State of California

The California Natural Resources Agency
Department of Water Resources
Division of Flood Management

2011
INSPECTION REPORT

OF THE
CENTRAL VALLEY STATE-FEDERAL
FLOOD PROTECTION SYSTEM

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LIST OF ACRONYMS

Acronym	Complete Phrase
AB	Assembly Bill
CDEC	California Data Exchange Center
CFR	Code of Federal Regulations
CWC	California Water Code
DWR	Department of Water Resources
FCW	Flood Control Work(s)
FOC	State-Federal Flood Operations Center
FPIIB	Flood Project Integrity and Inspection Branch
FPIS	Flood Project Inspection Section
CVFPB or the Board	Central Valley Flood Protection Board (formerly known as the Reclamation Board)
USACE, Corps	United States Army Corps of Engineers
FEMA	Federal Emergency Management Agency
LD	Levee District
LMAAR	Local Maintaining Agency Annual Report
LMA	Local Maintaining Agency
LMR	Levee Mile Report
GA	Geographical Areas.
LOM	Library of Models
MA	Maintenance Area
NA	Named Area
ST	State Maintained Area
SJRFCS	San Joaquin River Flood Control System
RS	Rock Site
O&M	Operation & Maintenance
ICW	Inspection of Completed Works
A	Inspection Rating—Acceptable
M	Inspection Rating—Minimally Acceptable
M*	Inspection Rating—Minimally Acceptable due to the presence of items rated U
U	Inspection Rating—Unacceptable
W	Inspection Rating—Watch/Monitor
PO	Inspection Rating—Partially Obstructing
CO	Inspection Rating—Completely Obstructing
N	Inspection Rating—Not Inspected or Not Applicable
NR	Inspection Rating—Not Rated

1 INTRODUCTION

This report documents the results of the California Department of Water Resources' (DWR) 2011 inspections of the State-federal flood protection system in California's Central Valley.

1.1 Purpose and Scope

Federal Flood Control Regulations (Title 33 of the Code of Federal Regulations, Section 208.10 (33 CFR 208.10)) require that federal flood protection facilities be inspected at least four times a year — immediately prior to the beginning of the flood season, immediately following each major high water period, and otherwise at intervals not exceeding 90 days. In addition, inspections at intermediate times may be necessary. These periodic inspections are specifically needed to ensure that maintenance measures for project facilities are being effectively carried out, not to determine other inherent problems (geotechnical, flow capacity, etc.) with the project facilities.

This *2011 Inspection Report of the Central Valley State-federal Flood Control System* is the annual report on the effectiveness of facility maintenance activities of the maintaining agencies. This report covers levees, channels, and structures, including pumping plants. Deficiencies are noted and each agency receives a rating for the facilities within its maintenance responsibilities based on the fall inspections. The report is based primarily on DWR's inspections conducted during the summer and fall of 2011.

This annual report is intended for use by the U.S. Army Corps of Engineers (USACE), DWR, the Central Valley Flood Protection Board (CVFPB), Local Maintaining Agencies (LMA), and other interested parties.

DWR's Flood Project Integrity and Inspection Branch (FPIIB) conducts two comprehensive levee inspections and one channel and structure inspection each year. DWR completed spring inspections in May 2011, documenting the location, size, type, and rating of maintenance deficiencies while working with the LMAs to assist in planning maintenance activities prior to the flood season. DWR completed annual fall inspections in December 2011, verifying the status of previously noted as well as any additional deficiencies that should be corrected to help ensure adequate performance during the flood season. LMAs conduct inspections in the winter and summer, completing the requirement to conduct four inspections each year.

Maintenance Inspection Reporting

2011 Inspection Report of the Central Valley State-Federal Flood Protection System. Annual report prepared by DWR based on DWR's fall inspections — this report.

Local Agency Annual Report. Annual report prepared by DWR based on information submitted to DWR by local maintaining agencies as required by AB156.

Quarterly Reports to the CVFPB. Flood Project Integrity and Inspection Branch (FPIIB) verbal presentations outlining inspection activities.

Levee Mile Report. Reports generated from inspections detailing maintenance deficiencies found during the inspection. A Levee Mile Report is generated for each unit and includes photos of some issues noted.

San Joaquin River Flood System Erosion Report. Annual report prepared by DWR based on supplemental inspections conducted by FPIIB personnel.

Since project facilities are inspected at least four times each year, there are other inspection reports for different uses (see side bar). As requested, DWR will report quarterly to the CVFPB on inspection activities.

Appendices contain more detailed information on project background, inspection methodology, and inspection results:

- **Appendix A.** Background information on the State-federal flood protection system and maintenance requirements. Includes plates that show locations of project facilities.
- **Appendix B.** Information on USACE inspection criteria and State inspection criteria and rating methodology.
- **Appendix C.** Tables containing inspection categories and descriptions used in the field to distinguish between Acceptable, Minimally Acceptable, and Unacceptable.
- **Appendix D.** Summary reports of levee maintenance inspection results. These reports also compare 2010 to 2011 results.
- **Appendix E.** Summary reports of channel maintenance inspection results.
- **Appendix F.** Summary reports of structures maintenance inspection results.
- **Appendix G.** Summary reports of pumping plant maintenance inspection results.
- **Appendix H.** Summary reports of erosion sites observed as a part of the Supplemental Erosion Survey of the San Joaquin River System.
- **Appendix I.** Supplemental figures and tables for information contained in Sections 2 through 4.

1.2 Highlights for 2011

DWR applied the same inspection criteria and overall rating methodology used in the 2007, 2008, 2009, 2010 and 2011 levee inspections. Overall the system showed continued maintenance improvements since 2007. The level of maintenance of the system was found to be similar in 2010 as in 2009 but decreased some in 2011.

- All inspections were completed in 2011. The Inspections Program overcame continued resourcing challenges resulting from severe State budget restrictions, including the elimination of overtime and flextime.
- The results of the 2011 levee inspections show 37 of the 106 LMAs receiving Unacceptable ratings, decreasing from 38 in 2010. The number of LMAs receiving Acceptable ratings decreased from 49 in 2010 to 45 in 2011. The number of LMAs receiving Minimally Acceptable ratings increased from 19 in 2010 to 24 in 2011.
- There was an increase in the overall length of deficiencies in 2011 compared to 2010. The overall increase can be attributed to the significant increase in the lengths of two deficiency categories: vegetation and crown surface deficiencies. The length of erosion deficiencies decreased significantly while the remaining categories did not change significantly. DWR continues to follow USACE inspection criteria for most categories, but uses interim vegetation criteria

described in *California's Central Valley Flood System Improvement Framework* document dated March 2009.

- The 2011 inspection yielded 16 channels, 41 structures and 12 pumping plants rated as Acceptable; 9 channels and 2 structures rated as Minimally Acceptable; and 1 channel and 1 pumping plant rated as Unacceptable. All Project Channels and Structures were inspected in 2011.
- The tools and procedures used in conducting inspections continue to be improved and updated to provide more reliable and accurate data.
- In 2011, the Lake County Watershed Protection District, MA0017 levee and structures maintained by DWR's Sutter Yard, and the SPFC levees and structures on the North Feather River were added to the Sacramento Basin. Although geographically distant from the Sacramento River, these facilities do have a hydrological impact on the Sacramento River Basin. Structures in the Lake County Watershed Protection District include the Clover Creek Diversion Structure and the Highland Canal Diversion Weir and Drainage Structure. These changes have been shown retroactively to ensure that the comparisons from year to year remain relative.

In this report detailed analyses of inspection results are included as appendices. Background discussion of the State-federal flood protection system—including relationships between federal, state, and local agencies, and responsibilities outlined in Project O&M Manuals—are also included as appendices.

Additional FPIIB 2011 highlights:

- FPIIB continued monthly coordination meetings with the USACE to answer questions that both groups have regarding inspections, maintenance practices and recently enacted regulations. The CVFPB and DWR's Flood Maintenance Office continued their significant participation in these meetings during 2011.
- FPIIB staff continued to coordinate with and support the State-federal Flood Operations Center (FOC) in conducting and preparing emergency exercises, and assisting in the Flood Fight Methods training, and being ready to respond to any flood emergency.
- In 2011, the USACE and its contractors continued to conduct Periodic Inspections. FPIIB coordinated with the LMAs, the CVFPB, and the USACE and its contractors throughout the Periodic Inspection process, primarily in facilitating communication between these entities.
- FPIIB provided information for the development of the 2012 *Central Valley Flood Protection Plan*.
- During high flows in May and July of 2011, FPIIB coordinated a high water staking effort with Floodplain Evaluation Branch, Hydrology Branch, and Regional Projects Assessment Branch of DFM, and Geodetic Branch of the Division of Engineering (DOE). DWR collected 243 high water surface elevations over approximately 200 miles of the San Joaquin River Flood System. The data can be used to better understand the performance of the levees, characterize a historical high water

event, guide future flood control system improvements, and improve hydraulic modeling of flood control systems.

DWR continues to improve its inspection program, undergo activities detailing the maintenance condition of features, and work with the LMAs to help ensure a functional flood protection system.

A copy of this annual report and other related reports have been published on-line at http://cdec.water.ca.gov/fsir.html.

2 2011 LEVEE MAINTENANCE INSPECTION RESULTS

The results of the 2011 levee maintenance inspections show that the number of levees receiving an acceptable rating (either Acceptable or Minimally Acceptable) increased by one, although there was a increase in the number of LMAs receiving a Minimally Acceptable versus an Acceptable rating. This shift may be attributable to the extended 2010-2011 rainy season. FPIIB continues to improve the accuracy and usability of its tools and data to inspect and rate LMAs. Each LMA received one of three possible ratings based on the state of its levees:

- **Acceptable (A)** – No immediate work required, other than routine maintenance. The flood protection project will function as designed and intended with a high degree of reliability, and necessary cyclic maintenance is being performed adequately.
- **Minimally Acceptable (M)** – One or more deficient conditions exist in the flood protection project that needs to be improved or corrected. However, the project will essentially function as designed with a lesser degree of reliability than what the project could provide.
- **Unacceptable (U)** – One or more deficient conditions exist that may prevent the project from functioning as designed, intended, or required.

In 2010 FPIIB introduced an additional rating used to identify individual issues noted during inspections, Watch/Monitor (W). This rating is used to identify issues that are not yet severe enough to be rated as M or U but that should be monitored and maintained to prevent a future deficiency. The use of this rating is an example of FPIIB's efforts to work with the LMAs to improve the overall maintenance of the system.

Appendix B describes the rating criteria and methodology used for levees. Table 2-1 and Figure 2-1 show the numbers of LMAs receiving each rating for 2007 through 2011. Except for the increase in the length of vegetation, crown surface deficiencies and the decrease in the length of erosion deficiencies, the length of maintenance deficiencies throughout the system stayed about the same from 2010 to 2011. The rainy season for 2010-2011 was much longer than in recent years; this may have been a contributing factor to the increase in the length of both vegetation and crown surface deficiencies. The longer rainy season not only promoted vegetation growth, but it also prevented the LMAs from starting their mowing activities until later in the season. The wet conditions of the levees, when coupled with agricultural traffic and initial maintenance activities taking place during saturated ground conditions, may have been contributing factors for the increase in the length of crown surface deficiencies. At the time that the fall inspections were taking place, many of the LMAs had not yet completed their vegetation maintenance. In general, the LMAs have significantly improved levee maintenance since 2007.

Table 2-1: Summary of Levee Maintenance Ratings for 2007 through 2011

	2007	2008	2009	2010	2011
A=Acceptable	24	42	51	49	45
M=Minimally Acceptable	18	25	25	19	24
U=Unacceptable	64	39	30	38	37

Ratings for each LMA are included in Table 2-2. The number of LMAs receiving Unacceptable ratings decreased by one, the number of LMAs receiving Acceptable ratings decreased by four, and the number of LMAs receiving Minimally Acceptable ratings increased by five.

The length of maintenance deficiencies changed from 2010 to 2011 with improvements to the issues categorized as trim/thin trees, encroachments, and erosion. There were no significant changes in most maintenance categories. Erosion deficiencies decreased due to maintenance conducted by the LMAs and because information about the USACE erosion sites were updated with 2011 data, which included repairs done by the USACE since the 2009 data previously used. Further discussion regarding the supplemental Levee Waterside Erosion Surveys conducted by DWR and the USACE can be found in section 6.3.

Another change from 2010 to note is an increase in the length of levees with vegetation issues in the both Sacramento River Basin and the San Joaquin River Basin. Like 2010, during 2011 LMAs experienced unusual weather patterns which presented challenges to maintenance with late and early rains. Multiple LMAs reported an increase in squirrel activity, causing animal control to be more challenging in 2011 than in recent years. DWR is developing Best Management Practices for rodent control and is actively engaging LMAs in an attempt to help them address this issue.

Figure 2-2 shows the number of agencies that received better, unchanged, or worse ratings in 2011 compared with 2010, 2009, 2008, and 2007. The number of LMAs receiving positive ratings decreased, as five fewer LMAs were rated as Acceptable compared to 2010, however one less LMA was rated as Unacceptable compared to 2010. This is likely due to several LMAs who had threshold percentages close to break points for ratings, who experienced a slight increase in the length of levees with deficiencies. More information can be found in the detailed Levee Mile Reports (LMR), an explanation of threshold percentages and the determination of overall ratings is located in Appendix B. Despite the decline in positive ratings, the LMAs continue to generally receive better ratings than in 2007 and 2008.

Vegetation deficiencies make up the majority of deficient levee miles for 2011, followed by a significant amount of crown surface issues. The remainder of deficient miles comes from animal control and other items. Appendix I provides supplemental figures showing further analysis for the two basins and types of deficiencies, including comparisons of the lengths of levee with deficiencies of each category compared each year since 2007.

LMAs may not be able to address some encroachments due to limitations in resources and relationships with the landowners. Inspectors document some of these encroachments and rate them as Partially Obstructing (PO) or Completely Obstructing (CO). In 2011, 131.07 miles of PO and 20.63 miles of CO encroachments were identified. This is an increase from last year largely due to an increase in the documentation DWR is doing. PO and CO ratings are explained in Appendix B.

A summary report showing the length of maintenance deficiencies noted in 2010 and 2011 for each LMA can be found in Appendix D. This report also shows the change in threshold percentage for each of these maintenance deficiency categories. Detailed reports showing the inspections for each LMA, including photos, can be found at http://cdec.water.ca.gov/fsir.html.

The following photos show examples of Acceptable, Minimally Acceptable, and Unacceptable maintenance of vegetation and trees.

Acceptable Vegetation Maintenance: Good grass coverage with no grass or brush over 12” tall

Minimally Acceptable Maintenance: Grass or brush partially obstruct visibility and access

Unacceptable Maintenance: Grass or brush completely obstruct visibility and access

Acceptable Tree Maintenance: No limbs within 5’ of the levee obstruct visibility or access

Minimally Acceptable Tree Maintenance: Moderate density of tree limbs partially obstruct visibility and access

Unacceptable Tree Maintenance: Significant density of tree limbs completely obstruct visibility and access

