SF Creek: Meetings and Communications Involving the Water Board since Initial Application for Certification (BHW – 6/25/14)

Mar 12, 2013 – JPA applies to Board staff for water quality certification
Mar 29, 2013 – Board staff sends JPA notice that application is incomplete and specifies additional information needed to complete application
Aug 2, 2013 – JPA responds to Mar 29 incomplete notice and updates application
Sept 4, 2013 – Board staff indicates to JPA that application is complete but poses questions requiring further information before project permitting can proceed
Sept 18, 2013 – Agencies, including Board staff, meet with JPA to request more adequate information on alternatives that would further avoid and minimize water quality impacts and why some of the alternatives pretend in 2009 were eliminated
Sept 26, 2013 – JPA Executive Director reports to JPA Board "that all necessary application materials have been submitted and are in good order"
Oct 9, 2013 - Board staff sends letter to JPA Board indicating that Sep 26 report in error but pledging to continue to work with JPA on developing an approvable design
Nov 7, 2013 - Board staff meet with JPA to discuss design and water quality concerns
Dec 4, 2013 – JPA proposes meeting with Board and staff of cities to address concerns discussed at Nov 7 meeting. Board staff suggest meeting Dec 18 but, to accommodate JPA and city staffs' schedules, meeting set for Feb 3, 2014
Jan 9, 2014 - Board staff provide JPA with a technical memo detailing the basis for continuing concerns over project design
Jan 28, 2014 – JPA responds to Sept 4, 2013, information request. Response includes a modified project design
Feb 3, 2014 - Dyan Whyte and other Board staff meet with JPA/city staffs to discuss opportunities for implementing LID and upstream detention as part of project and describer the project features the Board would have trouble permitting as currently designed.
Feb 11, 2014 – Board staff meets with JPA staff to further discuss water quality concerns with design
Feb 20, 2014 – Board staff hosts interagency coordination meeting to discuss latest project design
Feb 27, 2014 – Bruce Wolfe revises and signs letter to JPA denying project without prejudice
Mar 19, 2014 – Bruce and Shin Roei Lee meet with JPA management and city managers of PA/EPA to explain basis for Feb 27 letter and repeat a request the alternatives analysis requested in September 2013
Mar 31, 2014 – JPA sends out a summary of Mar 19 meeting and its schedule for response
Apr 1, 2014 - JPA appeals Feb 27 letter to State Water Board and asks that appeal be held in abeyance
Apr 14, 2014 – JPA sends Board staff a technical memo on design's hydraulics, proposing further design modifications and changing the basis of design hydrology
May 7, 2014 – JPA sends its response to Feb 27 letter and proposes to meet with Board staff on May 21 to discuss response and next steps
May 21, 2014 – JPA, Board, and other agency staff meet to discuss latest JPA submittals – Board staff request additional information on design basis and set future meeting dates for Jun 5 and 12

Jun 5, 2014 - Board staff meets with JPA consultant to review additional design information and request results from an additional hydraulic model run before Jun 12 meeting with JPA and all agencies

Jun 9, 2014 - Board staff receives requested additional model run but determines JPA consultant cannot attend Jun 12 meeting to discuss it

Jun 17, 2014 - JPA reschedules Jun 12 meeting with Board and other agency staff to July 1

July 1, 2014 JPA modeling review meeting with Board staff to address alternatives for Faber tract

July 10, 2014 JPA modeling review with PWA present to address assumptions on Faber tract

Efforts To Provide Early Design Input

Winter 2006 Water Board staff makes a presentation to the JPA Board to describe successful flood control project planning in the Bay Area and request a collaborative agency-public approach. The JPA Board endorses this approach.

Winter 2006 Water Board staff follow up on the JPA Board meeting a take a field trip with the JPA staff to discuss different approaches to reducing floods in a multi-objective way.

June 8, 2009 JPA and Water Board staff take a field trip to golf course locations and meet t with a representative of the golf course who was interested in incorporating creek floodplain and wetlands into a new golf course design .JPA and Water Board staff draw up a list to form a project design team.

June 25-30 2009 JPA staff call Water Board and inform that they do not want to use the proposed collaborative approach

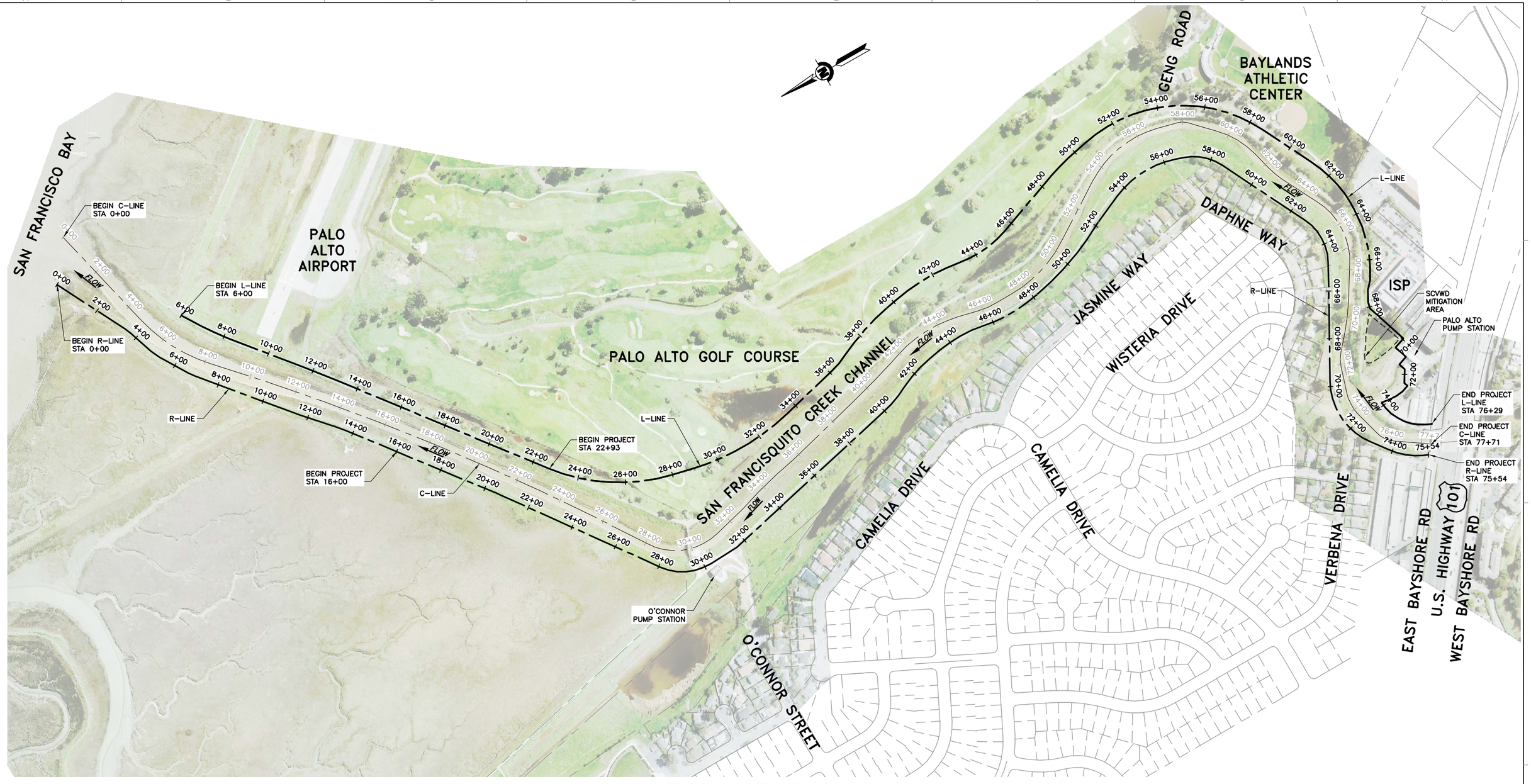
Jan 8 2010 Water Board requests draft report from JPA on alternatives analysis and Request a JPA –public team to address project alternatives . This is not granted.

