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

Transmittal Staff Report

Department of Water Resources Flood Maintenance Office

Maintenance Area 05 - Butte Creek Levee Systems: Letter of Intent to Submit a System-Wide Improvement Framework Plan to the U.S. Army Corps of Engineers Butte and Glenn 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 two Levee Systems: the Maintenance Area (MA) 05 Unit 1 - Butte Creek left bank (as defined by the USACE's Periodic Inspection Report dated March 26, 2013), and the MA 05 Unit 2 - Butte Creek right bank (as defined by the USACE's Periodic Inspection Report dated March 27, 2013).

2.0 – AGENCY

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

The DWR Flood Maintenance Office will be taking the lead in developing a SWIF plan with the support and assistance of the Sutter 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 SYSTEMS LOCATION

The Levee Systems are located along Butte Creek mostly within Butte County, but with small portions in Glenn County. The levees covered by the proposed LOI consist of the following (also see Attachment B):

MA 05 Unit 1 - Butte Creek left bank Levee System

- Maintenance Area 05 - Unit 1, Butte Creek left bank - Part 1; 7.96 miles
- Maintenance Area 05 - Unit 1, Butte Creek left bank - Part 2; 7.12 miles

MA 05 Unit 2 - Butte Creek right bank Levee System

- Maintenance Area 05 - Unit 2, Butte Creek right bank - Part 1; 8.00 miles
- Maintenance Area 05 - Unit 2, Butte Creek right bank - Part 2, 6.54 miles
- Maintenance Area 05 - Unit 2 north, Little Chico-Butte Creek Diversion; 2.16 miles

4.0 – PROJECT DESCRIPTION

4.1 USACE Periodic Inspection

From February through March 2011, the USACE performed a Periodic Inspection (PI) of the Levee Systems. 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 Systems determined that the Levee Systems were “Unacceptable and Inactive” for the USACE Public Law 84-99 (PL 84-99) Rehabilitation Program (RP) due to encroachments, erosion and bank caving, and animal control.

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 Systems 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 Systems 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 these Levee Systems. 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 a 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 Maintenance Area 05 – Butte Creek Levee Systems 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
	Ruth Darling, Senior Environmental Scientist
Legal Review:	Kanwarjit Dua, Board General Counsel

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY **EDMUND G. BROWN JR.,** GOVERNOR

CENTRAL VALLEY FLOOD PROTECTION BOARD
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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 MA 05 – Butte Creek Levee Systems

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 MA 05 Unit 1 - Butte Creek left bank and the MA 05 Unit 2 - Butte Creek right bank (Levee Systems) intends to develop and implement a System-Wide Improvement Framework (SWIF) plan in order for the Levee Systems to regain eligibility for rehabilitation assistance as authorized under Public Law 84-99 (PL 84-99). DWR Flood Maintenance Office will lead the SWIF effort.

The Levee Systems include approximately 32 miles of levee embankments along the left and right banks of Butte Creek through Chico and Durham, California in Butte and Glenn Counties. 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, erosion and bank caving, and animal control, the Levee Systems are 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 Systems while the DWR Flood Maintenance Office

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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 MA 05 Unit 1 - Butte Creek left bank and the MA 05 Unit 2 - Butte Creek right bank Levee Systems 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. Joel Farias, Sutter Maintenance Yard
Ms. Mitra Emami, CVFPB
Mr. Michael C. Wright, CVFPB
Mr. Martin Janolo, CVFPB
Ms. Alison Tang, CVFPB

DRAFT

STATE OF CALIFORNIA -- CALIFORNIA NATURAL RESOURCES AGENCY
EDMUND G. BROWN JR., *Governor*

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 Maintenance Area 05 Unit 1 - Butte Creek Left Bank Levee System and the Maintenance Area 05 Unit 2 - Butte Creek Right Bank 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 Maintenance Area 05 Unit 1 - Butte Creek Left Bank Levee System, and Maintenance Area 05 Unit 2 - Butte Creek Right Bank 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 Maintenance Area 05 Unit 1 - Butte Creek Left Bank Levee System, and Maintenance Area 05 Unit 2 - Butte Creek Right Bank 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.

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: The Maintenance Area 05 Unit 1 - Butte Creek Left Bank Levee System and the Maintenance Area 05 Unit 2 - Butte Creek Right Bank Levee System - SWIF LOI

SUPPORTING INFORMATION FOR THE MAINTENANCE AREA 05 UNIT 2 - BUTTE CREEK RIGHT BANK LEVEE SYSTEM AND THE MAINTENANCE AREA 05 UNIT 1 - BUTTE CREEK LEFT BANK 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 Maintenance Area 05 Unit 1 - Butte Creek Left Bank Levee System (System 1 per USACE) and the Maintenance Area 05 Unit 2 - Butte Creek Right Bank Levee System (System 2 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. Both the Maintenance Area 05 Unit 1 - Butte Creek Left Bank Levee System and the Maintenance Area 05 Unit 2 - Butte Creek Right Bank Levee System are currently inactive in the RP.

The U.S. Army Corps of Engineers (USACE) Sacramento District conducted a Periodic Inspection (PI) for the Maintenance Area 05 Unit 1 - Butte Creek Left Bank Levee System and the Maintenance Area 05 Unit 2 - Butte Creek Right Bank Levee System from February 14, 2011 to March 1, 2011, and provided a copy of its PI report to the Central Valley Flood Protection Board (CVFPB) on April 5, 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. Butte Creek separates System 1 and System 2.

