Citizens Committee to Complete the Refuge

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Comments submitted via electronic mail

June 15, 2022

Tess Byler, Senior Project Manager
San Francisquito Creek Joint Powers Authority
2100 Geng Road
Palo Alto CA 94303
Via email: tbyler@sfcjpa.org

RE: Notice of Preparation of an Environmental Impact Report for the Strategy to Advance Flood Protection, Ecosystems and Recreation along San Francisco (SAFER) Bay Project

Dear Ms. Byler:

Citizens Committee to Complete the Refuge appreciates the opportunity to provide scoping comments in response to the April 22, 2022 Notice of Preparation (NOP) of an Environmental Impact Report (EIR) issued by the San Francisquito Creek Joint Powers Authority (SFCJPA) for the SAFER Bay Project (Project). We commend the SFCJPA for its efforts to address the important challenge of protecting bayside communities from flooding and sea level rise.

We are also submitting a Memorandum from Dr. Peter Baye, Coastal Ecologist, Botanist, dated June 15, 2022 regarding the proposed project and attached to these comments.

Citizens Committee to Complete the Refuge (CCCR) has spent decades protecting the Bay's tidal wetlands and listed and rare species, and has an ongoing interest in wetlands restoration and acquisition. Our senior members worked with Congressman Don Edwards to obtain congressional authorization in 1972 to establish the Refuge. Since then, our organization has taken an active interest in Clean Water Act, Endangered Species Act, CEQA/NEPA regulations and National Wildlife Refuge System Administrative Act policies and implementation at the local, state and national levels, demonstrating our ongoing commitment to wetland, wildlife and Refuge issues.

Additionally, we have participated as a stakeholder in the US Fish and Wildlife Service Tidal Marsh Ecosystem Recovery Plan, the San Francisco Bay Conservation and Development Commission Adapting to Rising Tides and Bay Adapt processes, the San Francisco Estuary

Partnership, the San Francisco Bay Joint Venture and the South Bay Salt Pond Restoration Project. Our participation in these processes demonstrates our recognition of the threats posed by climate change and more specifically, sea level rise, and the challenges that face our region as we work to protect the current and future health of San Francisco Bay and our communities. With those interests, and a relationship with the Don Edwards San Francisco Bay National Wildlife Refuge, we previously had the opportunity to comment to the SFCJPA on the San Francisquito Creek Flood Protection Bay to 101 Project, a project that has some connection to the Project described in this Notice of Preparation. We are also submitting a Memorandum from Dr. Peter Baye, Coastal Ecologist, Botanist, dated June 14, 2022 regarding the proposed project.[1]

Our comments are based on Project information provided in the NOP, the 2016 *"SAFER Bay East Palo Alto and Menlo Park Public Draft Feasibility Report"* (Feasibility Report) referenced in the NOP, and the presentation slides and recording from the May 19, 2022 SAFER Bay Project NOP Meeting which are posted on the SFCJPA website (http://sfcjpa.org).

Project Description

According to the NOP, the Project site is located along approximately 7 miles of the shoreline of San Francisco Bay from the Menlo Park/Redwood City border south to the East Palo Alto/Palo Alto border. The Project has been divided into 8 segments or reaches, all located within the cities of Menlo Park and East Palo Alto. Project actions will take place on both public and privately owned property including:

> *"…the Don Edwards National Wildlife Refuge (Refuge), including Refuge-managed land in Laumeister and Faber Tract Marshes (owned by City of Palo Alto) and Ravenswood Open Space Preserve (owned by Midpeninsula Open Space District). The Project also includes actions within land owned by the San Francisco Public Utilities Commission, the Cargill Corporation, and many others; and within the Caltrans State Route 84 right-of-way at the western approach to the Dumbarton Bridge*."

The purpose of the Project is "…*to protect people, property and infrastructure from current tidal flooding and projected sea level rise through engineered and natural features that enhance shoreline ecosystems and improve recreational opportunities*." A combination of levees, floodwalls and flood risk reduction structures with be utilized to meet current FEMA coastal flood protection requirements and provide protection from 3.5 feet of anticipated sea level rise. The project proponent states the proposed Project would include more than 550 acres of habitat restoration and 1 to 2.5 miles of new or improved trails.
The NOP states:

> "*Consistent with CEQA, the SAFER Bay Project EIR will contain both project-level and program level evaluations. Those Project components with sufficient design and construction information will be evaluated at a project level of detail and those lacking*

[1] Memorandum from Dr. Peter Baye, Coastal Ecologist, Botanist, dated June 14, 2022 to CCCR, attached hereto as Exhibit 1.

sufficient detail will be evaluated programmatically, in accordance with CEQA Guidelines Sections 15161 and 15168."

As identified in NOP *Figure 1: Project Location and Components*, only two reaches, "Substation and Marsh Restoration" and "South of Bay Road – East Palo Alto" will be evaluated at the "project level of detail" in the EIR.

In sections below, the comments of this letter will be grouped as:

- General comments
- Comments regarding the proposed alignment reaches, organized from north to south
- Comments identifying significant sections for impact analysis

General Comments

Safer Bay Project and the Refuge

The Don Edwards San Francisco Bay National Wildlife Refuge (Refuge) is an important partner with the SAFER Bay Project. Lands owned and/or managed by the Refuge represent the largest geographic portion of adjacent properties potentially impacted by the Project.

According to the agency's 2013 *Comprehensive Conservation Plan*[2], "The Refuge was established with three major purposes. The most important of these is the preservation of the natural resources of the South Bay, which include among others the habitat of migratory birds, harbor seals, and threatened and endangered species. The second major purpose is to provide environmental education and wildlife interpretation opportunities to Bay Area schools and residents. Third, the Refuge will ensure the protection of an important open space resource and other wildlife-oriented recreation opportunities for the enjoyment of local residents and visitors (EDAW 1974)."

The Refuge was established to protect special status species and other fish and wildlife, and all actions undertaken must be compatible with protection of those resources. In discussion that follows, you will find comments that demonstrate how these Refuge priorities, mandated by Congress, apply to specific proposals and topics of the Project's NOP.

★ To facilitate the Project's working relationship with the Refuge, the EIR needs to (1) include the Refuge's Comprehensive Conservation Plan as a planning resource, (2) add the USFWS/Refuge to its list of Permits and Approvals (p.7, NOP) for permitted access to Refuge lands and (3) consult with Refuge management on any Project needs involving Refuge lands inclusive of the Faber and Laumeister marshes.

Future "Draft Project Description"

The *SAFER Bay Notice of Preparation (NOP) Scoping Meeting Presentation Slides* from the May 19, 2022 public meeting include a slide entitled "Environmental Impact Report Process" (Slide No. 8). The slide presents a timeline and flow chart indicating that a "Project Description

[2] Don Edwards San Francisco Bay National Wildlife Refuge Comprehensive Conservation Plan 2013: https://permanent.fdlp.gov/gpo51796/index.htm

Review" will take place in 2023, prior to the preparation of the Draft EIR. In the *May 19, 2022 SAFER Bay project NOP Meeting Recording,* the public was informed that "although not required, a draft project description will be released for public review in August 2023".

We are very heartened to learn that agencies and the public will have an additional opportunity for review and comment on what we might assume will be a much more robust and complete project description.

- ★ The DEIR must ensure that sufficient information is included on Project design details and potential environmental impacts for a "meaningful response", for the reaches that will be analyzed at the project level in the EIR and sufficient information regarding potential direct and indirect impacts that may arise in future phases to enable the agencies and public to provide substantive comments.

<u>Tiering and Subsequent CEQA Project-Level Analysis</u>

Regarding review of project elements currently being evaluated at the program level, the NOP states, *"Supplemental CEQA for those aspects of the Project evaluated in the SAFER Bay EIR at a program level of detail will occur before construction of those elements."* (Page 8)

Under CEQA Guidelines Section 15168(c)(1), subsequent CEQA review may be either an EIR or Negative Declaration ("If a later activity would have effects that were not examined in the program EIR, a new Initial Study would need to be prepared leading to either an EIR or a Negative Declaration. That later analysis may tier from the program EIR as provided in Section 15152.").

- What does the SAFER Project consider "*supplemental CEQA*"?
- Would future reaches currently being considered at the program level be subject to a full EIR prior to construction, or would a Negative Declaration be used?
- Will the level of subsequent CEQA analysis be different for each Project reach?
- The forthcoming Draft Project Description and/or the EIR should outline how the supplemental CEQA process will unfold for the specific program-level reaches, and describe the process for subsequent opportunities for agency and public review and comment. It is particularly important to inform agencies and the public whether or not there will be opportunities to review and provide comment on future phases, as design of those phases moves forward or whether the programmatic DEIR will be the only opportunity for public review and comment.

<u>Accuracy of Statements of Proposed Actions</u>

In discussions below, we will discuss issues related to Project proposals of nature-based actions such as restoration on lands of the Refuge. Our discussion will address issues of impacts of concern on habitat and wildlife but we should not ignore an issue that may mislead the public and agencies dependent on a CEQA document.

In the NOP, (p.7) we find:

> **Tidal Marsh-Upland Transition Zone Habitat at Pond R1/R2.** The Project ***will construct*** a broad, gently sloped habitat transition zone that will increase the surface area and vertical extent of transition zone habitat adjacent to the footprint of restored tidal salt marsh. High tide refugia could also be created within portions of Pond R1 to provide escape cover within the restored marsh. The locations of transition zone habitat will depend upon the footprint of restored tidal habitat versus enhanced managed pond habitat (to be determined in collaboration with the SBSPRP project management team). (italics added).
>
> **Tidal marsh-upland transition zone habitat construction at Pond R4**. Similar to Pond R2***, the Project will construct*** a broad, gently sloped habitat transition zone that will increase the surface area and vertical extent of transition zone habitat relative to the amount of transition zone habitat restored in Pond R4 by the SBSPRP. The design will be developed in collaboration with the SBSPRP project management team. (italics added)

Both items present the proposal with the certainty of "will construct." We find this statement disturbing as our research while preparing to respond to the NOP included asking the SBSPRP and the Refuge about the NOP proposals, learning that neither agency has any agreements with the Project for such actions. Our further concern is that the CEQA intent "to inform" is here instead misinformation provided to the public and agencies who may depend on it in responses to the NOP.

