

**Meeting of the Central Valley Flood Protection Board
November 18, 2016**

Transmittal Staff Report

Department of Water Resources Flood Maintenance Office

**Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System: Letter of Intent to Submit a System-Wide Improvement Framework Plan to the U.S. Army Corps of Engineers
Yolo and Solano Counties**

1.0 – ITEM

Consider authorizing the Executive Officer to send a letter (Attachment A) to the U.S. Army Corps of Engineers (USACE) transmitting a Letter of Intent (LOI) (Attachment B) for a System-Wide Improvement Framework (SWIF) plan. The Department of Water Resources (DWR) Flood Maintenance Office prepared the LOI for the Levee System, Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2, as defined by the USACE's Periodic Inspection Report dated May 22, 2013.

2.0 – AGENCY

The local maintaining agency (LMA) for the Levee System is DWR Sacramento Maintenance Yard. The LMA has the responsibility of maintaining the Levee System, and plays a key role in planning, coordinating, and implementing flood risk reduction activities within this Levee System.

The DWR Flood Maintenance Office will be taking the lead in developing a SWIF plan with the support and assistance of the Sacramento Maintenance Yard and Central Valley Flood Protection Board (CVFPB) staff; as well as collaboration with USACE and environmental, cultural, and historical resource agencies; and with interested parties.

3.0 – LEVEE SYSTEM LOCATION

The Levee System is located along Putah Creek, the Yolo Bypass, and Willow Slough in Yolo and Solano Counties. The levees covered by the proposed LOI consist of the following (also see Attachment B):

- Putah Creek - Unit 1, left bank; 8.99 miles
- Yolo Bypass - West Levee - Unit 4; 3.61 miles
- Willow Slough Bypass - Unit 2, right bank; 7.37 miles

4.0 – PROJECT DESCRIPTION

4.1 USACE Periodic Inspection

From December 2011 through January 2012, the USACE performed a Periodic Inspection (PI) of the Levee System. PIs are conducted to verify proper operation and maintenance; evaluate operational adequacy and structural stability; identify features to monitor over time; and improve the ability to communicate the overall levee condition. The PI report produced by the USACE for the Levee System determined that the Levee System was “Unacceptable and Inactive” for the USACE Public Law 84-99 (PL 84-99) Rehabilitation Program (RP) due to encroachments, slope stability, and erosion and bank caving.

4.2 Purpose of the LOI and SWIF

USACE approval of the LOI will allow the LMAs to move forward with the preparation of a SWIF that is intended to meet the policy and public safety objectives of the USACE and the State. Concurrently, the LMAs will be making improvements that address system-wide issues and correct unacceptable inspection items in a prioritized manner to optimize flood risk reduction. The USACE’s approval of the LOI will allow the Levee System to remain active in the PL 84-99 RP for a period of two years while the SWIF is being prepared.

The LMA is aware of the USACE interim policy effective March 21, 2014 that established a subset of inspection categories used to determine PL 84-99 RP eligibility. The SWIF will include plans to address all of the inspection categories, but will place the subset of inspection categories as higher priority.

If the SWIF is accepted by the USACE, the Levee System will remain active in the USACE PL 84-99 RP while the LMAs perform the work described in the SWIF.

5.0 – AUTHORITY OF THE BOARD

In the November 30, 1953 Memorandum of Understanding Respecting the Sacramento River Flood Control Project, the State of California, through the Reclamation Board (now the CVFPB), gave assurances to the USACE for the operation and maintenance of the Sacramento River Flood Control Project.

California Water Code §8370 gave local maintaining agencies the operation and maintenance responsibility of the Sacramento River Flood Control Project.

6.0 – PROJECT ANALYSIS

As agreed to in the initial operations and maintenance assurances to the USACE, the CVFPB serves as the non-federal sponsor for all State-federal project levees within the jurisdiction of the Sacramento-San Joaquin Drainage District, which includes this Levee System. In this capacity, it is the CVFPB's responsibility to transmit the LOI and subsequent SWIF to the USACE on behalf of the LMA.

Staff has reviewed the LOI submitted by the DWR Flood Maintenance Office, and finds that it adequately addresses the six requirements for submitting an LOI as described in the USACE's November 29, 2011 Policy for Development and Implementation of SWIFs (Attachment C).

7.0 – CEQA ANALYSIS

The action of the CVFPB submitting a LOI does not have the potential for resulting in either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment and thus is not a "project" for purposes of the California Environmental Quality Act (Public Res. Code § 21065; Guidelines § 15378(a)).

8.0 – STAFF RECOMMENDATION

In order to submit the LOI as soon as possible, the DWR Flood Maintenance Office has requested that the CVFPB authorize the Executive Officer to transmit the LOI. Staff agrees with this request and is recommending that the CVFPB authorize the Executive Officer to finalize a letter of transmittal and forward it with the LOI to the USACE.

9.0 – LIST OF ATTACHMENTS

- A. Draft Letter of Transmittal to USACE
- B. LOI for Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Prepared by the DWR Flood Maintenance Office, dated October 12, 2016
- C. Excerpt from USACE Policy for Development and Implementation of System-Wide Improvement Frameworks, dated November 29, 2011

Prepared By:	Alison Tang, PE
Staff Report Review:	Martin Janolo, PE, Acting Enforcement Section Chief Michael C. Wright, PE, Acting Operations Branch Chief Mitra Emami, PE, Acting Chief Engineer Andrea Buckley, Environmental Program Manager
Legal Review:	Kanwarjit Dua, Board General Counsel

CENTRAL VALLEY FLOOD PROTECTION BOARD

3310 El Camino Ave., Ste. 170
SACRAMENTO, CA 95821
(916) 574-0609 FAX: (916) 574-0682



November 18, 2016

Colonel David G. Ray, P.E. District Commander
U.S. Army Corps of Engineers
Sacramento District
1325 J Street
Sacramento, California 95814

Subject: Department of Water Resources Letter of Intent to Develop and Implement a System-Wide Improvement Framework Plan for the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System

Dear Colonel Ray:

The Central Valley Flood Protection Board and its local maintaining agency (LMA) partner, the Department of Water Resources (DWR), wish to notify the U.S. Army Corps of Engineers (USACE) by this letter and the attached Letter of Intent (LOI) that the LMA for the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 (Levee System) intends to develop and implement a System-Wide Improvement Framework (SWIF) plan in order for the Levee System to regain eligibility for rehabilitation assistance as authorized under Public Law 84-99 (PL 84-99). The DWR Flood Maintenance Office will lead the SWIF effort.

The Levee System includes approximately 20 miles of levee embankments along the Putah Creek – Unit 1, left bank; the Yolo Bypass West Levee – Unit 4; and the Willow Slough Bypass – Unit 2, right bank. The Levee System is located near Davis, California, and crosses Highway 80. These levees were originally constructed by local interests and the USACE, with improvements and remedial measures implemented over the course of their existence, to bring these levees up to federal standards. However, due to encroachments, slope stability, and erosion and bank caving, the Levee System is currently ineligible in the PL 84-99 Rehabilitation Program.

The DWR Flood Maintenance Office is aware of the USACE interim policy effective March 21, 2014, that established a subset of inspection categories used to determine PL 84-99 eligibility. The SWIF will include plans to address all of the inspection categories, but will place the subset of inspection categories as the higher priority.

USACE approval of this LOI will allow the LMAs to move forward with preparation of a SWIF intended to meet the policy and public safety objectives of USACE, the State of California, and the LMAs, concurrent with making improvements that address system-wide issues and correct deficiencies identified in the Periodic Inspection Report in a prioritized manner.

We respectfully submit this LOI on behalf of the DWR Flood Maintenance Office in accordance with the USACE November 29, 2011 *Policy for Development and Implementation of System-Wide Improvement Frameworks*, and request reinstatement of eligibility in the PL 84-99 Rehabilitation Program for the Levee System while the DWR Flood Maintenance Office

Colonel Ray
November 18, 2016
Page 2

develops a SWIF. Upon approval of this LOI, the DWR Flood Maintenance Office will commence efforts to develop a SWIF for USACE approval.

Sincerely,

Leslie M. Gallagher
Executive Officer

Attachment: LOI for the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System Prepared by the DWR Flood Maintenance Office, dated October 12, 2016

cc: (via electronic copy)
Ms. Paige Caldwell, USACE
Ms. Brigid Briskin, USACE
Mr. David J. Wheeldon, DWR
Mr. Mark List, DWR
Mr. Russ Eckman, Sacramento Maintenance Yard
Ms. Mitra Emami, CVFPB
Mr. Michael C. Wright, CVFPB
Mr. Martin Janolo, CVFPB
Ms. Alison Tang, CVFPB

DEPARTMENT OF WATER RESOURCES

DIVISION OF FLOOD MANAGEMENT
P.O. BOX 219000
SACRAMENTO, CA 95821-9000



October 12, 2016

Mr. William H. Edgar, President
Central Valley Flood Protection Board
3310 El Camino Avenue, Room 151
Sacramento, California 95821

RE: Department of Water Resources (DWR) Request for Approval of the System-wide Improvement Framework Letter of Intent (LOI) for Conditional Extension of USACE P.L. 84-99 Program Eligibility for the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System

Dear Mr. Edgar,

In accordance with the U.S. Army Corps of Engineers (USACE) Policy for Development and Implementation of System-Wide Improvement Frameworks (SWIF), the Department of Water Resources (DWR) hereby requests approval of this Letter of Intent (LOI) for conditional extension of Public Law (P.L.) 84-99, rehabilitation eligibility while a SWIF is developed for the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System. The SWIF will address system-wide issues, including correction of unacceptable inspection items, in a prioritized way to optimize flood risk reduction.