The required information for the LOI is presented below.

2.0 LEVEE SYSTEM AND SEGMENT IDENTIFICATION AND DESCRIPTION (NLD SYSTEM ID: 5205000591 and 5205000592)

The Maintenance Area 05 Unit 1 - Butte Creek Left Bank Levee System to be covered by the SWIF is listed in the National Database (NLD) under System 1 (NLD ID: 5205000591). The Maintenance Area 05 Unit 2 - Butte Creek Right Bank Levee System to be covered by the SWIF is listed in the National Database (NLD) under System 2 (NLD ID: 5205000592). The deficiencies identified by the USACE PI inspection program have resulted in an unacceptable rating for both System1 and System 2. System 1 includes two segments (as listed below) along the left bank of Butte Creek.

- Unit 1, Butte Creek Left Bank – Part 1 (MA5A)
- Unit 1, Butte Creek Left Bank – Part 2 (MA5B)

System 2 includes three segments (as listed below) along the right bank of Butte Creek.

- Unit 2, Butte Creek Right Bank – Part 1 (MA5C)
- Unit 2, Butte Creek Right Bank – Part 2 (MA5D)
- Unit 2 North, Little Chico - Butte Creek Diversion (MA5E)

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

TABLE 1
Maintenance Area 05 Unit 1 - Butte Creek Left Bank Levee System (NLD System ID: 5205000591)
and
Maintenance Area 05 Unit 2 - Butte Creek Right Bank Levee System (NLD System ID: 5205000592)

System	Segment Name (USACE LIS Code)	NLD Segment Number	River/ Channel	Description	Levee Length (Miles)	Location (Levee Miles)	LMA	Rating
System 1	Unit 1, Butte Creek Left Bank - Part 1 - below Midway Road (MA5A)	5204000593	Butte Creek	From Midway Road to Glenn County Line, at Unit 1 LM 15.29	7.96	7.12 to 15.29	DWR Sutter Yard	Unacceptable
	Unit 1, Butte Creek Left Bank - Part 2 – above Midway Road (MA5B)	5204000591	Butte Creek	From just north of Highway 99 to Midway Road	7.12	0 to 7.12	DWR Sutter Yard	Unacceptable
System 2	Unit 2, Butte Creek Right Bank – Part 1 (MA5C)	5204000594	Butte Creek	From Midway Road to Glenn County Line, at LM 0.0	8.00	0.0 to 8.0	DWR Sutter Yard	Unacceptable
	Unit 2, Butte Creek Right Bank – Part 2 (MA5D)	5204000592	Butte Creek	From Highway 99 to Midway Road	6.54	8.0 to 14.54	DWR Sutter Yard	Unacceptable
	Unit 2 North, Little Chico - Butte Creek Diversion (MA5E)	5204000595	Butte Creek	From 2.16 miles north of Highway 99 to Highway 99	2.16	0.0 to 2.16	DWR Sutter Yard	Unacceptable