August 31, 2012 The Environmental Protection Agency sponsored 2.0 flood control team of public and private professionals review the design of SF.Creek project and raise issues about the floodwalls, levees and marsh.

11/16/20088 2:19:pmn
9 am
2 pm

White line: existing levee location
Orange line: proposed levee location
Green line: floodplain
Width of floodwall to floodwall: 138 feet

Imagery Date: 2/23/2014 37°27'27.71" N 122°07'22.54" W elev 3 m eye alt 1.62 km



GENERAL SITE PLAN

SCALE: 1"=200'

REV	DESCRIPTION	DATE	APPR.
	95% PRELIMINARY 11–14–2012		

HDR Engineering, Inc.

DATE 09–30–12
DESIGN L. JONES
DRAWN H. SUAREZ
CHECKED P. HRADILEK

ENGINEERING CERTIFICATION
REGISTERED PROFESSIONAL ENGINEER SERGIO E. JIMENEZ C 055698 Exp. 12–31–12 CIVIL STATE OF CALIFORNIA
PRELIMINARY
PROJECT ENGINEER DATE

SAN FRANCISQUITO CREEK JOINT POWERS AUTHORITY
ACCEPTED BY DISTRICT
PROJECT ENGINEER DATE

PROJECT NAME AND SHEET DESCRIPTION:
SAN FRANCISQUITO CREEK FLOOD REDUCTION, ECOSYSTEM RESTORATION, & RECREATION PROJECT
GENERAL SITE PLAN

SCALE 1" = 200'
VERIFY SCALES 0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER 26284002
SHEET CODE: G–4
SHEET NUMBER: 4 OF 107

DOCUMENT NUMBER: SFC_LP–G–1028–XXXXXXX

Title of Project: San Francisquito Creek Flood Reduction, Ecosystem Restoration and Recreation Project

"Existing Conditions" are those without the addition of the new culvert under Highway 101 expected for construction in 2015. Proposed project conditions therefore include the new culvert and the new floodwalls and levees.

The current channel capacity is 5,300 cfs. The planned Highway 101 culvert will increase downstream flows to 7,400 cfs and potentially to 9,400 cfs when flood control features are completed upstream of Highway 101.

Flood depths and velocities (information from June 5 HDR model with the SF Bay levee degraded and SCVWD memo)

Between floodwalls downstream of Highway 101

- 5,300 cfs, average water depth of 9.5 feet; deepest water depth of 13.6 feet, and 5.3 fps velocity
- 7,400 cfs, average water depth of 12.5 feet; deepest water depth of 15 feet; and 6.3 fps velocity
- 9,400 cfs, average water depth of 13.8-15.4 feet; deepest water depth of 16.6 ft.; and 7 fps velocity

Downstream of the floodwall to Friendship Bridge

- 5,300 cfs and 4.4 - 5.1 fps velocity (depth not available)
- 9,400 cfs, average water depth of 11. 5, and 6.4 fps velocity

Friendship Bridge Bend

- 9400cfs, average water depth of 5.0 feet and 10.1 fps velocity

Channel along Faber Tract

Information not available

Marshplain Widths

- Near Highway 101(75+00): 135 feet
- Baseball field area (station 6+00-68+00): 160 feet
- Near center of golf course (53+00- 36+00): 180 -185 feet
- Friendship Bridge area (32+00- 28+00): 270-280 feet
- 20+00 along Faber marsh (existing): 110 feet

JPA marsh creation plan based on its mitigation proposal

- 3:1 levee side slopes and erosion control grasses
- "High Marsh": 5.79 acres
- "High Marsh Transition": 8.84 acres
- Total 14.63 acres

Project Details

- Total project site: 263 acres
- Length of flood walls: 2154 feet
- Length of levees: 3,900 feet
- 100 year Recurrence Interval (R.I.) flood 9400 cfs: original model set tide elevation at 9.6 and over
- Final modeling consensus - changed to: mean higher high at 7.1
- 30 year R.I. flood 7,500 cfs
- 8 year R.I. 4,200

Cost

- SCVWD estimate for costs of a levee set back: $2.15 million

New Hydrology Submitted In May

• Capacity of Middlefield Bridge to convey flows in channel	6,780 cfs.
• Additional flow down channel to airport	100 cfs
• Palo Alto pump station	300 cfs
• East Palo Alto Connor Station	300 cfs
• Total:	7,400 cfs

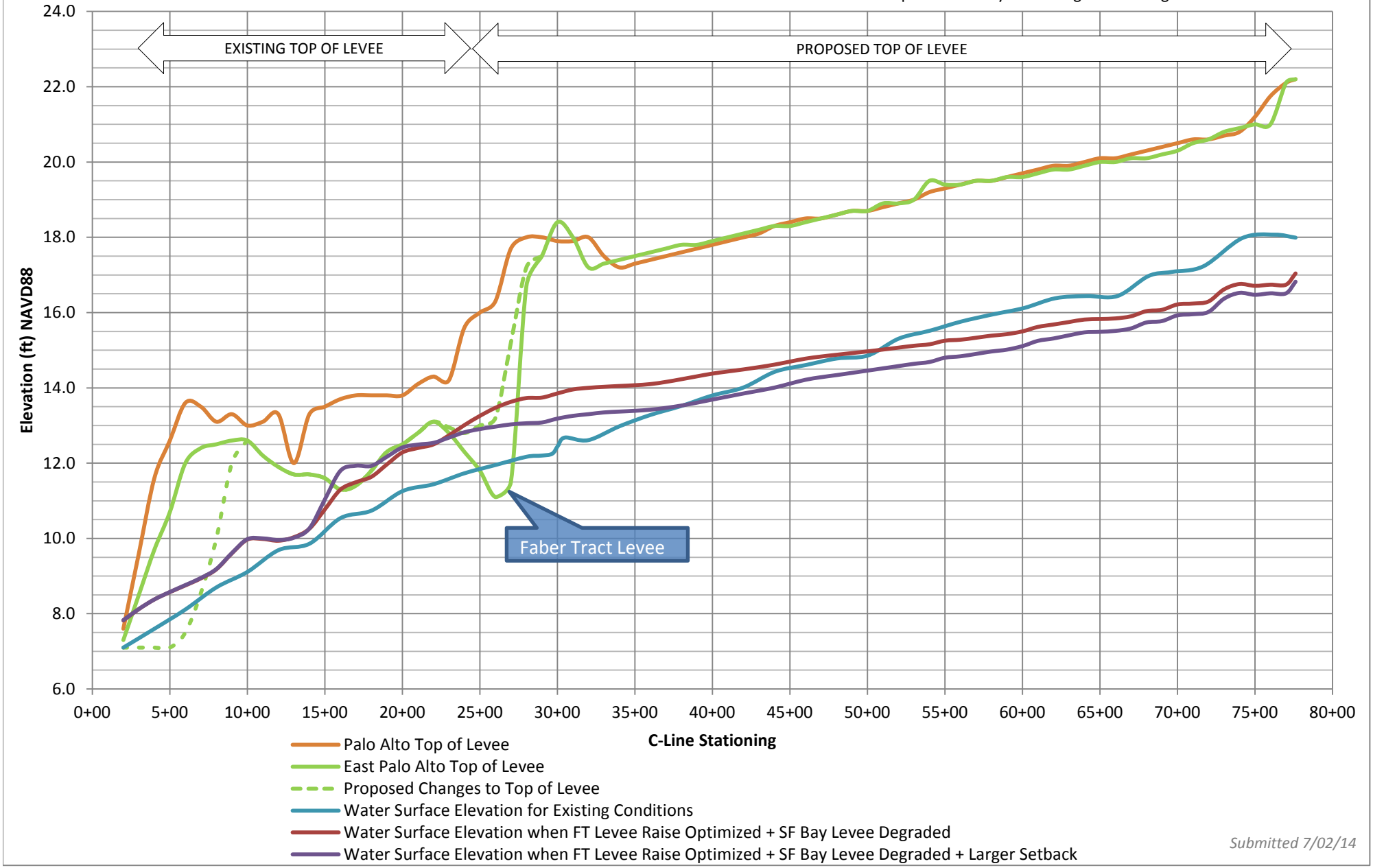
Notes

- An Embarcadero Bypass design was submitted in May 2014 for 3,200 cfs conveyance to the Evans Baylands nature area ponds, Estimated to increase project costs by 50%.