- ★ In the EIR, statements of proposed actions must be accurate to the status of that action. If Project actions are to occur on lands of other jurisdictions, the EIR should be able to cite a completed agreement of the parties for the action or, minimally, amend statements of proposed action appropriately e.g. agreement pending.

<u>Concurrent Project-Level EIR for All Reaches with Proposed Pond Restoration</u>

The South Bay Salt Pond Restoration Project (SBSPRP) has yet to initiate its Phase 3 planning process for the ponds that have not already been designated for either tidal marsh restoration or enhanced managed ponds. Refuge Ponds R1, R2 and SF2 are all currently managed ponds that may be considered for complete or partial restoration to salt marsh habitat in the future. SBSPRP decisions on conversion of ponds to tidal marsh are based on ongoing scientific studies that inform the "adaptive management" process required by the 2007 *South Bay Salt Pond Restoration Project Final Environmental Impact Statement/Report.* All decisions must also be consistent with the legally-mandated purpose of the Refuge's federally-protected lands.

Decisions on future tidal marsh restoration of R1 and R2 may be dependent on habitat decisions for SF2, and vice-versa, especially with respect to ensuring the retention of adequate breeding habitat, or enhancement of habitat, for endangered western snowy plovers. While Ponds R1 and R2 are in a reach that will be analyzed at the project level in the EIR, Pond SF2 will not undergo a detailed project-level analysis until some future time.

Since decisions on future habitat designations for these three ponds cannot be made in isolation, it may be appropriate for the Project, in consultation with the SBSPRP and the Refuge, to consider conducting a project-level analysis for SF2 at this time as well; specifically, to obtain the required Refuge and SBSPRP determination as to whether or where placement

of any SAFER levees within these ponds will be appropriate for habitat restoration or enhancement.

Restoration as Mitigation for Project Impacts

Habitat restoration of over 550 acres is an important element of the overall Project as stated below in this excerpt from the NOP *Project Overview* on page three:

> *"The SFCJPA is collaborating with the South Bay Salt Ponds Restoration Project to restore former salt production ponds, Pond R1 and Pond R2, located in the Ravenswood Complex, as part of the SAFER Bay Project. The restoration scenarios include tidal marsh or a combination of tidal marsh and managed ponds. The Project will construct levees, floodwalls and other flood protection features necessary to enable the restoration of tidal action to these ponds and includes design and construction of the pond restoration itself in order to mitigate for the Project's impacts to jurisdictional wetlands and aquatic habitats. The Project also proposes to increase the diversity of habitat by building tidal salt marsh-upland transition zone habitat (transition zone habitat) on the bayward slope of appropriate segments of levee adjacent to existing and/or restored tidal salt marsh."* (Emphasis added)

It would be inappropriate to assume that ponds R1 and R2 will be converted to tidal wetlands. While restoration to tidal wetlands of as many acres of salt ponds as possible is one of the goals of the South Bay Salt Pond Restoration Project, it has always been recognized that there is a delicate balance of habitats and habitat use that must be maintained. One of the project objectives of the SBSPRP is to maintain populations of salt pond dependent migratory waterbirds such as the Wilson's and red-necked phalaropes, eared grebes, and Bonaparte's gulls, as well as salt pond-dependent special status species such as the western snowy plover. When considering the overall habitat mosaic in the South Bay, and the critical acres needed for specific Bay wildlife species, the SBSPRP and Refuge may conclude that the best ecologically-based decision is to leave Ponds R1, R2 and SF2 entirely as managed ponds.

- What effect would this have on the Project's ability to mitigate for Project impacts to jurisdictional wetlands and aquatic habitats?
- In order to address the possibility that the number of acres available for Project habitat restoration may not be adequate for mitigation, the EIR must include details on the location, functional value and acreage of existing jurisdictional wetlands and aquatic sites that could be directly and indirectly impacted by Project actions, and provide mitigation strategies that do not require the use of lands that may already be encumbered by restrictions in use.

Levee Design Details

As subsequent comments in this letter will demonstrate, it is clear that the two levee design graphics were not sufficient information, particularly for project-level discussions. Along the ~7 miles of Project shoreline, the variations in siting, of differing inboard and outboard conditions and the common obstacles of ordinary infrastructure all lead to the conclusion that there must be many variations of levee footprint, height, slope/partial slope/no slope and more in levee design. While we made attempts to answer questions by building charts, it was clear more information was needed and may be very pertinent to, say, someone whose home would be near the future levee. The EIR needs to provide in-depth levee information in plain language

but with the appropriate level of detail so the public and agencies may better understand the changes ahead.

- ★ The Project Description of the EIR must include discussion, charts and images suitable for every project-level action and sufficient to make program-level consideration informative.

Comments on Specific Reaches, North to South

Marsh Road

The Feasibility Report provides two options for this reach. Based on the NOP *Figure 1: Project Location and Components,* it appears that Option 2 has been selected for analysis in the program-level EIR. This option would raise the existing levee along the Bayfront Canal from Marsh Road to the Redwood City border. Since the Feasibility Report was issued in 2016, the Bayfront Canal & Atherton Channel Flood Protection and Ecosystem Restoration Project has been completed - a collaborative effort between the cities of Atherton, Menlo Park and Redwood City, San Mateo County and the Refuge. The new infrastructure components of this flood control project must be reflected in the existing conditions section of the EIR.

Additionally, The Bayfront Canal is directly adjacent to the Cargill salt ponds which are all in the Congressionally-authorized expansion boundary for the Refuge. Should these adjacent Cargill ponds become available for acquisition and restoration to tidal marsh in the future, this levee could provide high marsh habitat and room for marsh migration with sea level rise.

- ★ The EIR should explore a design alternative for the levee on this reach that could accommodate (or at least not preclude) a possible future addition of an extended 30:1 slope on the bayside of the SAFER levee.

Bedwell Bayfront Park

The NOP *Figure 1* shows this reach extending from Marsh Road to high ground within Bedwell Bayfront Park.

- ★ The new Draft Project Description should provide a sufficient level of detail for agencies and the public to understand how the Project will increase flood protection in this reach within the constraints of existing water control structures, the roadway into the park, the adjacent Flood Slough waters and wetlands and Refuge Pond S5.

Bayfront Expressway

This reach extends from the high ground of Bedwell Bayfront Park down to Bayfront Expressway adjacent to Refuge Ponds R4, R5 S5 and R3, and then continues along the highway to the edge of the Tech Campus reach. It is very important that the SFCJPA continues to work closely with the South Bay Salt Pond Restoration Project (SBSPRP) and the Refuge on the levee design elements for this reach.

The NOP doesn't reflect the existing conditions on Refuge lands in this area that will be impacted by proposed Project levees shown in NOP *Figure 1* and *Figure 2 Cross-Section of Levee with Transition Zone Habitat (Bedwell Bayfront Park).* (Although *Figure 2* is labeled as Bedwell Bayfront Park, it appears to apply to the Bayfront Expressway reach.) As part of its Phase 2 implementation, the SBSPRP has installed a water control structure between Pond R5 and R4, and is expected to complete construction of a habitat transition zone along the perimeter of Pond R4 by the end of 2022.

- ★ To what extent, if any, would the Project's Proposed Transition Zone Habitat section within Pond 4 (as depicted in NOP *Figure 1*) be needed?

Other than the levee cross section provided for the small area with transition zone habitat in R4, the NOP includes no information on the dimensions or footprint for the remaining levee sections between Pond 3 and S5/R6 and along Bayfront Expressway. The SBSPRP Phase 2 plans currently being implemented call for Pond R3 to remain a managed pond for endangered western snowy plover breeding habitat; therefore, levees for this reach should be designed to have a smaller footprint in order to have the least amount of fill placed inside Refuge Ponds R3 and R5.

- ★ The EIR must provide details on the number of acres in Refuge ponds that would be permanently impacted from fill, identify and analyze direct and indirect impacts to the Refuge and special status species and also describe how impacts to Refuge lands and wildlife during and after levee construction will be minimized or mitigated.

Tech Campus

The Tech Campus reach is located around the Meta (Facebook) East campus and along the north side of Bayfront Expressway. It crosses the Ravenswood Pump Station Outfall near the southeast corner of the Meta campus.

Because this proposed section of levee borders approximately 1.25 linear miles of Ravenswood Slough (an estimated total of 28 acres), and transects the connection at the Ravenswood Pump Station to the Caltrans wetland mitigation area south of Bayfront Expressway, it has the potential to significantly impact jurisdictional wetlands and waters. In addition, the levee sections to the west and north of the tech campus could potentially affect the Refuge's levee on the opposite side of Ravenswood Slough that protects Pond R3 habitat for shorebirds, including the federally threatened western snowy plover.

The Feasibility Report states that Ravenswood Slough in the Tech Campus area, "…*is not currently high-quality tidal marsh*." The Feasibility Report and NOP provide no criteria or assessment for reaching this conclusion. This description implies that Ravenswood Slough does not provide valuable wildlife habitat.

Ravenswood Slough has been documented to support the federal and state listed endangered and state fully protected Ridgway's rail (RIRA). In the 2020 Invasive Spartina Project RIRA survey results noted the detection of 14 RIRA[3]. The Project determination that Ravenswood Slough in this reach is not high quality is also inconsistent with our recent observations, and the photo-documentation of this tidal marsh we provide below. All photos were taken by G. Raabe.

Brackish wetlands on east side of campus showing Ravenswood Slough at Bayfront Expressway across from the Ravenswood Pump Station.

Ravenswood Slough wetlands looking east along the Bayfront Expressway section of the Tech Campus reach, Pond R3 on the left.

[3] California Ridgway's rail Surveys for the San Francisco Estuary Invasive Spartina Project 2020; https://spartina.org/documents/InvasiveSpartinaProject_RIRAReport2020.pdf

Ravenswood Slough wetlands looking north from Tech Campus existing levee.