Please find attached, information required for the SWIF LOI to demonstrate our commitment to restoring the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System to attain compliance with USACE operations and maintenance standards. DWR is aware of the Interim Policy for Determining Eligibility Status of Flood Risk Management Projects for the Rehabilitation Program Pursuant to P.L. 84-99 dated March 21, 2014. Specifically, the attachment includes the following detailed information:

- 1) levee system(s) identification;
- 2) a description of deficiencies and/or issues with a justification of how the SWIF will improve and optimize overall flood risk reduction;
- 3) demonstration of funding commitments;
- 4) interim risk reduction measures that will be implemented;
- 5) description of existing and/or planned interagency collaboration; and
- 6) anticipated permit requirements.

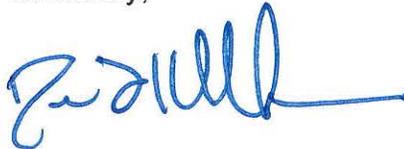
The attachment further justifies how a system-wide approach will optimize flood risk reduction by correcting deficiencies in a manner that provides the largest flood risk reduction in the most efficient and economical manner. DWR asks that this initial request be granted for two years to allow adequate time to develop a successful SWIF plan.

Mr. William H. Edgar
October 12, 2016
Page 2

As the Central Valley Flood Protection Board is the body which provided the initial operations and maintenance assurances to USACE for the levee system, we respectfully request that the CVFPB forward this package to USACE on behalf of DWR.

Should you have any questions, please do not hesitate to contact me at 916-574-1243 or dave.wheeldon@water.ca.gov.

Sincerely,



David J. W. Wheeldon, Acting Chief
Flood Maintenance Office
Division of Flood Management

Attachment: Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System - SWIF LOI

SUPPORTING INFORMATION FOR THE PUTAH CREEK UNIT 1 – YOLO BYPASS – WILLOW SLOUGH UNIT 2 LEVEE SYSTEM LETTER OF INTENT

1.0 INTRODUCTION

The California Department of Water Resources (DWR) is developing the supporting material for the Letter of Intent (LOI) to develop a System-Wide Improvement Framework (SWIF) for the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System (System 641 per USACE) to regain eligibility in the P.L. 84-99 Rehabilitation and Inspection Program (RP). This attachment describes levee system deficiencies and system-wide issues that will be addressed under the SWIF to meet the interim eligibility criteria. The Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 levee system is currently inactive in the RP.

The U.S. Army Corps of Engineers (USACE) Sacramento District conducted a Periodic Inspection (PI) for the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System from December 12, 2011 to January 13, 2012, and provided a copy of its PI report to the Central Valley Flood Protection Board (CVFPB) on May 24, 2013. This LOI will focus on the actions that are necessary to address deficiencies to meet the interim eligibility criteria outlined in paragraph 6 of the interim policy. Putah Creek separates System 641 and System 642.

The required information for the LOI is presented below.

2.0 LEVEE SYSTEM AND SEGMENT IDENTIFICATION AND DESCRIPTION (NLD SYSTEM ID: 5205000641)

The Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System to be covered by the SWIF is listed in the National Database (NLD) under System 641 (NLD ID: 5205000641). The deficiencies identified by the USACE PI inspection program have resulted in an unacceptable rating for System 641. The System 641 includes three segments (as listed below) along the right bank of Willow Slough, the west levee of the Yolo Bypass, and the left bank of Putah Creek.

- Willow Slough Bypass – Unit 2, Right Bank (WBP2)
- Yolo Bypass – West Levee – Unit 4 (YBW4)
- Putah Creek – Unit 1, Left Bank (PUT1)

These segments are summarized below in Table 1 and are shown on the attached USACE maps.

TABLE 1
Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee Segments (NLD System ID: 5205000641)

System	Segment Name (USACE LIS Code)	NLD Segment Number	River/ Channel	Description	Levee Length (Miles)	Location (Levee Miles)	LMA	Rating
641	Willow Slough Bypass – Unit 2, Right Bank (WBP2)	5204001102	Willow Slough	Right (south) bank Willow Slough between Union Pacific Railroad and the Yolo Bypass	7.37	0.0 to 7.37	DWR Sac Yard	Unacceptable
	Yolo Bypass – West Levee – Unit 4 (YBW4)	5204001125	Yolo Bypass	Right (west) bank Yolo Bypass, from confluence of Willow Slough and the Yolo Bypass to the confluence of the Yolo Bypass and Putah Creek	3.61	0.0 to 3.61	DWR Sac Yard	Unacceptable
	Putah Creek – Unit 1, Left Bank (PUT1)	5204000641	Putah Creek	Left (north) bank Putah Creek between Brooks Road and the Yolo Bypass	8.99	0.0 to 8.99	DWR Sac Yard	Unacceptable

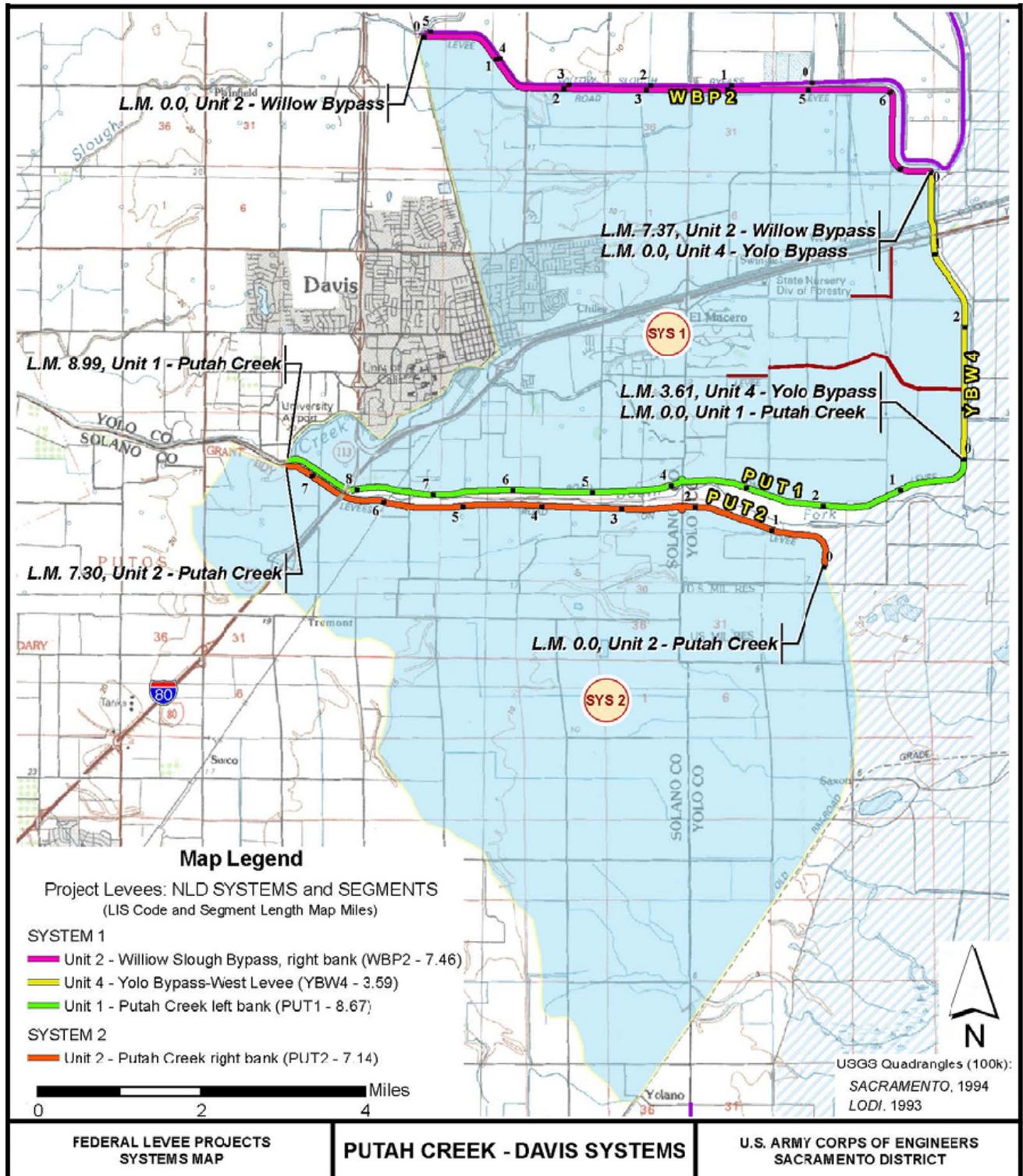


Figure 1: Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee Systems Location Map
 Source: USACE PI Report

2.1 Public Sponsor

The CVFPB is the non-federal sponsor for this levee system, and the levees are maintained by the California Department of Water Resources (DWR).