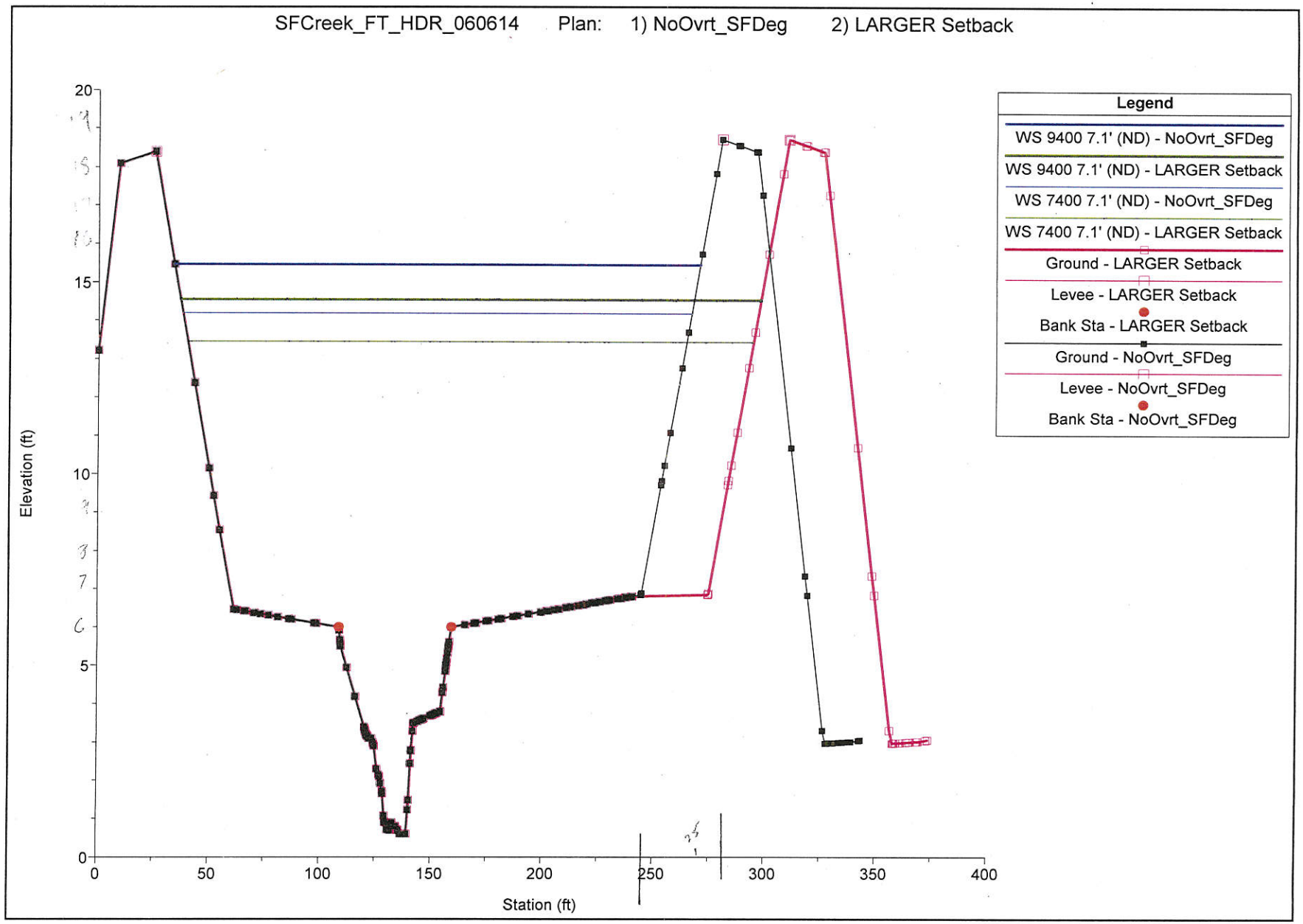
San Francisquito Creek
Existing versus Proposed Project Alternatives
7400 cfs at 7.1' Tidal Event (MHHW)

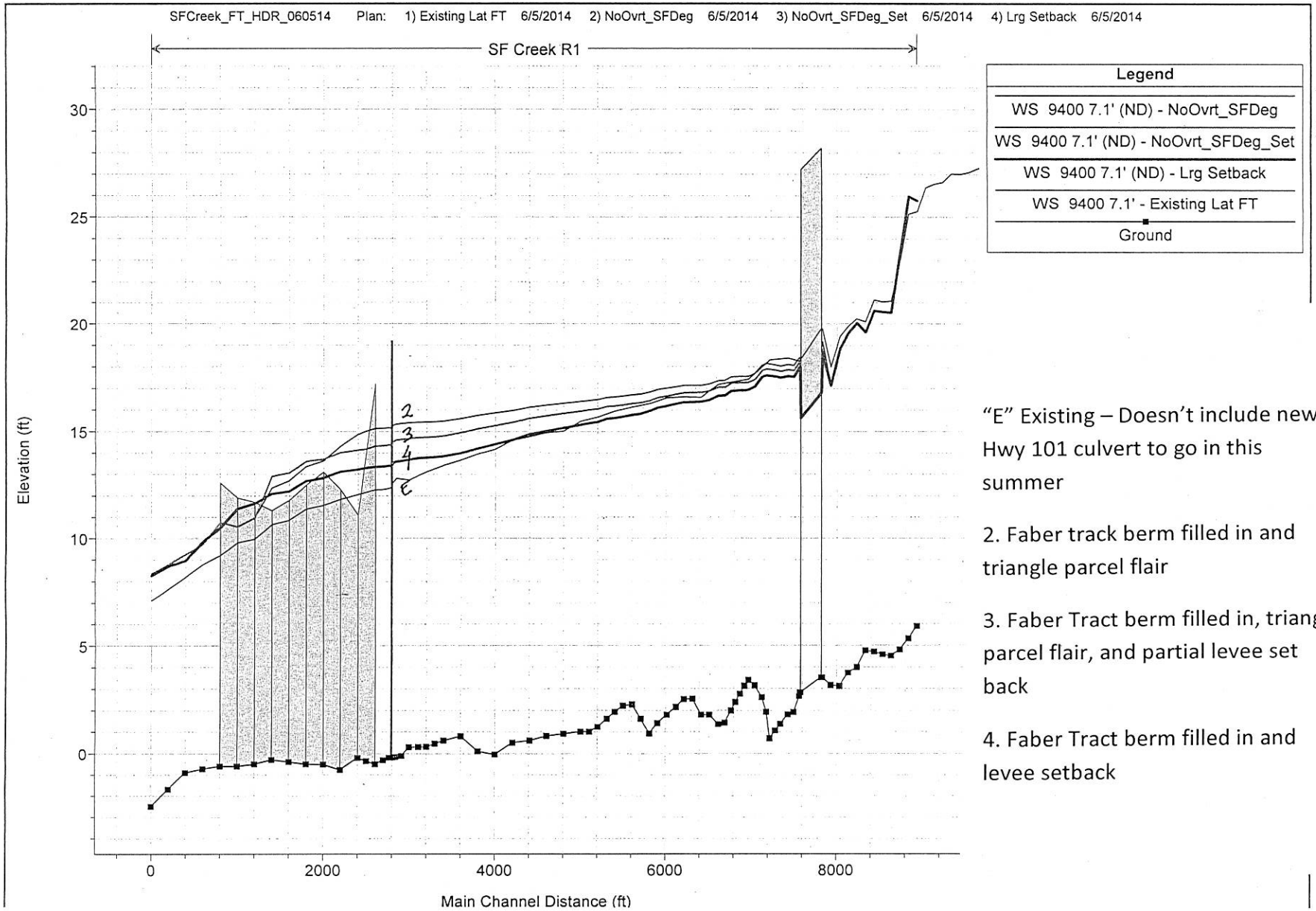
Flows into Faber Tract
Existing Conditions = 155 cfs
FT Levee Raise Optimized + Bay Levee Degraded = 85 cfs
FT Levee Raise Optimized + Bay Levee Degraded + Larger Setback = 105 cfs