Ravenswood Slough wetlands from northwest corner of Tech Campus, Bedwell Bayfront Park in the background.

Ravenswood Slough wetlands looking south, existing Tech Campus levee on left, Pond R3 on right.

Ravenswood Slough west of the tech campus during high tide.

This area of Ravenswood Slough west of the tech campus is currently being used by Killdeer and Black-necked Stilts, and their young. Photos taken June 6, 2022.

Adult and fledgling Killdeer foraging in Ravenswood Slough salt marsh.

Adult and fledgling (in vegetation) Black-necked Stilts in Ravenswood Slough salt marsh.

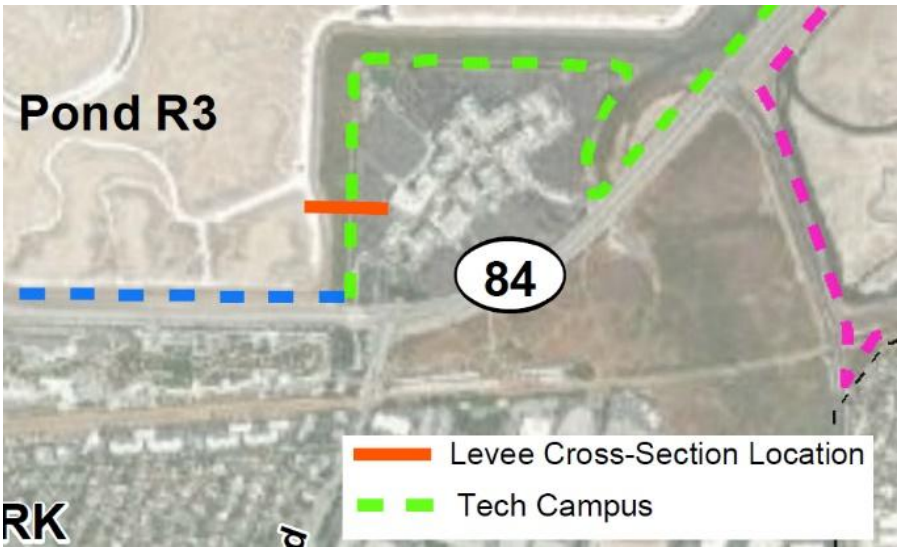
Black-necked Stilt populations have experienced precipitous declines in the south San Francisco Bay[4], so any habitat suitable for this species to use for breeding is important and should be considered worth protecting.

The Feasibility Report description that this is not a high-quality salt marsh could lead the public to assume it is not suitable habitat for the federally endangered salt marsh harvest mouse. We now know the mouse occupies a diversity of vegetation in addition to pickleweed, and can inhabit muted tidal marshes[5].

The Feasibility Report's unsubstantiated characterization of Ravenswood Slough salt marsh in this area could influence agency and public comments with respect to the scope and content of the EIR. The EIR must include accurate documentation of the extent and ecological value of existing Biological Resources in this reach, including listed species, and provide alternatives that avoid, minimize or mitigate impacts to habitat and wildlife.

<u>Information Needed on the extent of Tidal Marsh Habitat Loss:</u>

The NOP does not provide information on potential Project impacts to the salt marsh habitat in this section of Ravenswood Slough; however, using the figures provided in the NOP (Figures 1,3 and 4) it is clear that there is a potential for loss of salt marsh along 1.25 miles of Ravenswood Slough from the proposed Project levee.



Excerpt from NOP Figure 1 showing location of levee cross-section.

[4] Hartman, C.A., Ackerman J.T., Schacter, C., Herzog M.P., Tarjan L.M, Wang, Y., Strong, C., Tertes, R., and Warnock, N. 2021. Breeding Waterbird Populations Have Declined in South San Francisco Bay: An Assessment Over Two Decades. San Francisco Estuary and Watershed Science, 19(3). https://doi.org/10.15447/sfews.2021v19iss3art4

[5] Barthman-Thompson, L., Smith, K. and Riley, M. 2017. Salt Marsh Harvest Mouse Survey Bias, New Results for China Camp State Park. Poster Abstracts, State of the San Francisco Bay Estuary Conference, Oct 10-11, 2017. https://www.sfestuary.org/wp-content/uploads/2017/09/SOE17Abstract2_Conserving_SMHM.pdf

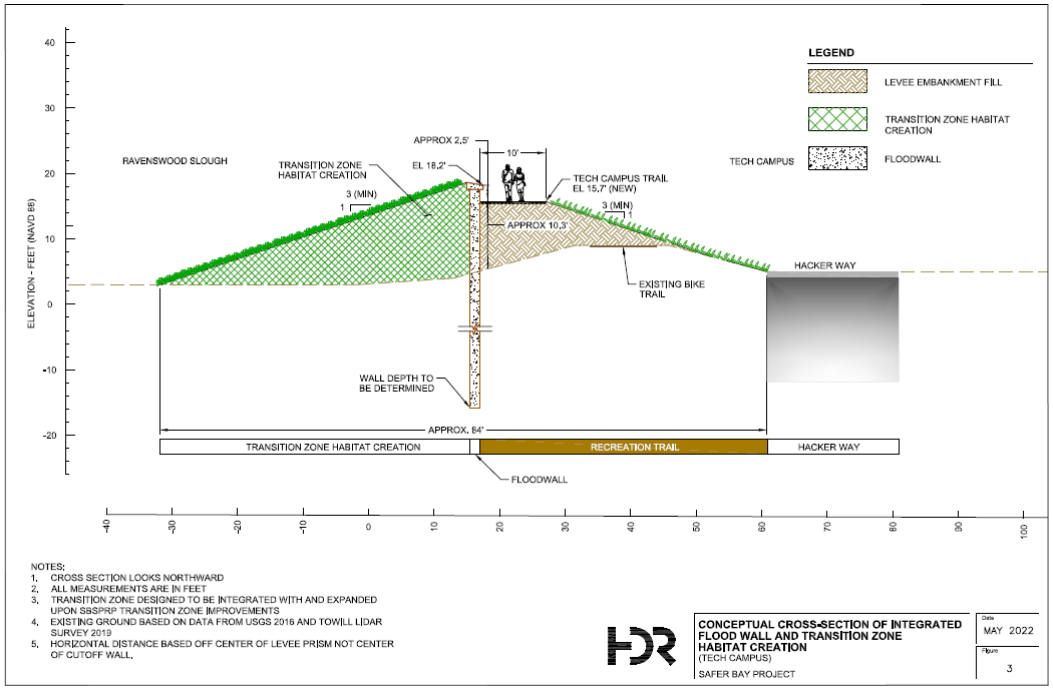


Figure 3 from the NOP shows a levee with an 84-foot base extending from the edge of Hacker Way west into Ravenswood Slough.

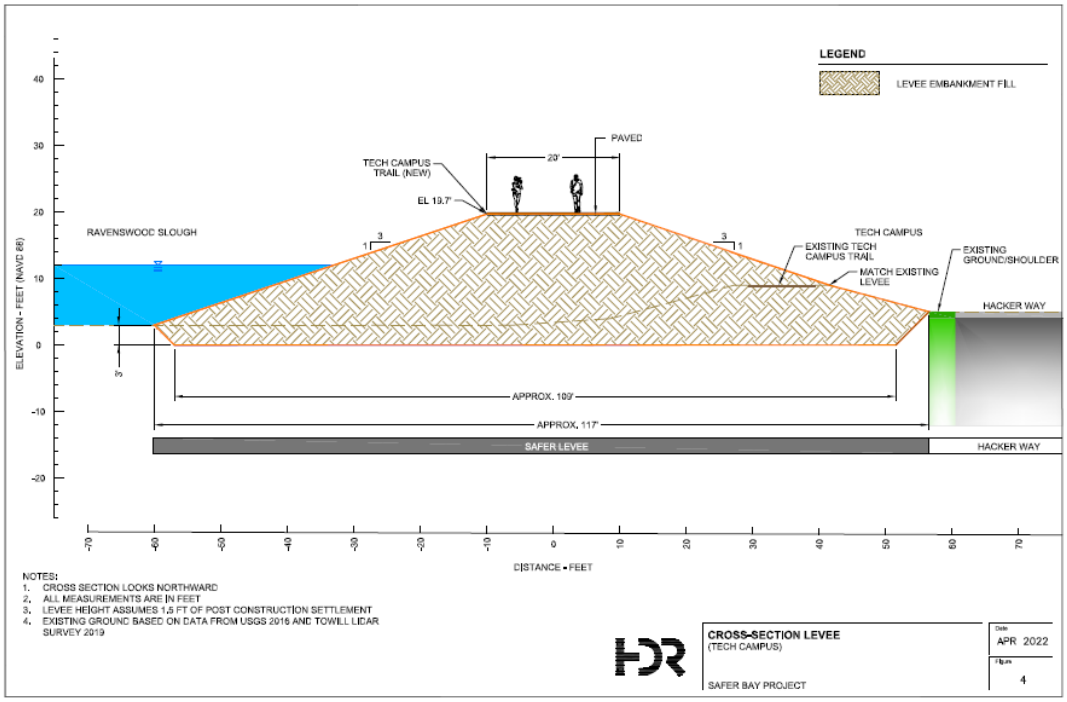


Figure 4 from the NOP shows a levee with an 117-foot base extending from the edge of Hacker Way west towards Ravenswood Slough.

Additionally, the NOP provides no information on the design and footprint for the levee section along Bayfront Expressway, and therefore the potential for impacts to tidal marsh habitat in this area is unknown.

Tech Campus section (– – –) adapted from NOP Figure 1. ??? = area of unknown levee design and footprint along Bayfront Expressway.

★ For each alternative considered in the EIR for this reach, even at the program level, there must be specific locations and acreage provided for any wetlands and waters that could be temporarily, permanently, directly and indirectly impacted from the Project. The types of impacts and acreages of impacts should be provided in a table – (e.g. temporary, permanent, direct, indirect, habitat type, acreage).