Summary of LMA Maintenance Ratings for 2007 through 2011

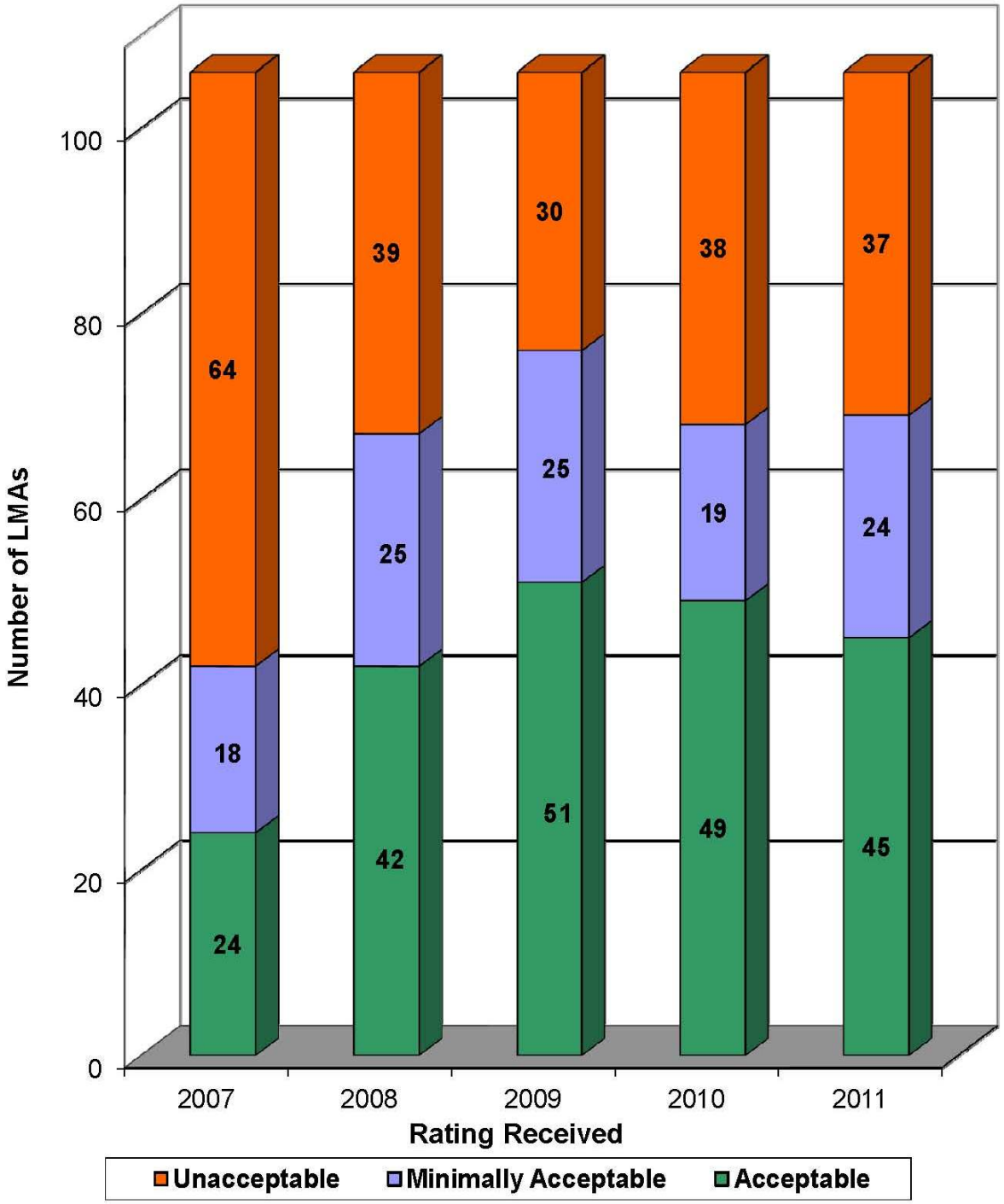


Figure 2-1

LMA Maintenance Rating Changes from Fall 2007 to Fall 2011

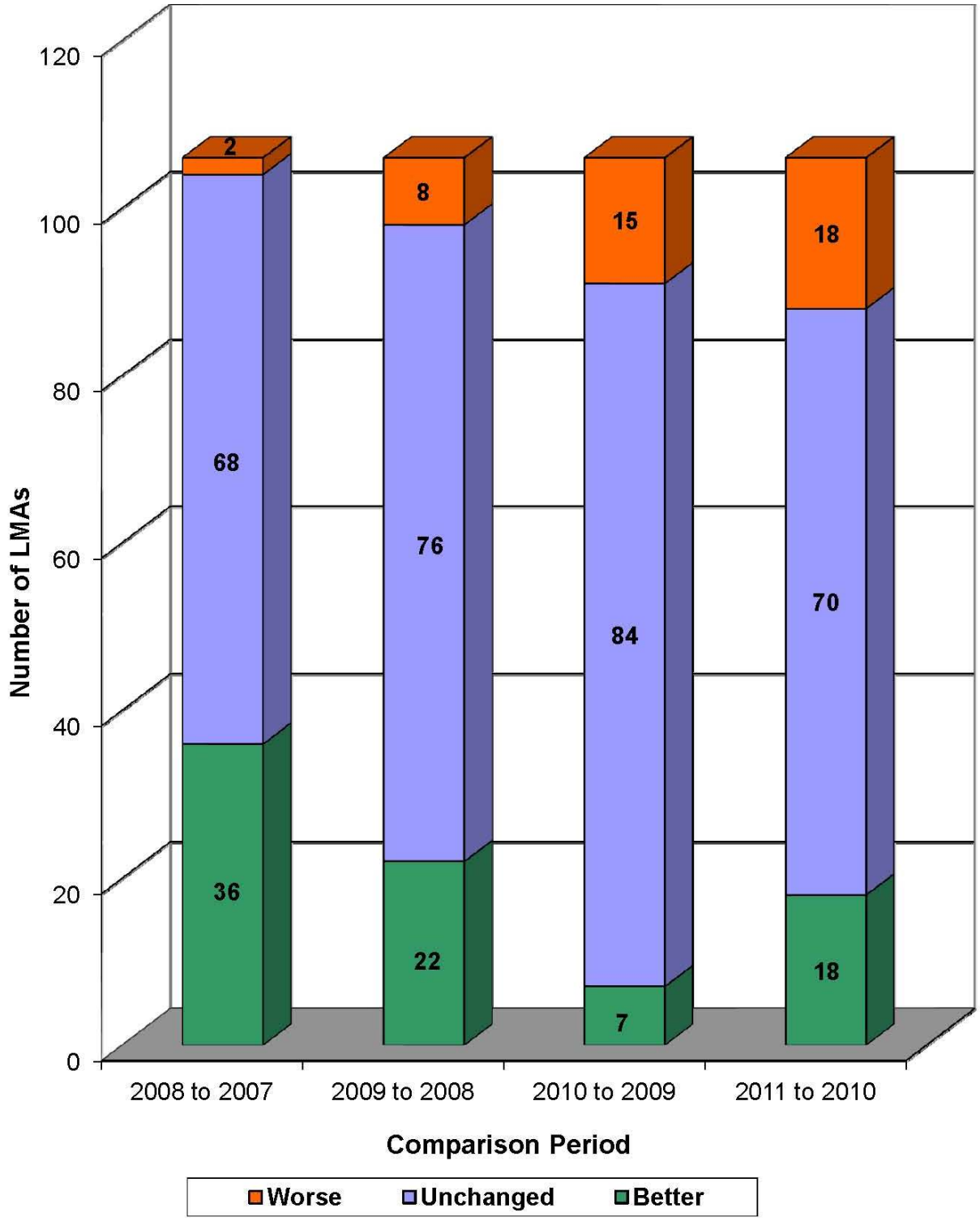


Figure 2-2

Table 2-2: Overall Maintenance Rating by Geographical Area for 2007 through 2011

LMA Short Name	LMA Name	2007 Overall Rating	2008 Overall Rating	2009 Overall Rating	2010 Overall Rating	2011 Overall Rating
LD0001G	Levee District No. 0001G (Glenn County)	U	M	M	U	M
LD0001S	Levee District No. 0001S (Sutter County)	M	A	A	M*	A
LD0002	Levee District No. 0002	A	A	A	A	A
LD0003	Levee District No. 0003	A	A	A	U	U
LD0009	Levee District No. 0009	A	A	U	A	A
MA0001	Maintenance Area 0001	M	M	A	A†	A
MA0003	Maintenance Area 0003	A	A	A	A	A
MA0004	Maintenance Area 0004	A	A	A	A	A
MA0005	Maintenance Area 0005	M	M*	M*	M*	A
MA0007	Maintenance Area 0007	U	A	A	A	A
MA0009	Maintenance Area 0009	M	M*	M	M	M
MA0012	Maintenance Area 0012	A	A	A	A†	A
MA0013	Maintenance Area 0013	A	M*	M*	M*	A
MA0016	Maintenance Area 0016	M	M	A	M	M*
MA0017	Maintenance Area 0017	U	U	U	U	U
NA0001	American River Flood Control District	M	A	A	A	A
NA0002	Brannan Andrus Levee Maintenance District	U	U	A	A†	M
NA0003	Butte County Public Works	A	A	A	A†	A
NA0004	Marysville Levee Commission	M	A	A	A	A
NA0005	City of Sacramento	U	A	A	A	A
NA0006	Eastern Honcut Creek	U	U	U	U	U
NA0008	Knights Landing Ridge Drainage District	U	M	U	A	A
NA0009	Lake County Watershed Protection District	M	A	A	A†	A
NA0010	Lower San Joaquin Levee District	M	M*	M*	M*	M
NA0011	Madera County FCWCA	U	U	U	U	U
NA0012	Solano County Public Works (Mellin Levee)	U	U	M	U	A
NA0013	Merced Streams Group	U	U	U	U	U
NA0014	Murphy Slough at M&T Ranch	U	U	U	U	U
NA0015	Plumas County	U	A	A	A†	U
NA0016	Sacramento River West Side Levee District	U	M*	M*	M*	A
NA0017	San Joaquin County Flood Control and Water Conservation District	U	M*	M	U	M
NA0018	California Department of Fish and Game	A	A	A	A†	U
NA0019	Tehama County Flood Control and Water Conservation District	U	M	M	A	M
NA0020	East-West Interceptor Canal	U	U	U	U	U
NA0021	Yolo County Public Works	U	M	U	U	U
NA0022	Yolo County Service Area 6	U	M	A	A†	U
RD0001	Reclamation District No. 0001	M	A	M	U	A
RD0003	Reclamation District No. 0003	U	U	M*	M*	M*
RD0010	Reclamation District No. 0010	U	U	A	A†	U
RD0017	Reclamation District No. 0017	U	U	M*	A	A
RD0070	Reclamation District No. 0070	M	A	A	A†	A
RD0108	Reclamation District No. 0108	A	A	A	A†	A

LMA Short Name	LMA Name	2007 Overall Rating	2008 Overall Rating	2009 Overall Rating	2010 Overall Rating	2011 Overall Rating
RD0150	Reclamation District No. 0150	U	M*	M	M*	A
RD0307	Reclamation District No. 0307	U	U	U	U	M
RD0341	Reclamation District No. 0341	U	U	A	A†	M*
RD0349	Reclamation District No. 0349	U	U	U	U	U
RD0369	Reclamation District No. 0369	U	U	A	A	M
RD0404	Reclamation District No. 0404	U	U	U	U	M
RD0501	Reclamation District No. 0501	U	U	U	U	U
RD0524	Reclamation District No. 0524	U	U	U	U	U
RD0536	Reclamation District No. 0536	U	U	U	U	U
RD0537	Reclamation District No. 0537	U	A	M	U	A
RD0544	Reclamation District No. 0544	U	U	M	U	U
RD0551	Reclamation District No. 0551	U	U	A	A†	A
RD0554	Reclamation District No. 0554	U	U	U	U	M
RD0556	Reclamation District No. 0556	U	U	U	U	U
RD0563	Reclamation District No. 0563	U	U	U	U	U
RD0755	Reclamation District No. 0755	U	U	A	U	U
RD0765	Reclamation District No. 0765	U	U	U	U	U
RD0784	Reclamation District No. 0784	M	A	A	A†	A
RD0785	Reclamation District No. 0785	U	A	M	U	U
RD0787	Reclamation District No. 0787	A	A	A	A†	A
RD0817	Reclamation District No. 0817	U	A	A	A†	M
RD0827	Reclamation District No. 0827	U	M	A	U	U
RD0900	Reclamation District No. 0900	U	U	M	M	M
RD0999	Reclamation District No. 0999	U	U	U	U	U
RD1000	Reclamation District No. 1000	A	A	A	A	A
RD1001	Reclamation District No. 1001	U	M	M*	M*	M
RD1500	Reclamation District No. 1500	M	M*	M*	M*	A
RD1600	Reclamation District No. 1600	U	M	A	U	U
RD1601	Reclamation District No. 1601	A	A	A	A†	A
RD1602	Reclamation District No. 1602	U	U	U	M	U
RD1660	Reclamation District No. 1660	A	A	A	A†	A
RD2031	Reclamation District No. 2031	U	M*	M*	A	M*
RD2035	Reclamation District No. 2035	U	A	A	A†	U
RD2058	Reclamation District No. 2058	U	U	U	U	U
RD2060	Reclamation District No. 2060	U	M	A	A†	A
RD2062	Reclamation District No. 2062	U	M*	U	U	U
RD2063	Reclamation District No. 2063	U	U	U	U	U
RD2064	Reclamation District No. 2064	U	M	A	A	U
RD2068	Reclamation District No. 2068	A	A	A	A†	M
RD2075	Reclamation District No. 2075	U	U	M*	M*	M
RD2085	Reclamation District No. 2085	U	U	M	U	U
RD2089	Reclamation District No. 2089	U	U	U	U	U
RD2091	Reclamation District No. 2091	A	A	A	A†	M*
RD2092	Reclamation District No. 2092	A	A	A	A†	M*
RD2094	Reclamation District No. 2094	U	A	A	A	A
RD2095	Reclamation District No. 2095	U	U	M	M*	M*
RD2096	Reclamation District No. 2096	A	A	U	M	A

LMA Short Name	LMA Name	2007 Overall Rating	2008 Overall Rating	2009 Overall Rating	2010 Overall Rating	2011 Overall Rating
RD2098	Reclamation District No. 2098	M	A	A	A†	U
RD2101	Reclamation District No. 2101	U	U	U	U	U
RD2103	Reclamation District No. 2103	A	M*	A	A†	A
RD2104	Reclamation District No. 2104	U	U	U	U	U
RD2107	Reclamation District No. 2107	M	A	A	A	A
ST0001	Cache Creek	M	M*	M*	M*	M*
ST0002	East Levee Sutter Bypass	M	A	A	A	A
ST0003	East Levee Sacramento River	A	A	A	A†	A
ST0004	East Levee Yolo Bypass	U	A	A	A†	A
ST0005	Hamilton Bend	U	U	U	A	A
ST0006	Nelson Bend	U	U	U	U	U
ST0007	Putah Creek	M	A	A	A†	M
ST0008	Sacramento Bypass	A	A	A	A	A
ST0009	Tisdale Bypass	A	A	A	A†	A
ST0010	Wadsworth Canal	A	A	A	A	A
ST0011	West Levee Yolo Bypass	U	M*	M*	M*	A
ST0012	Willow Slough Bypass	A	A	A	A†	A

* Overall unit threshold percentage is less than 10.00%, however, U rated miles are present, so the overall unit rating is M instead of A.

† Due to resourcing challenges, this LMA did not have inspections completed this year. The rating was assumed to be Acceptable based on the fall 2009 Inspection for the purposes of this report and comparisons to previous years.

Note: Some of the 2010 ratings have changed due to errors in this table last year. The ratings shown in the LMRs and given to the LMAs have not changed.

3 2011 CHANNEL MAINTENANCE INSPECTION RESULTS

The annual channel maintenance inspections rely upon a qualitative rating system based on the USACE O&M manuals. Existing channel capacities are not evaluated in this report. A single overall rating is assigned to each channel by DWR. The rating designations (A, M, and U) described in Section 2 are also used for channel ratings.

The method for determining overall ratings is described in Appendix B. Table 3-1 and Figure 3-1 show the numbers of each rating for the years 2007 through 2011

Table 3-1: Summary of Channel Maintenance Ratings for 2007 through 2011

	2007	2008	2009	2010	2011
A=Acceptable	10	24	19	16	16
M=Minimally Acceptable	14	1	7	3	9
U=Unacceptable	1	0	0	1	1
Not Inspected	0	0	0	6	0

While the number of channels rated as Unacceptable remained at one in 2011, the number of Minimally Acceptable channels increased by six. There is no direct correlation between the number of channels not inspected in 2010 and the increase in Minimally Acceptable channels in 2011. The 2011 inspection ratings for those channels not inspected in 2010 range from Acceptable to Unacceptable. The maintenance of the channels in 2011 was similar to what was seen in 2010 and was better in some cases. Figure 3-1 shows the progression of maintenance ratings from 2007 through 2011. The decrease in the number of channels rated acceptable compared to 2009, the last year in which all channels were inspected, can be attributed to a significant increase in channels with minimally acceptable revetment and other structural appurtenance issues.

Table 3-2 shows individual channel ratings for each LMA.

To see locations of the channels inspected, see Plates A-1 through A-1D in Appendix A.

A summary of the ratings for each channel, grouped by LMA and including the rated categories for each, can be found in Appendix E. More detailed reports including photos for each channel can be found at http://cdec.water.ca.gov/fsir.html.

Channel Overall Ratings Comparison 2007 through 2011

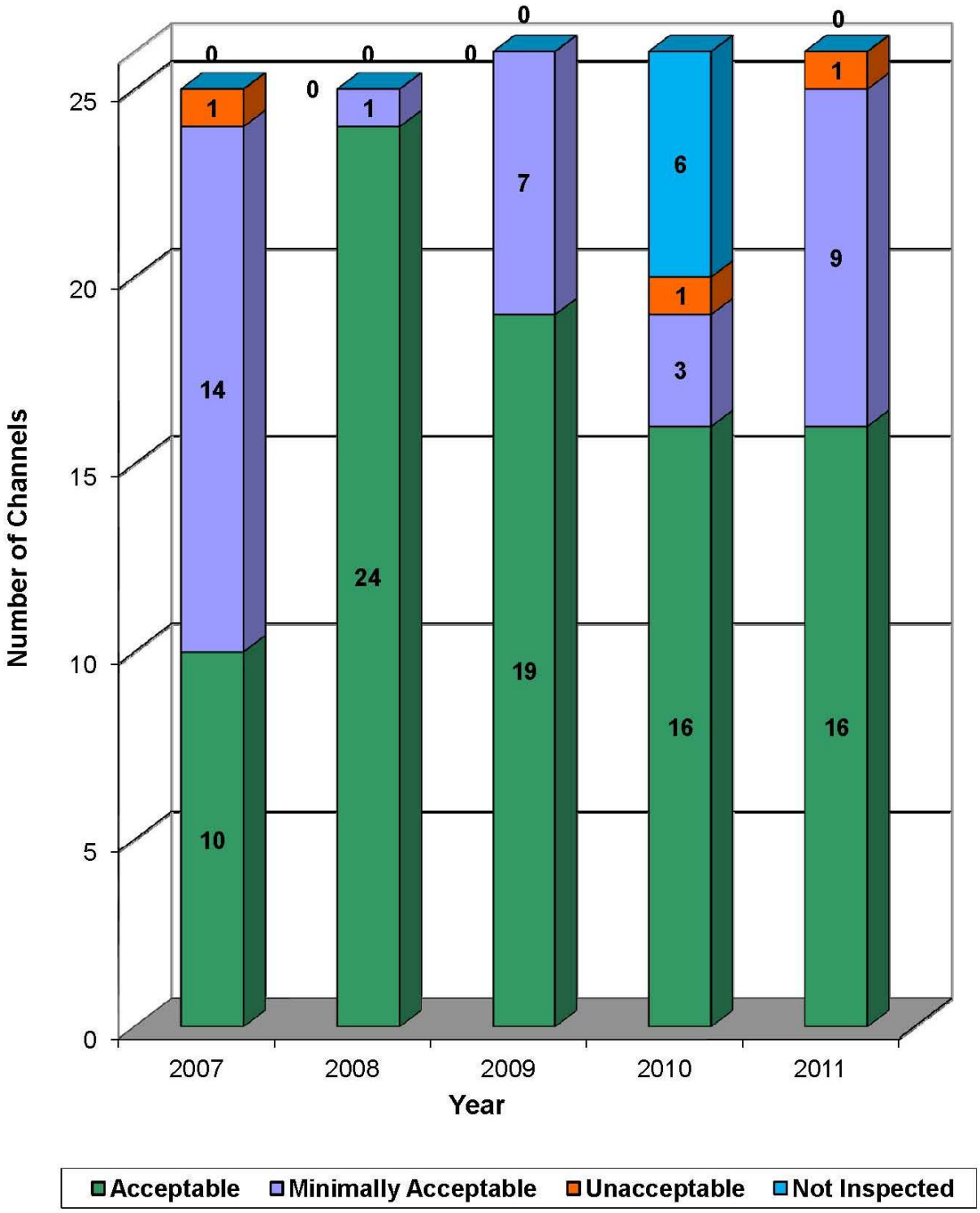


Figure 3-1

Table 3-2: Overall Channel Maintenance Ratings for 2007 through 2011

Channel	LMA Name	2007 Overall Rating	2008 Overall Rating	2009 Overall Rating	2010 Overall Rating	2011 Overall Rating
Sacramento River Basin						
Ash Creek	Adin Community Services District	A	A	A	A	A
Dry Creek	Adin Community Services District	A	A	A	A	A
McClure Creek	Tehama County	M	A	A	A	A
Salt Creek	Tehama County	U	A	M	A	A
Big Chico Creek	Sutter Maintenance Yard	M	A	M	M	M*
Lindo Channel and Sandy Gulch	Sutter Maintenance Yard	M	A	A	A	A
Little Chico Creek	Sutter Maintenance Yard	M	A	A	A	M*
San Joaquin River Basin						
Bear Creek	Merced Streams Group	M	M	M*	M*	M
Black Rascal Creek	Merced Streams Group	M	A	M*	M*	M
Burns Creek	Merced Streams Group	A	A	A	U	A
Mariposa Creek	Merced Streams Group	M	A	A	A	M
Miles Creek	Merced Streams Group	M	A	A	N†	A
Owens Creek	Merced Streams Group	M	A	A	N†	A
Ash Slough	Madera County FCWCA	M	A	M	N†	A
Berenda Slough	Madera County FCWCA	M	A	M	N†	U
Chowchilla River	Madera County FCWCA	M	A	M	N†	A
Fresno River	Madera County FCWCA	M	A	A	N†	M
North Littlejohn Creek	San Joaquin County Flood Control and Water Conservation District	M	A	A	A	A
Duck Creek Diversion	San Joaquin County Flood Control and Water Conservation District	A	A	A	A	A
South Littlejohn Creek	San Joaquin County Flood Control and Water Conservation District	A	A	A	A	A
South Littlejohn Creek, North Branch	San Joaquin County Flood Control and Water Conservation District	A	A	A	A	A
Miscellaneous Basins						
Truckee River	Placer County	A	A	A	A	A
Ledgewood Creek	Fairfield-Suisun Sewer District	N/A	N/A	A	A	M*
McCoy Creek	Fairfield-Suisun Sewer District	A	A	A	A	M
Laurel Creek	Fairfield-Suisun Sewer District	A	A	A	A	M
Union Avenue Diversion	Fairfield-Suisun Sewer District	A	A	A	A	A

* Overall channel rating average is less than 0.2, however, U rated issues are present, so the overall rating is M instead of A.

† Due to resourcing challenges, this channel did not have inspections completed in 2010.

4 2011 STRUCTURE MAINTENANCE INSPECTION RESULTS

The types of project structures included in the inspections include fixed crest diversion weirs, controllable diversion structures, outfall structures, drop structures, and interior drainage pumping plants. The rating designations (A, M, and U) described in Section 2 are also used for structure ratings.

Similar to the channel inspections, the method for determining overall ratings is described in Appendix B. Table 4-1 show the numbers of each rating for the years 2007-2011 for all structures. Figure 4-1 and Table 4-2 show ratings for each structure. Figure 4-2 and Table 4-3 show ratings for each pumping plants. The LMAs have generally improved structure maintenance since 2007.

Table 4-1: Total of Structure Maintenance Ratings for 2007 through 2011

	2007	2008	2009	2010	2011
Structures Ratings					
A=Acceptable	32	37	36	36	41
M=Minimally Acceptable	9	5	7	7	2
U=Unacceptable	1	0	0	0	0
Not Inspected	0	0	0	0	0
Pumping Plant Ratings					
A=Acceptable	12	12	7	8	12
M=Minimally Acceptable	1	1	6	4	0
U=Unacceptable	0	0	0	0	1
Not Inspected	0	0	0	1	0

Most of the structures were found to be in a similar state of maintenance as in 2010; however, the ratings of five structures improved from Minimally Acceptable to Acceptable. The increase in pumping plants receiving Acceptable ratings can be largely attributed to the reconstruction of three pumping plants which had received Minimally Acceptable ratings in the past and the inspection of the pumping plant which was not inspected in 2010, but historically has received an Acceptable rating. One of the pumping plants received an Unacceptable rating because the pumping plant was not fully accessible for inspection.

Tables 4-2 and 4-3 show individual structure ratings for each LMA.