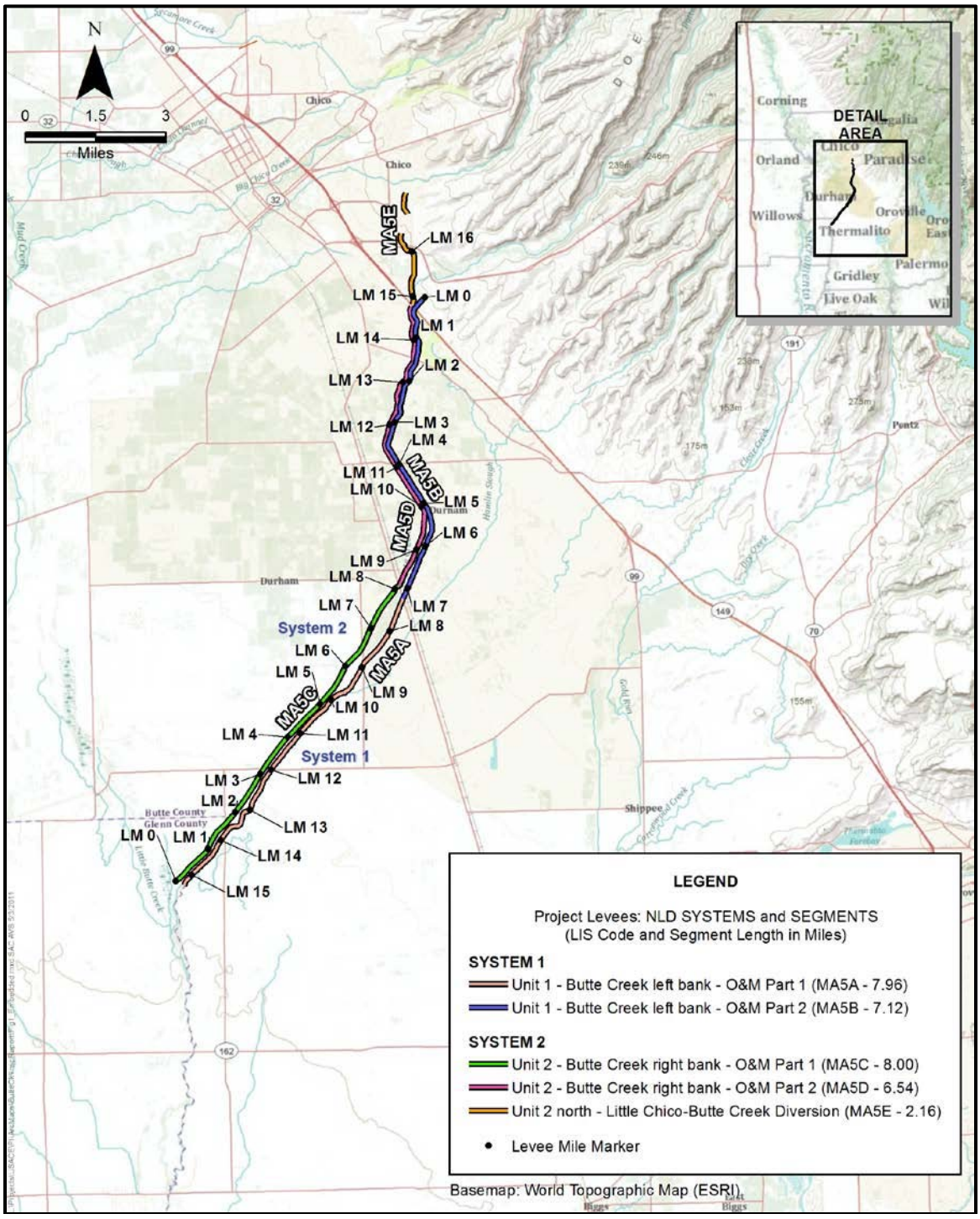

Figure 1: Maintenance Area 05 Units 1 & 2 - Butte Creek Left Bank and Right Bank Levee Systems Location Map
Source: USACE PI Report

2.1 Public Sponsor

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

2.2 Potential Consequences

Available data from the National Levee Database (NLD) and related sources indicate that the Butte Creek Levee System 1 (System 1) provides protection to the towns of Nelson, Esquon, Richvale and agricultural land, and that the Butte Creek Levee System 2 (System 2) provides protection to the suburban areas surrounding the City of Chico and the towns of Durham Roble, Dayton, and agricultural land. System 1 protects about 19,680 acres of land and a population of 1,415 people. Developed areas of System 1 are generally protected by Segment MA5B, which protects about 5,170 acres of land. Rural lands protected by System 1 contain farm buildings, the Union Pacific Railroad, U.S. Highway 99, and additional city and county roads. System 2 protects about 14,340 acres of land and a population of 7,112 people. The developed areas of System 2 are primarily Segments MA5D and MA5E, which protect about 4,580 and 1,700 acres of land respectively. Rural lands protected by System 2 contain farm buildings, the Union Pacific Railroad, U.S. Highway 99, the Oro-Chico Highway, the Durham-Dayton Highway, additional city and county roads, and two small airports. Although detailed estimates of property values are not readily available, failure of the levees could result in loss of life and property damage and consequently could have a significant impact on the local economy. (USACE PI Report & National Levee Database)