<u>Potential Impacts to the Levee Protecting Pond R3:</u>

Converging shorelines increase tidal amplitude towards the landward end of enclosed estuaries[6]. Without knowing the extent to which a proposed levee may encroach into Ravenswood Slough, thereby increasing the convergence of the shorelines, it is not possible to determine what impact increased tidal amplitude may have on the structural integrity of the Pond R3 levee across the slough (even without sea level rise) that protects habitat for shorebirds and breeding western snowy plover from inundation.

[6] Holleman, R. C., and M. T. Stacey (2014), Coupling of sea level rise, tidal amplification, and inundation, J. Phys. Oceanogr., 44(5), 1439–1455, doi:10.1175/JPO-D-13-0214.1.

Ravenswood Slough wetlands looking west from existing Tech Campus levee, with Pond R3 levee across the slough.

Below are three Google Earth overlays showing approximate shoreline locations in Ravenswood Slough under different conditions: 1) current, 2) with an 84-foot wide levee base along the perimeter of the tech campus and 3) with a 117-foot wide levee base. Shorelines are estimated from the location of saltmarsh vegetation on the Google Earth image and field observations. The shoreline realignment drawn in the second and third figures is limited to levee sections where Hacker Way parallels Ravenswood Slough because the NOP only provides information for the proposed levee relative to Hacker Way, the perimeter roadway on the tech campus.

Current conditions showing convergent shorelines (yellow line) of Ravenswood Slough going inland (north to south).

Ravenswood Slough shoreline with base of 84-foot levee extending west from Hacker Way, showing increased convergence of the shorelines.

Ravenswood Slough shoreline with base of 117-foot levee extending west from Hacker Way, showing increased convergence of the shorelines.

★ The EIR should include an analysis of the potential hydrological changes in Ravenswood Slough (including changes in tidal amplitude) from the Tech Campus levee, and how those changes could impact the levee protecting the shorebird habitat in the Refuge's Pond R3.

Alternative for Consideration:

The SBSPRP plan for Pond R3, currently being implemented, is to enhance this managed pond for shorebirds and western snowy plover nesting habitat, and not restoration to tidal marsh. This decision was published in the *South Bay Salt Pond Restoration Final Environmental Impact Statement/Report, Phase 2 Executive Summary* in April 2016. On Page 7 of the NOP, there is a statement that the Project would provide habitat enhancement for nesting plovers in Pond R3; however, the NOP included updated figures for this reach (Figures 3 and 4) with the same 2016 Feasibility Report levee designs for possible restoration to tidal marsh. These designs are for a levee with a large footprint and "transition zone habitat" extending well into Ravenswood Slough. There appears to be no reason at this point to have a larger levee with a transition zone surrounding the tech campus.

★ In order to avoid or minimize impacts to the Ravenswood Slough wetlands and endangered species, the Project should reconsider the Feasibility Report's Reach 4, Option 1 levee shown in Figure 16 below, or another levee design that eliminates any permanent fill in Ravenswood Slough.

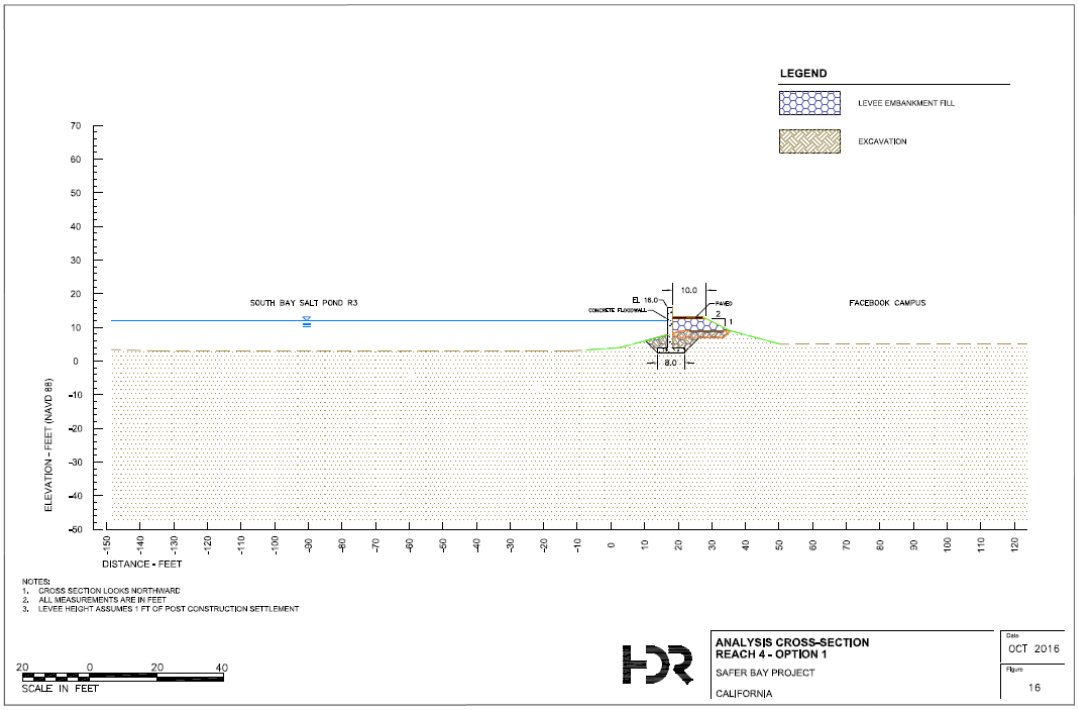


Figure 16 from the Feasibility Report showing the Option 1 floodwall with a greatly reduced Project footprint. Ravenswood Slough is on the left.

Substation and Marsh Restoration (Project Level EIR)

As shown in NOP *Figure 1*, the proposed levee for this reach surrounds the perimeter of the PG&E substation, and continues along the two edges of Bayfront Expressway adjacent to the Refuge's Pond R2. NOP *Figure 5 Cross-Section of Levee with Transition Zone Habitat Creation* shows that the proposed SAFER levee, including the 30:1 sloped, bayside transition zone habitat, would extend approximately 560 feet out from the edge of the PG&E property.

As mentioned in our general comments, the SBSPRP has not completed the planning process for Ponds R1 and R2 with respect to potentially restoring tidal marsh, enhancing the existing managed ponds, or creating a combination of the two habitats.

- ★ The EIR for this reach may need to analyze a range of options for levee placement and design, and for enhancing wildlife habitat in these ponds. Following consultation with the SBSPRP and the Refuge to obtain options consistent with their goals, the Project should include an appropriate number of alternatives to analyze. Additionally, migratory shorebirds and breeding Western Snowy Plovers utilize these ponds; therefore, the EIR should identify potential impacts to wildlife from levee construction and provide corresponding mitigation measures.

Dumbarton Bridge West Approach, Levee Expressway Crossing and SF2 alignment.

The NOP's Project Location and Components map (Figure 1), suggests levee locations along Bayfront Expressway at its bridge approach and also three connections bisecting or adjoining the Refuge's Pond SF2. Even though this part of the Project is program-level, it is a concern that the map's suggestions omit mention of various options developed in the 2020 Dumbarton

Bridge West Approach + Adjacent Communities Resilience Study[7] (DBWA Study). Those options can affect best placement of the Project's levees. By the time actions described under program-level planning commence, Caltrans may have adopted DBWA options that may alter locations for a levee crossing of the Expressway and the route of the levee within or around Pond SF2.

The EIR must include the following analysis and set standards that will guide project-level planning.

- Present the six options shown in the Conclusions of the DBWA Study with discussion about how they each might affect the Project's levee locations, levee connections and the best site for the Expressway crossing. For instance, in options that include a longer or shorter elevated roadway, where are sites that are optimal for the Expressway crossing? Pending Caltrans decision on length of an elevated roadway, how does the landing location of the roadway affect levee alignments on the roadside or with SF2?

- As Program-level guidance, set the standard that project level planning include in-depth **biological resource assessments (BRA)** as required under Menlo Park's Connect Menlo, identifying impacts unique to alignment-habitat combinations. For example, the BRA findings of a levee next to Ravenswood Slough would differ from a levee next to the western snowy plover habitat in SF2. Analysis would occur for impacts along both sides of the expressway, from the Mosely Tract through Ravenswood Slough and similarly along SF2. Additionally the BRA analysis would need to include how the planned levee type impacted habitat and consider if an alternate form of levee could avoid or minimize impacts.

- Figure 1 suggests three **possible levee alignments in SF2**. It is of significance that these Refuge lands are required under Refuge priorities and the National Wildlife Refuge System Administrative Act[8] to dedicate the highest priority to wildlife and the habitat they require. Any levee crossing, new or increased in size can cause extensive temporary and permanent impact on the wildlife that require this habitat, multiplied by the number of levee alignments built. The greatest impact would occur for levees bisecting and disrupting habitat such as the alignment shown near the Bay or that of the existing berm separating the migratory bird island pond and snowy plover habitat. For these reasons **we recommend that the EIR consider a University Avenue levee only.**

- For any alignment within or adjoining SF2, the EIR needs to set the program-level standard that project-level planning (supplemental CEQA action) will report the existence of a completed formal agreement with the Refuge for the action proposed.

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[7] Dumbarton Bridge West Approach + Adjacent Communities Resilience Study, 2020; https://mtc.ca.gov/sites/default/files/documents/2021-05/Dumbarton-Bridge-West-Approach-Adjacent-Communities-Resilience-Study-Final-Report.pdf

[8] National Wildlife Refuge Administrative Act of 1966 and as amended: https://www.govinfo.gov/content/pkg/COMPS-3011/pdf/COMPS-3011.pdf

The "Loop Road"

During the June 19th Public Scoping Meeting, Project staff described a SF2 alignment bisecting habitat described above proposed to be built large enough to provide a road connecting East Palo Alto to Bayfront Expressway and called the "**Loop Road**." As we have also been commenting on plans for the Ravenswood Business District (RBD) in East Palo Alto, we knew of a proposal for a Loop Road within that City dating back to the 2013 RBD Specific Plan[9]. We are also aware that there are significant concerns among East Palo Alto officials questioning whether that Loop Road will ever be built.