To see locations of the structures inspected, see Plates A-2A through A-2C in Appendix A. This year, the Clover Creek Diversion Structure, the Highland Canal Diversion Weir and Drainage Structure, North Fork Feather River Diversion Channel Drop Structures (1 thru 7), and North Fork Feather River Diversion Structure were added to the Sacramento Basin. Although geographically distant from the Sacramento River, these structures do have a hydrological impact on the Sacramento Basin.

A summary of the ratings for each structure, grouped by LMA and including the rated categories for each, can be found in Appendix F. A similar report for pumping plants can be found in Appendix G. More detailed reports, including photos for each structure, can be found at http://cdec.water.ca.gov/fsir.html.

Comparison of Overall Structure Ratings from 2007 through 2011

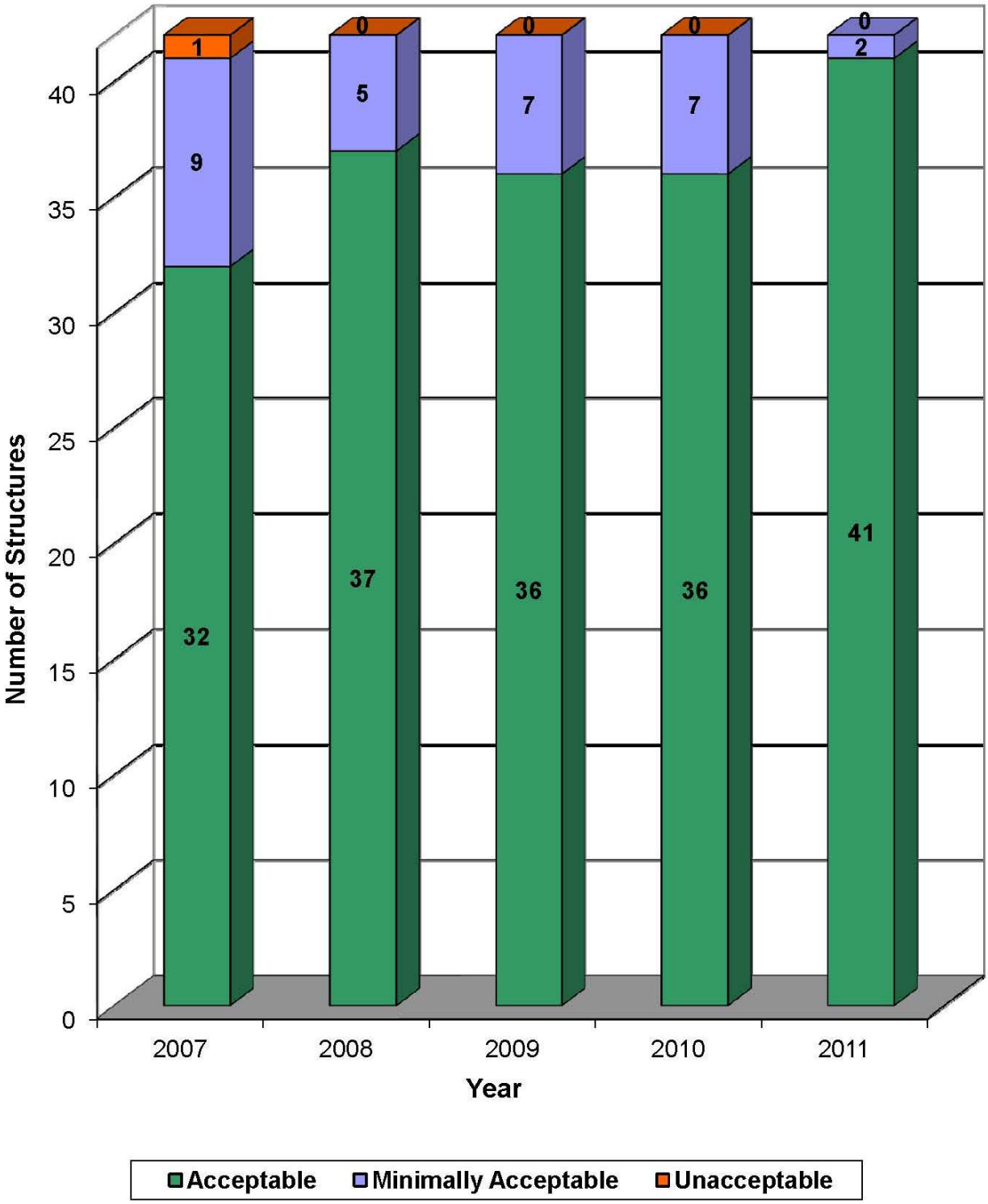


Figure 4-1

Comparison of Overall Pump Plant Ratings from 2007 through 2011

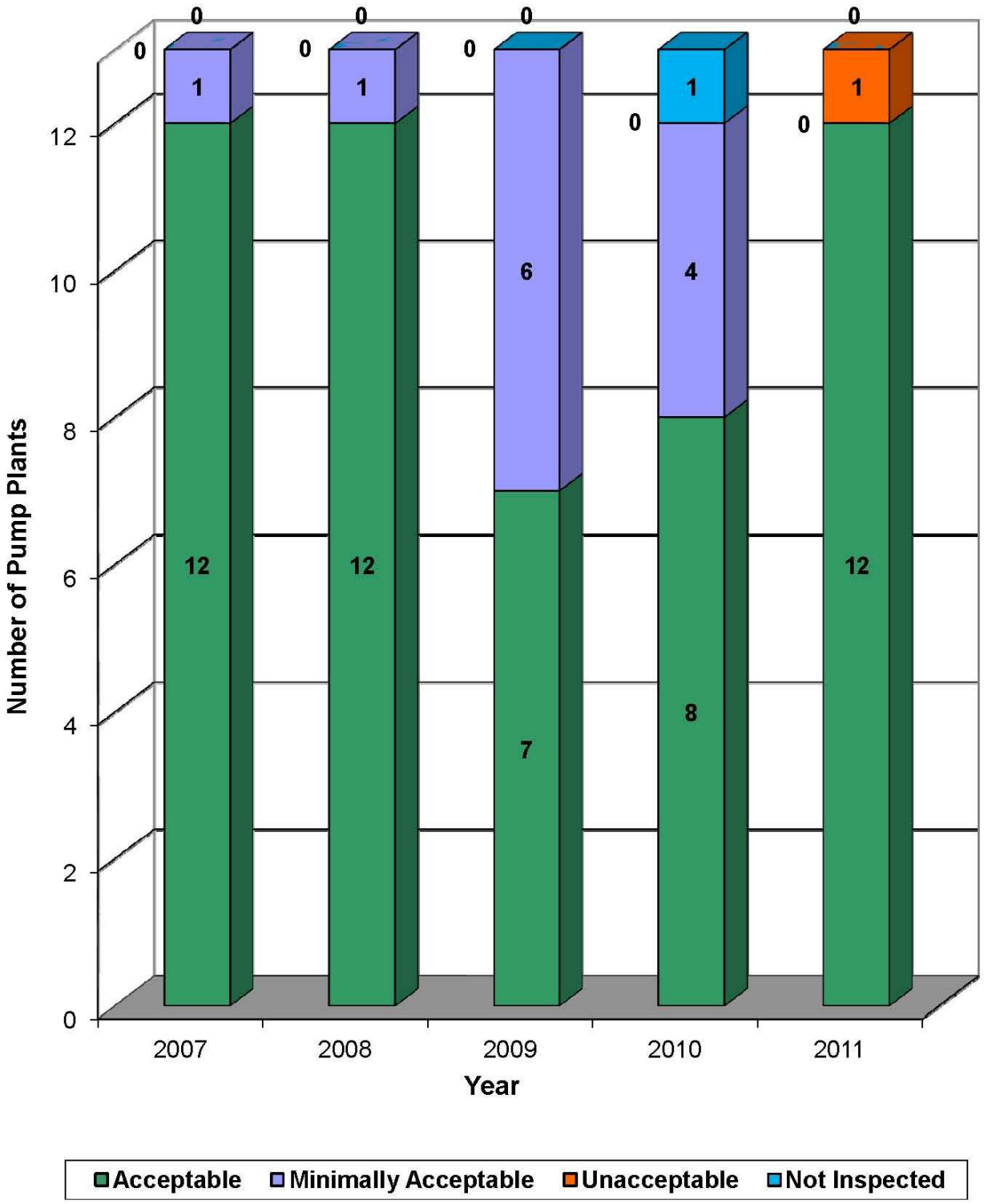


Figure 4-2

Table 4-2: Overall Structure Ratings for 2007 through 2011

Structure	LMA Name	2007 Overall Rating	2008 Overall Rating	2009 Overall Rating	2010 Overall Rating	2011 Overall Rating
Sacramento River Basin						
Big Chico Creek Control Structure	Butte County Public Works	A	A	A	A	A
Lindo Channel Control Structure	Sutter Maintenance Yard	M	A	A	A	A
Lindo Channel Diversion Weir	Sutter Maintenance Yard	M	A	A	A	A
El Camino Bridge	City of Sacramento	N/A	N/A	A	A	A
North Fork Feather River Diversion Channel Drop Structures (1 thru 7)	Plumas County	A	A	A	A	A
North Fork Feather River Diversion Structure	Plumas County	A	A	A	A	A
Elk Slough Inlet Structure	Reclamation District 999	A	A	A	A	A
Cache Creek Settling Basin Weir & Drainage Structure	Sacramento Maintenance Yard	A	A	A	A	A
Fremont Weir	Sacramento Maintenance Yard	A	A	A	A	A
Knights Landing Outfall Structure	Sacramento Maintenance Yard	A	A	A	A	A
Sacramento Weir	Sacramento Maintenance Yard	A	A	A	A	A
Butte Slough Drainage Structure	Sutter Maintenance Yard	M	M	A	A	A
Butte Slough Outfall Structure	Sutter Maintenance Yard	A	A	A	A	A
Colusa Weir	Sutter Maintenance Yard	A	A	A	A	A
Little Chico Creek Control & Weir Structure	Sutter Maintenance Yard	A	A	A	A	A
Moulton Weir	Sutter Maintenance Yard	A	A	A	A	A
Nelson Bend (Rock Quarry Weir)	Sutter Maintenance Yard	A	A	A	A	A
Sutter Bypass (East Borrow Pit) Weir #2	Sutter Maintenance Yard	A	A	A	A	A
Tisdale Weir	Sutter Maintenance Yard	A	A	A	A	A
Wadsworth Canal Weir # 4	Sutter Maintenance Yard	A	A	A	A	A
Clover Creek Diversion Structure	Lake County Watershed Protection District	U	M	M	M	M
Highland Canal Diversion Weir & Drainage Structure	Lake County Watershed Protection District	M	A	A	A	A

Structure	LMA Name	2007 Overall Rating	2008 Overall Rating	2009 Overall Rating	2010 Overall Rating	2011 Overall Rating
San Joaquin River Basin						
Ash Slough Drop Structure #1	Lower San Joaquin Levee District	A	A	A	A	A
Ash Slough Drop Structure #2	Lower San Joaquin Levee District	A	A	A	A	A
Ash Slough Drop Structure #3	Lower San Joaquin Levee District	M	A	A	A	A
Ash Slough Drop Structure #4	Lower San Joaquin Levee District	A	A	M	M	A
Bear Creek Diversion Structure	Lower San Joaquin Levee District	A	A	A	A	A
Eastside Bypass Control Structure	Lower San Joaquin Levee District	A	A	A	A	A
Eastside Bypass Drop Structure #1	Lower San Joaquin Levee District	A	A	A	A	A
Eastside Bypass Drop Structure #2	Lower San Joaquin Levee District	A	A	A	A	A
Fresno River Drainage Structure	Lower San Joaquin Levee District	M	A	A	A	A
Mariposa Bypass Control Structure	Lower San Joaquin Levee District	A	A	A	A	A
Mariposa Bypass Drop Structure	Lower San Joaquin Levee District	A	A	A	A	A
Owens Creek Control Structure	Lower San Joaquin Levee District	M	A	M	M	M
Owens Creek Overflow Structure	Lower San Joaquin Levee District	A	A	A	A	A
San Joaquin River & Chowchilla Canal Bypass Control Structure	Lower San Joaquin Levee District	A	A	A	A	A
San Joaquin River Structure & Sand Slough Structure	Lower San Joaquin Levee District	A	A	M	M	A
Ash & Berenda Slough Control Structure	Madera County FCWCA	A	A	A	A	A
Fresno River Diversion Weir	Madera County FCWCA	A	M	A	A	A
Black Rascal Creek Drop Structure	Merced Streams Group	A	A	M	M	A
Owens Creek Siphon Structure	Merced Streams Group	M	M	M	M	M*
Paradise Dam	Sacramento Maintenance Yard	M	M	M	M	M
Duck Creek Diversion Weir & Control Structure	San Joaquin County Flood Control and Water Conservation District	A	A	A	A	A

* Overall structure rating average is less than 0.2, however, U rated issues are present, so the overall rating is M instead of A.

Table 4-3: Overall Pumping Plants Ratings for 2007 through 2011

Pumping Plant	LMA Name	2007 Overall Rating	2008 Overall Rating	2009 Overall Rating	2010 Overall Rating	2011 Overall Rating
Magpie Creek	City of Sacramento	A	A	A	N†	A
Reclamation District 2063 Pumping Plant (Nelson Drain)	Reclamation District 2063	M	A	M	M	U
Wetherbee Lake Pumping Plant & Navigation Gate	Reclamation District 2096	A	A	M	A	A
American River Pumping Plant #1	Sacramento County	A	A	A	A	A
American River Pumping Plant #2	Sacramento County	A	A	A	A	A
Mormon Slough #1	San Joaquin County Flood Control and Water Conservation District	A	A	A	A	A
Mormon Slough #2	San Joaquin County Flood Control and Water Conservation District	A	A	A	A	A
Mormon Slough #3	San Joaquin County Flood Control and Water Conservation District	A	A	A	A	A
Middle Creek	Sutter Maintenance Yard	A	M	M	A	A
Sutter Bypass #1	Sutter Maintenance Yard	A	A	M	M	A
Sutter Bypass #2	Sutter Maintenance Yard	A	A	M	M	A
Sutter Bypass #3	Sutter Maintenance Yard	A	A	M	M	A
Gomes Lake	Turlock Irrigation District	A	A	A	A	A

* Overall structure rating average is less than 0.2, however, U rated issues are present, so the overall rating is M instead of A.

† Due to resourcing challenges, this structure did not have an inspection completed in 2010.

5 SUPPLEMENTAL EROSION SURVEY OF THE SAN JOAQUIN RIVER SYSTEM

5.1 Purpose

Since 2006, the Department of Water Resources' Flood Project Integrity and Inspection Branch has conducted the supplemental erosion survey of the San Joaquin River Flood Control System (SJRFCS) to assist in the documentation and monitoring of erosion sites. The specific purpose of the Supplemental Erosion Surveys of the SJRFCS are to: a) inspect the waterside levee for erosion activity, b) document and report new erosion sites, c) document and report current condition of previously identified erosion sites, and d) rank the severity of erosion sites based upon the findings from the field survey. For the purposes of this report, an erosion site is defined as a site where substantial ground loss associated with erosion has been observed and documented, and where the integrity of the levee may be at risk of an erosion failure during floods or normal flow conditions.

5.2 Highlights

- In 2011, supplemental erosion surveys show that 33 of the 53 previously identified erosion sites remain unchanged. One of the existing sites, in RD 2101 at river mile 73.92, is in critical condition.
- Among the 53 surveyed existing erosion sites, 15 sites were repaired prior to the last survey and their performance were evaluated. Five sites were found repaired and are being monitored.
- Thirteen new erosion sites were discovered this year, eight on San Joaquin River, and five on Old River. Two of these sites appear to be in a critical condition and further erosion occurred during last flood season. These sites are in Lower San Joaquin Levee District on either side of an existing repair at river miles 224.27 and 224.33. Most of these new sites can be attributed to the past wet year which increased flows throughout the SJRFCS.
- FPIIB updated the erosion inventory database by adding survey details.
- FPIIB applied the same inspection criteria and rating methodology used in prior erosion surveys.
- FPIIB will continue to implement the changes to the Erosion Survey program as policies and procedures are revised.

5.3 Results

The results of the 2011 supplemental erosion survey show that many local agencies have made significant improvements since 2006. Twenty previously identified erosion sites have been repaired, and a few more are in the planning stages of repair. Erosion sites unchanged from the previous year were given one of two possible ratings based on the condition of the site:

- **Minimally Acceptable (M)** – A site that requires annual assessment and monitoring, as it may become a serious levee deficiency in the near future.

- **Unacceptable (U)** – A site that may require immediate attention and corrective action, as it may be a serious levee deficiency that can fail during normal flow or in the next high water event.

Appendix B contains information on the inspection criteria and rating methodology. Table 5-1 shows the numbers of erosion sites receiving each rating in 2011. A summary of the status and ratings, including photos for each erosion site, can be found in Appendix H.

Table 5-1: Summary of Erosion Site Status and Rating for 2011

	Number of Erosion Sites
M=Minimally Acceptable	20
U=Unacceptable	24
Sites Repaired Since 2010	20
Sites Not Rated	2

Table 5-2 shows individual ratings for each erosion site. Most of the erosion sites were in a similar condition as in previous years. Some of these sites are in the process of being addressed within the following years. While the number of erosion sites rated as U remains high, many of the previously identified sites have since been repaired by local agencies and DWR.

Table 5-2: Erosion Site Ratings by LMA for 2011

LMA Short Name	LMA Name	Site ID	Normalized Score	Overall Rating
NA0010	Lower San Joaquin Levee District	NA0010U23RM224.33	63	U
NA0010	Lower San Joaquin Levee District	NA0010U23RM224.27	58	U
NA0011	Madera County FCWCA	NA0011U01RM2.57	55	M
NA0011	Madera County FCWCA	NA0011U01RM3.8	52	M
NA0013	Merced Streams Group	NA0013U03RM1	58	U
NA0013	Merced Streams Group	NA0013U03RM1.25	51	M
NA0013	Merced Streams Group	NA0013U04RM0.21	48	M
NA0013	Merced Streams Group	NA0013U04RM0.42	48	M
NA0017	San Joaquin County Flood Control and Water Conservation District	NA0017U15RM7.23	55	M
NA0017	San Joaquin County Flood Control and Water Conservation District	NA0017U15RM0.86	65	U
RD0404	Reclamation District No. 0404	RD0404U01RM40.86	57	U
RD0524	Reclamation District No. 0524	RD0524U01RM46.12	51	M
RD0524	Reclamation District No. 0524	RD0524U01RM41.15	71	U
RD0524	Reclamation District No. 0524	RD0524U01RM41.79	74	U
RD0524	Reclamation District No. 0524	RD0524U01RM42.2	66	U
RD0524	Reclamation District No. 0524	RD0524U01RM45.27	57	U
RD0524	Reclamation District No. 0524	RD0524U01RM43.83	57	U
RD0524	Reclamation District No. 0524	RD0524U01RM41.59	58	U
RD0524	Reclamation District No. 0524	RD0524U01RM41.5	55	M
RD0524	Reclamation District No. 0524	RD0524U01RM41.39	60	U

LMA Short Name	LMA Name	Site ID	Normalized Score	Overall Rating
RD0544	Reclamation District No. 0544	RD0544U01RM47.12	68	U
RD2031	Reclamation District No. 2031	RD2031U01RM0.48	47	M
RD2058	Reclamation District No. 2058	RD2058U01RM1.78	48	M
RD2058	Reclamation District No. 2059	RD2058U01RM3.97	48	M
RD2062	Reclamation District No. 2062	RD2062U02RM2.14	42	M
RD2062	Reclamation District No. 2063	RD2062U02RM1.94	51	M
RD2062	Reclamation District No. 2064	RD2062U01RM54.14	51	M
RD2062	Reclamation District No. 2065	RD2062U03RM30.19	69	U
RD2062	Reclamation District No. 2066	RD2062U03RM30.43	60	U
RD2062	Reclamation District No. 2067	RD2062U03RM31.12	52	M
RD2062	Reclamation District No. 2068	RD2062U03RM31.28	47	M
RD2062	Reclamation District No. 2069	RD2062U03RM30.27	56	U
RD2062	Reclamation District No. 2070	RD2062U03RM30.1	57	U
RD2062	Reclamation District No. 2071	RD2062U03RM30.02	52	M
RD2062	Reclamation District No. 2072	RD2062U03RM29.93	66	U
RD2075	Reclamation District No. 2075	RD2075U01RM64.34	57	U
RD2089	Reclamation District No. 2089	RD2089U01RM29.61	63	U
RD2089	Reclamation District No. 2090	RD2089U02RM28.35	59	U
RD2089	Reclamation District No. 2091	RD2089U01RM29.8	53	M
RD2095	Reclamation District No. 2095	RD2095U02RM60.62	62	U
RD2095	Reclamation District No. 2096	RD2095U01RM6.74	55	M
RD2095	Reclamation District No. 2097	RD2095U01RM6.88	59	U
RD2095	Reclamation District No. 2098	RD2095U02RM60.69	51	M
RD2101	Reclamation District No. 2101	RD2101U01RM73.92	65	U

6 OTHER BRANCH ACTIVITIES AND ACCOMPLISHMENTS

The Flood Project Integrity and Inspection Branch supports flood operations by inspecting, evaluating and assessing the integrity of the Sacramento and San Joaquin Flood Control Project levee systems through a variety of activities. FPIIB is involved in collecting and managing flood control system information to assist in flood operations efforts. This information includes data on historical levee distress issues, as well as historical flood control system improvements, operation and maintenance (O&M) agreements, O&M standards and practices, and general information related to flood control system facilities.