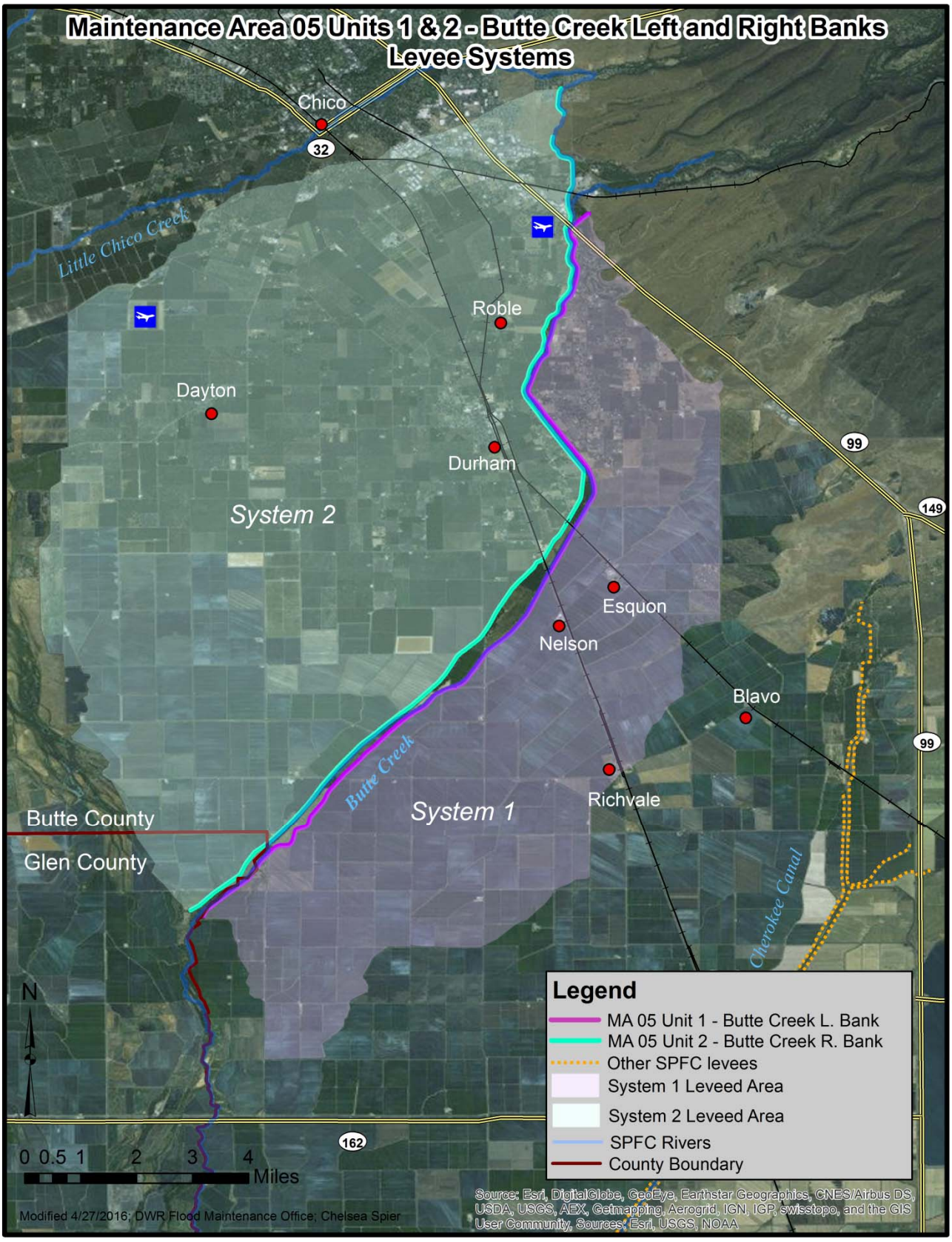

Figure 2: General Map Showing the Maintenance Area 05 Units 1 and 2 - Butte Creek Left and Right Bank Levee System and their Leveed Areas.

2.3 History of the Levee System

The following information was available on the construction history of the Butte Creek Levee System segments: as-built plans, the O&M manuals (USACE 1955, 1970 [1960]), and Design Memorandum No. 2: Sacramento River and Major and Minor Tributaries for Little Chico–Butte Creeks General Design (Design Memorandum No. 2) (USACE 1957). The Butte Creek Levee System was constructed in two parts. Segments MA5A (System 1) and MA5C (System 2) (i.e., areas downstream of Midway Road [also known as Old Highway 99 East] [Southern Pacific Railroad]) were constructed in Part 1, and Segments MA5B (System 1), MA5D (System 2), and MA5E (System 2) (i.e., Butte Creek left bank above Midway Road [Old Highway 99 East], Butte Creek right bank below Highway 99 [Midway Road], and the Little Chico–Butte Creek Diversion) were constructed in Part 2.

The levees were constructed in the 1950s under the contracts shown in Table 2. No contracts are available after the dates listed in this table. No contracts for general maintenance activities for the levees were available.

Table 3 describes historical system performance and remedial measures for System 1. Table 4 describes historical system performance and remedial measures for System 2. The locations of the reported performance events are approximate and come from historical documents rather than field inspections during the 2011 periodic inspection. As summarized in Tables 3 and 4, the recorded performance events are related to erosion, overtopping, seepage, and stability and occurred during various floods from 1956 to 2008. (USACE PI Report)

TABLE 2
History of Project Improvements

Segment (System)	Contract	Contractor	Description	Drawing	Specification	Start Date	End Date
MA5A (System 1), MA5B (System 1), MA5C (System 2), MA5D (System 2)	DA-04-167-eng-302	Piombo Construction Company	Channel clearing and excavating on both banks of Butte Creek	Unknown	Unknown	July 10, 1950	April 30, 1952
MA5E (System 2)	DA-04-167-CIVENG-58-5	W.H.Darrough & Sons	Levee construction and channel improvement from Old Highway 99 East upstream to Durham-Oroville Road	Unknown	Unknown	July 22, 1957	January 3, 1958
MA5E (System 2)	DA-04167-CIVENG-58-65	U Propina-Polich-Kral and W.H. Darrough & Sons	Channel improvement and Levee construction on the Little Chico Creek-Butte Creek Diversion and on Butte Creek from Durham-Oroville Road upstream 4.3 miles	Unknown	Unknown	May 26, 1958	December 24, 1958
MA5A (System 1), MA5C (System 2),	Unknown	Unknown	Levee construction and channel improvement from Old Highway 99 downstream 8.7 miles	Unknown	Unknown	1952	Unknown
MA5A (System 1), MA5B (System 1), MA5C (System 2), MA5D (System 2), MA5E (System 2)	Unknown	Unknown	Bank protection along the left and right banks of Butte Creek	Unknown	Unknown	1956	1970