From our prior comments about wildlife disturbance, it is apparent that building a road would vastly escalate impacts on the species of SF2. That very issue is likely why Congress, through the NWRSAA, expressly limited public use on Refuges to passive recreation and environmental education if/when/where it is compatible with adjoining habitats. As set forth in the Act:

> Sec. 4 (a)(1)
>
> (2) The mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.
>
> Sec 5: Definitions
>
> For purposes of this Act:
> (1) The term ''**compatible use**'' means a wildlife-dependent recreational use or any other use of a refuge that, in the sound professional judgment of the Director, will not materially interfere with or detract from the fulfillment of the mission of the System or the purposes of the refuge.
> (2) The terms ''**wildlife-dependent recreation''** and ''wildlife dependent recreational use'' mean a use of a refuge involving hunting, fishing, wildlife observation and photography, or environmental education and interpretation. (emphasis added)

★ The NWRSAA neither describes or authorizes any other public use, not roads nor any other construct serving only humans. **The EIR discussion of alternatives needs to list the Loop Road proposal as having been considered and rejected.**

[9] City of East Palo Alto, Ravenswood Business District Specific Plan 2013, p.78, Goal TRA-4 and related policies : https://www.cityofepa.org/sites/default/files/fileattachments/community_amp_economic_development/page/9021/final_spec_plan_feb_2013.pdf

Levee Alignment and Potential Marsh Enhancement North of Bay Road in East Palo Alto.

The East Palo Alto shoreline has a nature-based SLR asset that is unique among Bay cities: its entire length features thriving tidal marshes. An objective then is to protect by avoidance and, where needed, enhance existing marshes to be paired with inboard levees. Here is a place where SLR adaptation needs no manmade introduction, just encouragement and protection. If there is any location with the possibility of inland marsh migration, it should be considered as well.

Alignment Alternatives.

The Project, in NOP Figure 1, presents **two alternative alignments**, one following the existing Bay Trail berm as it cuts through marsh as a border of the Ravenswood Open Space Preserve (ROSP). The other sits on high ground adjoining edges of Eastern Slough and the marsh edge. The first would require substantial fill in wetlands in order to build a stable levee and presents engineering challenges to avoid interference with the flow of Eastern Slough, risking long-term impact on the hydrology of the inner marsh area. It was reassuring to hear (Tess Byler, personal communication with Eileen McLaughlin) that the SFCJPA had told the Bay Integrated Restoration Regulatory Team (BIRRT) that the Project would put no fill in the Bay. If that is the Project's intent and as fill and construction disruption would have significant impacts to wildlife, habitat and hydrology, then in the EIR **the Bay Trail alternative should be rejected and excluded from consideration even as a program-level option in the EIR.**

We recommend that the Project retain the high ground levee alternative with EIR consideration with discussion of the reasons for doing so. As this alignment appears to avoid Bay fill, it simultaneously preserves the deepest, most flood protective reach of tidal marsh on the East Palo Alto shoreline. The EIR should analyze issues and impacts including Project right-of-way on privately-owned lands, realignment of the Bay Trail and presence of hazardous materials. The land nearest Bay Road is well documented as an EPA Superfund site (aka Romic site) and the existing auto salvage business is both a levee obstacle and hazardous waste concern. Infinity Salvage has been in business at this site for decades and, to public knowledge, has never had its soils tested for hydrocarbon and other hazards that may have accumulated, possibly seeping beyond its boundary including toward Eastern Slough. The high ground alignment would also need to use land that the 2013 RBDSP set aside for a possible "Loop Road." At this time and from our participation in RBDSP Update planning, there is no indication that East Palo Alto will build that road.

Marsh and Slough Enhancement

There is an **opportunity for the Project to provide marsh enhancement** that may improve existing nature-based tidal marsh protection. Near the unused rail corridor, a narrow reach of the Eastern Slough and marsh extend inland from the slough's northern mouth. The slough continues, completing the Eastern Slough that wraps around the Ravenswood Open Space Preserve. The marsh continues inland becoming an "inner" marsh largely isolated between the Bay Trail berm in the ROSP and developed lands. Hydrologically, it is fed by the Eastern Slough. These peripheral marshes have been described as low quality, an indication that it is an ecologically inefficient location, commonly caused by the action of humans. In this case a hydrological factor is a berm that extends out from the railroad ROW, narrowing the northern mouth of the slough and thereby restricting tidal flow.

★ Given that increasing the depth of marsh (distance from mudflat edge to shore) also increases its SLR and sea surge protection, it is in the best interest of East Palo Alto to use the opportunity to enhance this slough and marsh and improve protection of the North of Bay Road Shoreline.

South of Bay Road - East Palo Alto (Project Level EIR)

This project-level segment of levee and its alignment would provide direct flood protection for a community composed largely of single-family homes and a business district that has proposals for very substantial office and retail development. The Bay Trail separates these developed sites from broad expanses of healthy tidal marsh lining this shore of the San Francisco Bay and home to the endangered Ridgway's rail. Mostly conserved as part of the Don Edwards Refuge, the marshes are a cost-free sea surge mitigation asset to the East Palo Alto community and a carbon sink. But, with SLR, the marshes need to be paired with a substantial levee. This segment of the proposed levee borders Laumeister and Faber Marshes Most of the Laumeister and Faber Marshes are conserved wetlands held as part of the Don Edwards National Wildlife Refuge, while a band along the Bay Trail edge is privately owned. Regardless of jurisdiction, these

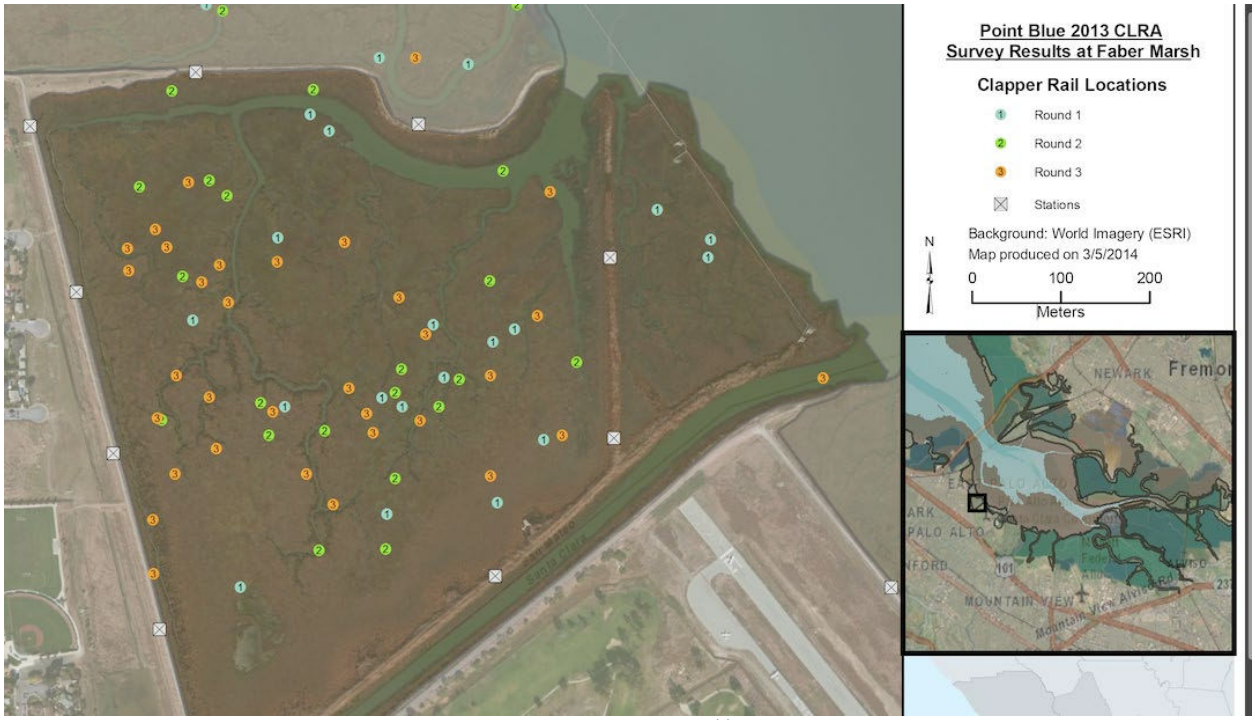
wetlands provide existing, nature-based sea level rise protective function that mitigates sea surges and potentially allows for lower levee height.

The NOP displays two options for the Levee South of Bay Road (LSBR) on pages 20-21. Because of varied inland constraints on the one side and the potential for sea surge on the outboard side both privately-held and Refuge wetlands, the EIR needs to:

- Provide a comprehensive discussion of potential levee types, varied by location and relationship to exposure to wave dynamics, rising seas and utilization of existing marshes as nature-based SLR adaptation or situations that offer potential to enhance or establish nature-based wave mitigation.
- Include examples of levees requiring a narrower footprint on the Bay side, for example where it is sufficient that vegetated slope starts midway on a sea wall.
- Analyze how the presence and extent of marsh may or may not mitigate the wave-reflective impact of a flood wall, inclusive of shoreline erosion potential. If such a wall is needed, discuss how impacts will be mitigated.
- As the Project designs predict settlement of the levee, the EIR should discuss and identify locations where settlement and instability may produce maintenance issues.
- Provide levee information in graphics and charts to allow local residents or business owners to know what type of levee they will be seeing day to day and how it might change their neighborhood. Please see charts on following pages that may be examples of their function as an information tool.

A critically important Project objective should be to preserve the habitat that exist as part of the flood protection solution. Endangered Ridgway's rail and salt marsh harvest mice use the marshes and it is expected that California black rail and salt marsh wandering shrew are present.[10] The following figure shows the result of a Ridgway's rail survey in Faber Marsh that provides a sense of the importance of this habitat to wildlife, as well as the broad extent for natural productivity and carbon sequestration.