FPIIB inspects the maintenance of flood control facilities and notifies local maintenance agencies of system deficiencies, monitors levee and channel erosion, monitors use of designated floodways, conducts regulatory inspections of Central Valley Flood Protection Board authorized encroachments, conducts flood fight training, has first-response capability during high-water events, and conducts high-water staking.

The following sections provide more detail on key Branch activities and accomplishments.

6.1 Inspection and Reporting for Project Facilities

FPIIB conducts maintenance inspections for project levees, channels, and structures–the main subject of this report. Improvements in 2011 inspections and reporting include:

- Continued inspector training and use of more consistent methodology to reduce subjectivity
- More timely reporting and communication of deficiencies to LMAs
- Continued refinements to inspection database program, allowing efficient documentation of system conditions and compatibility with USACE National Levee Database reporting requirements

DWR expects to implement additional changes to the inspection program as existing USACE policies are clarified over time, new policies are developed, and other levee management issues arise.

6.2 Local Agency Annual Reporting

In 2011, the Local Maintaining Agency Annual Reporting (LMAAR) program stepped into fourth year of assembling and gathering pertinent information on project levees of State-federal flood protection system in the Central Valley. Formerly known as Assembly Bill (AB) 156 reports, they emerged from Assembly Bill 156 introduced during the 2007-08 Legislative Session and approved by the Governor and chaptered in California Water Code (CWC) by the Secretary of the State on October 10, 2007. Thus, a state-mandated local program became effective on LMAs beginning July 1, 2008. According to CWC § 9140, local agencies are required to submit information for the levees they maintain by September 30 each year. In turn, DWR is required to summarize the information in an annual report to the CVFPB by December 31 each year. FPIIB prepared the 2008, 2009, and 2010 Local Agency Annual Reports and electronic copies of these reports can be obtained from DWR's CDEC website at http://cdec.water.ca.gov/lma.html or the CVFPB's website at http://cvfpb.ca.gov/reports/index.cfm.

FPIIB is scheduled to deliver the 2011 Local Agency Annual Report to the CVFPB by December 31.

6.3 Levee Waterside Erosion Surveys

The USACE, with DWR sponsorship, has contracted for waterside erosion surveys of the Sacramento River system since 1998. FPIIB began conducting waterside erosion surveys of the San Joaquin River portion of the State-federal flood protection system project levees in September of 2006. The primary purpose of these surveys is to: (a) monitor and document the condition of previously identified erosion sites; (b) inventory any new erosion sites; and (c) identify erosion sites that appear to be an imminent threat to the structural integrity of the State-federal flood protection system.

Beginning in 2010, the results from DWR's Supplemental Erosion Survey of the San Joaquin River System are presented in this report in Section 5. Inspection criteria and rating methodology are described in Appendix B and will not be published in a separate document.

The USACE and its contractors generate the report on erosion found in the Sacramento River system; FPIIB staffs supplement the reports they generate with this data as it becomes available. In 2011, data was received in time to include the latest information on erosion sites from the USACE in this report and the LMRs.

DWR and other State, federal, and local entities are working to develop an erosion repair strategy that addresses environmental concerns from erosion maintenance and assigns responsibility for repair of different scales of erosion in the flood protection system.

6.4 Utility Crossing Inventory Surveys

Continued enhancement of FPIIB's inspection effort includes the utility crossing inventory program. The main goal of this new program is to develop an inventory of utility crossings penetrating State-federal flood project levees. The inventory will include detailed desk studies to identify the location and characteristics of documented pipes crossing project levees and field surveys to document external conditions of the crossing structures and levee embankment.

Levee penetrations are recognized as hazard elements affecting the integrity of project levees. Heavily corroded, leaking, collapsed, or otherwise compromised pipes affect the structural integrity of levee embankment by creating mechanisms of internal erosion. Identification of the precise location of these crossings and documentation of their external conditions constitute important and relevant information used to assess levee vulnerability.

While the majority of utilities penetrating project levees are irrigation or drainage discharge pipes, there are many other types of utilities cross levees such as pressurized gas pipelines, storm drains, sewer lines, and communication conduits.

The utility crossing survey program will:

- Identify location and characteristics of all pipes penetrating through levees using historical information such as CVFPB encroachment permits, DWR Levee Logs, LMA records, and USACE O&M Manuals.

- Perform field surveys to measure location and document existing conditions of the crossing and levee embankment based on their observed external appearance.
- Identify the location of undocumented, unpermitted, and improperly abandoned crossings by means of geophysical surveys. These surveys are being conducted by the Division of Flood Management, Levee Repairs and Flood Maintenance Office, Urban Levee Evaluation Branch.
- Document and update status of the crossing (active, abandoned, replaced, or removed).
- Share utility crossing information with LMAs to assist in the coordination of the operation of public and private facilities during flood fighting. The Utility Crossing Inventory Program is working with the CDEC to make the information available through the Local Maintaining Agency Annual Report (web application).
- Provide training to LMAs on how to update utility crossing information using the web application.

The information collected through this program will be used by inspectors to clarify maintenance issues with the different levee maintaining agencies, and by engineers for vulnerability assessments.

6.5 Other Key Activities

Additional FPIIB activities supporting the assessment of the integrity of the Sacramento and San Joaquin Flood Control Project levee system include:

- CVFPB Permit Inspection: FPIIB's team of flood project inspectors visually inspects the construction and installation of permitted encroachments for adherence to Board conditions. There was a continued increase in the number of permits requiring inspection in 2011.
- Other CVFPB/FOC Inspections: In addition to the issuance of formal permits, the CVFPB authorizes activities on levees and structures in the system. During 2011 there was an increase in these activities requiring inspection, most notably in the repair and replacement of penetrations through levees. FPIIB also conducted investigations into a variety of matters as requested by the CVFPB and the FOC.
- DWR and Corps Inspection Program Working Group: FPIIB and USACE's Sacramento District meet monthly to coordinate ongoing DWR and Corps inspection program activities. The primary focus is to establish a consistent understanding of inspection criteria and to establish consistent guidelines for developing system ratings.
- Internal and External Coordination: FPIIB participated in coordination with others groups within DWR as well as a variety of other agencies in the Interagency Flood Management Collaborative Program Management Group and meetings regarding Prospect Island.
- Preparation of the Progress Reports: In July 2011 FPIIB coordinated and prepared *California's Central Valley Flood System Improvement Framework Progress Report No. 4* and submitted it to the CVPFB to be sent to the USACE. This report documents the progress made in meeting the broad range of threats to levee

integrity identified in *California's Central Valley Flood System Improvement Framework*.

- Periodic Inspections: The USACE and its contractors conducted multiple Periodic Inspections throughout 2011. FPIIB staff participated heavily in coordination with the LMAs, USACE, and CVFPB. These inspections are more detailed inspections intended to be conducted once every ten years for each levee systems. FPIIB staff is helping to ensure that information is properly and completely exchanged between the entities to the greatest extent possible. As the LMAs complete maintenance on areas of concern noted in the Periodic Inspections, FPIIB inspectors work with the CVFPB to verify that the work is completed before the USACE is notified and a re-inspection is requested.
- Levee Log Update: FPIIB is working with the USACE, the CDEC, and its contractor to further refine and populate a geo-referenced levee database to include all features within the easements of the State-federal flood control system.
- Database Management: Compilation of known maintenance deficiencies and historical information into a geo-referenced database provides quick and detailed background information regarding distressed locations for initial analysis during high water events and in assessing system reliability. This database continues to be enhanced through CDEC programming.
- Flood Fight Training: Inspectors assist the Flood Fight Specialist teaching flood fight methods to over 1,000 people per year throughout the state.
- High Water Staking: FPIIB is working to formalize the protocols, procedures, and manuals for data collection during high water event. This project is nearing completion and a final document is anticipated in the near future.
- System Documentation: FPIIB is responsible for collecting, evaluating and summarizing historical and existing data in regard to flood emergency response. The data is being converted from hard copy to GIS-based data (geo-referenced) wherever possible. Once the system documentation is established, the data will be shared with local agencies.
- Emergency Response: Inspectors are sent to areas of concern throughout the state to respond to flood related issues. As first responders, they provide flood fight expertise to local emergency responders, perform high water staking and may organize flood fight efforts. In 2011, FPIIB assisted in the flood fight response to a piping situation in MA 0017 in the vicinity of the Middle Creek pumping plant and other incidents that occurred during the high water events during the year.
- Emergency Exercises: FPIIB assisted the FOC to prepare and conduct past and future emergency response exercises and will continue to do so. FPIIB staff participated in the State Golden Guardian Exercise and also assisted in the planning and also participated in a simulation for the Forecast-Coordinated Operations (F-CO) group.
- Library of Models Project: FPIIB is assisting in the development of a Library of Models (LOM) to house models being developed under FloodSAFE programs. The LOM will be beneficial to other DWR offices and partner agencies. These models will be publically accessible.

- A pilot study is being conducted to evaluate the feasibility of an instrumentation network (fully-grouted piezometers) along the project levees to obtain real-time data pertaining to levee behavior during a flood event. The real-time information will allow DWR to assess seepage conditions through the levee during high water events and enhance its Emergency Preparedness and Response Plan. The instruments have been placed and are being monitored.
- A Flood Project Investigation Reporting System is being developed that will include development of a database that is used to gather, track, and manage information collected during field visits to the flood control system regarding integrity issues. The system will be flexible in reporting the type of investigation, and will have the capability to be integrated with CDEC systems and the Flood Operations Center Information System (FOCIS).

Appendix A: Maintenance Requirements and Responsibilities

Appendix A includes background information on the State-federal flood protection system in the Central Valley, maintenance requirements, and maintenance responsibilities. This information remains relatively static from year to year. Any significant changes in maintenance requirements and maintenance responsibilities that occur in a given year, if any, are noted in Section 1.1 of the main report.

A-1. State-Federal Flood Protection System

The State-federal flood protection system is located in the Central Valley and is composed of many projects along the Sacramento and San Joaquin rivers and tributaries. The system includes federally authorized projects for which the State participated and provided the federal government assurances of continued cooperation.

Congress authorized the Sacramento River Flood Control Project (SRFCP) in 1917, and subsequent supplemental authorizations (e.g. Sacramento River and Major and Minor Tributaries, American River levees, etc.) have added projects to the SRFCP over the years. The San Joaquin River Flood Control Project consists of a number of separate federally authorized flood protection projects, most of which have been built since the 1940's (for example: Merced County Stream Group, Lower San Joaquin River, etc.).

Some existing levees were also incorporated into the Sacramento and San Joaquin flood protection systems through the passage of federal statutes if the USACE believed the levees met or exceeded design standards. The State of California generally provides lands, easements, and right-of-ways for project construction. An exception to this process is the Lower San Joaquin River Flood Control Project that was designed and constructed to federal standards by the State of California (substituting physical works for acquisition of more costly flowage easements required for the authorized federal project).

The two major river flood protection systems have combined totals of approximately 1,574 miles of federal project levees (shown on Plates A-1 through A-1D), 1,200 miles (148,000 acres) of designated floodways, 26 project channels covering several thousand acres (shown on Plates A-1 through A-1D), and 56 other major flood protection works including overflow weirs, flood relief structures, outfall gates, and pumping plants (shown on Plates A-2A through A-2C).

Since the beginning of federal participation, the Sacramento River and San Joaquin River flood systems have been constructed, expanded, improved, and repaired through a series of subsequent federal authorizations. Projects within these systems, for which the Central Valley Flood Protection Board (formerly the Reclamation Board) or DWR has provided the assurances of nonfederal cooperation to the United States, are considered the State-federal flood protection system in the Central Valley.

Integrated Flood Management

It should be noted that this State-federal flood protection system is a part of an integrated flood protection system in the Central Valley. Parts of this larger system are interdependent and rely on other features operating successfully. For example, many reservoirs, private levees and designated floodways, though not part of the State-federal flood protection system, regulate and contain flood flows to the benefit of the State-federal flood protection system.

Improved and sustainable integrated flood management is a stated goal of FloodSAFE California, specifically the Central Valley Flood Planning (CVFP) Program. Legislation passed in 2007 directs the California Department of Water Resources (DWR) to develop three important documents that will guide improvement of integrated flood management:

- **State Plan of Flood Control (SPFC) Descriptive Document** to inventory and describe the flood management facilities, land, programs, conditions, and mode of operations and maintenance for the State-federal flood protection system in the Central Valley.
- **Flood Control System Status Report** to assess the status of the facilities included in the SPFC Descriptive Document, identify deficiencies, and make recommendations.
- **Central Valley Flood Protection Plan (CVFPP)** to describe a sustainable, integrated flood management plan that reflects a system-wide approach for protecting areas of the Central Valley currently receiving protection from flooding by existing facilities of the SPFC.

A-2. Maintenance Requirements

Title 33 of the Code of Federal Regulations, Section 208.10 (33 CFR 208.10) outlines federal regulatory requirements for the maintenance and operation of structures and facilities that comprise the State-federal flood protection system.

33 CFR 208.10 provides general operation and maintenance guidance to obtain the maximum benefits from the following features:

a) Structures and Facilities
b) Levees
c) Floodwalls
d) Drainage
e) Closure Structures
f) Pumping Plants
g) Channels and Floodways

Additionally, Standard and Supplemental O&M Manuals were prepared by USACE, Sacramento District, for project levees and flood protection works in the Central Valley.

A Standard O&M Manual was published for the Sacramento River Flood Control Project in May 1955, and for the Lower San Joaquin River Levees, Lower San Joaquin River and Tributaries Project in April 1959. The purpose of these Standard O&M Manuals is to present general information for use by local interests who maintain and operate the various geographical units comprising the Projects.

Supplemental O&M Manuals were prepared to supplement the respective USACE Standard O&M Manual. These supplemental manuals serve as a project specific guide to assist each LMA in carrying out its responsibilities for levee maintenance. Section 4 of the Standard O&M Manual and Section 2 of the supplements describe some of the standards to be met by LMAs in the performance of their routine maintenance.

A-3. Maintenance Responsibilities

As construction of federally authorized project units was completed, the USACE prepared unit-specific operation manuals and transferred the projects by letter to the CVFPB for review and acceptance. Project levees and flood protection works for which the State of California had provided the assurances of non-federal cooperation were formally accepted by the CFVPB on behalf of the State for operation and maintenance in accordance with federal regulations. In many cases, the State officially transferred operation and maintenance responsibilities to local entities.

Local public entities within the Sacramento and San Joaquin river systems have the responsibility, liability, and duty to maintain and operate the levees and other flood protection works on a day-to-day basis in accordance with assurance agreements, guidelines provided in the USACE Standard O&M Manuals, and each applicable supplement for individual project units. Flood protection features for which operation and maintenance are not performed by local entities are those SRFCP works maintained by DWR in accordance with Water Code §8361; and those facilities within Maintenance Areas (MA) that are maintained by DWR, with local beneficiaries paying costs under Water Code §12878. For the Sacramento River Flood Control Project, the LMA responsibilities were set forth in Water Code §8370 with the exception of enumerated works identified under Water Code §8361 and those for which provision is made by federal law. Flood protection project responsibilities in the San Joaquin River basin are based upon assurance agreements between the CVFPB and each LMA.

Currently, operation and maintenance responsibilities for the State-federal flood protection system levees in the Central Valley are carried out by 106 individual State and local maintaining agencies.

