections by others would not be prevented by project actions.

2.3 Late Submissions

Comments from the organization that submitted a comment letter after the close of the comment period, and the responses to those comments, are presented in this section. The comment period was not extended for this organization, but their comments are provided here for completeness.

2.3.1 Organizations and Businesses

Sierra Club, San Francisco Bay (O-SC)

SIERRA CLUB
SAN FRANCISCO BAY
Serving Alameda, Contra Costa, Marin and San Francisco counties

Reply to: jewellspalding@mac.com

June 15, 2018

Via Email Only: phase2comments@southbayrestoration.org

Ms. Brenda Buxton
Deputy Project Manager,
Bay Conservancy Program State Coastal Conservancy
1515 Clay Street, 10th Floor
Oakland, California 94612-1401

Ms. Anne Morkill, Project Leader
U.S. Fish and Wildlife Service
Don Edwards San Francisco Bay NWR
1 Marshlands Road
Fremont, California 94555

Re: Draft Environmental Impact Statement/Report (DEIS/DEIR):
Phase 2, Eden Landing Ecological Reserve Complex,
South Bay Salt Pond Restoration Project

Dear Ms. Buxton:

On behalf of the Southern Alameda County Group of the Sierra Club's San Francisco Bay Chapter, thank you for the opportunity to submit comments regarding the Eden Landing Phase 2 Draft Environmental Impact Statement/Report (DEIR). Further, thank you for extending our time to provide you with our comments. Below we reference the comments by Citizen's Committee to Complete the Refuge (CCCR), Audubon California, San Francisco Baykeeper and Ohlone Audubon Society collectively referred as CCCR.

Project Goal 1: Habitat

Both the CCCR and Alameda Creek Alliance (ACA) support the levee breach of the Alameda Creek Flood Control Channel into Bay Ponds E2 and E4 as proposed in Alternative B, with the latter organization emphasizing the maximization of connectivity for anadromous fish populations. If another Alternative is selected, this breach needs to be incorporated into that Alternative to achieve the minimal impacts of the overall project goals.

The CCCR also references multiple Phase 2 Impacts from Chapter 3 Section 5. We likewise point out that the EIR needs to address how habitat requirements for the number of types of observed bird species in Eden Landing Ecological Reserve (ESER) will be fulfilled with the restoration without causing population declines (i.e. minimizing competition for space and

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resources). In other words, an Alternative needs to be selected which allows for the greatest area of habitat, including nesting and foraging locations, for recorded species.

Project Goal 3: Public Access and Recreational Opportunities

A feature in the DEIR is the inclusion of and/or connectivity to the Bay Trail. While Alternative D includes "extending the Bay Trail spine through Southern Eden Landing," the DEIR states that each Alternative "includes extending the Bay Trail from existing trail in northern Eden Landing near the Eden Shores development to the southeast corner of Pond E6C." We support the incorporation of the Bay Trail completion for this area, but point out that any selected trail option be one of those that are the least environmentally impactful to habitat and wildlife. This includes that if a bridge was constructed across Alameda Creek to Coyote Hills Regional Park, it be the least environmentally damaging option to include only bicycles/pedestrians, and exclude any possibility to accommodate motor vehicles.

Closing Remarks

As monitoring is a major component of Phase 2 Alternatives, a stated long-term commitment to this monitoring, as well as seeking funds for further restoration, needs to be clearly stated to address any potential detrimental outcomes to habitat from the project.

We look forward to reviewing the responses to the submitted comments, and, ultimately, the successful restoration of this vital habitat.

Sincerely,

Jewell Spalding

Jewell Spalding, Chair
Southern Alameda County Group
San Francisco Bay Chapter, Sierra Club

cc: Chair & Director via email only

Response to Sierra Club, San Francisco Bay (O-SC)

Issues raised by these comments have already been addressed in previous responses. Responses to the Citizen's Committee to Complete the Refuge, CA Audubon, SF Baykeeper and Ohlone Audubon Society's comments can be found in Section 2.2.3 of this appendix. MCR 1, Selection of the Preferred Alternative, discusses the restoration components of the Preferred Alternative. MCR 7, Public Access Trails (Routes, Elevations, and Parking), discusses the preferred trail alignment through southern Eden Landing. Potential recreation-oriented impacts to sensitive species and their habitats are discussed in Section 3.5.3 of the EIR. The public access bridge over the ACFCC is included in the Preferred Alternative. Potential impacts of this feature were analyzed in the EIR under Alternative Eden C. Maintenance Responsibilities are discussed in MCR 8.