Flows into Neighborhoods
Existing Conditions = 2205 cfs
FT Levee Raise Optimized + Bay Levee Degraded = 0 cfs
FT Levee Raise Optimized + Bay Levee Degraded + Larger Setback = 0 cfs



Submitted 7/02/14


SFCreek_FT_HDR_060614 Plan: 1) NoOvrt_SFDeg 2) LARGER Setback
Legend
WS 9400 7.1' (ND) - NoOvrt_SFDeg
WS 9400 7.1' (ND) - LARGER Setback
WS 7400 7.1' (ND) - NoOvrt_SFDeg
WS 7400 7.1' (ND) - LARGER Setback
Ground - LARGER Setback
Levee - LARGER Setback
Bank Sta - LARGER Setback
Ground - NoOvrt_SFDeg
Levee - NoOvrt_SFDeg
Bank Sta - NoOvrt_SFDeg
Elevation (ft)
Station (ft)
0
5
10
15
20
0
50
100
150
200
250
300
350
400



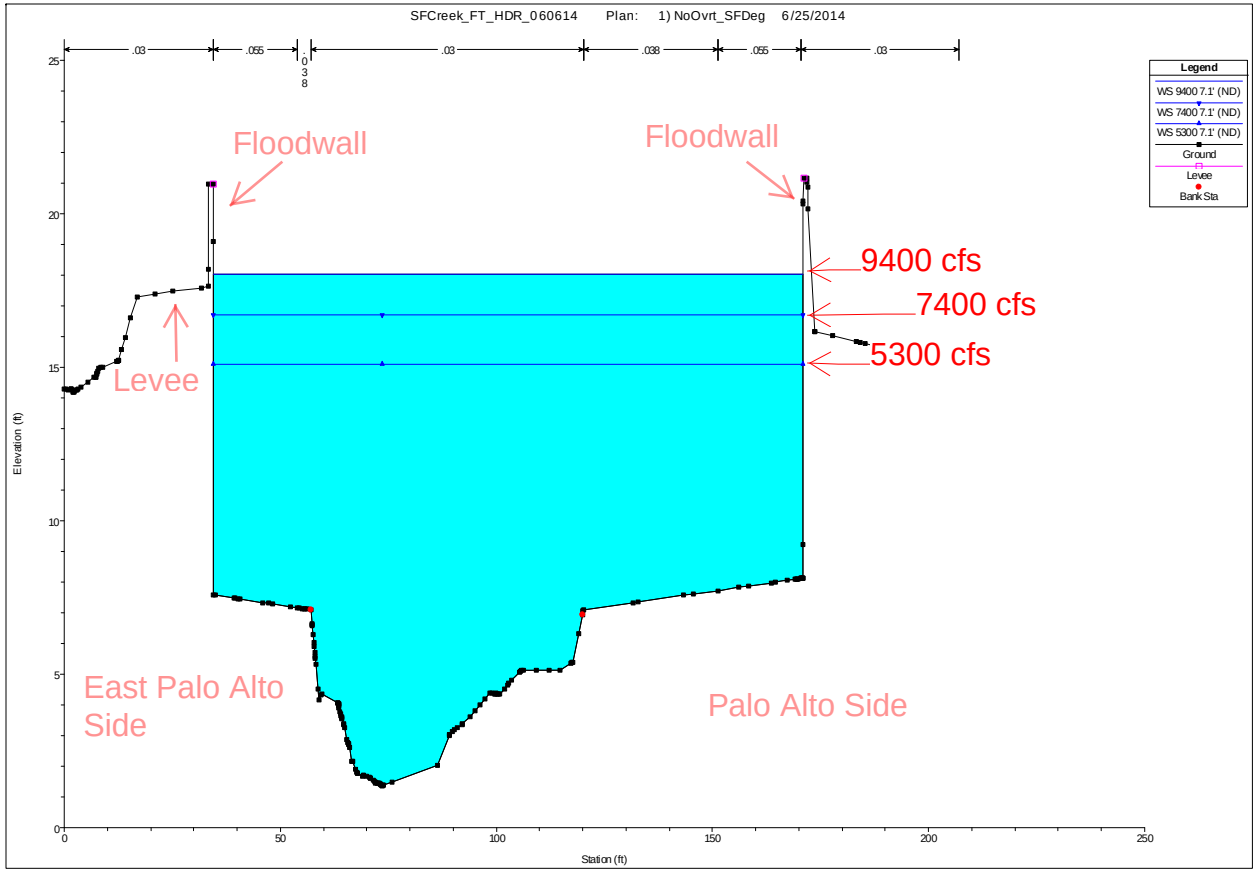
Plan 2
Plan 3
Plan 4
Existing

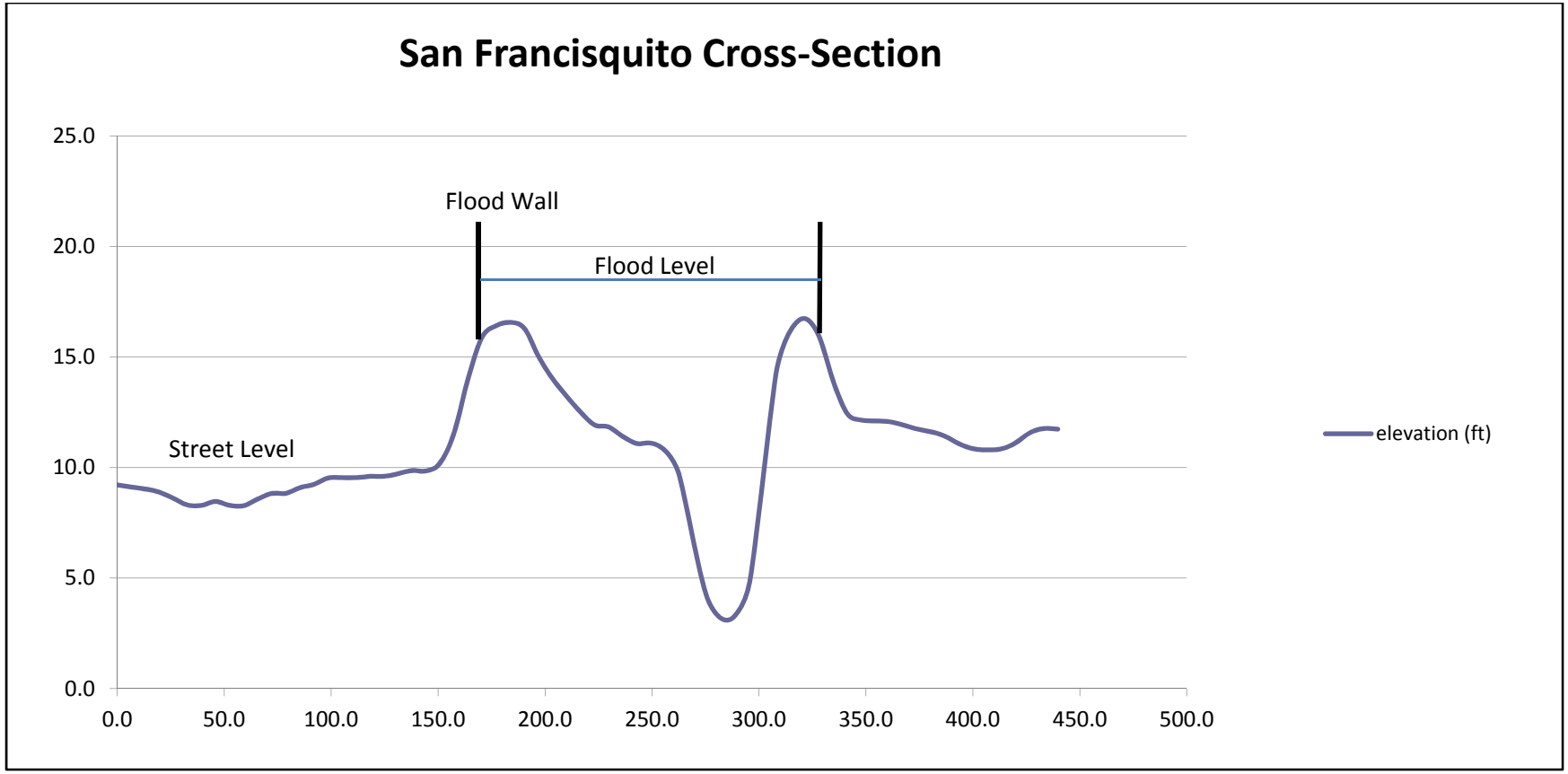
"E" Existing – Doesn't include new Hwy 101 culvert to go in this summer