TABLE 3
Reported Performance Events and Remedial Measures for System 1

Segment	Year	Reported Performance Event	Location (Approximate LMs)	Mitigation
MA5A	N/A	Area of concern	Unit 1 (LM 7.25)	None
MA5A	Unknown	Erosion	Unit 1 (LM 9.6 to 9.75)	Bank cobble revetted
MA5A	1957	Erosion	Unit 1 (LM 7.16 to 7.42)	Bank cobble revetted
MA5A	1997	Erosion; waterside bank scouring	Unit 1 (LM 8.5)	Repair done; no detailed information available on repairs performed
MA5A	1997	Overtopping	Unit 1 (LM 8.9 to 9.6, LM 10.25 to 10.47, LM 10.5 to 10.9, LM 11.0 to 12.0, LM 13.4 to 13.6, LM 14.25 to 14.8)	USACE or DWR repaired the overtopping damages; detailed repair information not found
MA5A	2008	Erosion	Unit 1 (LM 9.68)	No mitigation information found
MA5B	Unknown	Erosion	Unit 1 (LM 2.83 to 2.95)	Bank rock revetted
MA5B	1958	Erosion	Unit 1 (LM 0.21 to 0.38, LM 0.6 to 0.74, LM 1.42 to 1.61, LM 3.94 to 4.02)	Revetment placed
MA5B	1960	Erosion	Unit 1 (LM 2.0 to 2.14, LM 3.7 to 3.75)	Cobble revetment placed on waterside bank
MA5B	1996-1997	Underseepage; boil due to seepage	Unit 1 (LM 3.65)	Rock placed on waterside; additional details of mitigation measure were not indicated
MA5B	1996-1997	Underseepage; boil due to leaking irrigation pipe	Unit 1 (LM 3.85)	Repair made by water company on February 25, 1997
MA5B	1997	Erosion; heavy erosion on waterside berm, extending into toe of levee	Unit 1 (LM 0.74)	Repair recommended, but no information on repair
MA5B	1997-1998	Erosion; erosion of waterside berm	Unit 1 (LM 0.76 to 0.8)	Site qualified for PL 84-99 assistance; repaired in 1997; additional mitigation needed in 1998
MA5B	1997-1998	Erosion; erosion of waterside berm	Unit 1 (LM 2.02 to 2.10)	None documented
MA5B	2005	Flood fighting	Unit 1 (LM 0.4, LM 2.1)	None documented
MA5B	Unknown	Erosion damage; boils, slumps, and overtopping damage	Unit 1 (LM 3.0 to 3.8)	Site qualified for PL 84-99 assistance; repaired in 1997
MA5B	2007-2008	Erosion site	Unit 1 (LM 3.8)	None documented
MA5B	1995	Approximately 160 feet of waterside levee slipped (erosion)	Unit 1 (LM 5.0)	Temporarily repaired with rock by DWR
MA5B	Unknown	Erosion damage; boils, slumps, and overtopping damage	Unit 1 (LM 5.0 to 6.0)	Site qualified for PL 84-99 assistance; repaired in 1997

TABLE 4
Reported Performance Events and Remedial Measures for System 2

Segment	Year	Reported Performance Event	Location (Approximate LMs)	Mitigation
MA5C	Unknown	Erosion	Unit 2 (LM 1.72 to 2.1 LM 3.67 to 3.72 LM 5.22 to 5.32 LM 5.42 to 5.52 LM 7.58 to 7.64)	Cobble revetment
MA5C	1997	Overtopping and erosion from landside overtopping and rotational slide at LM 3.2	Unit 2 (LM 3.0 to 4.0)	Repaired under (COE-C0-33) in 1997
MA5C	1964	Erosion	Unit 2 (LM 3.4 to 3.45 LM 4.2 to 4.9)	Cobble revetment
MA5C	1966	Erosion	Unit 2 (LM 0.5 to 4.5 LM 2.8 to 3.0 LM 5.05 to 5.15 LM 6 to 6.3)	Cobble revetment
MA5C	1956	Erosion	Unit 2 (LM 3.56 to 4.13)	Cobble revetment
MA5C	1997	Levee breach	Unit 2 (LM 0.5)	Repair included replacing levee to pre-flood condition
MA5C	1997-1998	Levee breach	Unit 2 (LM 0.54 to 0.56)	Repaired by Sutter Maintenance Yard
MA5C	1997	Levee breach	Unit 2 (LM 6.33)	Repaired by Sutter Maintenance Yard
MA5C	1997	Landside erosion from overtopping	Unit 2 (LM 0.5 to 1.5 LM 3.15 LM 3.36 LM 4.15 to 4.92 LM 6.68 to 6.8)	Repairs recommended, but detailed information on repairs is not available
MA5C	1997	Rotational slide	Unit 2 (LM 3.2)	Repair made
MA5C	2008	Erosion site	Unit 2 (LM 2.5)	None documented
MA5D	1956	Erosion	LM 12.32 to 12.88	Cobble revetted
MA5D	Unknown	Erosion	Unit 2 (LM 10.97 to 11.1 LM 11.19 to 11.3 LM 14.45 to 14.85)	Bank rock revetted
MA5D	1963	Erosion	Unit 2 (LM 14.7)	None documented
MA5D	1964	Erosion	Unit 2 (LM 12.43 to 12.51 LM 13.17 to 13.24)	Bank rock revetted
MA5D	1966	Erosion	Unit 2 (LM 11.35	Bank rock revetted