2.2 Potential Consequences

According to the National Levee Database (NLD) version 2.1, Levee System #0641 provides flood protection for about 31.4 square miles comprised of residential and commercial property, industrial areas, rural developments, agricultural fields, urban areas, etc. The population at risk for Levee System #0641 is 29,423 people. No dollar amount estimates of property and people at risk were provided. The populations are based on the 2000 census. (USACE PI Report) The leveed area includes a portion of the City of Davis, and the communities of El Macero and Swingle. Below is a list of critical infrastructure that is also within the leveed area of System 641:

- Transportation
 - Highway 80
 - Highway 113
 - Davis Amtrak
- Fire and Police
 - Forestry and Fire Protection Station
 - Davis Police Department
- Hospitals/Medical Centers
 - Davis Surgery Center
 - Courtyard Health Care Center
- Schools
 - UC Davis Graduate School of Management
 - UC Davis Extension
 - UC Davis, California Lighting Technology Center
 - UC Davis Mouse Biology Program
 - UC Davis Office of Research
 - Robert Mondavi Institute for Wine and Food Services
 - Leonardo Davinci High School
 - Oliver Wendell Homes Jr High
 - Academy Montessori

- Peregrine Elementary School
- Merryhill Elementary School
- Marguerite Montgomery Elementary School
- Center for Child and Family Studies
- Fred T. Korematsu Elementary School & Garden at Mace Ranch
- Other
 - Three potentially active gas wells

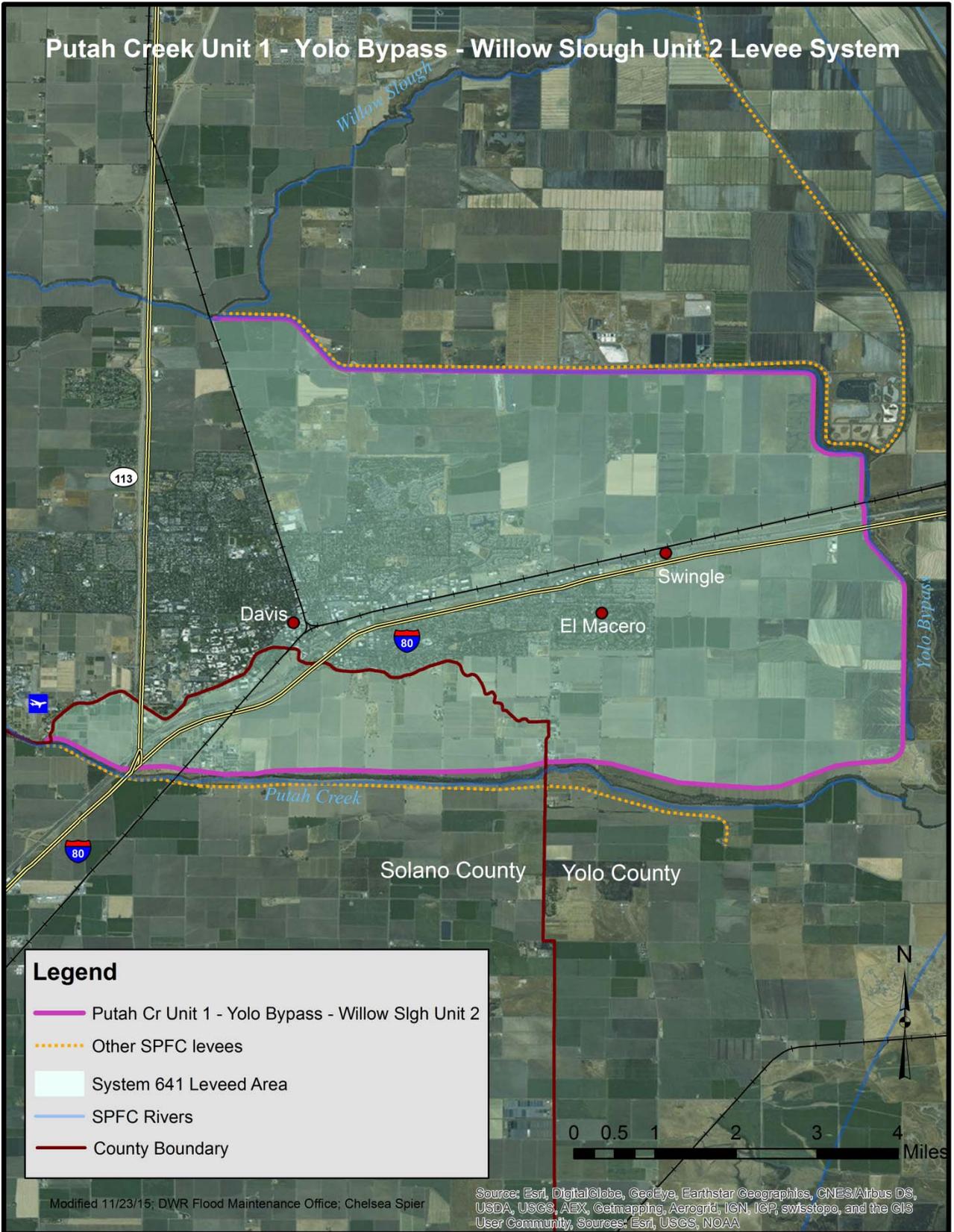


Figure 2: General Map Showing the Levee System 641 and Leveed Area

2.3 History of the Levee System

Construction of flood protection in the Sacramento Valley began in the 1800s when landowners built low levees to protect their individual properties. Landowners eventually formed Reclamation Districts (RDs) and constructed more substantial levees in the late 1800s. After the Sacramento River Flood Control Project (SRFCP) was authorized in 1917, the USACE began improving the levees and flood protection system along the Sacramento River. According to the SRFCP O&M manuals, levees in the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 levee system were brought to USACE project levee standards by 1950. Repairs and improvements to address maintenance issues, minor system deficiencies, routine levee safety concerns, and construction of urban developments have been on-going since construction completion. No remedial work has been documented for Levee System #641 since construction. The available construction history from the O&M manuals is summarized below:

- Channel clearing work extending from the highway bridge at Winters to a point approximately 1 mile upstream from the bridge at I-80, started on April 17, 1950, and completed on October 12, 1950.
- Channel improvements by excavation and levee construction along both banks of Putah Creek extending from a point approximately 1 mile upstream from the bridge at I-80 to the Yolo bypass, started on September 2, 1948 and completed on November 10, 1949.
- Levee construction along the westerly edge of the Yolo Bypass, started on July 16, 1946 and completed October 28, 1946.
- Relocation of Willow Slough Channel and construction of west levee of Yolo Bypass, started July 7, 1947 and completed August 31, 1948.
- Channel clearing between U.S. Highway 99 and the Southern Pacific Railroad, started March 6, 1950 and completed May 9, 1950.

Levee System #641 experienced high water from regional floods at various times since construction. Major levee damage from floods was not reported for any of the individual levee segments or the overall system in this PI within the available documentation.

2.4 Status of Vegetation Variance

An approved vegetation variance is currently not in place for the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System. Once the SWIF process is underway, it will be determined if a variance is necessary. If needed, a vegetation variance will be applied for accordingly.

3.0 DESCRIPTION OF DEFICIENCIES AND JUSTIFICATION OF SWIF APPROACH

Deficiencies for the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System have been identified in the USACE’s PI Report based on the inspections held from December 12, 2011 to January 13, 2012. On March 21, 2014, USACE issued the Interim Policy for Determining Eligibility Status of Flood Control Risk Management Projects for the Rehabilitation Program Pursuant to PL 84-99. This LOI and the subsequent SWIF will focus on addressing encroachments, slope stability, erosion and bank caving, and burrowing animal control on levees. These actions are necessary to address the deficiencies in order to meet the interim eligibility criteria outlined in Paragraph 6 of USACE’s interim policy memorandum. **Table 2** (below) summarizes for each maintenance area the unresolved “Paragraph 6-rated item” deficiencies which will be the main focus of the SWIF plan development. However, all other deficiencies identified as unacceptable will also be addressed in the SWIF plan. The deficiencies will be evaluated and ranked according to their relative risk with the objective of correcting the deficiencies with the greatest risk first so that the flood risk reduction is optimized. **Table 3** (below) shows the ratings assigned to each of the segments “Paragraph 6 rated item” based on the inspections conducted by the USACE from December 12, 2011 to January 13, 2012.