2. Faber track berm filled in and triangle parcel flair

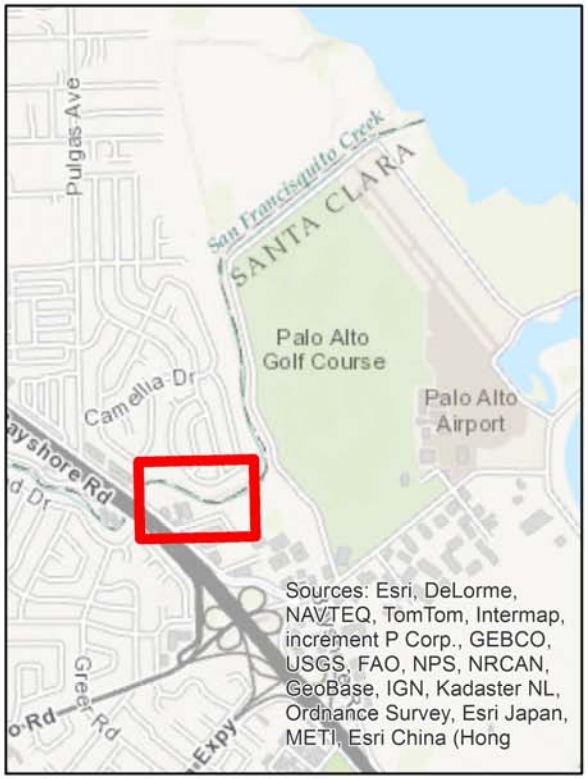
3. Faber Tract berm filled in, triangle parcel flair, and partial levee set back

4. Faber Tract berm filled in and levee setback


SFCreek_FT_HDR_060614 Plan: 1) NoOvrt_SFDeg 6/25/2014
.03
.055
.03
.038
.055
.03
Legend
WS 9400 7.1' (ND)
WS 7400 7.1' (ND)
WS 5300 7.1' (ND)
Ground
Levee
Bank Sta
Floodwall
Floodwall
9400 cfs
7400 cfs
5300 cfs
Levee
East Palo Alto Side
Palo Alto Side
Elevation (ft)
Station (ft)
0
5
10
15
20
25
0
50
100
150
200
250


San Francisquito Cross-Section
25.0
20.0
15.0
10.0
5.0
0.0
Flood Wall
Flood Level
Street Level
0.0
50.0
100.0
150.0
200.0
250.0
300.0
350.0
400.0
450.0
500.0
elevation (ft)

Location of lidar-derived cross section: San Francisquito Creek



Meeting Summary

Flood Control 2.0 Workshop I:
San Francisquito Creek Flood Reduction, Ecosystem Restoration and Recreation Project, San Francisco Bay to Highway 101

SFEI, 8/31/2012

On July 23, 2012, a workshop was held to brainstorm the potential addition of elements to improve the multiple benefits of a nearly completed design of new flood infrastructure downstream from Highway 101 on San Francisquito Creek. The workshop was conducted by the San Francisco Estuary Institute (SFEI) in concert with the San Francisco Bay Joint Venture (SJBJV), on behalf of the San Francisquito Creek Joint Powers Authority (SFCJPA), and as part of the new regional project *Flood Control 2.0*. It was held at the Palo Alto Municipal Golf Course and included a field trip walking along the project footprint. This document describes some of the outcomes of that inaugural workshop. We briefly summarize key points from the workshop discussion and describe several project adjustments that may warrant further investigation. During the brainstorming session two such elements were identified for immediate consideration and others were identified that could be addressed during future project stages or adaptive management phases.

List of workshop participants

Lester McKee, SFEI; Robin Grossinger, SFEI; Julie Beagle, SFEI; Letitia Grenier, tidal marsh ecologist; Laurel Collins, Watershed Sciences; Jeremy Lowe, PWA-ESA; Roger Leventhal, Marin County Flood Control and Water Conservation District; Shaun Horne, Napa County Flood Control and Water Conservation District; James Ujah, Santa Clara Valley Water District; Sergio Jimenez, HDR; Lance Jones, HDR; Sandra Scoggins, SFBJV; Christina Sloop, SFBJV; Kevin Murray, SFCJPA; Len Materman, SFCJPA.

Background

The public agencies in the Bay Area and across the country who operate and maintain flood control channels are coming under increasing pressure to effectively manage or redesign flood infrastructure to address beneficial uses beyond flood conveyance, including fish migration, in-channel habitat, and downstream wetland restoration. There is also increasing effort to maximize sediment transport and reuse, attempting to minimize maintenance to reduce both financial costs and the biological impacts of channel de-silting on species of concern. In addition, there is increasing pressure to address challenges associated with rising sea levels including the potential for wave erosion of shoreline and levees, migrating head-of-tide, and flooding during storm surges. As a result, permits to de-silt these channels are more closely scrutinized by the National Marine Fisheries Service (NMFS), the California Department of Fish and Game (DFG), and the San Francisco Bay Regional Water Quality Control Board (Water Board).

In many instances, constraints such as very large flood capacity requirements, dense urbanization, public utilities, topography, sites of historic value, and other confining factors can limit the opportunity for designing project elements that address at least some of these multiple benefits. In some cases, however, there are significant opportunities to address these constraints if other challenges are addressed. These challenges may include difficult permitting frameworks or a lack of tested examples, funding sources, information about the possibilities, or political/social will. Addressing these issues is the primary objective of Flood Control 2.0, a project recently awarded by US EPA to a San Francisco Estuary

Partnership (SFEP) team that includes the SFCJPA. The grant includes funds to advance design review considerations, post-project monitoring, and lessons learned for the region from the San Francisquito Creek Capital project.

The San Francisquito Creek Capital project is an ambitious effort to provide flood protection in a highly developed setting while expanding fluvial and tidal habitat, incorporating levee setbacks and periodic overflow. The aim of this workshop was to build on the extensive research and design work to date -- as well as the lessons learned through the project planning process -- to both inform final design of the project and influence future planning efforts by other flood control agencies around the Bay.

Identified Opportunities and Challenges

As part of the workshop, participants received brief presentations on the historical form and function of lower San Francisquito Creek (SFEI) and the history and current status of the project design (SFCJPA/HDR). Participants discussed key elements of stream function at the Bay interface for flood protection and target species, and considered the opportunities and constraints for regaining some of these functions through the project.

a. Ecotone and upland connectivity

One opportunity that was identified at the workshop as having both potential for improved beneficial uses and potential feasibility was to consider enhanced development and management of vegetation on the outboard slope of the south side levee downstream from the floodwall infrastructure. This design enhancement would more closely mimic natural riparian levee function, providing high tide and high fluvial flow refugia for endangered tidal marsh species that occupy the lower portion of the channel and adjacent wetlands. Elements discussed included a flatter outboard levee slope on average over its length, more variability in slope and shape than the current outboard levee slope design, active planting of the outboard levee slope with a native plant palette perhaps mimicking historical ecological elements, a broader width of the riparian zone transitioning into the grasslands of the golf course, and an active post-project vegetation management program (perhaps co-managed with the golf course). Appropriate native shrub vegetation was noted on the existing channel levee and would be expected to recolonize the new project. Proactive planting of selected native plants on the inboard levee slope could also be considered if Army Corps regulations allow.

b. Connectivity between the Faber Tract marsh and San Francisquito Creek

A second opportunity that has some potential for exploration at the 90% design stage is a modification of the northern levee berm to allow greater exchange of water, sediment, and biota between the flood channel and the adjacent marsh. The objective of this design enhancement would be to more closely mimic the complex historic nature of the fluvial-tidal interface to allow dispersive release of fluvial energy, sediment transport, and refugia or rearing habitat for salmonids. Options discussed included carving entry channels from the main flood control channel, notching the north degraded levee along Faber Tract, and/or the use of culverts or flap-gates to control the exchange of water and sediment between the marsh and the main flood channel. Although further study would be required, the potential benefits discussed at the workshop included improved hydrologic connectivity between channel and marsh, extended channel and off channel network for migrating fish, exchange of nutrients between channel and marsh, and enhancement of exchange of sediment. In contrast the existing design would only allow the upper portion of the water column during high flows to interact with the marsh, greatly limiting its benefit to the marsh.