Channels and Flood Control Structures

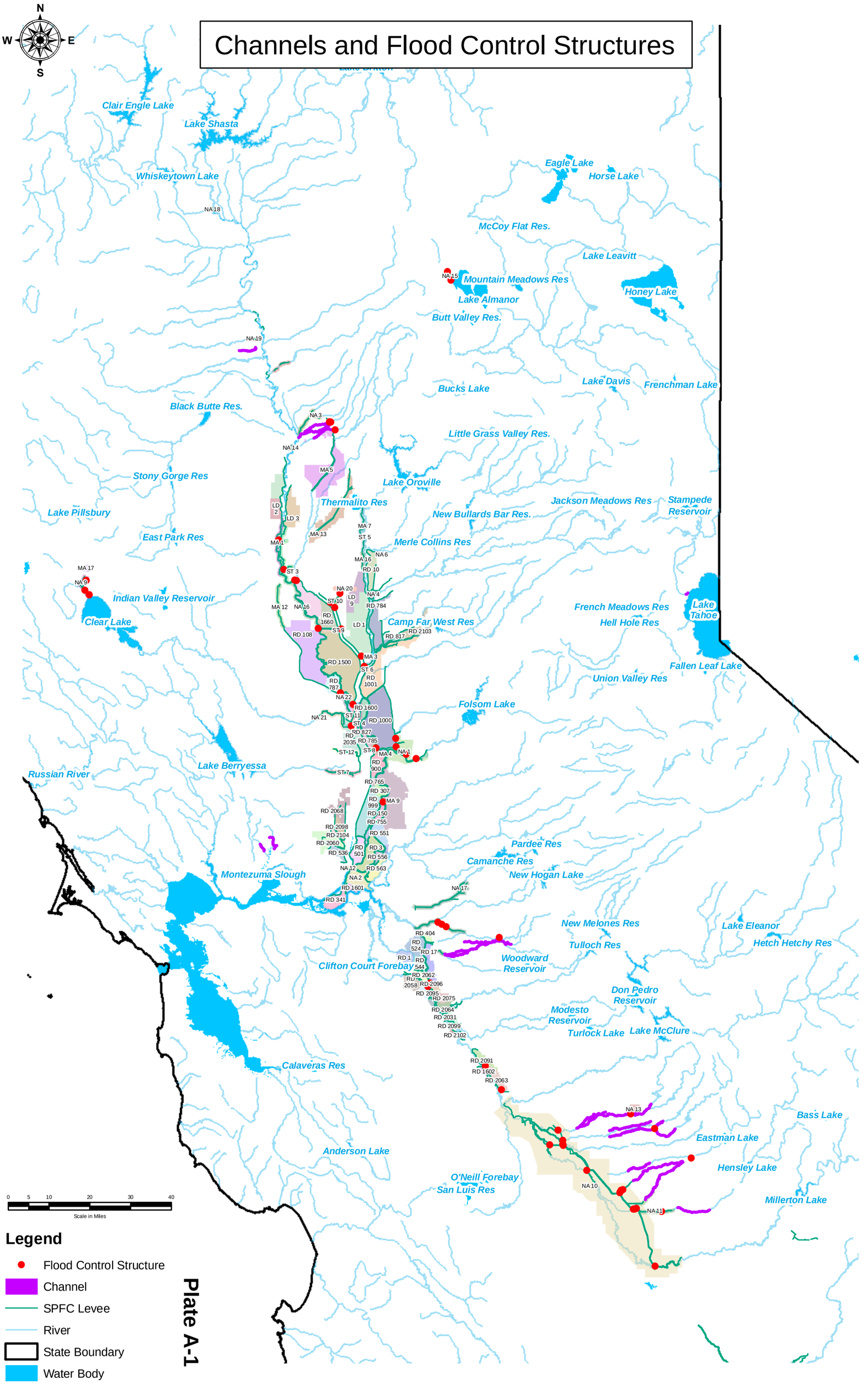


Plate A-1

Project Levees and Channels

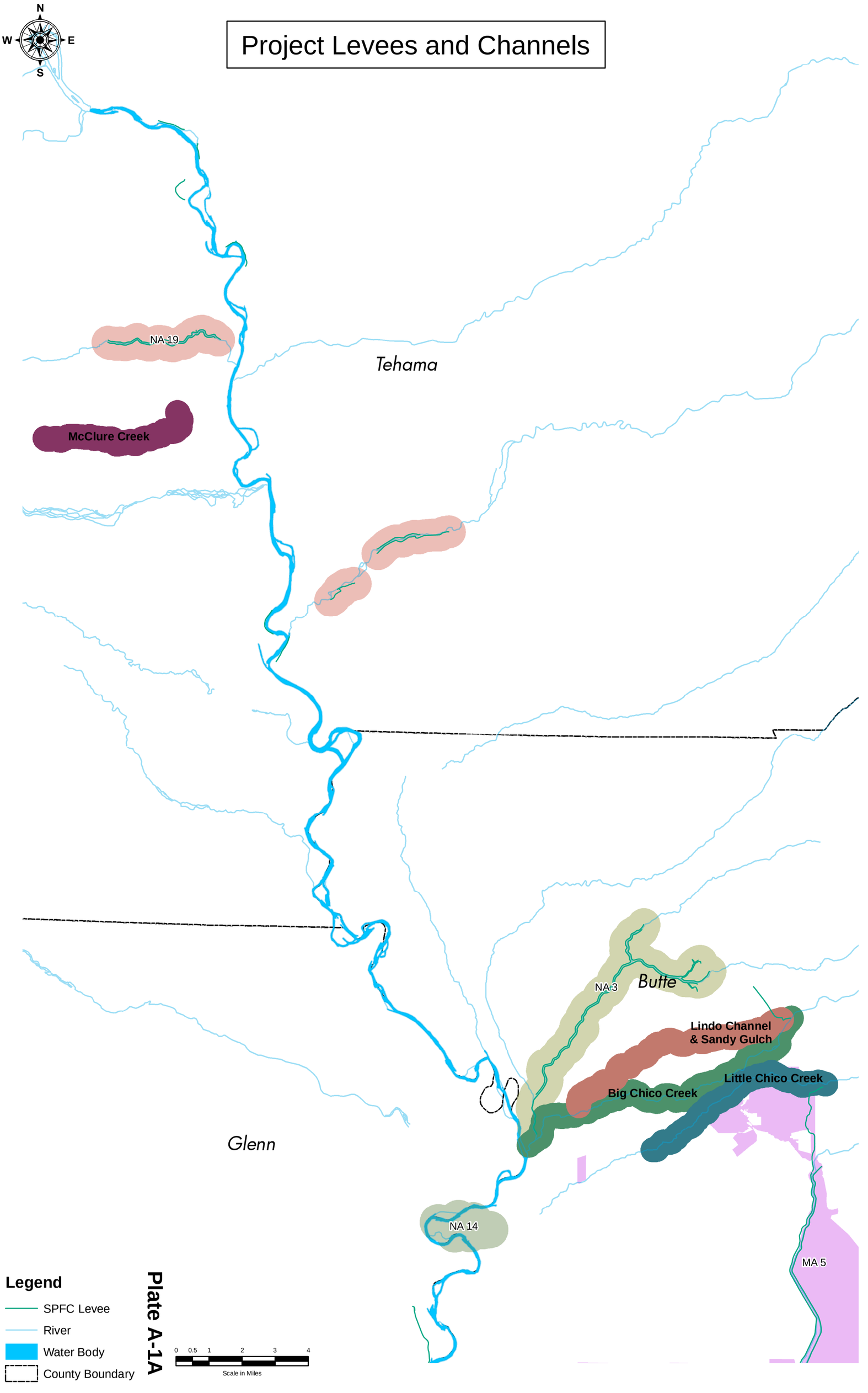
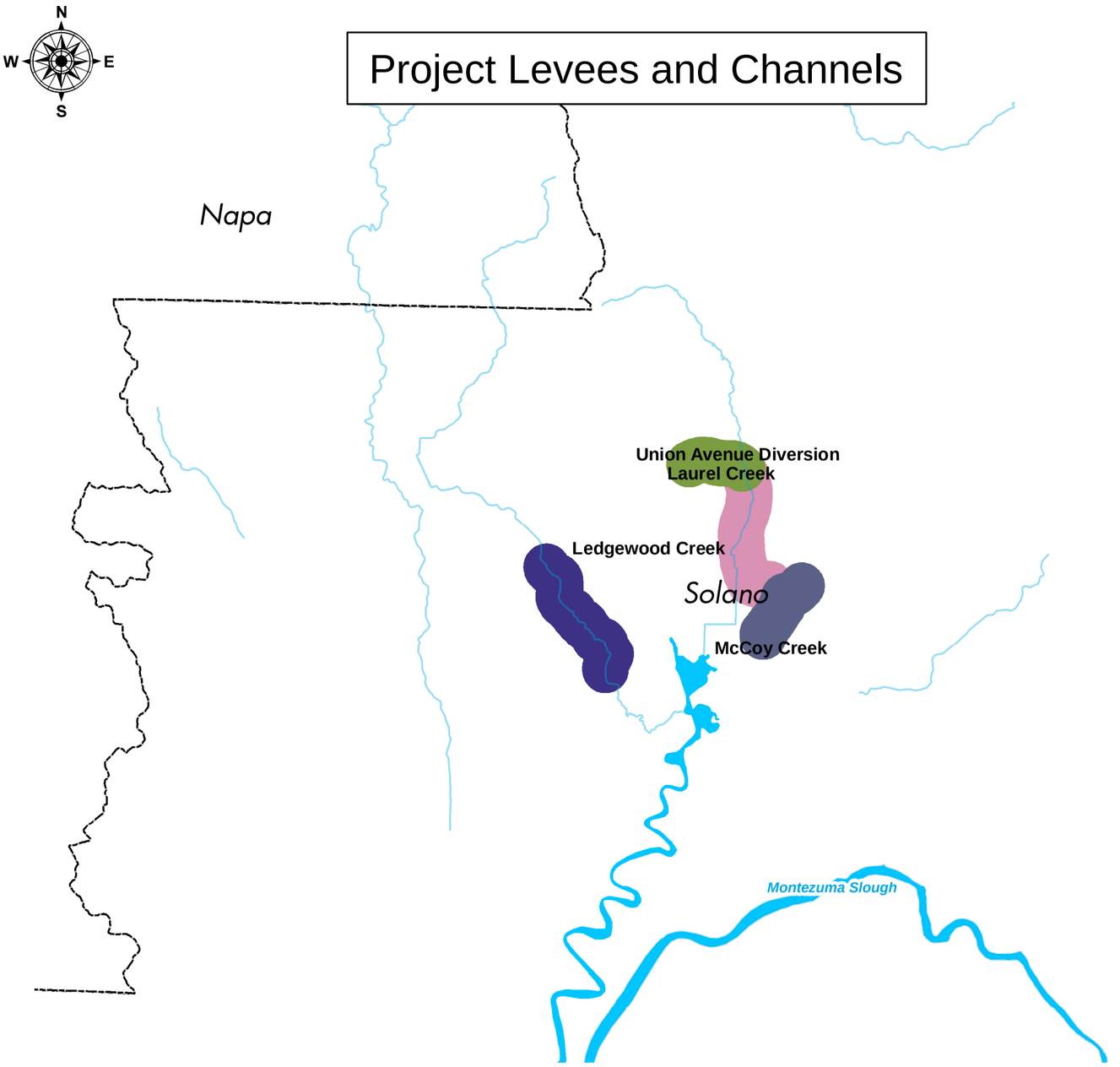