TABLE 4
Reported Performance Events and Remedial Measures for System 2

Segment	Year	Reported Performance Event	Location (Approximate LMs)	Mitigation
			to 11.5 and LM 13.55 to 13.75)	
MA5D	1996	Erosion	Unit 2 (LM 14.0)	Repaired in 2006 as part of the DWR Emergency Levee Repair Project
MA5D	1997	Underseepage; two boils approximately 100 ft apart	Unit 2 (LM 10.7 and LM 10.76)	Repair proposed, but information on mitigation was not available
MA5D	2006	Erosion; waterside scour	Unit 2 (LM 13.6 to 13.8)	Repaired in 2006 as part of the DWR Emergency Levee Repair Project
MA5D	1997	Waterside bank erosion; boils, slumps, and overtopping damage	Unit 2 (LM 9.0 to 10.0)	Temporary repairs under (COE-CO-27) in 1997
MA5D	1997	Boil in levee	Unit 2 (LM 10.5)	Repairs recommended, but details on repair were not available
MA5D	1997	Boil on landside of levee	Unit 2 (LM 10.7)	Proposed slurry wall repair
MA5D	1997	Waterside berm and bank erosion	Unit 2 (LM 13.6 to 13.8)	Temporary repairs by DWR
MA5D	1997	Erosion damage; boils, slumps, and overtopping damage	Unit 2 (LM 13.8 to 14.5)	Site qualified for PL 84-99 assistance; repaired in 1997

2.4 Status of Vegetation Variance

An approved vegetation variance is currently not in place for the Maintenance Area 05 Unit 1 - Butte Creek Left Bank Levee System or for the Maintenance Area 05 Unit 2 - Butte Creek Right Bank 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 Maintenance Area 05 Unit 1 - Butte Creek Left Bank Levee System (System 1) and Maintenance Area 05 Unit 2 - Butte Creek Right Bank Levee System (System 2) have been identified in the USACE's PI Report based on the inspections held from February 14, 2011 to March 1, 2011. 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 5** (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 6** (below) shows the ratings assigned to each of the segments "Paragraph 6 rated item" based on the inspections conducted by the USACE from February 14 to March 1, 2011.

TABLE 5 Number of Unacceptable Items Listed for Each Segment Number of Unacceptable Items Remaining shown in ( )					
	System 1		System 2		
Rated Items	**MA5A**	**MA5B**	**MA5C**	**MA5D**	**MA5E**
Encroachments	61 (55)	105 (101)	71 (67)	94 (89)	36 (34)
Slope Stability	2 (2)	2 (2)	1 (1)	0	0
Erosion/Bank Caving	0	3 (3)	2 (1)	0	0
Animal Control	59 (0)	33 (0)	26 (0)	20 (0)	17 (0)

Source: USACE PI Report

Table 6 Maintenance Area 05 Units 1 & 2 - Butte Creek Left and Right Bank Levee Systems Segment Ratings						
Rated Items	**Rating**					**Comments**
	System 1		**System 2**			
	MA5A	**MA5B**	**MA5C**	**MA5D**	**MA5E**	
Item 1: Encroachments	U	U	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	N/A	N/A
Item 3: Slope Stability	U	U	U	M	M	Signs of active slope failure were observed at one or more locations in segments MA5A, MA5B, and MA5C. As part of the SWIF process worst stability issues will be addressed first.
Item 4: Erosion/Bank Caving	M	U	U	M	M	Erosion within the levee prism in MA5B and MA5C. These more serious erosion issues will be addressed first as part of the SWIF process.
Item 5: Animal Control	U	U	U	U	U	DWR is has a rodent abatement and repair program and plans to continue implementing the plan in the future. Currently DWR is not allowed to grout this area due to Endangered Species Act issues. However, DWR is working with USACE to develop a programmatic BO to obtain the required federal permits to begin grouting in 2017.
Item 6: Culverts/Discharge Pipes	N/A	N/A	N/A	N/A	N/A	N/A
Item 7: Under Seepage Relief Wells/Toe Drainage	N/A	N/A	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 5 and Table 6 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.

Both System 1 and System 2 are 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 7. This estimate will be refined as part of the SWIF process.

TABLE 7
Rough Cost Estimate to Address the Remaining Maintenance Deficiencies of Rated Items

Rated Items	Cost Per Item	System 1		System 2			Total
		MA5A	MA5B	MA5C	MA5D	MA5E	
Encroachments	$20,000	$1,100,000	$2,020,000	$1,340,000	$1,780,000	$680,000	$6,920,000
Slope Stability	$30,000	$60,000	$60,000	$30,000	$0	$0	$150,000
Erosion/Bank Caving	$30,000	$0	$90,000	$30,000	$0	$0	$150,000
Animal Control	$5,000	$0	$0	$0	$0	$0	$0
							$7,190,000

Addressing these maintenance deficiencies 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 5, DWR intends to develop the SWIF and to start addressing deficiencies in accordance with USACE O&M standards. Additionally, DWR is actively working on updating and improving its emergency operations, including developing 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's Maintenance Areas are primarily funded by property taxes assessed to those receiving flood protection within the Maintenance Area's boundaries. This funding is supplemented through state tax revenues (general and bond funds). These revenue sources have supported, and will continue to support, annual O&M activities including correction of deficiencies identified in the PI report. The approved Maintenance Area 05 budget (including both Systems 1 and 2) for fiscal year 2015/2016 was $417,357 and the proposed budget for fiscal year 2016/2017 is $447,357. The 7% overall increase in the budget is planned entirely for supporting encroachment removal and reflects a 60% increase in budget ($50,000 to $80,000) specifically for this task. Approximately 40% of the maintenance area budget is spent on deficiency correction and the remaining 60% is spent on routine O&M.

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 Maintenance Area 05 Units 1 & 2 - Butte Creek Left and Right Bank Levee Systems. 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 3% of the system-wide pipe penetrations that will be video inspected and repaired, replaced, removed, or abandoned as deemed necessary, are located within the Maintenance Area 05 Units 1 & 2 - Butte Creek Left and Right Bank Levee Systems.