A significant concern was recognized with connectivity between the marsh and creek. The use of the marsh to dissipate high stream flows may impact one of the Bay's important Clapper Rail populations, by increasing flood stage and/or frequency on the marsh plain. Because the natural high tide refugia provided

by transition zones to the adjacent lowlands and natural stream levees have been developed, the species is highly vulnerable when the marsh is flooded. While providing a flood protection benefit, there is concern that the use of the marsh for high flows without true tidal connectivity to the channel or sufficient high tide refugia may not provide net benefits to the marsh.

It was recognized that changes in the relationship between lower San Francisquito Creek and the Faber Tract have the potential to provide either positive or negative impacts on the marsh. The design should ideally be related to a larger vision and overall plan for Faber Tract, including delivery of stream sediment to sustain the marsh in the face of sea level rise, improved quantity of tidal marsh channel habitat, availability of high tide refuge, and other factors. Reestablishing tidal marsh channels connecting the marsh to the creek channel could potentially increase Clapper Rail habitat. It is also possible that increased high tide refugia could be created along the channel levee as islands. This part of the discussion focused on providing more heterogeneity at the channel-marsh interface, including subtidal and supratidal portions, rather than the currently-proposed uniform degrading to slightly above marsh surface. However, such changes might have significant flood protection impacts, particularly the potential for erosion of the existing levee along the golf course and/or the north levee along East Palo Alto.

Other design considerations that were discussed included the potential for trapping fishes if flow back into the flood channel does not occur due to marsh gradients and ensuring sufficient tidal prism to maintain channels. The potential for root wads and other natural materials to provide habitat quality as well as bank protection in the channel in place of riprap was also discussed.

Next Steps

Workshop participants recognized that the project reflects many of the challenges and opportunities of attempting multi-benefit flood protection within a highly constrained setting. In the short term, some potential project adjustments were identified that could significantly improve the ecological benefits of the project. The viability and benefits of these ecological improvements will be considered by the JPA team, in conversation with project consultants and other interested parties, including the permitting agencies.

In the longer run, it was recognized that much greater ecosystem and flood protection benefits could be gained by considering the project in the context of anticipated projects covering the adjacent levees and lands. For example, adjacent levees will be strengthened through subsequent coastal protection projects, which might reduce concerns about erosion of surrounding levees if the channel-marsh levee was further degraded to improve tidal connectivity. Similarly, planning for the evolution of the golf course in response to sea level rise in coming decades will likely affect the potential for modifications of the lower stream reaches. Lastly, as the rate of sea level rise increases and impacts to local marshes become better understood, the importance of maximizing direct sediment delivery from the creek to the marsh may become a higher priority, and may be implemented as a future project. An important outcome of the workshop and the Flood Control 2.0 project may be to help shape a longer-term adaptive management plan that maximizes the ecological functions generated by the flood protection project over time, as changes in the surrounding landscape make new opportunities available.

What Could Be Multi-Objective Features for a Flood Reduction Project on Lower San Francisquito Creek?

The first principle of good multi-objective design is to remove as many hydraulic constrictions as possible to enable returning some functioning ecosystems while reducing flood damages. The controlling factor limiting the health of Faber Tract Marsh and San Francisquito Creek is the hydraulic constriction caused by the airport. Discussions with the USFWS indicate that they would orient the runway more to the south and impact the Baylands Nature Interpretative Center Ponds than have the airport create a constriction near Faber Tract Marsh.

Setting the levee back into the golf course can provide flood safety benefits, lowering the water surface elevation particularly for the more common 5300-7400 cfs discharges (up to the thirty year flood). However, environmental benefits include lowering the velocities and shear stresses and creating a better environment for marsh plain establishment. A wider project area between levees could add a floodplain next to the marsh plain providing additional upland vegetation, and if the levees are constructed at a more gentle slope, creation of functioning marsh is more feasible.

A project feature which would provide safety benefits for East Palo Alto would be to allow flood flows to spill to the right bank through the south edge of the golf course to the Evans Interpretive Center ponds area. This channel would follow the course of the historic channel to the bay.

The existing project hydraulic model uses a low 0.03 roughness coefficient which is typical for sparsely vegetated , grass- lined channels. Setting the levees back would allow for more flexibility in the re-establishment of a functioning wetland plant community. The 2009 project design alternatives reports used a 0.05 roughness assumption.

The creek and wetlands project should be designed first, and then the golf course design can integrated these features, rather than focusing on the golf course as the primary project objective. The golf course contains about 156 acres. The American Association of Golf Course Architects published design standard for a 18 hole 71 par golf course states that a minimum of 120 acres is needed for this golf course standard.

For illustration of a planning method, a map is provided which illustrates a minimum additional setback scenario of an average of 56 feet from the proposed project golf course levee from station 15+00 to the start of the prosed floodwall at 54+00, or 3,900 lineal feet. This scenario would add 5 acres to the stream environment and reduce the golf course acreage to approximately 151 acres. The floodplain space would still be below a typical drainage area-floodplain width for similarly sized watersheds in the Bay Area. This minimal scenario would allow more roughness (0.04 - 0.05) without raising the flood levels. This type of scenario review could provide a better balance between the golf course and the creek.

July 24, 2014
CIWQS Place No. 757384(MB)

Sent via electronic mail to Len@sfjcjpa.org: no hardcopy to follow

Len Materman, Executive Director
San Francisco Creek Joint Powers Authority
615 B Menlo Ave.
Menlo Park, CA 94025

Subject: Application for Water Quality Certification for San Francisquito Creek Project, Santa Clara and San Mateo Counties

Dear Mr. Materman:

This letter is intended to assist the San Francisquito Creek Joint Powers Authority (JPA) in preparing a complete application for a CWA § 401 water quality certification (Certification) for its San Francisquito Creek Project (Project) so that we can expeditiously act on the application. This letter provides a description of information that is requested of applicants that propose projects in creek channels and elaborates on the guidance we provided to the JPA in our February 27, 2014, letter.

Before we can act on an application to certify the Project, State regulations require us to post a complete application for public comment for 21 days. Further, since we plan to hold a public workshop on the Project as part of the August 13 Board meeting, we must post the application at least 10 days before the workshop. Therefore, we request that you submit the application no later than July 31, 2014. Please note that we may request supplemental information to complete the application once we review it. While the request for supplemental information would not delay the August 13 workshop, we still must post the supplemental information for 21 days before acting on the application. Thus, it is in all parties' best interests for the JPA to submit a complete application by July 31.

The JPA may submit its application using the application form located on our website (http://www.waterboards.ca.gov/sanfranciscobay/certs.shtml). A Rapid Permit Assessment Checklist (Checklist) is also located on our website (link above) and provides additional guidance for preparation of a complete permit application that will facilitate timely review and approval of the Project's application. The JPA may reference information from its initial application for certification but only if that information has not been changed or revised since submittal of the initial application or the submittal of supplemental information to that application. Any information that has changed or been revised must be described in detail in the new application.

The application must describe the Project's proposed changes to the environment, including changes to sediment transport and deposition within the creek, and corresponding potential adverse impacts such as causing erosion of the creek's bed and banks. It should also describe the potential for the Project to increase the creek's water temperature and impact aquatic

habitat for steelhead and other rare and endangered species, including impacts to the riparian plant community. We review all of these potential Project impacts to assess the extent to which the Project as proposed will comply with the water quality standards specified in the San Francisco Bay Water Quality Control Plan (Basin Plan). Evaluating the channel hydraulics of the proposed Project is important because San Francisquito Creek is federally listed as impaired due to excess sedimentation, and due to the Project's potential to impact the excellent breeding habitat for the federally-listed California clapper rail, which currently exists in the Faber Tract Marsh adjacent to San Francisquito Creek.