[10] The EIR should conduct an up-to-date search of relevant material including the previously cited Refuge Comprehensive Conservation Plan and rail studies of the Point Blue Conservation Center.



Results of Ridgway's rail survey (formerly Clapper rail)[11]

Laumeister Marsh is a prehistoric remnant marsh.[12] The marsh was included in a USGS study of marsh accretion. The study, completed before current SLR revisions, concludes: "The Laumeister is primarily composed of high-marsh vegetation, and low marsh is dominated with Spartina. Model results showed that high accretion rates, due, in part, to high suspended-sediment concentrations in south San Francisco Bay, would sustain high-marsh habitat through 2060 (0.57 m SLR). Once the rate of sea-level rise increased in the second half of the century, Laumeister would begin to lose relative elevation and transition to predominantly mid-marsh habitat by 2080 (0.85 m SLR). By 2100, Laumeister would transition predominantly to low-marsh habitat (1.23 m SLR)."[13] There is a possibility that sediment supply will increase during the coming decades which would assist the marshes in keeping up with the more recent SLR forecasts.[14] Lastly, over a 50-100 year horizon, there will be other options to consider to protect these valuable marshes whether it be offshore reefs, refugia or sediment addition to increase elevations to prevent degradation and loss.[15]

[11]https://www.waterboards.ca.gov/rwqcb2/water_issues/hot_topics/SFCP/Technical_%20Doc/Faber%20Marsh%20clapper%20rail%20Survey%202013.pdf

[12] Palaima, A. (Ed.). (2012). Ecology, conservation, and restoration of tidal marshes: The San Francisco estuary. Univ of California Press.

[13] Thorne, Karen M., et al. *Final report for sea-level rise response modeling for San Francisco Bay estuary tidal marshes*. Ed. John Yutaka Takekawa. US Department of the Interior, US Geological Survey, 2013

[14] Stern, M. A., Flint, L. E., Flint, A. L., Knowles, N., & Wright, S. A. (2020). The future of sediment transport and streamflow under a changing climate and the implications for long-term resilience of the San Francisco Bay-Delta. Water Resources Research, 56(9), e2019WR026245.

[15] Thorne, K. M., Freeman, C. M., Rosencranz, J. A., Ganju, N. K., & Guntenspergen, G. R. (2019). Thin-layer sediment addition to an existing salt marsh to combat sea-level rise and improve endangered species habitat in California, USA. Ecological Engineering, 136, 197-208.

Because of the importance of this habitat and its relatively good position in relation to future accretion, there should be no or an absolute minimum of bay fill in the Levee South of Bay Road. The NOP raises a concern that extending the levee into the Bay is still considered as an option for this segment: "Preliminary options to be considered for evaluation in the EIR include other Project alignment and design options identified in the Feasibility Report."[16] Of particular concern is the old Option 2 which "consists of a new levee built on the Bay side of the existing levee." [17]

- ★ **An option to "build on the Bay side of the existing levee" for the Laumeister and Faber sections should be listed as considered and rejected and not receive further analysis.**

<u>Tables showing alternative levee options for the Levee South of Bay Road</u>

Just as charts were useful for our analysis, charts on this page and the next might be useful in presenting levee information in the EIR. The NOP provides two recommended Project options for this reach which appear to be consistent with the objective to protect wetland habitat. The two cross sections shown for the Project begin construction at the edge of the current Bay Trail and preserve the existing roughly 3 to 1 slope to the wetlands below on the bayside. The options are provided on Pages 20 and 21 of the NOP.

The following table provides a summary of the dimensions of these options which can then be compared to the available space. Measurements are in feet.

Options	Integrated Flood Wall, feet, P. 20	Trail on levee top, No flood wall, feet, P. 21
Elevation of levee top	18.2	18.2
Elevation of Bay Trail	15.7	18.2
Elevation of inland property	8	8
Trail width	10	20
Transition zone horizontal dimension: minimum	20	20
Transition zone horizontal dimension: maximum	49	49
Overall distance from Bay edge of current trail to existing inland ground: minimum	58	73

[16] SAFER_Notice+of+Preparation.Rev_6May2022+(1).pdf, Page 8

[17] Public Draft Feasibility Report, SAFER Bay Project, Strategy to Advance Flood protection, Ecosystems and Recreation along San Francisco Bay East Palo Alto and Menlo Park {2016), San Francisquito Creek Joint Powers Authority

Overall distance from Bay edge of current trail to existing inland ground: maximum	87	101

We considered how well these designs would fit available space. Using Google Earth's ruler, we estimated distances from the outer edge of the current trail to a constraining feature. Starting at the south end of the Trail and working north, the space between the current trail edge and constraining features diminishes. Initially, there appears to be room for the trail-on-top levee at the south, and farther north conditions are likely to require the Flood Wall option. There are exceptions where none of the designs fit and other options should be considered.

Distance – current trail edge to inner ground at points moving south to north	**Estimated Feet available**
At O'Connor Pump bayshore flood pond	92
At MLK Park to drainage trend ditch line	80
At Beech street to drainage ditch	79
At Cypress Street to drainage trend ditch line *	66
At Garden street	60
North of Garden St. the drainage ditch is rerouted closer to bay	37
At the end of Runnymede things are complex:	
To drainage south of Runnymede	69
At bend closest approach to drainage	21
At bend closest approach to lot	34
North of bend along houses closest to trail	23 to 28
Along Rhône-Poulenc site in RBD	8
At the closest distance to Bay Road PGE Station	32

*The ditch trend line is the prevailing course. At the access overpasses, one of the "bridge" culverts is closer to the Bay. The assumption here is that those narrower spots can be addressed by replacing the access paths with ones that ramp up to the higher levee.

<u>Exceptions to the Project options:</u>

A walking tour of the South of Bay Road segment with an eye on planning for the Ravenswood Business District identified a variety of conditions and infrastructure that may require specialized levee adaptation such as: right of way on private property and on high ground, the bend and narrow point in the Bay Trail near Runnymede, stormwater outflows, drainage ditches that parallel the alignment, the O'Connor Pump House, public access at multiple locations, previously unknown locations of contaminated soil and power towers.

The EIR needs to discuss how the Project will resolve each of these situations (and others perhaps) and what impacts are incurred and how they will be mitigated.

Impact Analysis of the Levee South of Bay Road

In this section we refer to additional direct, indirect and cumulative impacts of the Project that must be considered in the SAFER EIR.

The intent of the Project options described for South of Bay Road on pages 20 and 21 is to preserve the existing refugia slope from the edge of the current trail to the wetlands. For any exceptions that require Bay fill the EIR must describe and evaluate every feasible flood protection design to avoid fill.
If mitigation is required for any levee impacts in this segment, the EIR must consider and select enhancement options within or for Laumeister and Faber Marshes.

Some construction impact seems unavoidable to the transition/refugia slope and adjacent wetlands. The EIR must describe those impacts and recommend mitigation on site. For example, if there are impacts to the existing transition zone, it may be possible to do invasive plant control there and add native perennials while creating the transition slope.[CH1]

The EIR must consider options, such as the ones described above, to fit a SAFER levee into a smaller horizontal space when necessary to avoid wetland fill.

No matter which of the bayside slopes is designed there may be the potential for additional transition habitat to be created along the higher levee. The DEIR should identify and provide details regarding the success criteria that will be utilized for the project, describe what ongoing resource management is required and how it will be funded.

The EIR must consider the direct and indirect cumulative effects of the proposed developments in East Palo Alto and interactive effects between those and the SAFER Projects. Examples of some of the possible effects are settlement, groundwater distribution, stormwater distribution and pumping, night lighting, increase in human impacts and litter on the bay habitats. The EIR should provide a description of mitigation measures that will be implemented at each segment that will address impacts to biological and hydrological resources, hazards, etc.

Describe the effects of improved Bay Trail facilities and access on increasing human use and impacts. Describe ongoing litter control and removal programs required to mitigate the effects. Describe how to human disturbance to wetland habitat and wildlife will be addressed. Define who will be responsible for monitoring and addressing issues that might arise.

The SAFER Project must obtain agreements with local jurisdictions to prohibit night lighting and light trespass on the levee, Bay Trail and bay habitats. [CH2]

The EIR must consider how the inner side of the levee and new overpass access ramps can help preserve the drainage ditch and stormwater capacity and its usefulness for fresh to brackish water habitat.

Not only is Nature of service to humans for flood control, but Nature must be preserved for its inherent values. The EIR must provide integrated assessment, consideration and planning for the wetlands and bay habitats adjacent to the SAFER levee in this segment and that will involve partnership with the USFWS and agreements when necessary.

The EIR must describe the special value and nature of prehistoric, never-diked wetlands such as Laumeister Marsh, and precautions that are appropriate to preserve those areas.

HYDROLOGY AND WATER QUALITY

For the SAFER Project, a number of water-related issues need to be considered for analysis in the EIR.

<u>Tidal channel and Erosion impacts of the Proposed levees</u>

The Project proposes to construct levees, floodwalls and some structures that may combine characteristics of each and do so along ~7 miles of shoreline. Some may have earthen slopes of varied height and length. Each of those structures may have local or wave-reflective impacts. Varying by levee type, high water events and location, impacts of each variation need to be analyzed and impacts mitigated, if possible. Analysis must be completed for:

- Tidal Channels (3:1 slope levee)(Ravenswood Slough, Eastern Slough, site-specific small sloughs):
    - Potential impacts of wave reflection on opposite earthen banks
    - Potential marsh erosion at the base of floodwalls following high-water wave action or storm surge
    - For a levee extending into a channel, potential alteration of channel flow with possible increased erosive action on the far bank
- Flood walls (vertical structures)
    - Wave force reflection when directly facing the incoming waves
    - Wave force reflection at a 90 degree angle to incoming waves
    - Erosion impacts of soils at base of floodwall, direct or angled

- Major storm events or series of moderate storm events

  SLR levees are designed to keep water out while storm events can produce significant ponding particularly on impervious surfaces and/or saturated soils. It is also true that SFCJPA is not responsible for each city's stormwater system. Nonetheless in a sudden, major storm event, water can accumulate rapidly inboard of a levee wall. The EIR must analyze, by location, vulnerability issues and how they could be mitigated.