TABLE 2			
Number of Unacceptable Items Listed for Each Segment			
Number of Unacceptable Items <u>Remaining</u> shown in ()			
Rated Items	WBP2	YBW4	PUT1
Encroachments	37 (30)	32 (30)	116 (114)
Slope Stability	0	0	2 (1)
Erosion/Bank Caving	2 (2)	4 (4)	3 (2)

Source: USACE PI Report

Table 3 System 641 Segment Ratings				
Rated Items	Rating			Comments
	WBP2	YBW4	PUT1	
Item 1: Encroachments	U	U	U	Encroachments likely to inhibit O&M and emergency operations or negatively impact levee integrity. As part of the SWIF process worst encroachments will be addressed first.
Item 2: Closure Structures	N/A	N/A	N/A	N/A
Item 3: Slope Stability	M	A	U	The slide areas near LM 6.0 of PUT1 will be a high priority for repair as part of the SWIF process.
Item 4: Erosion/Bank Caving	U	U	U	Erosion/Bank Caving will be prioritized on a worst-first basis and will be a high priority for repair as part of the SWIF process.
Item 5: Animal Control	M	M	M	DWR is has a rodent abatement and repair program and plans to continue implementing the plan in the future
Item 6: Culverts/Discharge Pipes	N/A	N/A	N/A	N/A
Item 7: Under Seepage Relief Wells/Toe Drainage	N/A	N/A	N/A	N/A

A = Acceptable; M = Minimally Acceptable; N/A = Not Applicable; U = Unacceptable

The majority of the issues listed in Table 2 and Table 3 are faced by levee-maintaining agencies (LMAs) throughout the Central Valley.

The scope and the extent of identified issues such as unauthorized encroachments, erosion and bank caving, and slope stability are a complex and involved undertaking due to compliance with the Endangered Species Act, required mitigation, and other environmental rules and regulations. However, the good news is that state and local LMAs are making progress to address these deficiencies. For example, the state of California has recently enacted legislation to improve the enforcement of regulations protecting levees, floodways, and flood control features. Water Code Section 8701(b) allows the DWR or a local LMA to initiate the enforcement process if the CVFPB delegates that authority to a DWR maintenance area or an LMA. This legislation also gave additional authority to the CVFPB to address non-compliant or unauthorized encroachments. DWR plans to work closely with the CVFPB to address encroachments, slope stability, erosion and other deficiencies highlighted in the PI report to meet the criteria outlined in paragraph 6 of the interim policy.

The Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System is maintained solely by DWR. As the cost for addressing the maintenance deficiencies will be in millions of dollars, preparing a SWIF will be a way to efficiently prioritize addressing the identified deficiencies over time. A preliminary cost estimate for addressing the remaining unacceptable rated maintenance deficiencies is shown in Table 4. This estimate will be refined as part of the SWIF process.

TABLE 4					
Rough Cost Estimate to Address the Remaining Maintenance Deficiencies of Rated Items					
Rated Items	Cost Per Item	WBP2	YBW4	PUT1	Total
Encroachments	\$20,000	\$600,000	\$600,000	\$2,280,000	\$3,480,000
Slope Stability	\$30,000			\$30,000	\$30,000
Erosion/Bank Caving	\$30,000	\$60,000	\$120,000	\$60,000	\$240,000
					\$3,750,000

Addressing these maintenance deficiencies within the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System will reduce the flood hazard in a risk-prioritized manner over time, on a system-wide basis, with the objective of correcting the worst deficiencies first. A SWIF will coordinate this effort into a coherent plan.

DWR's activities, so far, are focused on rodent control, vegetation management by burning, mowing and spraying, and making sure that the levees are accessible and visible for flood fighting. More complex deficiencies, such as encroachments, arresting erosion, and slope stability, will be addressed through the development and implementation of the SWIF. For the rated items listed in Table 3, DWR intends to develop the SWIF and to start addressing deficiencies in accordance with USACE O&M standards. Additionally, DWR has committed to beef up their emergency operations and will develop contingency plans to reduce the risk of levee failure posed by worst deficiencies until they are addressed as part of the SWIF process.

4.0 DEMONSTRATION OF FUNDING COMMITMENTS

DWR is funded through state tax revenues (general and bond funds). This revenue has supported, and will continue to support, annual O&M activities. In the 2014/2015 fiscal year a total of \$450,000 was spent maintaining and improving the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System. For the fiscal year 2015/2016, which ends June 30th, 2016, \$473,000 has been budgeted and for fiscal year 2016/2017 \$496,000 has been budgeted. Approximately 40% of the maintenance area budget is spent on deficiency corrections and the remaining 60% is spent on routine O&M each year.

As of July 1st, 2016, the California State Legislature has authorized \$100M General Funds through Control Section 6.10 of the SB-826 Budget Act of 2016 to address flood risks associated with the deferred maintenance of the aging State Plan of Flood Control (SPFC), including the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System. This money is required to be expended or committed by June 30th of 2018 and liquidated by June 30th of 2019. DWR recognizes aging pipe penetrations as one of the highest risks to levee integrity throughout the SPFC and a majority of this money will be spent on these. A small percentage of this funding is planned to be used to help implement statewide rodent damage mitigation. Approximately 2% of the system-wide pipe penetrations that will be video inspected and repaired, replaced, removed, or abandoned as deemed necessary, are located within the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System.

DWR has expended significant resources developing a Small Erosion Repair Program (SERP). SERP is a multi-agency collaborative effort including representatives from DWR, Department of Fish and Game (DFG), USACE, National Marine Fisheries (NMFS), CVFPB, and the Central Valley Regional Water Quality Control Board (CVRWQCB). The program is aimed at streamlining permitting for small (under 1000 linear feet) erosion repair projects. DWR has been involved in this group since its formation in 2007 and has invested approximately \$1,500,000. The SERP program will specifically benefit the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System, which has seven sites planned for erosion repair along Willow Slough in 2017.

DWR has recently launched new programs funded by California Proposition 1E. DWR plans to

use this funding under the Flood System Repair Program (FSRP) in order to address some of the deficiencies highlighted by the USACE PI report. Specifically it will be used to fund the implementation phase of SERP. DWR has also expended significant resources in the Urban Levee Evaluation (ULE) and Non-Urban Levee Evaluation (NULE) programs, as well as the development of the first Central Valley Flood Protection Plan. These efforts have generated a substantial volume of hydrologic, hydraulic, geotechnical, and mapping information which will be used in the development of the SWIF.

Any shortfall of funding to implement the SWIF work will be addressed through a combination of increased funding through the State's general or bond funds and through cost-share programs with the federal government. DWR will secure funding for correcting levee deficiencies through a combination of the sources listed above on a worst case first basis.

Since the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System PI was conducted in 2012, one unacceptable erosion/bank caving issue has been corrected, one slope stability issue has been corrected, and 11 encroachments have been corrected.

DWR's highest current priority for deficiency correction is to video inspect and where deemed necessary repair, replace, remove or abandon the 55 gravity pipes that have been identified as high risk within the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System. This work is planned to be completed by June 30th, 2019.

Erosion repair is another high priority for DWR and as mentioned above seven sites within the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System are planned for repair in 2017. Funding for these repairs has already been secured under the FSRP program.

The unacceptable slope stability and erosion/bank caving issues that have not yet been resolved and that are not covered under the SERP program, are being monitored and have not been repaired because the cause of the erosion is landside ditches, which are planned to be relocated in the future.

The remaining encroachments that will not be addressed under the deferred maintenance program will be evaluated for risk and prioritized for removal. Encroachments determined to have higher risk will be addressed first. Those determined to have a low risk will be addressed systematically by geographic location. Removal of encroachments is often a lengthy and expensive process beginning with the need to identify the encroachment owner and obtain easement boundary data through background investigations and field surveys. Next informal and formal Notice of Violations (NOVs) are issued to encroachment owners. California Water Code requires that encroachment owners be given the opportunity to permit encroachments that comply with State law; otherwise encroachments that do not comply must be removed. If encroachment owners do not voluntarily address encroachment issues, there is a lengthy legal process to enforce State law compliance. Given this process, it is expected that the removal of all encroachments cited in the PI Report may take multiple decades.

In performing these activities, it must be recognized that State levee maintenance performed pursuant to CWC Section 8361 and funded through the State's highly constrained and volatile

General Fund, is subject to funding challenges and will be an on-going long term effort. This system's annual budget may vary depending on need and funding availability.

5.0 INTERIM RISK REDUCTION MEASURES

All property owners protected by the State Plan of Flood Control levees and within the levee flood protection zone (including private, corporate, and government property owners) are mailed a Flood Risk Notification flyer each year, no later than September 1. The flyer can be found at: http://www.water.ca.gov/floodmgmt/lrafm/fmb/fas/risknotification/links/pdfs/2015_Flood_Risk_Notice.pdf and is attached. The flyer contains information on flood risk, preparing for a flood, preventing damage to the flood system, what to do during a flood, and provides a phone number to call for more information and a link to a website (water.ca.gov/myfloodrisk) with more detailed information on these topics. The webpage includes links to interactive maps showing flood and other natural hazard risk by address. Additionally, the webpage has information on preparing for a flood, buying flood insurance, preventing damage to the flood system, protecting your property, a frequently asked questions page, California disaster history, and contacts for state, federal and local agencies. During an actual flood emergency, public alerts, warnings, and emergency response to the general public are issued through the Butte County Sheriff's Department, the Butte County Office of Emergency Services, and the Butte County Fire Department.