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.

Since the Maintenance Area 05 Units 1 & 2 - Butte Creek Left and Right Bank Levee Systems PI was conducted in 2011, all of the animal control issues cited have been corrected, one unacceptable erosion/bank caving issue has been corrected, and 21 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 84 gravity pipes that have been identified as high risk within the MA5 systems. This work is planned to be completed by June 30th, 2019.

While all of the animal control issues cited in the PIR were addressed in 2012, animal control is an ongoing issue and is a high priority for DWR. Much of the MA5 levees are located within the endangered Giant Garter Snake habitat and have 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 this levee. As mentioned above, a small percentage of the $100 Million will be used to help implement statewide rodent damage mitigation, including permitting for endangered species. Take permits are expected to be obtained in 2017, at which time grouting of rodent holes will resume in these habitat areas.

The unacceptable erosion/bank caving issues that have not yet been resolved 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. None of the unacceptable slope stability issues were "red" so they were originally not a high priority to be removed, but will be evaluated for risk and repair as part of the SWIF.

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. Any shortfall of funding to implement the SWIF work will be addressed through a combination of increased funding through the MA5 budget and through State general fund, bond funds, or cost-share programs with the federal government.

DWR will secure funding for correcting levee deficiencies though a combination of the sources listed above on a worst case first basis.

In performing these activities, it must be recognized that State levee operations, maintenance, repair, rehabilitation, and replacement beyond annual routine activities is subject to funding challenges and will be an on-going long term effort.

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/lrafmo/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 according to the USACE ECB 2016-8 dated 22 Feb 2016. An updated Emergency Operations Plan (EOP) is currently being developed as part of the Mid and Upper Sacramento River Regional Flood Emergency Response Project. This EOP includes the Maintenance Area 05 Unit 1 - Butte Creek Left Bank Levee System and the Maintenance Area 05 Unit 2 - Butte Creek Right Bank Levee System. It is being prepared by Kjeldsen Sinnock & Neudeck, Inc., with funds awarded under the California Department of Water Resources Flood Emergency Response Grant Program—Statewide, Contract No. 4600010455.

This plan will address the following issues: 1) coordinating communications between emergency managers including, but not limited to DWR's Sutter Maintenance Yard, Butte County Office of Emergency Services, DWR's Flood Operations Branch, CA Office of Emergency Services Inland Region, and the CVFPB; 2) Flood preparedness procedures; 3) levee patrol procedures; 4) flood fight procedures; 5) flood water removal procedures; 6) recovery and after-action follow up procedures; 7) a detailed flood contingency map including LMA jurisdictional boundaries, levees, pumping stations, supply depots, historical flooding summary, locations of past breaches and areas of historic seepage or erosion, topography, and characteristics of waterways fronting LMA levees. DWR will continue close coordination in developing this EOP which will improve communication and evacuation planning and update emergency operations to address areas of

increased interim risk.

While seeking a SWIF, the DWR is 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 and by enhancing flood emergency response.

Several improvements were made to red and orange items in the year following publication of the PI Report and a Corrective Action Plan was submitted to USACE regarding these issues in 2012. Sutter Yard has continued to address deficiencies since this time. These improvements have been made based upon relative risk of the issue with highest risk issues being addressed first. These issues included rodent abatement and damage repair, overgrown vegetation, buildup of sediment, erosion at the landside toe of levee, no visible gate(s) on culverts and pipes that run through the levee system, unidentified pipes, and drainage ditches operating outside of the terms of its associated CVFPB permit. Specific items corrected or verified as complying with permit conditions to date included:

- MA5A_2011_p_0036 (compliance with O&M Manual or with permit issued by the CVFPB verified)
- MA5A_2011_p_0119 (compliance with O&M Manual or with permit issued by the CVFPB verified)
- MA5A_2011_p_0141 (compliance with O&M Manual or with permit issued by the CVFPB verified)
- MA5A_2011_p_0165 (repair completed in 2012)
- MA5A_2011_p_0193 (repair completed in 2012)
- MA5A_2011_p_0214 (compliance with O&M Manual or with permit issued by the CVFPB verified)
- MA5B_2011_p_0120 (compliance with O&M Manual or with permit issued by the CVFPB verified)
- MA5B_2011_p_0163 (compliance with O&M Manual or with permit issued by the CVFPB verified)
- MA5B_2011_p_0335 and MA5B_2011_p_0336 (these erosion site is currently being monitored for progression, however it has not yet been repaired because it is along a ditch that is expected to be relocated away from the levee in the near future)
- MA5C_2011_p_0015 (repairs completed in 2012)
- MA5C_2011_p_0135 (repairs completed in 2012)
- MA5C_2011_p_0205 (repairs completed in 2012)
- MA5D_2011_p_0220 (repairs completed in 2012)
- MA5D_2011_p_0236 (repairs completed in 2012)
- MA5D_2011_p_0241 (repairs completed in 2012)

- MA5C_2011_p_0130 (upon further inspection flap gate was discovered inside of the pipe, vegetation obstruction was removed)
- MA5C_2011_p_0150 (repair completed in 2012)
- MA5D_2011_p_0155 (repair partially completed, flap gate added, the siphon pipe is a likely candidate for removal in the near future)
- MA5D_2011_p_0274 (compliance with O&M Manual or with permit issued by the CVFPB verified)
- MA5E_2011_p_0081 (compliance with O&M Manual or with permit issued by the CVFPB verified)
- MA5E_2011_p_0102 (compliance with O&M Manual or with permit issued by the CVFPB verified)