- In East Palo Alto consider conditions described in a LAFCO Municipal Services Report. Its recent study[18] of the EPA Sanitary District included assessments of all City Services including **Stormwater** Services. Those findings identified several vulnerabilities that could impact inboard flooding, The report noted that currently 56% of the City is designated at elevated risk of flooding from any source.

  An area of concern is storm drain deficiencies. The MSR discussion describes the entire stormwater system. The city-wide system of drainpipes includes some 430 nodes (manholes, inlets, similar). Of those, modeled analysis identified 68 nodes where some level of flooding could be expected. Among those, 33 would be locations of flooding of one foot or more.

  In the EIR, analysis should identify impacted nodes in the vicinity the levee and plan mitigation comparable to risks such as the depth of potential flooding

Climate Challenge: Water above and below ground

As the SFCJPA is well aware and associated with climate change, meteorological shifts have already changed the local climate: extended periods of drought and less frequent but intense, major storms or sequential storms such as last October's atmospheric river. Such storms test local stormwater systems

[18] LAFCo Municipal Service Report, East Palo Alto Sewer District: p. 74

and, by infiltration, sewer systems and produce surface ponding and localized flooding. Steadily, over the decades of development envisioned on the EPA and Menlo Park shorelines, rising groundwater (subsurface aquifers) will exacerbate the problem. At the program-level the EIR needs to set a framework for development actions that can adapt and survive these climate changes and to preserve the effectiveness of the levee system planned.

- ★ The EIR needs to assess: How might rising groundwater affect the stability and structural integrity.of a levee?

An important reference to consult is a report prepared by the San Francisco Estuary Institute for the City of Sunnyvale: Sea-level rise impacts on shallow groundwater in Moffett Park.[19] This report is specific to findings in Moffett Park but its analysis is useful, discussing potential impacts and adaptation action for development. Notably its sources for groundwater data are from existing well databases, not involving any physical hydrologic study. SFEI has consulted with many entities and could help the SFCJPA assess this ~7 mile shoreline project.

As food for thought, here is the list of potential rising groundwater impacts compiled in the SFEI report:

- Corrosion. Salinity impacting below ground infrastructure
- Buoyancy. Buoyant force impact on foundations, buried utilities and pipes, roads
- Seepage. Seepage into subsurface structures, floors, walls
- Infiltration: Infiltration into stormwater and sewage pipelines reducing capacity
- Liquefaction: Higher water tables increase liquefaction risk
- Damage to vegetation: Saturated soils and/or higher salinity can impact plants
- Contaminant mobilization: Movement in existing remediation or of unidentified contaminants
- Emergence flooding. Site-dependent; even non-emergent levels can exacerbate surface flooding

Notably, sitting on an alluvial fan that is already a threat for liquefaction, the question is: will rising groundwater make it worse?

Biological Resources

For CCCR, this topic is usually central to our comments. We have mentioned concern about issues impacting wildlife, habitat and wetlands throughout this letter. One recommendation that we made in earlier discussion was the recommendation to have a qualified biologist perform a Biological Resource Assessment (BRA). BRAs are required by Menlo Park which has a detailed description of BRA actions. We hope the Project agrees that it would make good sense to use that analysis tool for the entire Project and for identification of the Project's Biological impacts and mitigations.

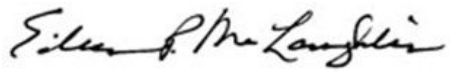
We also refer the Project to the attached Memorandum provided to CCCR by Dr. Peter Baye. His expertise as a coastal wetlands scientist is invaluable as a resource in planning for EIR analysis.

[19] SFEI et al, Sea-level rise impacts on shallow groundwater in Moffett Park, November 2021; https://static1.squarespace.com/static/5e38a3dd6f9db304821e8e5e/t/61a7b37743ec4b770e11ee73/1638380421678/Moffett+Park+Specific+Plan+Groundwater+Addendum.pdf

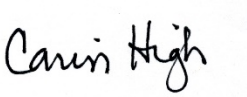
We appreciate the opportunity to offer the comments included here and we look forward to the release of that Draft Project Description.

Yours truly,

Gail Raabe
Co-Chair
Citizens Committee to Complete the Refuge



Eileen McLaughlin
Board Member
Citizens Committee to Complete the Refuge



Carin High
Co-Chair
Citizens Committee to Complete the Refuge

Rick Johnson
Wetlands Advocate
Citizens Committee to Complete the Refuge

ATTACHMENT: Exhibit #1 Memorandum of Peter Baye, Ph.D, Coastal Ecologist

CC: Matt Brown, SF Bay National Wildlife Refuge Complex
Dave Halsing, SCC, Executive Mgr, SBSPRP

Exhibit #1

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Coastal Ecologist, Botanist
33660 Annapolis Road
Annapolis, California 95412

(415) 310-5109

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M E M O R A N D U M

To: Citizen's Committee to Complete the Refuge, Palo Alto
Date: June 14, 2022
SUBJECT: San Francisquito Creek Joint Powers Authority SFCJPA Notice of Preparation (CEQA): Strategy to Advance Flood Protection, Ecosystems and Recreation along San Francisco Bay Project Environmental Impact Report considerations

Executive summary:

- **Bayland landscape settings** (non-tidal baylands, uplands, high tide line position, and tidal marsh) should provide a framework for design and impact assessment. All plan view figures showing alignment of levee and transition zone habitat designs, and impact analysis should be clearly framed in relation to their position within bayland landscape (landform and habitat) settings. Drawings and designs should clearly display the degree to which new levees and constructed transition zone (ecotone) slopes are set back landward of the high tide line, or encroach into existing tidal marsh.

- **Substrate specifications** used to construct habitat transition zones, especially the root zone (upper soil profile) are essential for assessment of project feasibility and environmental effects. They are as essential to project description as elevations.

- **Phasing for incremental construction of habitat transition zones over time, in pace with sea level rise**. Just as the NOP indicates the potential need to phase construction for logistical project needs, environmental impact minimization needs also justify evaluation of alternatives that include incremental "thin-layer" lifts of sediment for gradual construction of habitat transition zones, within the range of (non-destructive) burial tolerance of transition zone vegetation.

- **High tide refuge design and assessment should include the entire tidal marsh-upland gradient, not just the high tide line**. We support the NOP to assess the entire distribution of high tide refuge habitat across the tidal marsh landscape, and plan for long-term integrated co-management of high tide refuge habitat both within constructed transition zones, and in the related tidal salt marsh platform.

In addition, we recommend explicit focus on project impacts on non-native plant species invasions (spread of wildland upland and wetland weeds), and mitigation measures based

on integrated weed management during all project stages, including pre-construction management and imported fill selection, stockpiling, and handling.

Recreational trail alignments and vegetation designs should be integrated to minimize behavioral impacts of trail uses on wildlife in tidal marshes and transition zones.

Memorandum to Citizens Committee to Complete the Refuge:

1. As requested, I have reviewed the SFCJPA Notice of Preparation for the flood protection/ecosystem/recreation project in the South Bay, and I am providing CCCR with some recommendations for EIR preparation to support meaningful, adequate environmental assessment of this complex project and environmental setting, over a project life of about a century.

2. Programmatic environmental assessment considerations

2.1. Location-dependent and setting-dependent environmental assessment. The Project proposes to "increase the diversity of habitat by building tidal salt marsh-upland transition zone habitat (transition zone habitat) on the bayward slope of appropriate segments of levee adjacent to existing and/or restored tidal salt marsh." This general description does not distinguish the fundamental design and impact context of whether levee features are built landward or bayward of the existing high tide line, in tidal wetland gradients. Impacts and ecological performance of levees, horizontal levees, habitat transition zones, etc. are more dependent on location and the context of environmental setting than they are on their dimensions and slopes. The impacts of constructing new levees or habitat transition zones are not all inherent in design features. They depend on the surrounding habitats and physical geography, and their positions within the land-shore gradient. Position and siting of levee features within the land-shore gradient include major contrasting differences in *bayland landscape settings* such as:

- Construction of habitat transition fill slopes (zones) in non-tidal baylands restored to tidal hydrology ("blank slate" bayland setting; no fill encroachment or truncation of existing tidal marsh);
- Set-back of constructed habitat transition fill slopes landward of or up to the existing high tide line adjacent to existing tidal marshes, where landward retreat spaces may be feasible (no fill encroachment or truncation of existing tidal marsh; e.g. Palo Alto Horizontal Levee pilot project);
- Potential encroachment of habitat transition fill slopes, or levees, into existing tidal marshes; distinguish fill encroachment into narrow fringing tidal marshes and wide tidal marsh platforms with creek networks.

These distinct bayland landscape settings, considering both land-side and bay-side constraints and environmental sensitivities, are particularly important for assessing whether a "typical" cross-section design may be likely to provide net habitat resilience and enhancement during sea level rise, or whether it would risk excessive near-term encroachment and truncation of

shrinking tidal marsh habitats, which undergo both submergence from sea level rise, and bay-edge erosion. The EIR should introduce and organize discussion of impact assessments and project designs in explicit context of bayland landscape settings like these. Figure 1 of the NOP (project location and components) does not represent bayland landscape settings or levee alignments across them. Corresponding plan view figures in the EIR should make levee alignments and positions plain, in relation to tidal marsh and high tide line positions. Otherwise, programmatic environmental assessment of typical project designs would almost certainly result in confusing or misleading general conclusions. The more reach-specific (shoreline segment-specific) programmatic environmental assessments of designs are, the more likely they are to provide a basis for clear understanding of near-term and long-term potential impacts, and support meaningful, specific comments.