An Interim Risk Reduction Measures (IRRM) plan will be prepared per the updated USACE ECB 2016-8 dated 22 Feb 2016. A contract has recently been awarded by DWR to Yolo County to develop a flood emergency response project for the interior of the State. The proposed project includes the System 641 levees and the infrastructure protected by them including the City of Davis. This project includes the development of flood safety plans and maps for local levee maintaining agencies, a baseline flood hazard profile, a Yolo County Flood Emergency Response Plan (FERP), and revisions to the County Emergency Response and Hazard Mitigation Plans. The FERP will also evaluate levee breach scenarios and develop associated floodplains. When completed, this project will greatly reduce the risk to the people who are currently in harm's way and will meet the intent of the USACE ECB 2014-2. As part of this project, new flood contingency maps, public safety and citizen maps, evacuation maps, and flood fight maps will also be developed. Additionally, levee maintaining agencies are also closely monitoring the unacceptable deficiencies and stand ready to flood fight at short notice, if needed. Large quantities of flood fighting material (plastic rolls and buttons, etc.) are stored at the Department of Water Resources Sacramento maintenance yard which is located nearby. Protocols have been well established among the DWR Sacramento Maintenance Yard, DWR Flood Operations Center and the USACE Sacramento District staff for flood fighting. Contingency plans will be developed soon for flood fighting for segments that are listed unacceptable due to slope stability and erosion/bank caving. As part of the contingency plans, these segments will be monitored more frequently and flood fighting material will be stored close by to stabilize the situation, if

needed.

While seeking a SWIF, the DWR and Yolo County are already implementing actions to reduce risk through routine maintenance activities. DWR will continue to reduce risk by repairing items that are listed as unacceptable in the PI report based upon relative risk and by enhancing flood emergency response.

Several improvements were made to red items following publication of the PI Report. These issues included requests for several issuance of Notice of Violation by the CVFPB for encroachments, repair of damaged flap gates, and removal of flap gate obstructions, permit clarifications, and erosion repairs. Table 1, included at the end of the document, summarizes the Corrective Action Plan originally submitted to USACE in May of 2013 and updated in June of 2016 for details on specific red issues corrected. In this Corrective Action Plan the highest risk issues were addressed first and future repairs will be made based upon relative risk ratings.

A total of 30 red items were cited in the PI Report for cracking. For this system the levees contain fat clays which typically shrink and crack when dry then swell and close up when wet. For all cracking issues, Sacramento Maintenance Yard will continue to monitor for crack displacement and will repair any cracks that fill with debris or do not close upon wetting. Following the publication of the PI Report, the Sacramento Maintenance Yard has increased the frequency of vegetation and debris removal around pipes. Other deficiencies included in the PI Report, which are corrected on an annual basis as part of routine O&M include, rodent abatement and damage repair, removal of small depressions both on slopes and access roads; vehicular rutting is removed through grading; and rills on the slopes and missing sod cover are addressed through dragging.

While vegetation management is not currently a criteria for eligibility in the PL84-99 program, DWR expends significant resources on this on-going routine maintenance issue. DWR conducts annual vegetation management to ensure visibility and accessibility in accordance with the CVFPB vegetation guidelines. Levee vegetation management activities include mowing, burning, dragging, herbicide application (both broadcast and spot spraying), tree trimming, and hand clearing. These activities are conducted every year to ensure that visibility and accessibility. Additionally, DWR is developing a program to identify and remove trees that pose a threat to levee integrity. Channel vegetation management activities include woody vegetation removal by hand clearing, mowing, strip disking mastication, and herbicide application. Channel vegetation management is conducted annually to ensure that floodway capacity is maintained.

Beyond routine maintenance, DWR has seven small erosion repairs planned along the Willow Slough Unit 2 Levee scheduled for 2017, through the SERP program described above. Under the Deferred Maintenance Program funded through SB-826 Budget Act of 2016, 55 pipes have been identified as high risk with in the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System. These pipes were identified from the PI Report, DWR inspections, and review of historic documents. Priority was based on the pipes depth with respect to the freeboard. Only system pipes and non-system pipes with no identifiable owner are included in the program.

These pipes will all be video inspected and evaluated in 2016 and early 2017 during Phase I of the program. Phase II is planned to begin in the Spring of 2017 and will include the design; obtainment of real estate access and environmental permits; and construction for any pipes that are determined in need of repair, replacement, removal or abandonment.

Rodent abatement and damage repair continues to be an on-going issue for many of the levees in the Sacramento system including the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System. Much of this levee is within the endangered Giant Garter Snake habitat and has been subject to a grouting moratorium for the past 3 years because of this species. DWR is currently pursuing several avenues to obtain State and Federal take permits for the species, including working with USACE to develop a SWIF Programmatic Biological Opinion. DWR has continued its rodent abatement program during this time, but needs to obtain these permits before rodent damage repair can resume along portions of this levee. Take permits are expected to be obtained in early 2017, at which time grouting of rodent holes will resume.

6.1 INTERAGENCY COLLABORATIVE EFFORTS

Collaboration is planned with USACE and a number of other agencies for the development, implementation, and oversight of the SWIF. These agencies include:

- U.S. Fish and Wildlife Service (USFWS): protected species consultation
- National Marine Fisheries Services (NMFS): protected species consultation
- California Department of Fish and Wildlife (CDFW): protected species consultation and Wildlife Areas
- California Department of Water Resources (DWR): funding resources, flood risk management, levee evaluations, state-maintained areas
- Central Valley Flood Protection Board (CVFPB): encroachment permit coordination
- US Army Corps of Engineers (USACE): encroachment permit (Section 408) compliance

7.1 ANTICIPATED PERMIT AND CONSULTATION REQUIREMENTS

The development and implementation of the SWIF may require consultation with a number of resource management, regulatory, and permitting agencies because many endangered and threatened species are found in the region.

Key

- ESA- Endangered Species Act
- CESA- California Endangered Species Act
- CDFW- California Department of Fish and Wildlife
- FP- Fully protected
- SSC- Species of Conservation Concern

- USFWS- U.S. Fish and Wildlife Service
- BBC- Birds of Conservation Concern
- Under Review- Status of the species is currently being reviewed to determine whether populations/habitats are diminished enough to require proposed listing.

Special Status Species Potentially Within or Adjacent (within 1 mile) to the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System

- American badger (CDFW- SSC)
- Swainson’s hawk (CESA-Threatened)
- Burrowing owl (CDFW- SSC; USFWS-BCC)
- Giant Garter Snake (CDFW & USFWS- Threatened)
- Least Bell’s Vireo (CDFW & USFWS- Endangered)
- Pallid Bat (CDFW- SSC)
- Tri-colored Blackbird (CDFW-SSC, Candidate Endangered)
- Valley Elderberry Longhorn Beetle (USFWS- Threatened)
- Vernal Pool Tadpole Shrimp (USFWS- Endangered)
- Western Pond Turtle (CDFW- SSC; USFWS- Under Review)
- Western Snowy Plover (CDFW-SSC; USFWS-Threatened)
- Western Yellow-billed Cuckoo (CDFW- Endangered; USFWS- Threatened)
- White-tailed Kite (CDFW- FP)
- Central Valley Fall and Late Fall-run Chinook Salmon (ESA Species of Concern)
- Central Valley Spring-run Chinook (ESA Threatened)
- Sacramento River Winter-run Chinook (ESA Endangered)
- California Central Valley Steelhead (ESA Threatened)

The required permits and approvals to implement the SWIF may include:

- Compliance with the California Environmental Quality Act (CEQA)
- California Department of Fish and Wildlife (CDFW) Permits 1601 and 2081
- Central Valley Flood Protection Board Encroachment Permits
- Compliance with the National Environmental Policy Act (NEPA)
- U.S. Fish and Wildlife Service (Protected Species Consultation)
- National Marine Fisheries Services (Protected Species Consultation)
- Clean Water Act Section 404 Permit(s)
- Clean Water Act Section 401 Water Quality Certification
- Clean Water Act Section 401 Waste Discharge Requirement
- National Historic Preservation Act Section 106 Compliance/ State Historic Preservation Officer (SHPO) Consultation
- General Order for Dewatering and Other Low Threat Discharge to Surface Water Permit (Regional Water Quality Control Board)
- State Lands Commission General Permit

Removal or modification of encroachments may impact one or more of the above-listed species, as well as other non-listed species. Consultation with USFWS, NMFS, and CDFW would be required in any instance where the action could impact these listed species. Encroachment removal or modification may also involve actions such as alterations in the streambed or

disturbance to the waters of the United States and, as such, could require consultation with and permits from CDFW, USACE and the Central Valley Regional Water Quality Control Board.