So that we can expediently complete the Certification with conditions appropriate for the Project, the JPA must include in its application a detailed description of the following Project elements:

1. Provide a detailed description of the watershed and an evaluation of local influences on the channel at the Project site and future conditions of the channel that are proposed by the Project. Provide an assessment as to (a) whether or not the channel is experiencing excessive erosion or sediment deposition; (b) whether or not the channel is experiencing headcutting; (c) whether or not the channel shows signs of attempts to develop meanders; (d) and whether the channel banks have sufficient vegetative cover to provide stabilization of the channel at the Project site.
2. Provide an evaluation of the sediment discharge balance of the watershed and if the Project may improve or destabilize sediment equilibrium in the watershed. In assessing the potential impacts of the Project, the JPA should determine how the Project as proposed will function to capture additional sediment as the watershed's hydrology is modified upstream by future flood control projects that will deliver more discharges and sediment to the lower reaches of San Francisquito Creek. The Project design should have sufficient flexibility to accept more sediment from the Searsville Dam portion of the watershed, as the dam is either removed or modified in the future, and/or as water spills from the presently mostly full reservoir to the downstream portion for the watershed. As the Project is located at the lowest end of the watershed with lower gradient, it may provide a significant sediment storage function, and the Project's design must anticipate this storage function. In order to accommodate this future sediment storage function, the basis of design for the Project must address both its marsh plain features and, potentially, its floodplain features for accumulating sediment.
3. San Francisquito Creek is a significant steelhead watercourse. Accordingly, the application must include an evaluation of how the Project may affect steelhead migration in low and high water scenarios. The JPA's initial application was silent on the needs for steelhead migration except for avoidance of impacts during construction. The potential need for high velocity refuges, channel shading, or other habitat needs still needs to be described in the application and coordinated with the California Department of Fish and Wildlife (CDFW) and the U.S. National Marine Fisheries Service (NMFS).
4. In January 2014, we expressed concern that the Project calls for "excavating sediment in the existing channel to maximize conveyance." The Project as proposed at that time would-create a new low flow channel below existing grade from station 44+00 to 55+00 (a distance of over a thousand feet). The current channel is most likely "graded" or stable at its current elevation. One of the greatest engineering legacy errors in Bay Area flood control designs is to design a channel gradient that is not sustainable. Selecting geomorphically-appropriate dimensions and elevations for a channel are critical to attaining effective sediment transport and sustaining the design channel capacity. The application must describe the basis of any proposed low flow channel designs below existing grade, such as was proposed between stations 44+00 to 55+00.

The Checklist contains a series of questions on the basis of design for channel features, including a low flow channel, a marsh plain, and/or other terraces. The application should include cross-sections with elevations and profiles of the low flow channel, marsh plain, and floodplain. The elevation changes over distance help to inform the development of feasible creek channel revegetation projects.

5. The application should describe the expected low as well as high flows for the 2-, 5-, 10-, 50-, and 100-year recurrence intervals. This information is necessary to determine conditions for fish migration as well as plant establishment. Depths of flow should be provided in cross-sections for the different recurrence intervals. These depths of flow, along with channel slopes, are then used to compute shear stress in pounds per square foot. Shear stress can be an output provided by the HEC-RAS model being used. Both velocities and shear stress values at these different flows should be provided to determine the basis for vegetative or rock cover of the levee side slopes. This information is also necessary for NMFS and CDFW to evaluate potential Project impacts and design features necessary for steelhead.

6. The JPA has submitted a geotechnical analysis that evaluates the potential for levee settling and addresses both “primary and secondary” settlement projections for the levees underlain by soft compressible bay mud. The analysis is focused on the Palo Alto Golf Course levee and estimates a short term or primary settlement of 18 inches over approximately two years. The East Palo Alto levee only discusses a long term “secondary” compression. We assume there will be a newly aligned levee constructed on the East Palo Alto side and that both short and long term levee subsidence would be part of the design considerations. The application should provide a detailed geotechnical analysis for the East Palo Alto levee including “primary and secondary” settlement projections.

7. Some of the Project’s features have changed since the initial application. The new application should include a complete detailed description of the proposed channel dimensions of each Project feature including the total size (in acres), length (in feet) where appropriate, type, and description of the entire Project area, including areas outside of waters of the State. This description shall include channel dimensions for each Project feature including, but not limited to, (a) channel bed and bank; (b) channel slope; (c) levee heights and slope; and (d) levee widths (top and base).

8. For each habitat type impacted by the Project, provide the total estimated quantity (both in linear feet and acres) of waters of the State that may be adversely impacted temporarily or permanently by a discharge or by dredging. This should also include the quantity of waters to be impacted by any dredging or fill activities in cubic yards. Provide a map and figures to scale identifying the location, dimensions (in acres, linear feet, height, width) for each project feature.

9. Mitigation and Monitoring Plan (MMP): The application must include a detailed alternatives analysis describing how impacts to waters of the State will be avoided and minimized. The MMP must include a detailed description of compensatory mitigation for unavoidable impacts to waters of the State. The proposed mitigation must meet the goals of the California Wetlands Conservation Policy (Executive Order W-59-93; No Net Loss Policy; as described in Section 4.23.4 of the Basin Plan) to achieve no net loss and a long-term net gain the quality and quantity of stream and wetland resources. The Regional Water Board considers the following factors in determining the amount and type of mitigation required: (a) the type of compensatory mitigation (e.g., whether the mitigation is in-kind and/or onsite); (2) comparison of the aquatic resource functions lost at the impact site and the functions

expected to be provided by the mitigation project; (3) temporal losses of aquatic resource functions (i.e., functions lost due to the passage of time between loss of the impacted aquatic resource and creation/restoration of the full-functioning mitigation); and (4) the difficulty, uncertainty, and likelihood of success of mitigation. The MMP, at a minimum, must include methods for restoring and enhancing tidal marsh habitat, reestablishing native riparian vegetation, removing invasive plant species, and success criteria and monitoring methods based on the following:

a. Tidal Marsh Habitat and Riparian Re-vegetation: The JPA's recent Project design materials describe the creation of new high marsh next to the channel and a "transition marsh" further from the channel. Earlier application materials described the creation/enhancement of new high marsh of 5 species next the channel and a "transition marsh" of 8 transition marsh species further from the channel. Most existing riparian trees are proposed for removal from the site and some mitigation riparian plantings in the southwest portion of the Project are impacted.

   The MMP should describe (1) Project environmental conditions appropriate to support the proposed marsh habitats; (2) appropriate elevations for (a) low marsh habitats, which occur from approximately mean sea level to mean high water; (b) middle marsh habitats, which occur from approximately mean high water to mean higher, and (c) high marsh habitat and water zones, which occur near and above mean, higher, high water. Elevations for these zones should typically be shown on the design plans and in cross-sections. This level of detail is critical for assuring success for a marsh creation objective because the plant species must be carefully matched with their elevations in the marsh.

b. The MMP should identify impacts to each habitat type and describe the methods and location in which each impacted habitat type will be compensated through preserved, enhanced, created, or restored mitigation habitat (habitat enhancement is generally required to compensate for temporary impacts, while habitat creation/restoration is required to offset permanent impacts to wetland habitat).

c. The total quantity (in acres and linear feet) of mitigation habitat, by habitat type proposed to be preserved, enhanced, created, or restored should be described. If compensatory mitigation is to be provided in some other form, that must be explained. The MMP must also include drawings identifying the location of each habitat type to be preserved, enhanced, created or restored, and identify elevation markers appropriate for each habitat type and location.