Plate A-1A

Project Levees and Channels



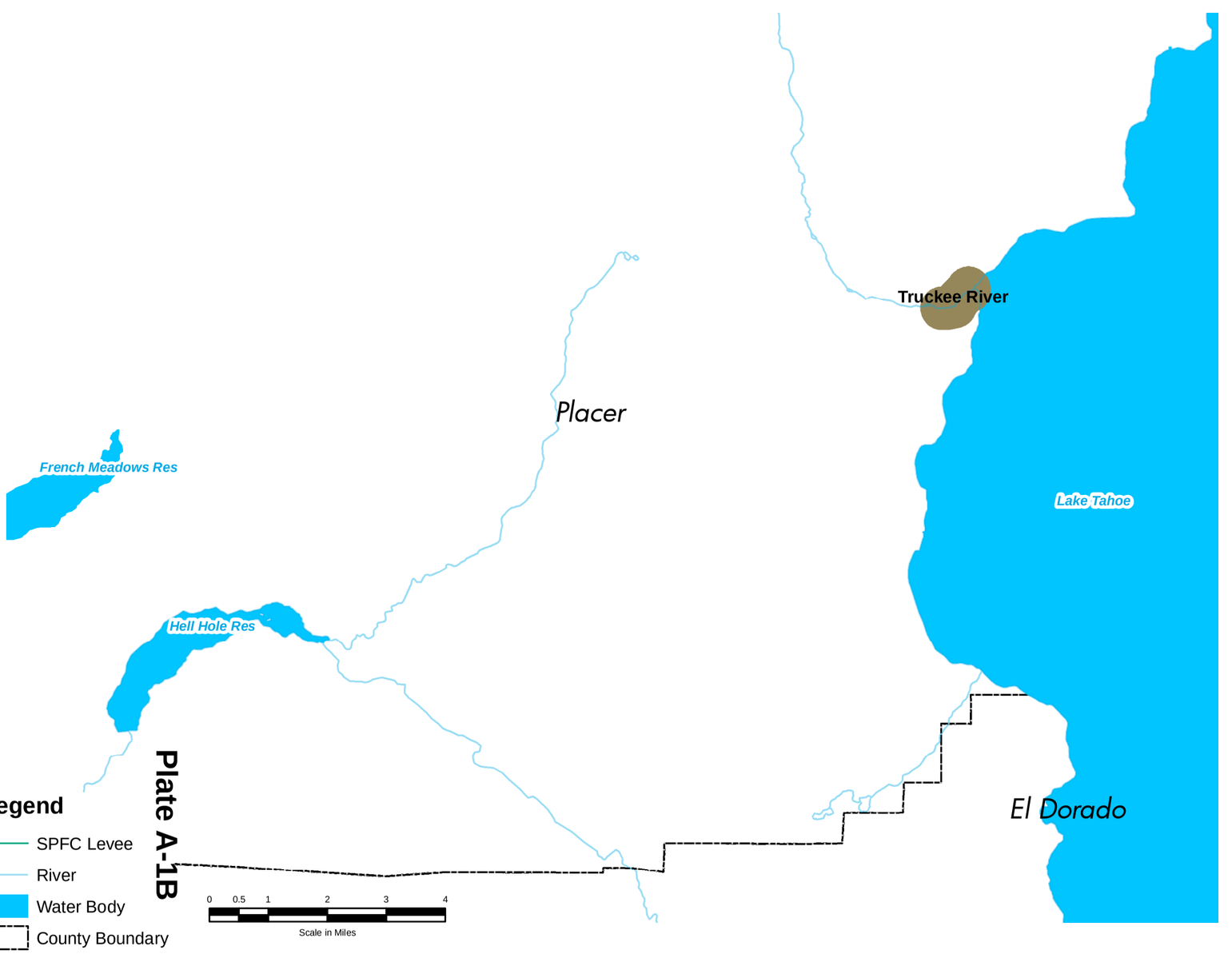


Plate A-1B

Project Levees and Channels

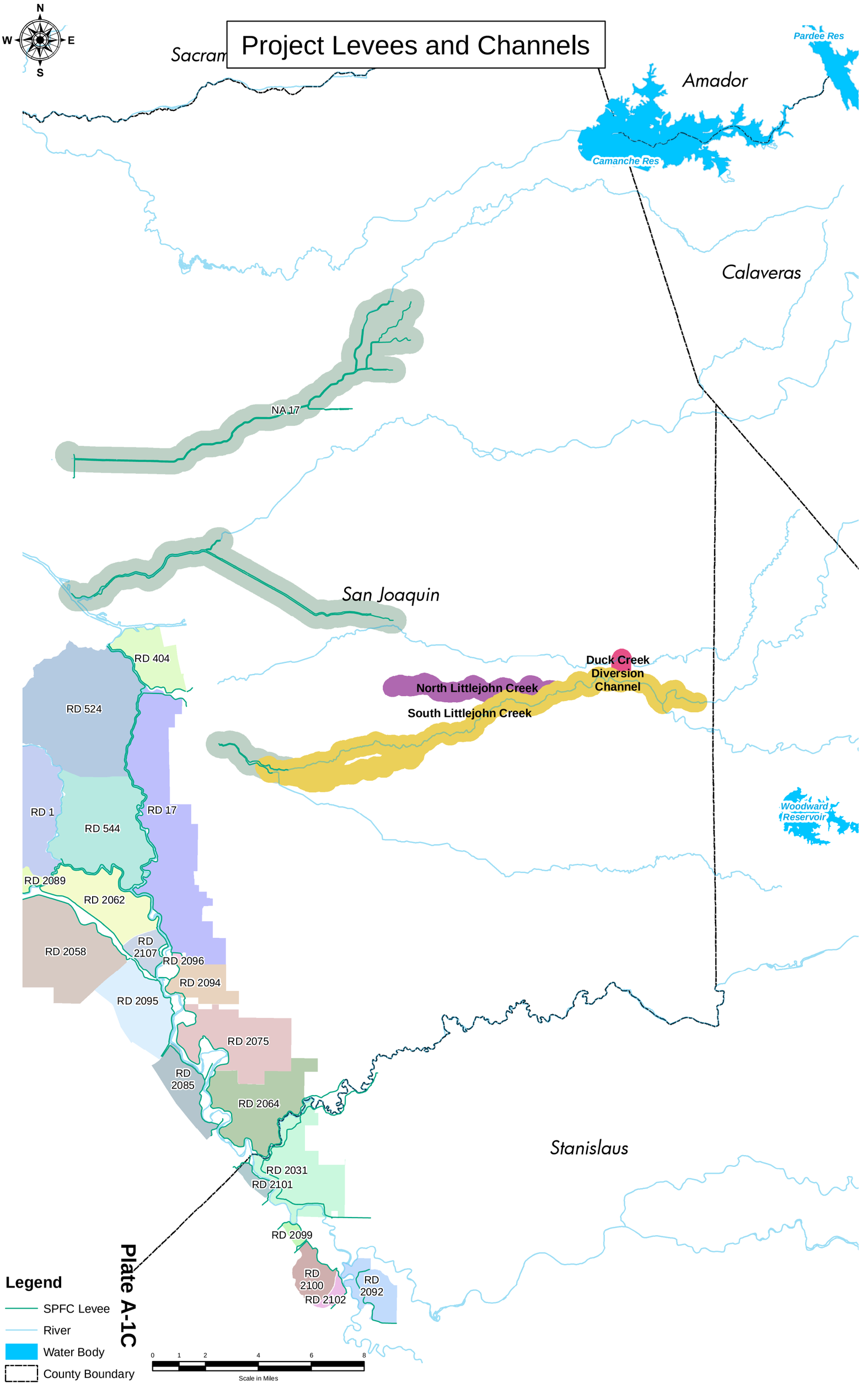


Plate A-1C

Project Levees and Channels

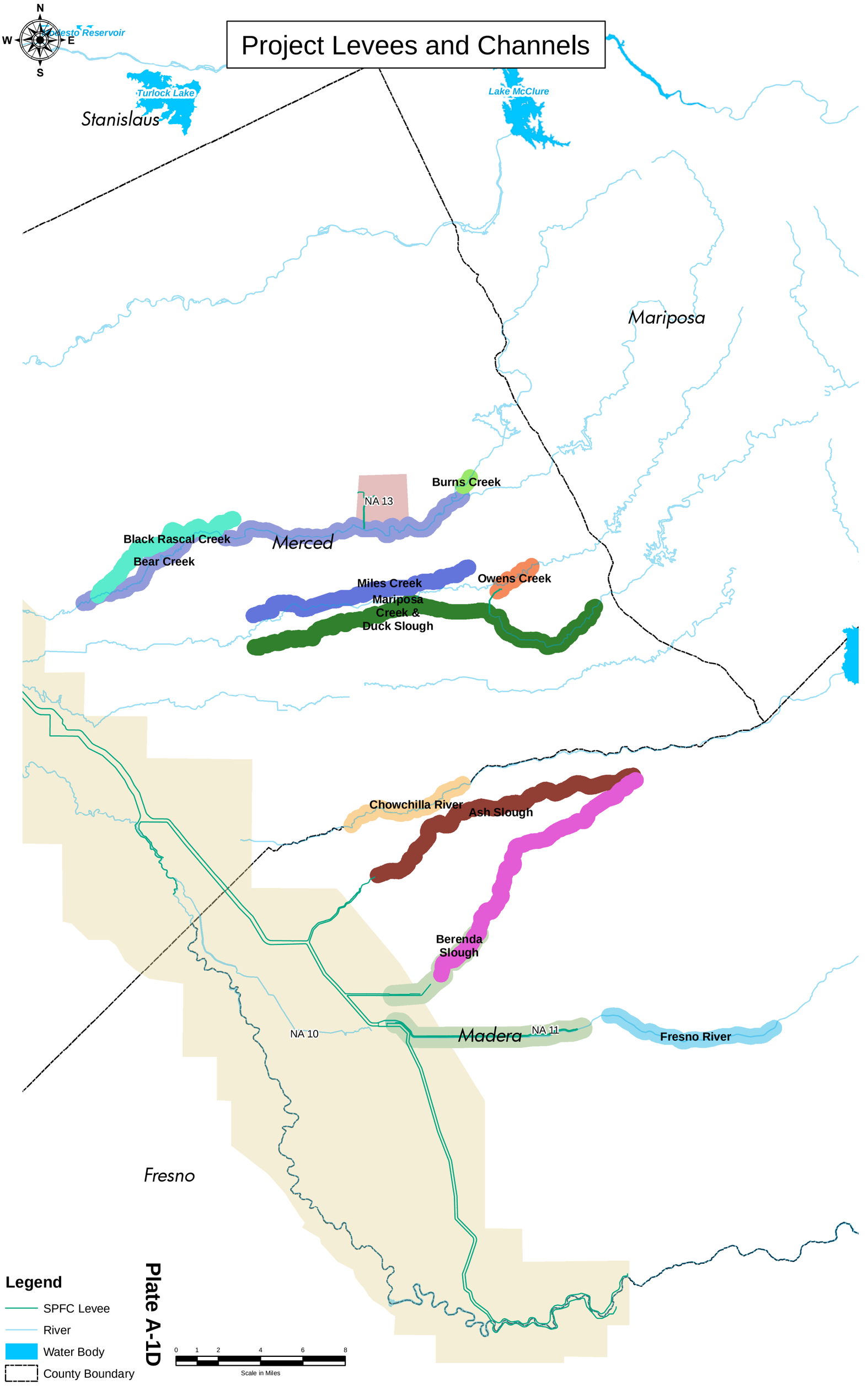


Plate A-1D

Flood Control Structures
Sacramento River System

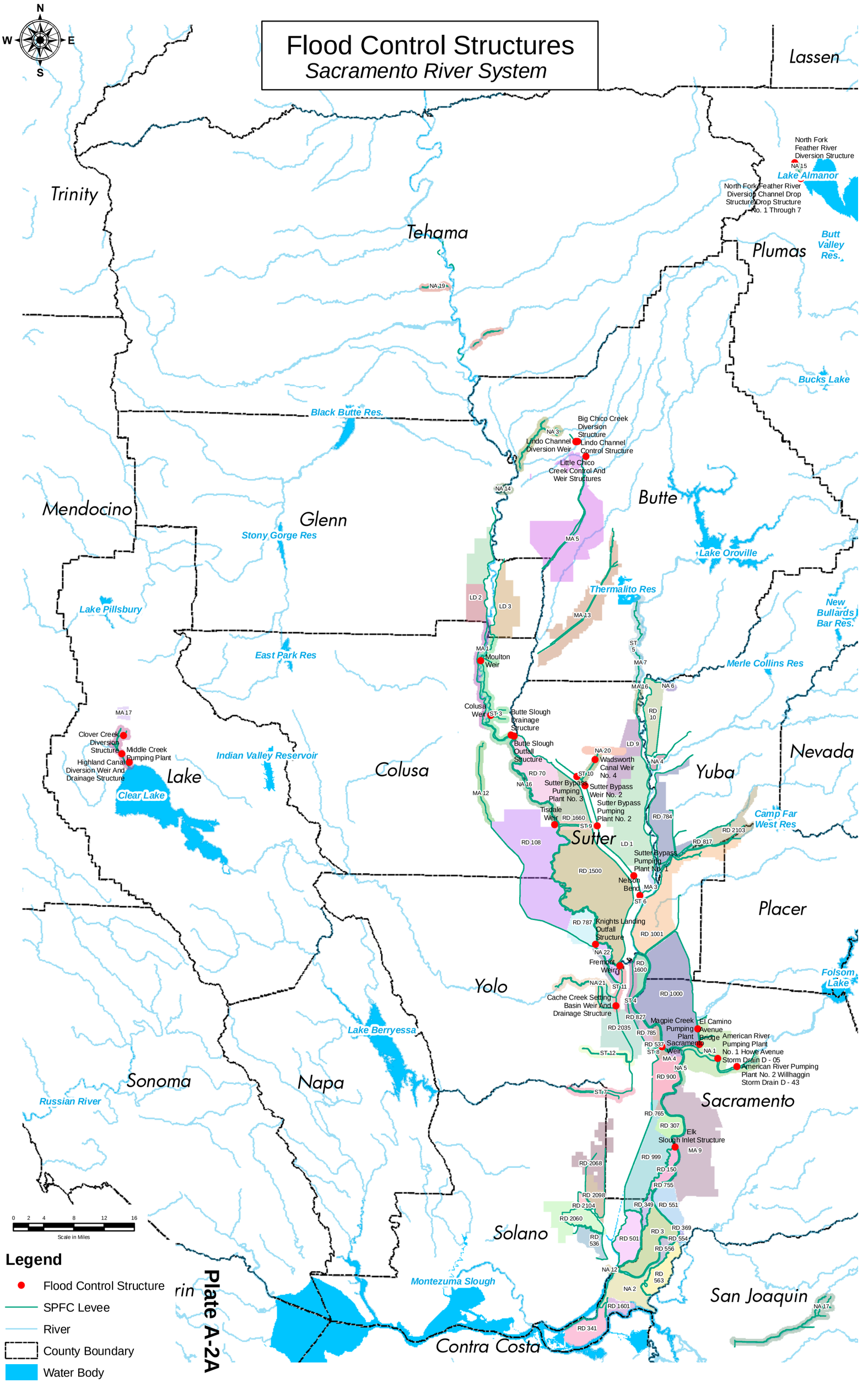


Plate A-2A

Flood Control Structures
San Joaquin River System North

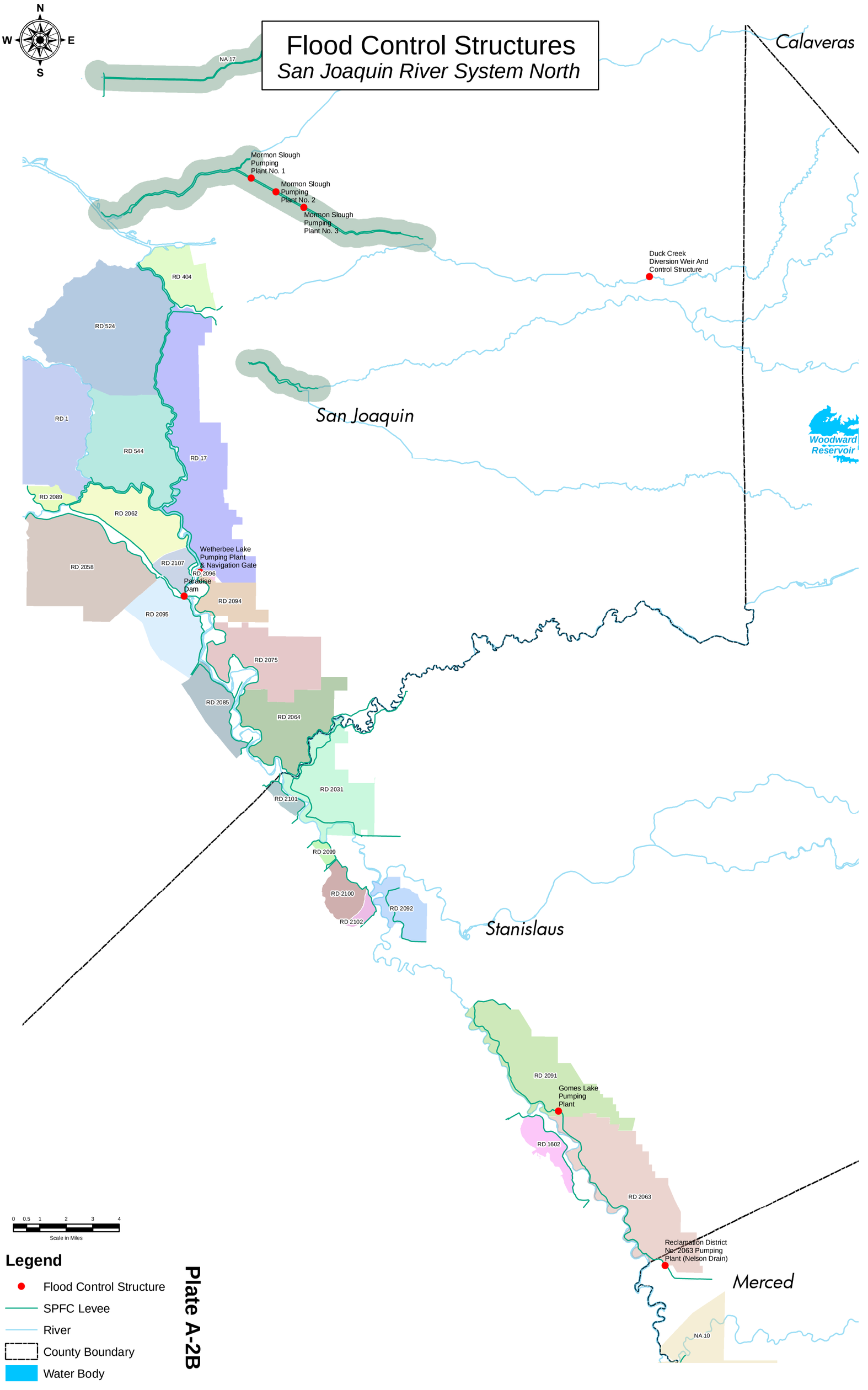
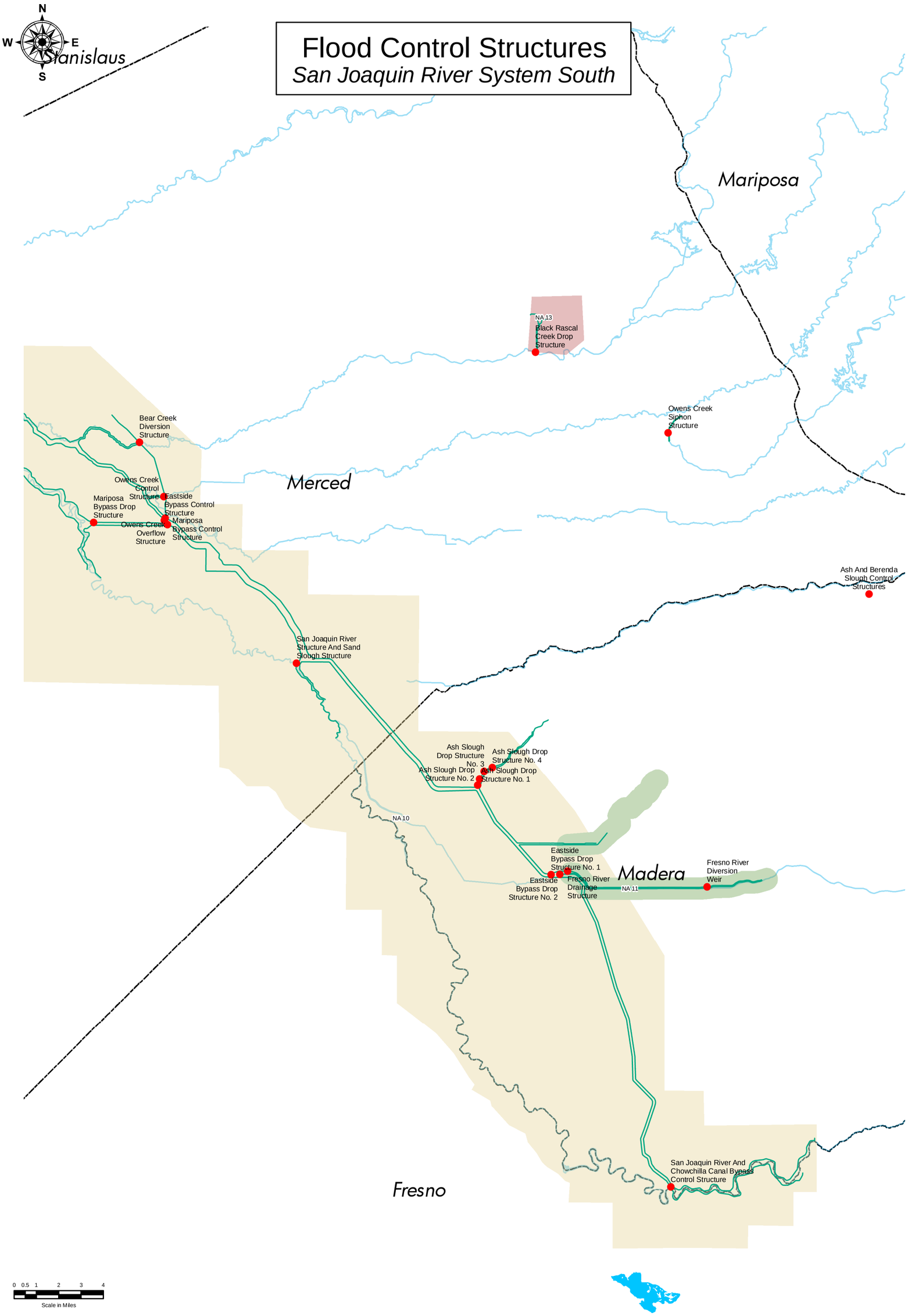


Plate A-2B

Flood Control Structures
San Joaquin River System South



0 0.5 1 2 3 4
Scale in Miles

Legend

- Flood Control Structure
- SPFC Levee
- River
- County Boundary
- Water Body

Plate A-2C

PROJECT LEVEE TERMINOLOGY

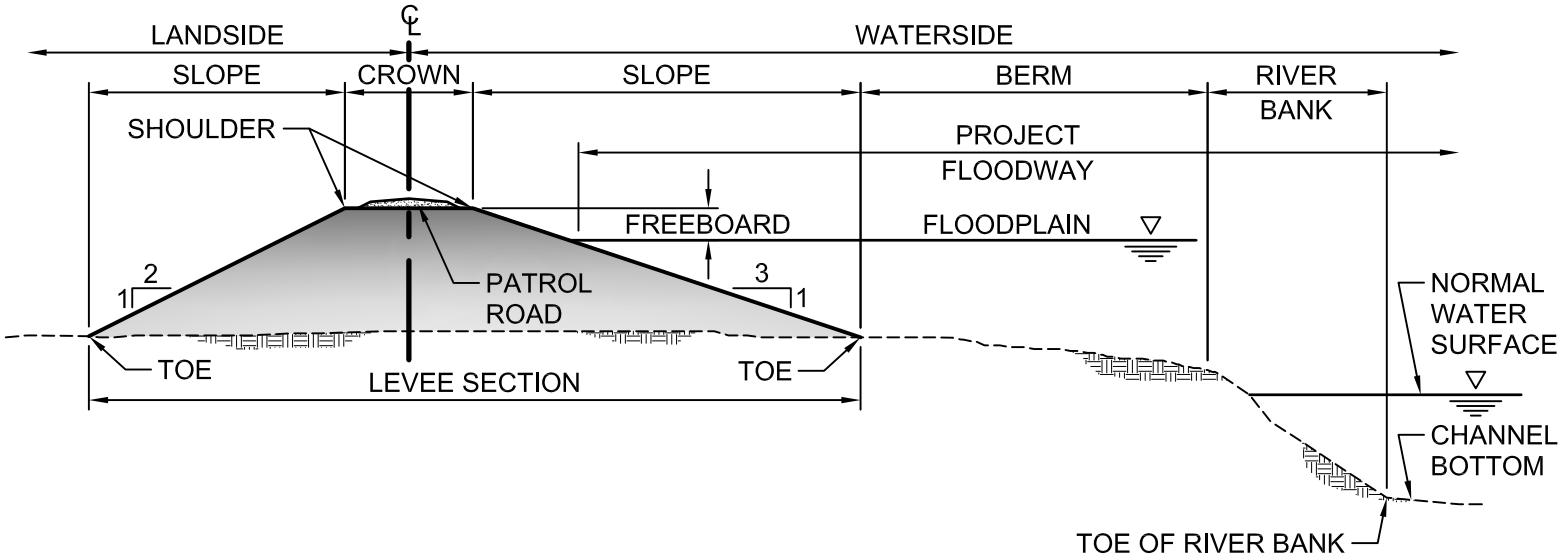


Plate A-3

Appendix B: Inspection Criteria and Rating Methodology

This appendix presents federal and state inspection criteria and rating methodology for levees, channels, and structures.

B-1. Federal Inspection Requirements and Corps of Engineers Inspection Checklist

Title 33 of CFR, *Navigation and Navigable Waters*, Section 208.10 (33 CFR 208.10) outlines the federal requirements for the periodic inspection of structures and facilities that comprise the State-federal flood protection system. These include inspections:

- Immediately prior to the beginning of the flood season
- Immediately following each major high water period
- At intervals not exceeding 90 days
- At intermediate times as necessary

Title 33 CFR 208.10 can be viewed at:
http://www.access.gpo.gov/nara/cfr/waisidx_06/33cfr208_06.html

DWR implements this as:

- The LMAs and DWR patrol and inspect all project levees during high water events.
- Four quarterly inspections are required per year.

To meet this federal requirement, DWR performs comprehensive levee inspections in the spring and fall. Channel and structure inspections are conducted by DWR in the summer. The findings of these inspections make up the results of this report.

The LMAs are required to perform summer and winter levee inspections. LMAs report the condition of their system in relation to the most recent DWR inspection results. They do so by describing any changes in the condition of the system (since the last DWR inspection) or by reporting that none have occurred. The findings of these inspections are reported to the Chief Engineer of the CVFPB through DWR's FPIIB. Since the 2008 adoption of Assembly Bill 156, LMAs are required to report in greater detail the results of their inspections and O&M activities. The comprehensive annual report that contains the 2009 LMA inspection results can be viewed at: http://cdec.water.ca.gov/lma.html.

Criteria by which the flood control projects inspections have historically been reported are outlined in the Standard Operation and Maintenance Manuals. Subsequently, the USACE has developed additional inspection criteria for project and non-project systems participating in the federal PL84-99 rehabilitation and inspection program. The USACE checklist, *Flood Damage Reduction Segment/System Inspection Report* includes the USACE inspection criteria. For a copy, see
http://www.iwr.usace.army.mil/nfrmp/docs/USACEInspectionChecklist3-16-09.pdf

B-2. DWR Modification to USACE Criteria

B-2.1 Levee Inspection Criteria

The USACE's *Flood Damage Reduction System Inspection Report* forms the basis of the DWR flood project inspection program. However, changes to some portions of the checklist have been made by DWR. The USACE criteria rates an LMA's entire levee as unacceptable if any single inspection category is found to be unacceptable at any point on the levee. Therefore, under USACE criteria, an LMA with a few unacceptable trees is rated the same as an LMA with unacceptable ratings in several different rating categories. Additionally, strict application of the checklist, considering the unique environmental conditions of vegetation and encroachments on California levees, would result in almost universally unacceptable ratings throughout the system without providing any overall benefit to the system.

DWR believes that its modified criteria described below provide for realistic view of the severity of deficiencies and of the significant differences among LMA maintenance performance. DWR considers the length of each deficiency with respect to the total length of levee maintained by an LMA. Since a given reach of levee may have several concurrent deficiencies, the length of total deficiencies can exceed the length of the levee. (See detail of the rating methodology later in this appendix)

The DWR interim criteria for vegetation and encroachments is aimed at improving public safety by encouraging continued maintenance by LMAs for access and visibility of the flood protection system.

Interim Inspection Criteria - Vegetation

DWR inspects vegetation on levees based upon USACE's checklist criteria with exceptions listed below.

- DWR inspectors will evaluate and rate all vegetation within the top 20 feet (slope length) of the waterside hinge point (intersection of crown and slope), anywhere on the landside slope, and within 10 feet of the landside toe. Riparian vegetation and other vegetation beyond 20 feet from the waterside hinge point are not evaluated or rated at present.
- Grass and weeds on the landside and upper waterside must be maintained at a height of less than 12 inches.
- Trees must be trimmed at least five feet above the ground and 12 feet above the ground over roadways.
- Trees must be thinned sufficiently to allow clear visibility and access for flood fight operations.
- Brush and woody vegetation must be trimmed, thinned, or removed to allow clear visibility and access for flood fight operations.
- Minimal densities of vegetation not meeting these criteria were rated as Minimally Acceptable.
- Significant densities of vegetation not meeting these criteria were rated as Unacceptable.

- Elderberries were evaluated using the same criteria as trees or other vegetation.

These criteria are shown in Figures B-1 and B-2. The criteria protect levee operability and integrity by requiring open visibility and access to those portions of the levee most susceptible to high water damage while retaining vegetation that possess both habitat and environmental value. Such vegetation may also have positive effects on levee integrity. These criteria may change as the Central Valley Flood Protection Plan is developed.