In addition to consultation under fish and wildlife protection authorities and other environmental regulations, encroachment permitting, removal or modification will require significant consultation between DWR, CVFPB, and USACE, as well as individual encroachment owners and landowners. CVFPB is responsible for enforcing encroachment permit terms and conditions and has a process in place for such enforcement. It includes research of permit and as-built records, informal coordination with easement owners and land owners, providing notifications, and attending potential public hearings. This process can take a significant amount of time and can become litigious. Further, in some cases, encroachments pre-date the establishment of O&M regulations and/or are found in project as-built drawings. The above will be considered in the SWIF schedule for reconciling unacceptable items.

8.0 CONCLUSION

DWR will continue its efforts to address the deficiencies highlighted by the USACE and develop the SWIF to meet the interim eligibility criteria outlined in paragraph 6 of the interim policy. They will modify and/or remove the unacceptable encroachments over time, address slope stability, arrest erosion, and continue to control burrowing animals on levees so that the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System is in full compliance with the interim policy.

Table 1. Corrective Action Plan for Red Items in the Putah Creek Unit 1 – Yolo Bypass – Willow Slough Unit 2 Levee System updated June of 2016.

Inspection ID	Rated Item	Latitude	Longitude	ACOE Observation and Recommended Action	Corrective Action (as of May 2013)	Corrective Action (as of June 2016)
USACE_CESPK_PUT 1_2011_a_0143	Encroachments	-121.71314	38.51808	Observation Remarks: Buried concrete headwalls at landside and waterside toe. Possible vicinity of 24 inch CMP from O&M. Abandonment procedure unknown. No pipe visible. Action: If abandoned, pipes must be properly removed or grouted. If pipe is not abandoned, obtain internal inspection records, clean out pipe, clear intake and outfall areas, and monitor the O&M conditions.	Repair completed. 24 inch CMP located, exposed, and confirmed filled with grout.	
USACE_CESPK_PUT 1_2011_a_0269	Encroachments	-121.75724	38.51821	Observation Remarks: 24 inch CMP crossing from O&M. Concrete headwall at landside toe partially blocked with leaves and silt. Concrete headwall on waterside with metal flap gate propped open on top of silt. Levee Log LM 7.36. Action: Obtain internal inspection records. Monitor O&M conditions. Clean out silt and verify flap gate operability.	Repair completed.	
USACE_CESPK_WB P2_2011_a_0020	Encroachments	-121.73961	38.59783	Observation Remarks: 24 inch CMP crossing from O&M. Below natural ground. Metal flap gate with bent frame does not seat. Cobble lined outfall. Landside inlet is clear of silt or debris. Listed on Levee Logs at LM 0.78. Action: Obtain internal inspection records. Repair flap gate. Monitor the O&M manual conditions.	Repair completed.	

Inspection ID	Rated Item	Latitude	Longitude	ACOE Observation and Recommended Action	Corrective Action (as of May 2013)	Corrective Action (as of June 2016)
USACE_CESPK_WB P2_2011_a_0022	Encroachments	-121.73575	38.59329	Observation Remarks: 24 inch CMP from O&M and on Levee Logs at LM 1.15. Pipe is along natural ground elevation. Metal flap gate on waterside does not fully seat and needs maintenance. Concrete headwall on landside. Action: Obtain internal inspection records. Repair flap gate. Monitor O&M conditions.	Repair completed.	
USACE_CESPK_WB P2_2011_a_0081	Encroachments	-121.69312	38.58967	Observation Remarks: Two 48 inch CMP and one 48 inch steel pipe crossings. Landside and waterside concrete headwalls. 3 waterside flap gates. West steel pipe flap gate warped with peeling gasket. Minor erosion around outlets. One landside CMP gasket missing. No silt/debris. Action: There were 2 old original O&M 48-inch CMPs AND 2 new CMPs based on permit 13694. Levee Logs list permit 6615 for the steel pipe, but that file was not provided. Clarify permits and provide all files. Obtain internal pipe inspection records. Monitor.	Permit 6615 has been located and permits the 48-inch CMP through levee. Both Permits 6615 and 13694 have been provided. No action necessary.	
USACE_CESPK_WB P2_2011_a_0117	Encroachments	-121.66007	38.58969	Observation Remarks: 24 inch welded steel pipe crossing. Possibly replaced a CMP from O&M. Small debris trapped in flapgate not allowing full closure. Intake headwall with open slidegate 60 ft from landside VFZ. Top of pipe exposed and damaged at landside ditch crossing. Action: Obtain internal inspection records. Remove debris at flap gate. Repair damaged segment of pipe. Provide permit file or obtain a new permit.	Repair completed.	

Inspection ID	Rated Item	Latitude	Longitude	ACOE Observation and Recommended Action	Corrective Action (as of May 2013)	Corrective Action (as of June 2016)
USACE_CESPK_WB P2_2011_a_0118	Encroachments	-121.66007	38.58962	Observation Remarks: Waterside toe road in location of 24 inch pipe crossing cut into waterside slope over a 30 ft distance. Cut up to 2 ft vertically. Action: Restore slope to 3H:1V shape and reconstruct adequate road crossing at pipe outfall.	Repair completed.	
USACE_CESPK_WB P2_2011_a_0127	Encroachments	-121.65660	38.58962	Observation Remarks: 36 inch CMP crossing along natural ground from O&M. Sedimentation blocking metal flap gate open. Discharge channel under water. Minor bank caving over headwall to toe road. Concrete inlet beyond landside VFZ partially silted in. On Levee Logs at LM 5.52. Action: Obtain internal inspection records. Remove sediment. Repair erosion above the waterside headwall and add slope protection as needed. Monitor O&M conditions.	Repair completed.	
USACE_CESPK_WB P2_2011_a_0142	Encroachments	-121.64787	38.58903	Observation Remarks: 24 inch CMP crossing from O&M. Levee Log LM 5.98. Through natural ground. Concrete headwall outside landside VFZ partially submerged. Outfall submerged to top of pipe. Flap gate partially open. Bank caving 1H:1V above outfall. Action: Obtain internal inspection records. Remove any underwater obstructions from the flap gate. Repair erosion above the waterside headwall and add slope protection as needed. Monitor O&M conditions.	Repair completed.	

Inspection ID	Rated Item	Latitude	Longitude	ACOE Observation and Recommended Action	Corrective Action (as of May 2013)	Corrective Action (as of June 2016)
USACE_CESPK_YB W4_2011_a_0094	Encroachments	-121.63118	38.54564	<p>Observation Remarks: 48 inch CMP with 36 inch steel pipe extension on landside end. Saddle and sliding flap gate on waterside end. This crossing is not in the Levee Logs, but it is in the O&M. Debris prevents the flap gate from closing. Bank erosion (see 0095) behind saddle. Action: Obtain internal inspection records. Monitor the O&M conditions. Provide permit file or obtain a new permit for the modifications to the original pipe. Clean out debris. See 0095 for erosion repair.</p>	Repair completed.	
USACE_CESPK_PUT 1_2011_a_0007	Erosion/ Bank Caving	-121.63138	38.52299	<p>Observation Remarks: Scour or wave erosion area on waterside midslope. Near vertical 2 ft cut near upper elevation of cobble slope protection zone. Extends for about a 50 ft length. Action: Fill and compact to match the surrounding grade in accordance with the O&M manual. Provide slope protection with engineering design documentation to perform adequately under design flood conditions as needed. Monitor.</p>	Repair completed.	

Inspection ID	Rated Item	Latitude	Longitude	ACOE Observation and Recommended Action	Corrective Action (as of May 2013)	Corrective Action (as of June 2016)
USACE_CESPK_PUT 1_2011_a_0037	Depressions/ Rutting	-121.64873	38.51723	Observation Remarks: Depression on landside slope up to 3 ft deep, 15 ft long. Width is from the toe to about 1/4 of the way up the slope. Adjacent to a farming ditch (0028). Action: Fill and compact to match surrounding grade in accordance with the O&M manual. Likely related to ditch encroachment. Evaluate and/or remove ditch.	DWR has requested the CVFPB issue Notice of Violation to landside owner. Drainage ditch has encroached on to levee toe and is eroding slope. No permit on file.	This site is monitored for progression of erosion, but has not been corrected because landside ditch must first be relocated. DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue .
USACE_CESPK_PUT 1_2011_a_0028	Encroachments	-121.63905	38.51982	Observation Remarks: East end point of ditch along landside toe. Up to 4 ft deep. Top width about 10 ft. Vegetation obscures full inspection. See west end point 0047. No ditch shown on as-built (50-4-2396). Action: This excavation requires an engineering evaluation of levee integrity including slope stability and seepage. Provide permit file, obtain a new permit, or fill and compact to match surrounding grade in accordance with the O&M manual.	DWR has requested the CVFPB issue Notice of Violation to landside owner. Drainage ditch has encroached on to levee toe and is eroding slope. No permit on file.	DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue .

Inspection ID	Rated Item	Latitude	Longitude	ACOE Observation and Recommended Action	Corrective Action (as of May 2013)	Corrective Action (as of June 2016)
USACE_CESPK_PUT 1_2011_a_0047	Encroachments	-121.64881	38.51723	Observation Remarks: End of ditch along landside toe as described to the east in observation 0028. No ditch shown on as-built (50-4-2396). Action: This excavation requires an engineering evaluation of levee integrity including slope stability and seepage. Provide permit file, obtain a new permit, or fill and compact to match surrounding grade in accordance with the O&M manual.	DWR has requested the CVFPB issue Notice of Violation to landside owner. Drainage ditch has encroached on to levee toe and is eroding slope. No permit on file.	DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue .
USACE_CESPK_PUT 1_2011_a_0052	Encroachments	-121.65508	38.51533	Observation Remarks: East end point: Irrigation ditch at landside toe. 4 ft deep, 3 ft bottom width, up to 15 ft top width. Thick vegetation in ditch (0053). Bank slopes 1H:1V with upper 24 inches near vertical. 24 inch CMP outfall to ditch from landside farm with slide gate. Action: This excavation requires an engineering evaluation of levee integrity including slope stability and seepage. Provide permit file, obtain a new permit, or fill and compact to match surrounding grade in accordance with the O&M manual.	DWR has requested the CVFPB issue Notice of Violation to landside owner. Drainage ditch has encroached on to levee toe and is eroding slope. No permit on file.	DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue .
USACE_CESPK_PUT 1_2011_a_0072	Encroachments	-121.67601	38.51741	Observation Remarks: West end point of irrigation ditch along landside toe. (East end point 0052.) Ditch turns away from levee at 90 degrees at the west end. In this location the ditch has an 8 ft high bank cut steeper than 0.5H:1V (Erosion obs 0073). Action: This excavation requires an engineering evaluation of levee integrity including slope stability and seepage. Provide permit file, obtain a new permit, or fill and compact to match surrounding grade in accordance with the O&M manual.	DWR has requested the CVFPB issue Notice of Violation to landside owner. Drainage ditch has encroached on to levee toe and is eroding slope. No permit on file.	DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue .

Inspection ID	Rated Item	Latitude	Longitude	ACOE Observation and Recommended Action	Corrective Action (as of May 2013)	Corrective Action (as of June 2016)
USACE_CESPK_PUT 1_2011_a_0156	Encroachments	-121.72256	38.51804	<p>Observation Remarks: 24 inch CMP crossing from O&M. Pipe runs along natural ground. Concrete headwall about 8 ft inside projected 2H:1V landside toe with steep slope above crossing. Outfall headwall and open slide gate at waterside toe with no flap gate. LM 5.40 on Levee Log. Action: Verify design configuration of pipe crossing. Crossing may require extension or headwalls/wingwalls to allow maintenance of minimum design slopes. Obtain internal inspection records. Verify slide gate operability. Close for flood season.</p>	<p>DWR has requested the CVFPB issue Notice of Violation to landside owner. Permit #10256</p>	<p>Ownership of and responsibility for this pipe is being investigated. Internal inspection is planned as part of the FSRP pipe program described in the LOI text.</p>
USACE_CESPK_PUT 1_2011_a_0168	Encroachments	-121.72755	38.51825	<p>Observation Remarks: 24 inch CMP crossing from O&M. Levee Logs LM 5.67. Concrete headwalls 5 to 10 ft built into both slopes with oversteepened slopes to tie into headwalls. Landside half silted in and has 2nd feeder CMP from landside. Waterside slide gate open. Action: Verify design configuration of pipe crossing. Crossing may require extension or headwalls/wingwalls to allow maintenance of minimum design slopes. Obtain internal inspection records. Verify slide gate operability. Provide flap gate. Clean out silt.</p>	<p>DWR has requested the CVFPB issue Notice of Violation to landside owner. Permit #10255</p>	<p>Ownership of and responsibility for this pipe is being investigated. Internal inspection is planned as part of the FSRP pipe program described in the LOI text.</p>

Inspection ID	Rated Item	Latitude	Longitude	ACOE Observation and Recommended Action	Corrective Action (as of May 2013)	Corrective Action (as of June 2016)
USACE_CESPK_PUT 1_2011_a_0180	Encroachments	-121.73095	38.51832	Observation Remarks: 24 in. CMP crossing from O&M. Invert 10 ft below crown. Landside headwall 10 ft from crown. Approach channel excavated in landside slope. Waterside headwall and closed slidegate 15 ft from crown. Slopes oversteepened to tie into headwalls (see obs 0181). Action: Verify design configuration of pipe crossing. Crossing may require extension of headwalls/wingwalls to allow maintenance of minimum design slopes. Obtain internal inspection records.	DWR has requested the CVFPB issue Notice of Violation to landside owner.	Ownership of and responsibility for this pipe is being investigated. Internal inspection is planned as part of the FSRP pipe program described in the LOI text.
USACE_CESPK_PUT 1_2011_a_0188	Encroachments	-121.73252	38.51855	Observation Remarks: East end point for a line of farming activity that has led to a vertical cut up to 2 ft high at landside toe. For typical farming encroachment see 0166 (continuing). Waterside farming activity is typical in this location with tilling along toe. Action: Fill and compact to maintain 2H:1V slope in accordance with the O&M manual. Discontinue farming activity within 15 ft of the levee.	DWR has requested the CVFPB issue Notice of Violation to landside owner.	DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue .
USACE_CESPK_YB W4_2011_a_0045	Encroachments	-121.63814	38.56319	Observation Remarks: 36 inch CMP crossing. Landside inlet blocked by thick vegetation. 48 inch CMP riser mid-waterside slope with slide gate, manual operator. Concrete headwall in waterside VFZ, submerged metal flapgate partially open. Corrosion. Permit file 2849 provided. Action: Obtain internal inspection records. Remove vegetation from inlet (see vegetation observation 0043). Monitor the permit conditions.	DWR has requested the CVFPB issue Notice of Violation to landside owner. Inlet blocked by vegetation. Permit #2849	Because of an endangered species issue this pipe's slide gate always remains closed and vegetation removal is prohibited.

Inspection ID	Rated Item	Latitude	Longitude	ACOE Observation and Recommended Action	Corrective Action (as of May 2013)	Corrective Action (as of June 2016)
USACE_CESPK_YB W4_2011_a_0075	Encroachments	-121.63149	38.55224	<p>Observation Remarks: Crossing of (2) 42 inch and (1) 14 inch steel pipes. Pump station at edge of landside VFZ. Concrete vault with siphon breakers on upper waterside slope. Minor concrete spalling and pipe corrosion. Permit file 4696 provided. 14 inch flap gate sticks open. Action: Obtain internal inspection records. Monitor the conditions of permit 4696. Repair spalling and corrosion. Repair 14 inch flap gate.</p>	<p>DWR has requested the CVFPB issue Notice of Violation to landside owner. Permit #4696</p>	<p>This pipe is owned by the City of Davis. DWR staff have repaired the flap gate, but the repair of the concrete and corrosion is the responsibility of the City.</p>
USACE_CESPK_YB W4_2011_a_0101	Encroachments	-121.63148	38.53697	<p>Observation Remarks: Drainage/irrigation ditch noted in point 0082 was widened and moved closer to the levee embankment at this location. The ditch continues to the south with a width of 25 feet, and encroaching into the levee toe. See south end point 0137. Action: Does not match as-builts (50-4-2280). This excavation requires an engineering evaluation including slope stability and seepage. Provide permit file, obtain a new permit, or fill and compact to match surrounding grade in accordance with the O&M manual.</p>	<p>DWR has requested the CVFPB issue Notice of Violation to landside owner. Drainage ditch has encroached on to levee toe and is eroding slope. No permit on file.</p>	<p>DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue .</p>

Inspection ID	Rated Item	Latitude	Longitude	ACOE Observation and Recommended Action	Corrective Action (as of May 2013)	Corrective Action (as of June 2016)
USACE_CESPK_YB W4_2011_a_0137	Encroachments	-121.63159	38.52365	Observation Remarks: End of ditch along landside toe. Typically 0 to 5 ft from toe with steep side slopes, frequently vertical. 60 ft wide at this end. Depth unknown. Current water level several ft below natural grade. Ditch turns to the west. See north end point 0101. Action: Does not match as-builts (50-4-2280). This excavation requires an engineering evaluation including slope stability and seepage. Provide permit file, obtain a new permit, or fill and compact to match surrounding grade in accordance with the O&M manual.	DWR has requested the CVFPB issue Notice of Violation to landside owner. Drainage ditch has encroached on to levee toe and is eroding slope. No permit on file.	DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue .
USACE_CESPK_PUT 1_2011_a_0061	Erosion/ Bank Caving	-121.66620	38.51590	Observation Remarks: Erosion of landside ditch (0052) cutting into levee section. 3 ft deep vertical cut, 20 ft long, at downstream end of riprap from check dam (point 0060). Action: Fill and compact per O&M manual. Address the encroachment to prevent further erosion.	DWR has requested the CVFPB issue Notice of Violation to landside owner. Drainage ditch has encroached on to levee toe and is eroding slope. No permit on file.	DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue .
USACE_CESPK_PUT 1_2011_a_0073	Erosion/ Bank Caving	-121.67585	38.51740	Observation Remarks: Erosion/bank caving cutting into landside slope at 90 degree turn in irrigation ditch (see encroachment 0072). Top of erosion is 10 ft below crown (levee height 13 to 14 ft). Action: Fill and compact per O&M manual. Address the encroachment to prevent further erosion.	DWR has requested the CVFPB issue Notice of Violation to landside owner. Drainage ditch has encroached on to levee toe and is eroding slope. No permit on file.	DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue .

Inspection ID	Rated Item	Latitude	Longitude	ACOE Observation and Recommended Action	Corrective Action (as of May 2013)	Corrective Action (as of June 2016)
USACE_CESPK_WB P2_2011_a_0037	Erosion/ Bank Caving	-121.73329	38.59135	Observation Remarks: Erosion along lower waterside slope, near projected 3H:1V waterside toe over a distance of about 50 ft. 6 to 8 ft wide and up to 3 ft deep. Similar to 0033. Action: Fill and compact to match surrounding grade in accordance with the O&M manual. Provide slope protection as needed with engineering design documentation to perform adequately under design flood conditions. Monitor.	Repair options currently being evaluated by Flood Maintenance Office. Repair options include channel restoration and slope stabilization. Flood Maintenance has completed environmental baseline and is proceeding with rehabilitation project design.	This site is planned for repair in 2017 under the SERP program described in the LOI text.
USACE_CESPK_YB W4_2011_a_0111	Erosion/ Bank Caving	-121.63149	38.53157	Observation Remarks: Two depressions on lower landside slope from bank caving/erosion along ditch (see encroachment 0101). The larger depression is up to 2.5 ft deep and 4 ft in diameter. The smaller depression is up to 1 ft deep and 12 inches in diameter. Action: Fill and compact to match surrounding grade in accordance with the O&M manual. Monitor for possible sinkhole activity and/or issues with the adjacent ditch (see 0101).	DWR has requested the CVFPB issue Notice of Violation to landside owner. Drainage ditch has encroached on to levee toe and is eroding slope. No permit on file.	This site is monitored for progression of erosion, but has not been corrected because landside ditch must first be relocated. DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue .

Inspection ID	Rated Item	Latitude	Longitude	ACOE Observation and Recommended Action	Corrective Action (as of May 2013)	Corrective Action (as of June 2016)
USACE_CESPK_YB W4_2011_a_0136	Erosion/ Bank Caving	-121.63160	38.52366	Observation Remarks: Bank at the ditch encroachment is eroding adjacent to the pipe headwall in obs. 0135. Up to 2 ft vertical caving within the levee prism at the landside toe; back of the headwall is exposed for a length of 18 inches on north end. Action: Address the related ditch encroachment as described in 0137. Fill and compact to match surrounding grade in accordance with the O&M manual.	DWR has requested the CVFPB issue Notice of Violation to landside owner. Drainage ditch has encroached on to levee toe and is eroding slope. No permit on file.	This site is monitored for progression of erosion, but has not been corrected because landside ditch must first be relocated. DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue .
USACE_CESPK_YB W4_2011_a_0138	Erosion/ Bank Caving	-121.63133	38.52367	Observation Remarks: Localized erosion and caving at 48 inch pipe outfall (see 0135). Caving resulting in 4 ft near vertical bank cut from outfall to 8 ft into waterside VFZ. Erosion occurs within the levee prism. Action: Fill and compact to match surrounding grade in accordance with the O&M manual. Provide properly engineered slope protection as needed. Monitor.	DWR has requested the CVFPB issue Notice of Violation to landside owner. Drainage ditch has encroached on to levee toe and is eroding slope. No permit on file.	This site is monitored for progression of erosion, but has not been corrected because landside ditch must first be relocated. DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue .

Inspection ID	Rated Item	Latitude	Longitude	ACOE Observation and Recommended Action	Corrective Action (as of May 2013)	Corrective Action (as of June 2016)
USACE_CESPK_PUT 1_2011_a_0190	Slope Stability	-121.73308	38.51853	Depressions up to 1 ft deep and 5 to 15 ft wide. West end point for steep landside slope and occasional depressions from slides as described in observation 0189. Repair slope surface. Fill and compact to maintain 2H:1V slope in accordance with the O&M manual.	DWR has requested the CVFPB issue Notice of Violation to landside owner. Maintenance of the 2H:1V slope in accordance the O&M manual is not possible as landside land owner continues to illegally encroach into the levee toe. Repair of depression on slope has been completed.	This site is monitored for progression of erosion, but has not been corrected because landside ditch must first be relocated. DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue .

CECW-HS

SUBJECT: Policy for Development and Implementation of System-Wide Improvement Frameworks (SWIFs)

c. Transitioning “Acceptable” or “Minimally Acceptable” Levees. Levees sponsors with levees that are “Active” in the rehabilitation assistance program under an existing vegetation variance or deviation from the standard that want to use the SWIF process to transition to a new vegetation inspection standard through the vegetation variance request process, or that would like to systematically improve the condition of participating levees, may maintain their P.L. 84-99 rehabilitation assistance eligibility as long as they continue to meet the milestones set forth in their applicable SWIF.

d. Reinstating Eligibility While Developing and Implementing a SWIF. Levee sponsors that receive an overall levee system inspection rating of “Unacceptable” or have been “Inactive” in the rehabilitation program may regain eligibility for P.L. 84-99 rehabilitation assistance through the SWIF process. Upon approval by USACE of the letter of intent, requirements described below, the levee sponsor will receive an initial of up to two-year reinstatement of eligibility for P.L. 84-99 rehabilitation assistance. Continued eligibility will be determined annually based on milestones described in the subsequent SWIF. Levee sponsors who have never been eligible for rehabilitation assistance under P.L. 84-99 cannot gain P.L. 84-99 rehabilitation assistance eligibility through the SWIF process.

7. Requirements for Development and Submittal of a SWIF. The development of a SWIF is a two-step process consisting of (1) a Letter of Intent from the sponsor briefly describing levee system deficiencies and justification for how a system-wide approach will optimize flood risk reduction, and (2) development of a SWIF for addressing deficiencies and reducing flood risk. Once a Letter of Intent has been approved by USACE, a levee sponsor has up to two years to develop a SWIF plan. Eligibility after this two-year period will be dependent on the levee sponsor’s progress in achieving the milestones defined in the SWIF. The SWIF plan is intended to be a specific document that guides sponsor activities, including anticipated milestones, but may also be adaptable and should be revised if conditions or needs change during implementation. The requirements for the Letter of Intent and SWIF are described as follows:

a. Requirements for Submitting a Letter of Intent for a SWIF. A Letter of Intent must be signed by all associated levee sponsors for each levee system involved in developing the SWIF and must include the following:

(1) Identification of levee system or systems to be covered by the SWIF, including system name and system identification number as listed in the National Levee Database;

(2) Brief description of deficiencies or issues that will be included in the SWIF and discussion of how a system-wide approach will improve and optimize overall flood risk reduction. This includes identifying any conditions not within the control of the levee sponsor(s) that prevents them from correcting “Unacceptable” inspection items in a timely manner;

CECW-HS

SUBJECT: Policy for Development and Implementation of System-Wide Improvement Frameworks (SWIFs)

(3) Demonstration that significant non-federal resources have been, or will be, committed for developing and/or implementing the SWIF (e.g., state legislative action, bond financing);

(4) Anticipated interim risk reduction measures that will be implemented throughout the SWIF process, including overall risk communication approach that addresses the risk to life increased by system-wide deficiencies;

(5) Brief description of existing or planned interagency collaborative efforts that will contribute positively to SWIF development, implementation and oversight; and

(6) List of anticipated state and federal permits and consultation requirements, needed to implement the SWIF.

b. Requirements for Submittal of a SWIF. SWIFs are developed and implemented by levee sponsor(s), reviewed and accepted by USACE, and monitored by a USACE district to address system-wide issues in a prioritized way to optimize system-wide risk reduction. As a minimum for acceptance by USACE, the levee sponsor's SWIF must include the following:

(1) Identification of levee system or systems covered by the system-wide improvement framework, including system name and identification number as listed in the National Levee Database;

(2) Description of proposed levee improvement and justification on how the SWIF optimizes flood risk reduction;

(3) A plan and schedule for interagency collaboration, including environmental and/or Tribal consultation if applicable, in the implementation of the SWIF;

(4) Documentation of specific agreements, such as project specific agreements, between levee sponsors and USACE or other agencies/organizations related to implementation of levee modifications, under Section 408 or other overlapping USACE policies and studies, applicable to the levee systems identified in the system-wide improvement framework;

(5) Documentation of any regional considerations, approaches, and tools to be used during implementation of the system-wide improvement framework;

(6) Description of interim maintenance standards that will be implemented during the SWIF to mitigate conditions of uncorrected "Unacceptable" inspection items;