The following encroachment issues were deferred to the CVFPB in 2012 requesting that NOVs be sent out to property owners: MA5A_2011_p_0161, MA5A_2011_p_0226, MA5B_2011_p_0022, MA5B_2011_p_0032, MA5C_2011_p_0147, MA5B_2011_p_0279 and MA5B_2011_p_0280. An update on these issues follows:

- MA5A_2011_p_0161: Landside ditch (end point is 181). CVFPB had been in correspondence with the property owner and their legal department. The ditch was found in the As-Builts, however CVFPB legal advised that it is still the owners responsibility. DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue.
- MA5A_2011_p_0226: This is a permitted pipe in disrepair. The CVFPB looked into this issue and discovered a small sink hole on the waterside of the pipe. They subsequently contacted the property owner and notified the DWR inspectors. DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue.
- MA5B_2011_p_0022: Landside ditch (end point is 31). CVFPB had been in correspondence with the property owner. DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue.
- MA5B_2011_p_0032: Landside ditch (end point is 65). Ditch was determined to be out of compliance with As-Builds. Letter requiring removal of ditch was sent to property owner's representative followed by subsequent correspondence and meetings on the issue. DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue.
- MA5C_2011_p_0147: DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue.
- MA5B_2011_p_0279 and MA5B_2011_p_0280: were both pools located 15-20 feet landside of the levee toe. Preliminary survey data provided by the CVFPB shows the actual levee was built outside of the Sacramento-San Joaquin Drainage District

easement. DWR working with CVFPB Enforcement Staff to obtain real estate information regarding this issue.

- One chicken coop, not included in the PI Report, was recently relocated off of the levee toe after Sutter Maintenance Yard staff met with property owners to discuss the issue.

There were a total of 155 animal control issues listed in the PI Report. In 2012, these issues were all address by removing vegetation limiting visibility and by grouting rodent holes. Rodent abatement and damage repair continues to be an on-going issue for many of the levees in the Sacramento system including Maintenance Area 05 Units 1 & 2 - Butte Creek Left and Right Bank Levee Systems. 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 this levee. Take permits are expected to be obtained in early 2017, at which time grouting of rodent holes will resume.

Other deficiencies included in the PI Report, which are corrected on an annual basis as part of routine O&M include 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 though dragging. There were a total of 49 unacceptable items under these categories listed in the PI Report.

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.

Following the publication of the PI Report, the Sutter Maintenance Yard has increased the frequency of vegetation and debris removal around pipes. Starting in 2013, Sutter Maintenance Yard has dedicated a staff member to visually inspecting all of the pipes within their area two times per year. After the inspections, any issues discovered are reported to crew supervisors for repair and information in the recently developed Utility Inspections Crossing Program (UCIP) database is updated.

Under the Deferred Maintenance Program funded through SB-826 Budget Act of 2016, 84 pipes

have been identified as high risk with in the MA5 levees. 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.

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 Maintenance Area 05 Unit 1 - Butte Creek Left Bank Levee System and/or the Maintenance Area 05 Unit 2 - Butte Creek Right Bank Levee System include:

Animals

- American badger (CDFW- SSC)
- Burrowing owl (CDFW- SSC & USFWS-BBC)
- Pallid Bat (CDFW- SSC)
- Swainson's hawk (CESA-Threatened)
- Giant Garter Snake (CDFW & USFWS- Threatened)
- Least Bell's Vireo (CDFW & USFWS- Endangered)
- Tri-colored Blackbird (CDFW-SSC, Candidate Endangered)
- Valley Elderberry Longhorn Beetle (USFWS- Threatened)
- Western Masstiff Bat (CDFW- SSC)
- California Central Valley Steelhead (ESA Threatened)
- Vernal pool fairy shrimp (USFWS- Endangered
- Vernal pool tadpole shrimp (USFWS- Endangered)
- Western pond turtle (CDFW- SSC)
- Western yellow-billed cuckoo (CDFW- Endangered & USFWS- Threatened; BBC)

Plants

- Adobe-lily (*Fritillaria pluriflora*)
- Big-scale balsamroot (*Balsamorhiza macrolepis*)
- Brazilian watermeal (*Wolffia brasiliensis*)
- Butte County checkerbloom (*Sidalcea robusta*)
- Butte County fritillary (*Fritillaria eastwoodiae*)
- Butte County meadowfoam (*Limnanthes floccosa ssp. Californica*)
- Ferris' milk-vetch (*Astragalus tener var. ferrisiae*)
- Greene's tuctoria (*Tuctoria greenei*)
- Slender-leaved pondweed (*Stuckenia filiformis ssp. alpina*
- Watershield (*Brasenia schreberi*)
- Woolly rose-mallow (*Hibiscus lasiocarpos var. occidentalis*)
- Recurved larkspur (*Delphinium recurvatum*)
- Round-leaved filaree (*California macrophylla*)

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 Maintenance Area 05 Unit 1 - Butte Creek Left Bank Levee System and the Maintenance Area 05 Unit 2 - Butte Creek Right Bank Levee System are in full compliance with the interim policy.

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;

(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;