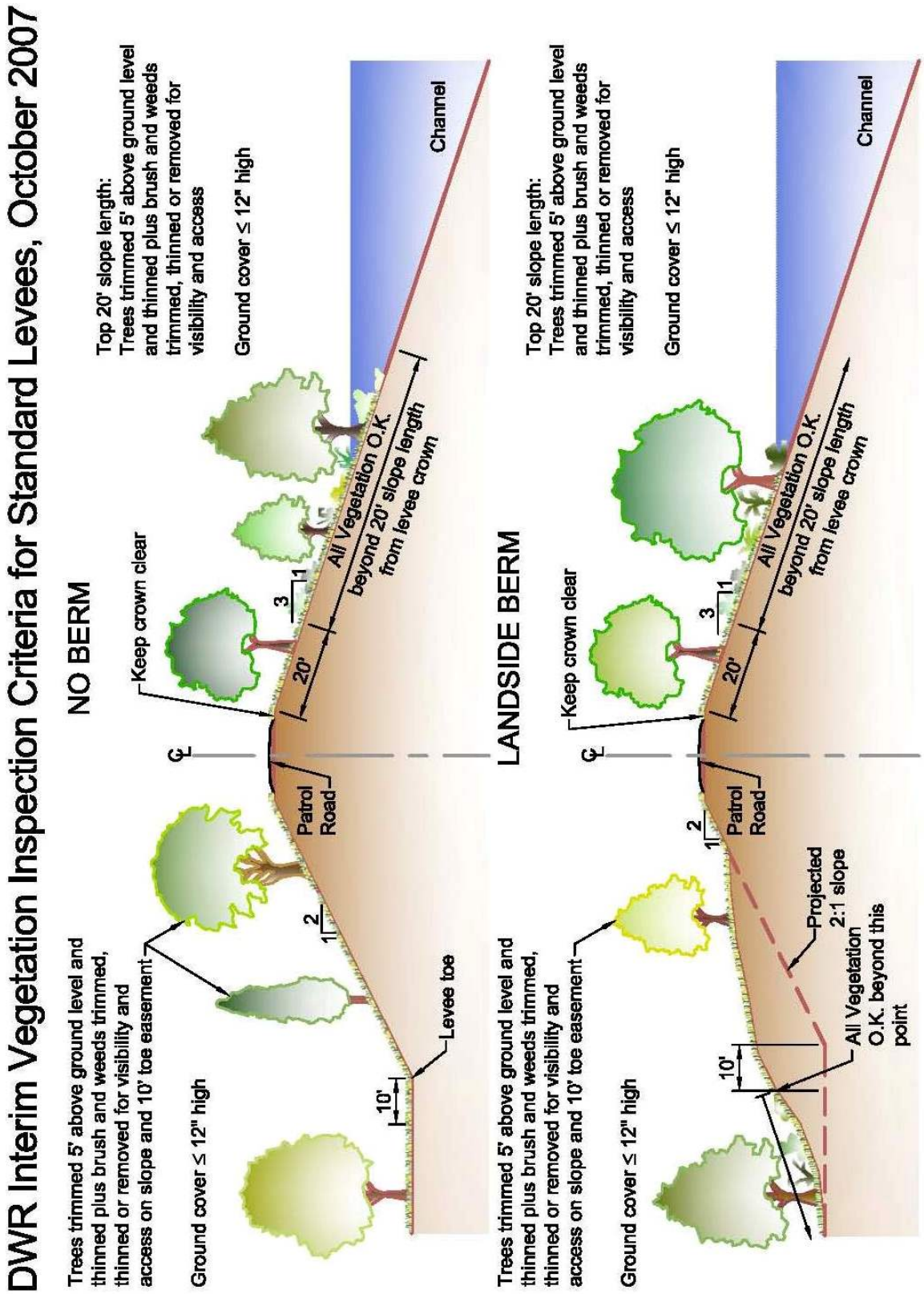

DWR Interim Vegetation Inspection Criteria for Standard Levees, October 2007
NO BERM
Trees trimmed 5' above ground level and thinned plus brush and weeds trimmed, thinned or removed for visibility and access on slope and 10' toe easement
Ground cover ≤ 12" high
Keep crown clear
Top 20' slope length: Trees trimmed 5' above ground level and thinned plus brush and weeds trimmed, thinned or removed for visibility and access
Ground cover ≤ 12" high
Channel
Patrol Road
Levee toe
10'
20'
2
1
3
1
All Vegetation O.K. beyond 20' slope length from levee crown
LANDSIDE BERM
Trees trimmed 5' above ground level and thinned plus brush and weeds trimmed, thinned or removed for visibility and access on slope and 10' toe easement
Ground cover ≤ 12" high
Keep crown clear
Top 20' slope length: Trees trimmed 5' above ground level and thinned plus brush and weeds trimmed, thinned or removed for visibility and access
Ground cover ≤ 12" high
Channel
Patrol Road
10'
20'
2
1
3
1
Projected 2:1 slope
All Vegetation O.K. beyond this point
All Vegetation O.K. beyond 20' slope length from levee crown

Figure B-1

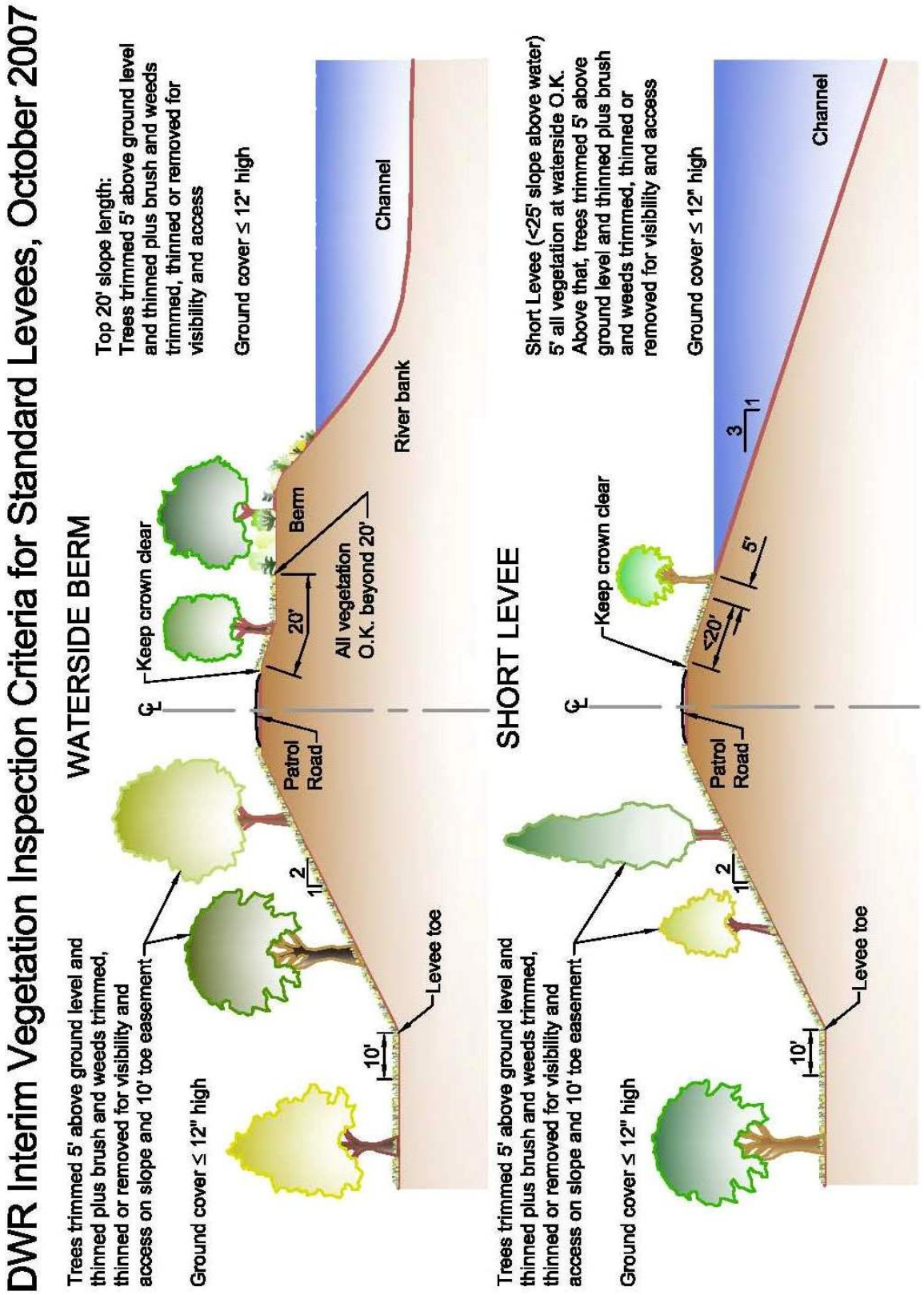

DWR Interim Vegetation Inspection Criteria for Standard Levees, October 2007
WATERSIDE BERM
Trees trimmed 5' above ground level and thinned plus brush and weeds trimmed, thinned or removed for visibility and access on slope and 10' toe easement
Ground cover ≤ 12" high
Keep crown clear
Patrol Road
2
1
10'
Levee toe
20'
Berm
All vegetation O.K. beyond 20'
River bank
Channel
Top 20' slope length: Trees trimmed 5' above ground level and thinned plus brush and weeds trimmed, thinned or removed for visibility and access
Ground cover ≤ 12" high
SHORT LEVEE
Trees trimmed 5' above ground level and thinned plus brush and weeds trimmed, thinned or removed for visibility and access on slope and 10' toe easement
Ground cover ≤ 12" high
Keep crown clear
Patrol Road
2
1
10'
Levee toe
<20'
5'
3
1
Channel
Short Levee (<25' slope above water) 5' all vegetation at waterside O.K. Above that, trees trimmed 5' above ground level and thinned plus brush and weeds trimmed, thinned or removed for visibility and access
Ground cover ≤ 12" high

Figure B-2

Interim Inspection Criteria - Encroachments

Past USACE inspections identified encroachments that posed a threat to the integrity of the levee, or blocked visibility or access to the levee as unacceptable (U). DWR inspectors followed a similar approach during their 2007, 2008 and 2009 fall inspections.

The DWR approach included documenting and rating three types of encroachments:

a) Encroachments that threaten levee integrity.
b) Encroachments that are inappropriately placed on the levee, such as trash, prunings, abandoned equipment, etc.
c) Encroachments that obstruct visibility and access.

The first two are to be rated as either Minimally Acceptable (M) or Unacceptable (U). These two types of encroachments **are included** in the overall ratings and should be corrected by the LMAs.

The third type of encroachment that the USACE identified as unacceptable may be beyond the current authority of the LMAs to correct because the encroachment may be Board permitted or have other factors associated with it that prevent LMAs from taking action. In 2007, using the same extents identified in Figures B-1 and B-2, and described in Section 2.2.1 for vegetation, DWR inspectors broadly recorded the location, length, and type of encroachments that obstruct visibility and/or access. These PO and CO encroachments are **not included** in the overall ratings (A, M, and U). Instead, they are identified to generate an inventory of those encroachments that the USACE has, in the past, found to be unacceptable and those encroachments that could affect the operation of the system. The permit status of these encroachments has not been determined.

B-2.3 Levee Inspection Rating Methodology

This section conveys the rating method (developed in 2007) and the associated maintenance guidelines that are applied by the Inspection Section of the FPIIB to generate the *overall* LMA ratings which are a representation of the LMAs' annual levee maintenance practices.

The Rating Method

USACE Document ER 500-1-1, paragraph 5-5.b (2) (b) defines the following project condition as presented in EP 500-1-1, Table 5-2:

- Acceptable – No immediate work required, other than routine maintenance. The flood protection project will function as designed and intended, with a high degree of reliability, and necessary cyclic maintenance is being adequately performed.
- Minimally Acceptable – One or more deficient conditions exist in the flood protection project that need to be improved or corrected. However, the project will essentially function as designed with a lesser degree of reliability than what the project could provide.
- Unacceptable – One or more deficient conditions exist that may prevent the project from functioning as designed, intended, or required.

USACE is in the process of modifying the levee inspection checklist and has requested that DWR use the new Checklist, but DWR has not been able to implement these new requirements for maintenance and inspection of flood protection works yet.

In the past, DWR arrived at each overall unit and LMA rating by making an estimation of the number, expanse, and seriousness of the deficient conditions found during the annual inspection and arriving at one of the above project condition ratings. This system was subjective and possibly inconsistent. It did not always reflect the possible negative effect of combined deficiencies.

Under the current USACE ratings directive, an LMA with a single Minimally Acceptable deficient condition may have received the same overall Minimally Acceptable rating as an LMA with dozens of Minimally Acceptable deficient conditions throughout its length. DWR believes that the LMAs should be rated by their overall maintenance condition rather than just by the rating of their worst deficient condition.

- In 2007, DWR created a new methodology, whereby 2007 overall ratings were calculated using the percentage of an LMA's overall mileage receiving less-than-acceptable ratings. This is known as the threshold percent.
- This methodology has proven to be effective and was again applied for the 2008 and 2009 inspection cycles.
- In 2010, DWR introduced an additional rating, Watch/Monitor (W) and uses it to document issues found during inspections that do not yet warrant a M or U rating but that should be monitored or maintained to avoid a maintenance deficiency in the future.

Thresholds

Thresholds were established that determine the overall rating as shown below. If over 20 percent of the total LMA mileage was given a Minimally Acceptable rating, the overall rating was deemed Unacceptable.

Greater than 100% Deficient

Since 12 main categories and numerous minor categories were inspected, with most receiving ratings for the landside, waterside, and crown (triple the length of the levee), it is possible for a poorly maintained levee to receive Minimally Acceptable or Unacceptable ratings for well over 100 percent of its length.

Table B-1 and Figure B-3 further explain the rating method.

Table B-1: Overall Rating Thresholds

A = Acceptable, M = Minimally Acceptable, U = Unacceptable

Only M ratings within Unit or LMA:

Zero to < 10 % M results in Overall A rating. 10% to < 20% M results in Overall M rating. ≥ 20% M results in Overall U Rating

$\frac{\text{If Miles of M in Unit or LMA}}{\text{Total miles in Unit or LMA}}$ > 0 but < 0.10, Overall Rating = A

$\frac{\text{If Miles of M in Unit or LMA}}{\text{Total miles in Unit or LMA}}$ ≥ 0.10 but < 0.20, Overall Rating = M

$\frac{\text{If Miles of M in Unit or LMA}}{\text{Total miles in Unit or LMA}}$ ≥ 0.20, Overall Rating = U

Only U ratings within Unit or LMA:

> Zero to < 5% U rating results in Overall M rating. ≥ 5% U rating results in Overall U rating

$\frac{\text{If Miles of U in Unit or LMA}}{\text{Total miles in Unit or LMA}}$ > 0 but < 0.05, Overall Rating = M

$\frac{\text{If Miles of U in Unit or LMA}}{\text{Total miles in Unit or LMA}}$ ≥ 0.05, Overall Rating = U

Both M and U ratings within Unit or LMA:

Correlation of Severity = COS =

$\frac{\text{Only M Threshold \%}}{\text{Only U Threshold \%}} = \frac{20\%}{5\%} = 4 = \text{COS}$

Multiply miles of U by COS of 4 and add to miles of M = M + 4U

$\frac{\text{If Miles of M + 4U in Unit or LMA}}{\text{Total miles in Unit or LMA}}$ > 0 but < 0.20, Overall Rating = M

$\frac{\text{If Miles of M + 4U in Unit or LMA}}{\text{Total miles in Unit or LMA}}$ ≥ 0.20, Overall Rating = U

Example 1: Unit length = 10.00 miles, M = 0.60 mile, U = 0.30 mile:
4U = 4(0.30) = 1.20 miles. M + 4U = 0.60 mile + 1.20 mile = 1.80 miles

$\frac{\text{M + 4U}}{\text{Total unit miles}} = \frac{1.80 \text{ miles}}{10.00 \text{ miles}} = 0.18 < 0.20$ so Overall Rating = M

Example 2: Unit length = 10.00 miles, M = 1.10 mile, U = 0.30 mile:
4U = 4(0.30) = 1.20 miles. M + 4U = 1.10 miles + 1.20 miles = 2.30 miles

$\frac{\text{M + 4U}}{\text{Total unit miles}} = \frac{2.30 \text{ miles}}{10.00 \text{ miles}} = 0.23 > 0.20$ so Overall Rating = U

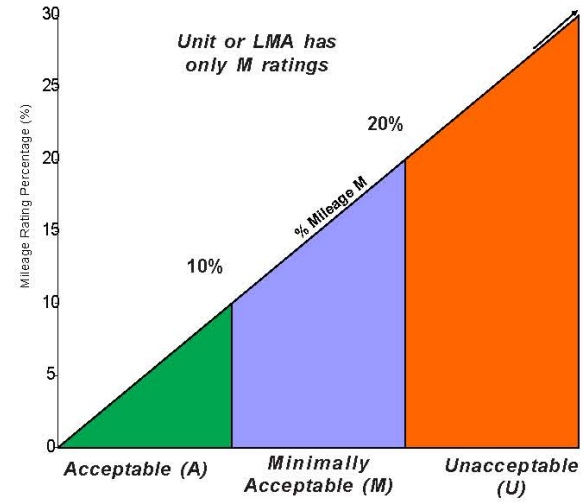
OVERALL MAINTENANCE RATING FLOW CHART

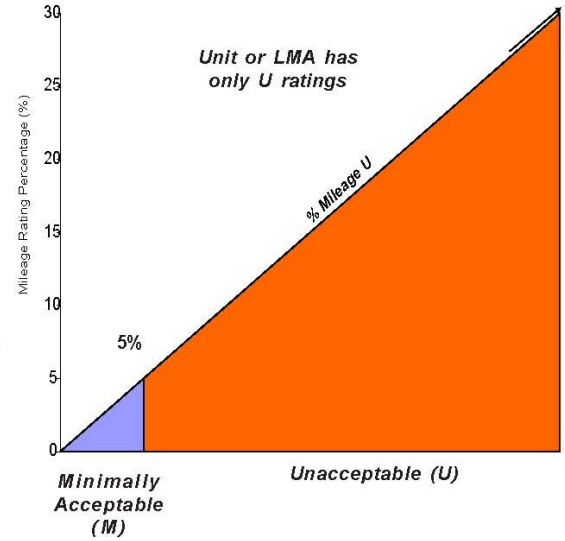
DWR Inspections

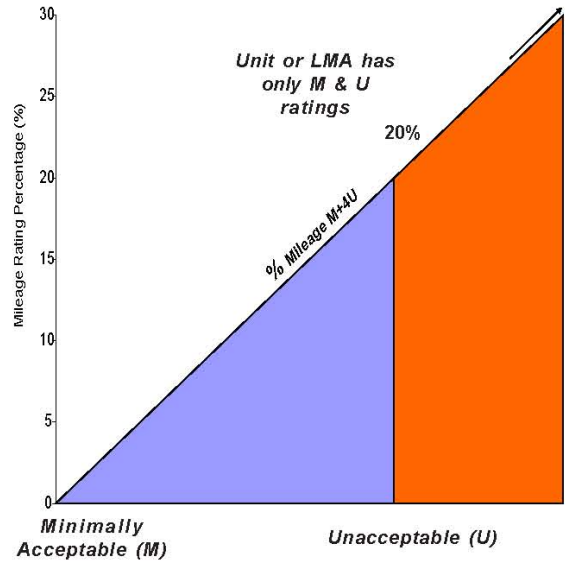
DWR inspectors document location and length of maintenance deficiencies.

Deficiencies are rated either as **Minimally Acceptable (M) or Unacceptable (U).** Total mileages of each rating in each unit and LMA are calculated and divided by total unit and LMA length to determine percentages of M or U. Percentage thresholds are then applied to determine overall unit and LMA ratings as shown at right.

Overall Levee Rating







Overall Maintenance Rating Flow Chart

Figure B-3

The Maintenance Guidelines

When applying the ratings described above, a number of maintenance categories pertaining to levee maintenance are considered. These categories are based on maintenance guidelines listed below.

Readiness for Flood Emergency

Each LMA shall have an organized plan to effectively combat a flood situation. This should include the appointment of a superintendent to supervise and execute the plan, maintain a stockpile of standard flood-fighting equipment and materials, and have a network of handheld radios or cellular telephones for communication available while patrolling during a flood emergency.

Adequate Levee Section and Grade

Each LMA must perform the work necessary to maintain levee side-slopes, grade, and crown width to meet the standards for its particular reach of the levee system. Levee design standards are summarized on Plate A-3.

Adequate Encroachment Control

Each LMA is held responsible for preventing the construction of, or requiring the removal of, any illegally encroaching structures or activities on the levee or within the ten-foot regulatory easement at the landward toe of the levee. The maintaining agency must also stop any unauthorized modifications or alterations to the levee. If any person or organization deems any construction or modification necessary within the levee regulatory easement, that person or organization must apply for an encroachment permit. The permit may only be issued by the CVFPB. Failure of the LMA to control unauthorized encroachments can threaten the integrity of the levee, interfere with levee patrol visibility, and hamper a flood fight. These may be cause for downgrading the LMA's annual rating in this report.

Vegetation

Each LMA shall have a program to selectively control vegetation on the levee slopes and in rock revetments. This requirement provides visibility for inspection and patrol and prevents interference with flood-fighting activities. Some vegetation on oversized levees is permitted in accordance with standards as set forth in CCR, Title 23. However, present DWR interim vegetation inspection criteria allow vegetation on standard-sized levees as well, provided that visibility and flood fight capabilities are maintained. Both water-side and land-side slopes are rated for vegetation and obstructions. An un-maintained band of vegetation is allowed anywhere beyond 20 feet (slope length) from the waterside hinge (intersection of levee slope and crown – see Figures B-1 and B-2).

Rodent and Animal Control

It is imperative that each LMA have a rodent control program. Rodent burrows can weaken the structural integrity of a levee by creating a seepage path through the levee. Diligent efforts to eradicate burrowing animals are a necessity, and eliminating them from an infested levee is extremely difficult. Control of these animals must be pursued frequently and persistently to ensure safety of the levee during high water events. Effective filling of the burrows is necessary to maintain the integrity of the

levee. This category also includes effective control of grazing animals on the levee or easement.

Seepage/Boils

Seepage under or through the levee can cause boils, leading to erosion and possible piping failure of the foundation or structure of the levee. Seepage and boils must be identified, monitored, controlled, and corrected as quickly and effectively as possible.

Slope Stability and Repair of Cracks, Erosion, and Caving

Each LMA shall maintain slope stability and repair cracks, flow current or wave wash erosion, and caving or other structural problems. Timely repair of these problems is critical. Failure to address slope stability problems and repair cracks, erosion, or caving could lead to levee failure.

The LMA superintendent is required to report to the CVFPB's Chief Engineer any suspected or known structural abnormalities found during his inspections. Such un-repaired structural problems are also cause for downgrading of the LMA rating.

Condition of Rock Revetment

Each LMA shall make all repairs to scour, wash, settlement, or failure of any portion of rock revetments. Rock revetments have been installed at locations where stream flow conditions indicate the need for such protection. Early detection and prompt repair will result in a minimum of effort and reduce the cost to restore the revetment.