2.2. Substrate-dependent and hydrology-dependent ecological performance. Substrate types, sources, and specifications for levees, habitat transition zones, or horizontal levees are not discussed in the NOP. The massive size of the project, even if constructed over long periods of time, would require commensurate massive volumes of imported fill. Substrate characteristics affecting vegetation composition (such as porosity, bulk density, percentage clay, percentage sand, percentage gravel or rock fragments, weed seed bank density and composition) or vegetation dynamics (drought impacts) depend on both fill source constraints, and on substrate design specifications. Vegetation composition, structure, and dynamics shaped by substrate, in turn, shapes habitat functions. The habitat functions of representative or typical conceptual levee cross-section designs (figures 2-8, NOP) cannot be predicted or meaningfully interpreted without reference to substrate attributes and sources. Upland subsoils, bay sediments, and terrestrial alluvial sediments have highly significant persistent differences as substrates for vegetation of levees and habitat transition zones. These differences are inherent, and generally cannot be modified feasibly by amendments or vegetation management.

For example, the substrate properties influence the height and density of vegetation cover bordering public trails. This is an important variable for screening wildlife visual cues, and limiting human disturbance, or entry of habitat areas by people or off-leash dogs. Some mitigation measures may depend on vegetation “buffer zones” along trails that restrict access. Those functions would depend on substrate conditions that enable design vegetation to perform them.

Substrate that restricts root development or amplifies dieback, injury or growth inhibition effects of drought, may cause a target vegetation to convert to either weed-dominated vegetation, or more sparse, open non-target vegetation types, or cause excessive need for maintenance beyond the capacity of managers (which is often the case on constructed levees).

Substrate is particularly important for assessment of potential failure to meet ecological objective (or mitigation requirements) for marsh wildlife high tide refuge habitat at or above the high tide line. Substrates that inhibit growth or survivorship of tall, dense vegetation cover during and after droughts, or promote competition of weeds over target vegetation, may negate basic project goals. Substrate specifications are essential to assessment of terrestrial ecotone high tide refuge habitat.

The EIR should clarify substrate and hydrology assumptions for location-specific levee designs, distinguishing between "dry" (winter-moist, summer-dry), well-drained habitat transition zones, and constructed sub-irrigated slope wetlands, like the Oro Loma and Palo Alto horizontal levee demonstration projects. The ecological and hydrological functions and habitat structure of wetland horizontal levees are qualitatively different from those of "dry" habitat transition zones, and their potential ecological interactions with contiguous tidal marsh are also significantly different.

The EIR should therefore either state assumptions for substrate used to construct "topsoil" and subsoil root zones, or include concept-level specifications for them, and assess the performance of vegetation and habitat related to substrate. The EIR should distinguish the substrate and hydrology of wetland horizontal levees, and their effects on vegetation and habitat structure on the slope and in the adjacent tidal marsh (brackish marsh gradients) if they may be included in the project.

3.0 Resource-specific environmental impact and design considerations

3.1 Sea level design criteria and programmatic evaluation of phased construction. The project adopts Ocean Protection Council (OPC) guidance to plan resilience for 3.5 feet of sea level "additional 3.5 feet of tidal elevation to account for anticipated sea level rise as well as other applicable FEMA design criteria…". The NOP also states [p. 5] "In some cases, levees might be constructed and raised in stages given the long-term impacts of sea level rise and budget limitations… precise routes within some reaches have not been finalized and could depend on funding, land acquisition…." Similarly, the EIR should consider alternatives and mitigation measures that include levee or habitat transition zones also raised in stages or increments to distribute and dissipate habitat impacts over decades, minimize near-term wetland fill impacts, in closer pace with sea level rise rather than a full century ahead of it. If all project alternatives have criteria set for flood control levees to meet 3.5 feet of sea level rise (including extreme sea level events), single construction levee projects would have to place fill all at once for a century of sea level rise. Where levee/habitat transition zone fills may encroach tidal marsh, this impact may have non-linear impacts on marsh habitats, as tidal drainage networks and wildlife home ranges become reconfigured by bayward habitat transition zone fills, including uplands that may not be reached by the high tide line for decades.

For example, "thin lift" sediment lifts in tidal marshes (generally 15-20 cm or less, depending on vegetation type and sediment burial tolerance) are designed to allow rapid direct vegetative recovery of buried vegetation, more than new colonization of bare substrate. A similar method of thin-layer "construction" should be evaluated for incremental construction of lower habitat transition zones if they encroach on existing tidal salt marsh (e.g., sediment fans deposited by hydraulic slurry placement, or mechanically placed unconsolidated muds washed into fans by high pressure hoses). If all levee and habitat transition zone construction is restricted to upland (landward of high tide line) sites, this measure may not be needed for initial project construction, but it may be considered as a maintenance or adaptive management measure to keep pace with higher-than expected rates of sea level rise, with reduced impact.

3.2 High tide refuge habitat analysis within and landward of tidal marsh platforms. The NOP states [p. 5] "An assessment of high tide refugial habitat functions in the face of sea level rise will be performed in existing high-quality marshes. This assessment will be utilized in collaboration with resource agencies to determine if and where the project would propose construction of transition zone or other types of high tide refugial habitats in existing high-quality marshes." This is very appropriate and necessary for environmental assessment. The EIR should not presume that all or most important high tide refuge habitat either is or should be along the landward edge (high tide line) of tidal marsh habitats in all settings. Well-distributed high tide refuge habitats occur within home ranges of salt marsh wildlife species, especially in tall vegetation canopies along well-drained tidal creek banks, as well as at landward edges of marshes, where terrestrial predator risks may offset some of their benefits. The EIR should consider active management of internal marsh high tide refuge habitats as potential mitigation for short-term and long-term impacts of levee construction, to enhance resilience of cross-shore high tide refuge habitats (landward-edge and interior refuge habitats interacting at different tide levels. The EIR should not conflate marsh substrate elevations with the actual high tide refuge cover (leafy vegetation canopy height above marsh substrate and water surface elevations during marsh submergence).

3.3. Tidal Marsh-Upland Transition Zone Habitat. The EIR should distinguish highly contrasting types of "transition zones", "horizontal levees" that are suitable habitats for target species which are not compatible in the same vegetation types and locations. For example, the NOP identifies high tide refuge habitat for salt marsh harvest mouse and California Ridgway's rail in constructed broad, gently sloped tidal marsh-upland transition zones or "horizontal levees", and also rare plants like California sea-blite (note spelling; not "blight", meaning disease) and salt marsh bird's-beak. While mouse and rail high tide refuge habitats share the same basic requirement for tall, dense patches of vegetation above highest tide elevations, this habitat is entirely incompatible with the vegetation and substrate conditions for salt marsh bird's-beak and California sea-blite, which in turn occupy different high marsh substrate and vegetation types (sparse, short turfy salt marsh and pan edges, and coarse, well-drained estuarine beach or high marsh berms, respectively). The EIR planning to accommodate these contrasting species within the project area (and snowy plovers as well) requires geographic demarcation of designed bayland landscape settings.

The EIR should clarify and define explicit working definitions and criteria (including slopes, substrates, hydrology, vegetation types) for all project-defining terms like "horizontal levee", "habitat transition zone", "ecotone levee", noting both synonyms and relevant distinctions. Over-broad use of the same terms like "horizontal levee" for slopes as steep as 6:1 or dryland vegetation, and tule-covered wetland slopes as flat as 20:1 can be confusing and misleading, and preclude clear understanding of important attributes like buffer zones, wildlife screening, and high tide refuge habitat distribution.

3.4. Western Snowy Plover Breeding Habitat Enhancement and bayland landscape setting. The NOP states that there "has been a loss of the ecosystem services that tidal marsh habitat provides, including nesting and foraging habitat and upland refugia for threatened and

endangered species such as California Ridgeway's rail, western snowy plover, and salt marsh harvest mouse". Tidal marsh per se does not provide habitat for western snowy plover. Other tidal marsh-adjacent bayland habitats, including estuarine beaches and playa-like dry salt evaporation pond beds or similar unvegetated (or minimally vegetated) high-albedo habitats support western snowy plover habitats. The NOP correctly identifies pond R3 (not tidal marsh) as existing snowy plover habitat. The EIR should explain the long-term management planning status of pond R3 in the Refuge (managed salt pond versus tidal marsh) under 3.5 ft of sea level rise during the project design life. Tidal marsh transition zone features and amendments with Pacific oyster shell are not relevant to western snowy plovers; oyster shell habitat enhancement for snowy plovers requires a hypersaline or seasonally disturbed non-tidal or above-tide setting that restricts vegetation. The EIR should clarify that sustainable, feasible snowy plover habitat enhancement measures would be excluded in vegetated habitats like tidal marshes, and restricted to either salt pond, managed saline lagoon, or coarse (shell, sand, gravel) bay beach habitats.

3.5 Invasive plant species spread and management during and after construction. Disturbed soils during construction phases provide increased opportunities and vectors for dispersal and colonization of non-native invasive plant populations already established in tidal marsh edges and levees. Imported fill also brings a high risk of new invasive plant species colonization. The EIR should assess the existing range of invasive plants that are established on levees and high salt marsh habitats in the project area, the potential for increased spread and population size during and after construction, and adequate, feasible mitigation measures (an integrated weed management plan) based on early detection and management during and after staging, construction, and establishment phases.

3.6. Recreational trail alignments, designs, and mitigation measures. The EIR should consider opportunities to set back recreational trails as far as possible from the bayward slopes of levees or habitat transition zones, instead of designing them for full levee top (road) span. The bayward side of the levee top should be evaluated in the EIR designs as components of buffer zones that provide vegetative screening (knee-high or taller brushy or bristly native upland scrub vegetation; or dense, tall tule/bulrush vegetation on wetland horizontal levee slopes) to discourage people or dogs from establishing social trails to transition zone wildlife habitats. Recreational trail designs should also evaluate the feasibility of incorporating blinds to allow compatible wildlife viewing in sensitive areas where spur trails may cause excessive long-term wildlife disturbance. Wide transition zone habitats should be expected to become potential breeding habitats for terrestrial wildlife and some waterfowl, and movement corridors for terrestrial wildlife using tidal marshes; they would not be just a buffer zone or high tide refuge habitat for tidal marsh wildlife.