d. To determine whether a site provides appropriate conditions for passive re-establishment of tidal areas, a sediment budget for the site needs to be created to ensure that appropriate marsh elevations will be maintained during the plant establishment period and the foreseeable future. This sediment budget will need to include both fluvial and offshore sediment inputs and include an evaluation of erosion due to fluvial shear stresses. There is a threshold value for suspended sediment to sustain tidal marsh types. The upland transition plant community requires active restoration work and the proposed plan should address the 30 species in use in restoration as well as the use of seeding techniques. The fluvial system can build the high marsh with alluvium. Given the likelihood that more sediment will be transported downstream, it would be prudent to address the possibility of providing for a floodplain above the marsh plain. NMFS and CDFW should be consulted regarding what the planting plan should provide and the recommended species from the fisheries perspective.

e. Monitoring Methods: The MMP should also describe proposed monitoring methods, including, but not limited to, (1) an assessment of hydric soil indicators annually for five years at a minimum of six locations within the restored areas, (2) an assessment of sediment deposition and erosion annually for five years, measured with topographic surveys at permanently established transects at a 100-meter interval, (3) an assessment of channel morphology in each re-established or re-habilitated tidal channel annually for five years, measured with topographic surveys at the channel mouth and every 100 meters upstream, (4) a qualitative hydrologic assessment of the restored and enhanced tidal marsh habitat annually for five years to determine the presence of unobstructed versus restricted exchange of tidal waters, and (5) a Corps-verified wetland delineation in Year 5 to confirm that the mitigation acreage and success criteria requirements have been met.

   Monitoring should include a combination of photo documentation from at least six fixed points and estimations of absolute cover using transects, quadrants, or another quantitative method. Performance criteria should include minimum cover of native riparian vegetation and maximum cover of highly invasive non-native species listed in Tier 1 of the Regional Water Board's Fact Sheet for Wetland Projects. The Fact Sheet can be obtained at http://www.waterboards.ca.gov/sanfranciscobay/certs.shtml or by contacting Regional Water Board staff at (510) 622-2300.

10. Maintenance Plan: The Regional Water Board typically requires a long-term maintenance plan as a condition of certification. The maintenance plan is as much a part of the Project's design as the features constructed by the Project, since maintenance activities may have significant impact on aquatic habitat and the species that rely on that habitat. Based on our review of the channel dimensions previously proposed, the lower channel invert would quickly become filled with sediment and require regular maintenance dredging to maintain the channel design capacity. Rather than committing the JPA to ongoing channel dredging, Regional Water Board staff encourage the JPA to revise the design floodplain elevations to be set at higher elevations, so that sediment deposition can occur over time. This design revision would avoid regular, environmentally disruptive and expensive maintenance dredging. Since the Project is located in two counties, the specific parties responsible for maintenance should be identified.

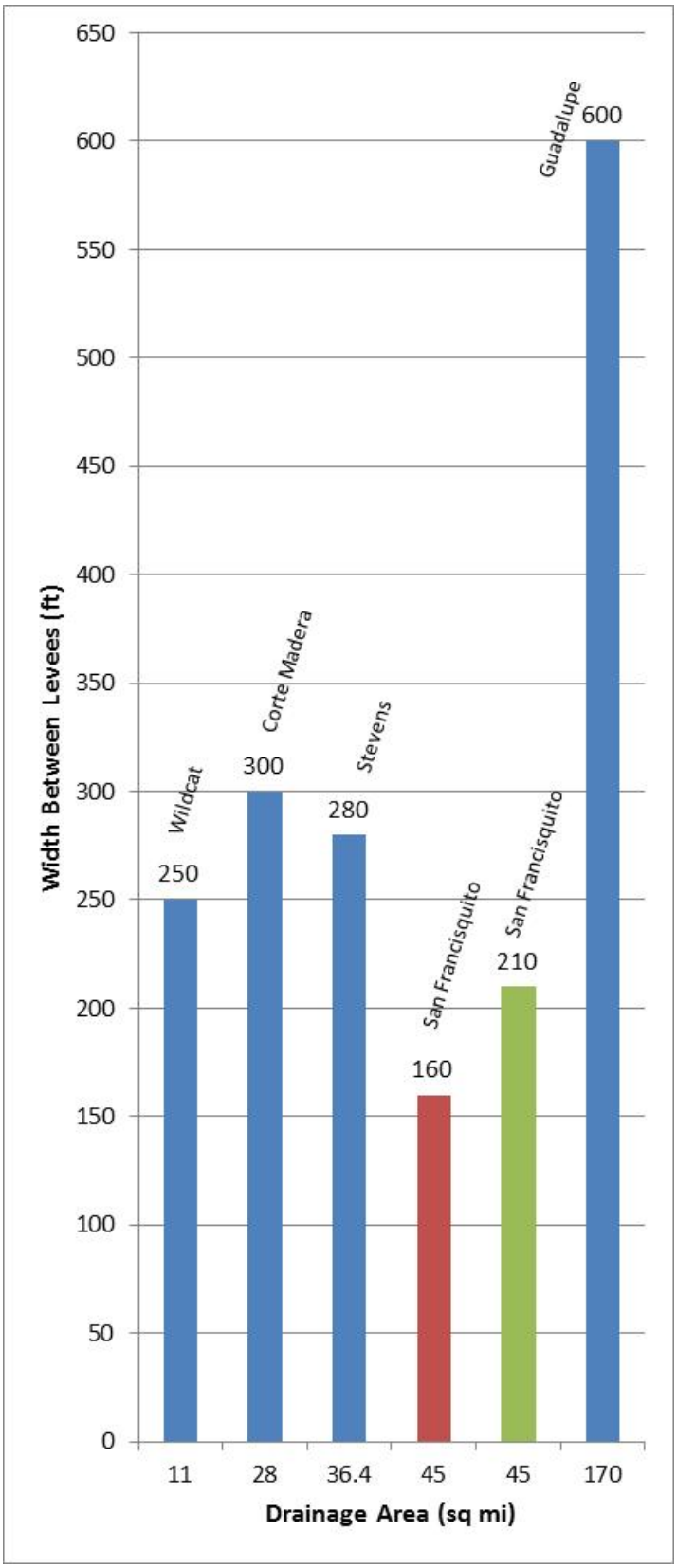
11. The application should address water quality impacts related to urban stormwater runoff into the creek and the adjacent Faber Tract Marsh habitats. Increase in flow would also increase the loads of urban runoff pollutants, such as trash, pathogens, heavy metals, pesticides, petroleum hydrocarbons, fertilizers, and other pollutants of concern, into sensitive endangered species marsh habitat. The application should include a proposal to implement effective measures designed to improve water quality both upstream and within the Project reach by reusing, detaining, infiltrating, and treating urban runoff.

If you have any questions, please contact me at 510-622-2314 or (bwolfe@waterboards.ca.gov) or Maggie Beth at 510-622-2338 or (mabeth@waterboards.ca.gov).

Sincerely,

Bruce H. Wolfe
Executive Officer

Cc: Kevin Murray, SFCJPA, kmurray@sfcjpa.org
Navroop Jassal, SCVWD, njassal@valleywater.org
Michael Martin, SCVWD, Michaelmartin@valleywater.org
Bill Springer, SCVWD, bspringer@valleywater.org
Ian Liffmann, USACE, Ian.Liffmann@usace.army.mil
Ryan Olah, USFWS, ryan_olah@fws.gov
Anne Morkill, USFWS, anne_morkill@fws.gov
Eric Mruz, USFWS, eric_mruz@fws.gov
Joseph Terry, USFWS, joseph_terry@fws.gov
Cay Goude, USFWS, cay_goude@fws.gov
Joy Albertson, USFWS, joy_albertson@fws.gov
Melisa Amato, USFWS, melisa_amato@fws.gov
Gary Stern, NMFS, Gary.Stern@noaa.gov
Ellie K., BCDC, EllieK@bcdc.ca.gov
Anniken Lydon, BCDC, annikenl@bcdc.ca.gov
Tami Schane, CDFW, TSchane@wildlife.ca.gov


650
600
550
500
450
400
350
300
250
200
150
100
50
0
Width Between Levees (ft)
Wildcat
250
Corte Madera
300
Stevens
280
San Francisquito
160
San Francisquito
210
Guadalupe
600
11
28
36.4
45
45
170
Drainage Area (sq mi)