Condition of Levee Crown and Roadway

Each LMA is required to keep crown roadways shaped and graded to provide proper drainage and all-weather access. Repair of ruts and addition of gravel ensures a serviceable road under adverse conditions.

Condition of Pipes and Interior Drainage System

Each LMA must examine all structures situated through, in, or on the levee for stability and structural soundness and record its observations twice annually. All component parts must be examined for proper operation and reliability before the start of each flood season. New structures should be installed or older structures repaired only in accordance with adopted Board standards and under the supervision of qualified Board personnel. Defective structures must be repaired, replaced, or removed immediately. Although maintenance and repair of pipes and other structures passing through a levee are the responsibility of the owner (e.g., a farmer owning an irrigation pipe), the LMA is responsible for inspecting the pipes for corrosion, collapse, valve integrity, seepage, and any other condition that could threaten the integrity of the levee. Because of its full-time presence, the LMA is most able to discover and identify actual and potential problems and should make all efforts to immediately notify DWR of any problems found and thereafter include the problems on their inspection reports until they are resolved. DWR works with the Board to require the timely repair or removal of pipes or other structures that threaten the levee integrity.

Concrete Floodwalls / Closure Structures

In some instances, a portion of a levee is not built to the design height of the rest of the levee. A floodwall, usually either concrete or driven piling, is built to provide necessary hydraulic capacity. In some cases, due to space constraints, a floodwall may be constructed in lieu of a levee. Where a roadway or railroad passes through a levee or floodwall, a closure structure is built on either side of the roadway to hold gates or barriers to be installed for use during high water events. Floodwalls, closure structures, gates, and barriers must be properly maintained, structurally sound, and of proper height and design. Gates and barriers and installation paths must be readily accessible for timely installation and dependable performance.

Combining Criteria, Maintenance Guidelines and Methodology

In the field, each inspector documents the location, length, and type of maintenance category (see the guidelines listed above) giving a rating to each category found to be deficient in accordance with the established ratings criteria above. In any field inspection process, there will be some inherent subjectivity. However, DWR believes that training, the use of the new database driven inspection software, new hardware, and the inclusion of the ratings criteria on the inspectors' field computers have led to more accurate and consistent ratings - which are provided by the inspectors themselves. The inspection criteria used in the field can be seen in Table C-1 of Appendix C. Further, the new methodology of determining overall unit and LMA ratings, described in Table B-1 and Figure B-3, has resulted in more consistent and objective overall ratings.

Levee Inspection Reporting

Individual levee mile inspection reports that summarize findings and identify deficiencies are distributed to each LMA after the spring and fall DWR inspection cycles. These reports are to be used by LMAs to scope and prioritize maintenance and improvement efforts, and the LMAs have been instructed to use these reports as a baseline for their summer and winter inspections. When requested, DWR levee inspectors may accompany LMAs on joint summer or winter inspections to discuss non-compliance and needed improvements. Spring and fall levee mile reports are submitted to USACE and the CVFPB. Monthly presentation updates and an annual report are also submitted to the CVFPB.

B-2.4 Channel Inspection Criteria

26 project channels in the Sacramento River, San Joaquin River, and other river and stream basins are inspected annually by the Flood Project Integrity and Inspection Branch of the Division of Flood Management during the summer months.

The purpose of the annual inspection is to identify and report on any condition which may diminish channel design capacities. Such conditions include: vegetation & obstructions, encroachments, sediment deposition (shoaling), revetments, and erosion / bank caving. Concrete lined channels are further evaluated with respect to the condition of the concrete and other structural appurtenances. Appendix C, Table C-2 Project Channel Rating Categories outlines the channel inspection criteria used in the field.

In general, maintaining the channels to the condition that existed after completion of the initial construction will preserve their design capacities. The standard of comparison for

the inspection is, therefore, the condition immediately after construction. Design capacities, if applicable, can be found in the operations and maintenance (O&M) manuals for each project channel.

The annual inspections rely upon a qualitative rating system that has been developed based on the USACE O&M manuals. As the annual inspections are qualitative in nature, the existing channel capacities are not evaluated in this report. Ultimately, a single overall rating is assigned to each channel by the DWR. This overall rating is a relative indication of how well maintained each channel is.

The USACE and the State of California constructed the channels included in this report. Local agencies or the State of California agreed to be responsible for the maintenance of these channels at the time of construction or at a later time. The USACE issued the O&M manuals referenced above to each maintaining agency at the time of construction. The results of these annual inspections are shown in Appendix D and are made available to the maintaining agencies, USACE, the CVFPB, and the public.

B-2.5 Channel Inspection Rating Methodology

This section outlines the methodology by which an overall rating is developed from the field applied category ratings for the project channels of the flood protection system:

Step 1). The inspector must assess an initial rating of A (Acceptable), M (Minimally Acceptable), U (Unacceptable), or N (Not Rated) to each category for the flood protection work under inspection. Each of the five categories is weighted equally as a threat to the flood protection works' capacity.

Step 2). In the office, a numeric total is obtained for each flood protection work by valuing each rating given to each of the designated categories. The ratings are valued as follows: A is given zero points, M is given one point, U is given four points and N is given zero points. Note that if a category is not applicable to a flood protection work, then it should not be detrimental to the overall rating; hence, the zero point value for the N rating.

Step 3). This total is then divided by the total number of categories that were found to be applicable (A, M or U) in the field to calculate the average value.

Step 4). Lastly, an overall rating of A, M, or U is found by determining which range that average value falls within. The ranges are: $A \leq 0.2$, $0.2 < M \leq 1.0.$, $1.0 < U \leq 4.0$.

Channel inspection results are shown in Appendix E.

B-2.6 Structures Inspection Criteria

The maintenance effort expended on structures has been the subject of an annual report dating back to 1959. A report entitled, *Location, Description and Inventory of Miscellaneous Project Structures, Sacramento River Flood Control Project, and American River Flood Control Project*, was issued and was followed shortly thereafter by a maintenance status report. Maintenance status reports on flood protection structures have since been made on an annual basis. It was in this Structures Report that the State of California made its inspection results (formerly maintenance status reports) available to the LMAs, the USACE, the CVFPB, and the public. In 2008 the structures report was incorporated into the annual Inspection Report. These inspections are made on behalf of the CVFPB by DWR, Division of Flood Management, Flood Project Inspection Section.

Structures are inspected once annually during the summer months and include forty three flood protection structures and thirteen pumping plants. The summer inspections of these structures and pumping plants are visual field inspections and are based on USACE inspection categories. Category names and rating descriptions are provided in Appendix C; Table C-3 Structure Rating Categories and Table C-4 Pump Station Rating Categories. The inspector must assess an initial rating of A (Acceptable), M (Minimally Acceptable), U (Unacceptable), or N (Not Rated) to each category that is applicable to the flood protection work under inspection.

B-2.7 Structure Inspection Rating Methodology

This section outlines the methodology by which an overall rating is developed from the field applied category ratings for the structural components of the flood protection system:

Step 1). The inspector must assess an initial rating of A (Acceptable), M (Minimally Acceptable), U (Unacceptable), or N (Not Rated) to each category for the flood protection work under inspection. Each category is weighted equally as a threat to the flood protection works' capacity.

Step 2). In the office, a numeric total is obtained for each flood protection work by valuing each rating given to each of the USACE designated categories. The ratings are valued as follows: A is given zero points, M is given one point, U is given four points and N is given zero points. Note that if a category is not applicable to a flood protection work, then it should not be detrimental to the overall rating; hence, the zero point value for the N rating.

Step 3). This total is then divided by the total number of categories that were found to be applicable (rated A, M or U) in the field to calculate the average value.

Step 4). Lastly, an overall rating of A, M, or U is found by determining which range that average value falls within. The ranges are: $A \leq 0.2$, $0.2 < M \leq 1.0.$, $1.0 < U \leq 4.0$.

Structure inspection results are shown in Appendix F. Pump Station inspection results are shown in Appendix G.

B-3. San Joaquin River Flood Control System Ranking Criteria for Waterside Erosion

B-3.1 Field Investigation

Field investigations cover some of the major extents of the San Joaquin River system, and include natural channels and manmade diversions. River Miles and Levee Miles used in this report are based on the estimates performed by FPIIB staff, and may be slightly different from the U.S. Army Corps of Engineer (USACE) river mile alignment. All results presented in this report are based upon the 2010 and previous field survey, and DO NOT reflect changes of conditions past the field survey date unless otherwise noted.

B-3.2 Procedure

Prior to the field investigations, a master list of the current inventory of erosion sites was reviewed. This list was used to locate previously identified erosion sites. The most current Levee Inspection report was also reviewed for previously identified erosion sites.

Erosion sites reported to have been repaired or scheduled for repair were noted and inspected for verification.

Land-based survey was conducted with FPIIB staff inspecting the waterside levee and berm on a 4x4 vehicle. In waterways where view of the waterside levee was obstructed by wide berm or by thick vegetation and where waterway access was permissible, a jet-driven boat was used to conduct the survey. In both instances, observation and measurements were taken with the use of a portable Trimble GeoXT GPS handheld receiver.

Data collected at each site includes, but are not limited to:

a) GPS coordinates of the levee crown at the midpoint of the erosion site
b) Estimated length of erosion, in feet
c) Estimated height of erosion, in feet
d) Location of erosion relative to the levee slope
e) Estimated waterside berm width, in feet
f) Estimated levee slope (H:V)
g) Animal burrow hole activity
h) Existing vegetation
i) Soil type at the eroded face
j) Condition of surrounding trees
k) Digital photographs of the site

Inclusion of a bank erosion site into the inventory takes into account the severity of the erosion and the threat to the levee integrity. Figure B-4 shows a typical cross section of a levee on the waterside. The following criteria are used as a reference to consider a site as being susceptible to erosion:

a) Bank erosion in the projection of the levee slope
b) Berm width of less than 30 feet

Typical Cross Section of a Waterside Levee

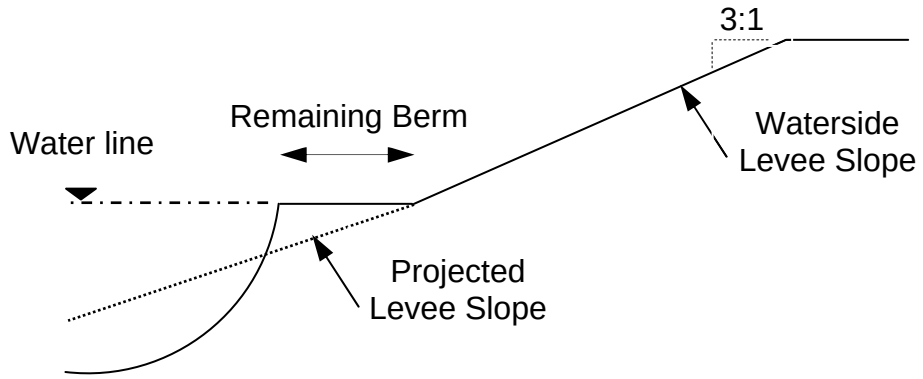


Figure B-4

B-3.3 Rating Methodology

The 2010 SJRFC System Rating Criteria can be found in Appendix C. The criteria reflect quantitative and qualitative analysis used to determine the severity of an erosion site. It is separated into three categories–physical levee characteristics, erosion characteristics, and hydraulics. Each category is further subdivided into factors related to erosion failure, and are used to calculate a final normalized score. Each factor has a potential score of 0, 1, 2, 3, 4, or 5 and is multiplied by a weighted multiplier ranging from 1 to 5. The weighted multiplier reflects qualitative assumptions relating each factor to erosion failure. The total score for an erosion site is collected by summing all the weighted points. It is then normalized to a 100 point scale and is determined by dividing the total score by the maximum possible score of 91. Once all the erosion sites have been assigned a normalized score, they are ranked from highest to lowest. A high score is associated with a high erosion potential, and a low score is associated with a low erosion potential.

B-3.4 Overall Rating

Overall rating was assigned to each site based on their normalized score. First, an average was found by adding all the scores and dividing them by the number of non-repaired erosion sites in the inventory. The average score is established to be the group threshold and determines the overall rating as described by the following: If the normalized score of a site falls at or below the average, the site is given a rating of M. If it is greater than the average, the site is given a rating of U. Table A-1 summarizes the definition of ratings.

Table B-2: Definition of Ratings

Minimally Acceptable (M)	Unacceptable (U)
If Normalized Score ≤ Average Normalized Score, then Overall Rating = **M**	If Normalized Score > Average Normalized Score, then Overall Rating = **U**
A site that receives a Normalized Score equal to or less than the Average Normalized Score is rated as M, or Minimally Acceptable. This site should be monitored closely and annually, as it may become a serious deficiency in the near future.	A site that receives a Normalized Score greater than the Average Normalized Score is rated as U, or Unacceptable. This site may require immediate attention and corrective action, as it may be a serious deficiency that can fail during normal flow or in the next high water event.

Table B-3: San Joaquin River Flood Control System Ranking Criteria for Waterside Erosion

Criteria	Score Definition		Weight	Weighted Score
Physical Levee Characteristics (waterside)				
Berm Width	0 – Greater than 30 feet 1 – 20 to 30 feet 2 – 15 to 20 feet	3 – 10 to 15 feet 4 – 5 to 10 feet 5 – Less than 5 feet	1	5
Vegetation Cover	0 – Ground surrounding site fully covered 1 – 2/3 of ground covered	2 – 1/3 of ground covered 3 – No vegetation	2	6
Burrow Holes	0 – No signs of activity	5 – Signs of activity	1	5
Levee Slope (H:V)	0 – 3:1 or greater 1 – 2.5:1 2 – 2:1	3 – 1.5:1 4 – 1: or less 5 – Near vertical	3	15
Soil Type	1 – Cobbles 2 – Gravel (GP-GW) 3 – Clay (CL, CH, SC, GC)	4 – Sand (SP, SM and mixtures) 5 – Silt (ML)	4	20
Hydraulic Characteristics				
Site Relative to Bend	0 – Inside of bend 1 – Straight reach 2 – immediately downstream of bend	3 – Outside of bend > 90 degrees 4 – Outside of bend @ 90 degree turn 5 – Outside of bend < 90 degrees	1	5
Radius of Curvature (Rc/W)	0 – Greater than 5 or no curve 1 – 4 to 5 2 – 3 to 4	3 – 2 to 3 4 – 1 to 2 5 – less than 1	1	5
Erosion Characteristics				
Length	1 – Less than 50 feet 2 – 50 to 100 feet 3 – 100 to 200 feet	4 – 200 to 300 feet 5 – Greater than 300 feet	2	10
Scarp Height	1 – Less than 50 feet 2 – 50 to 100 feet 3 – 2 to 5 feet & near-vertical	4 – Greater than 5 feet 5 – Greater than 5 feet & near vertical	3	15
Location	1 – Erosion on berm	5 – Erosion affecting levee toe	1	5
			Total Weighted Score:	91

Appendix C: Inspection Category Rating Descriptions

Table C-1: Levee Inspection Rating Categories

FEATURE	CATEGORY	RATING	RATING DESCRIPTION
Earthen Levee	Vegetation	A	The Levee has a good grass cover with no unwanted vegetation (brush, bushes, and undesirable weeds) blocking visibility or access.
		M	Tall grass, weeds, or brush partially block visibility of or access to the levee and/or to 10' beyond the landside toe.
		U	Tall grass, weeds, or brush completely block visibility of or access to the levee and/or to 10' beyond the landside toe.
Earthen Levee	Trim/ Thin Trees	A	Any trees on the levee or the 10' landside toe easement are trimmed up at least 5 ' above the levee slope and spaced enough to allow visibility and flood fight access. Trees adjacent to the levee crown or patrol road are trimmed at least 12 ' above ground.
		M	Moderate density of limbs, leaves or the trees themselves are partially obstructing visibility and flood fight access to the levee slope and/or 10' beyond the landside toe.
		U	Significant density of limbs, leaves or the trees themselves are completely obstructing visibility and flood fight access to the levee slope and/or 10' beyond the landside toe.
Earthen Levee	Encroachments	A	No Trash or debris present. No excavation, structures, or other encroachments threatening levee integrity. No encroachments obstruct visibility or access to the levee or landside toe easement.
		M	Minimal trash or debris present. Minor excavation, structure, or other encroachment poses minor threat to levee integrity.
		U	Significant trash or debris present. Major excavation, structure, or other encroachment poses major threat to levee integrity.
		PO	An encroachment (Permitted or Non-Permitted) partially obstructs visibility and access to the levee and/or 10' beyond landside toe.
		CO	An encroachment (Permitted or Non-Permitted) completely obstructs visibility and access to the levee and/or 10' beyond landside toe.
Earthen Levee	Animal Control	A	Continuous animal burrow control program in place that includes the elimination of active burrowing and the filling in and compacting or grouting of existing burrows.
		M	The existing animal eradication and burrow repair program needs to be improved. Several animal burrows present which may lead to seepage or slope stability problems. Burrows must be filled and compacted or grouted.
		U	Animal eradication and burrow repair program is not effective or is nonexistent. Significant maintenance is required to fill and compact or grout existing burrows, and levee will not provide reliable flood protection until this maintenance is complete.
Earthen Levee	Slope Stability	A	No slides present.
		M	Minor superficial sliding that with deferred repairs will not pose an immediate threat to FCW integrity.
		U	Evidence of deep seated sliding that threatens FCW integrity. Repairs are required to reestablish FCW integrity.

FEATURE	CATEGORY	RATING	RATING DESCRIPTION
Earthen Levee	Erosion/ Bank Caving	A	No active erosion or bank caving observed on the landward or on the riverward side of the levee.
		M	There are areas where active erosion is occurring or has occurred on or near the levee embankment, but levee integrity is not threatened.
		U	Erosion or caving is occurring or has occurred that threatens the stability and integrity of the levee. The erosion or caving has progressed into the levee section or into the extended footprint of the levee foundation and has compromised the levee foundation stability.
Earthen Levee	Cracking	A	No Cracking observed on the levee greater than 6 inches deep.
		M	Longitudinal and/or transverse cracking greater than 6 inches deep. No evidence of vertical movement along the crack.
		U	Longitudinal and/or transverse cracking present and exhibits signs of vertical movement.
Earthen Levee	Crown Surface/ Depressions/ Rutting	A	The road is in all-weather condition. There are no ruts, pot holes, or other depressions on the levee, except for minor depressions caused by levee settlement. The levee crown, embankments, and access road crowns are well established and drain properly without any ponded water.
		M	Some minor depressions in the levee crown, embankment, or access roads that will not pond water and do not threaten the integrity of the levee or some additional road material may be necessary.
		U	There are depressions greater than 6 inches deep that will pond water, endangering the integrity of the levee or significant additional road material is needed.
Earthen Levee	Rip Rap Revetments	A	Existing riprap protection is properly maintained and is undamaged. Riprap clearly visible.
		M	Minor riprap displacement or scouring activity that could undercut banks, erode embankments, or restrict desired flow.
		U	Meandering and/or scour activity is undercutting banks, eroding embankments, or impairing channel flows by causing turbulence or shoaling. Significant quantities of riprap have been lost.
Earthen Levee	Closure Structures	A	Closure structure in good repair. Placing equipment, stoplogs, and other materials are readily available at all times. Components of closure clearly marked and installation instructions / procedures readily available.
		U	Closure structure in poor condition. Parts missing or corroded. Placing equipment may not be available within normal warning time.
Earthen Levee	Seepage/ Sandboils	A	No Seepage, saturated areas, or sand boils occurring at the time of the inspection.
		U	Seepage and/or sand boils were observed which could threaten the integrity of the project. (Regardless of size, any sand boils observed during low water conditions could threaten project integrity when the water is high, and are considered unacceptable.)

FEATURE	CATEGORY	RATING	RATING DESCRIPTION
Earthen Levee	Underseepage Relief Wells	A	Toe drainage system and pressure relief wells necessary for maintaining FCW stability during flood events functioned properly during the last flood event and no sediment is observed in horizontal system. Nothing is observed which would indicate that the system won't function properly during the next flood.
		M	Toe drainage system or pressure relief wells are damaged and may become clogged if they are not repaired.
		U	Toe drainage systems or pressure relief wells necessary for maintaining FCW stability during flood events have fallen into disrepair or have become clogged.
Earthen Levee	Repair Gates	A	Gates open and close freely, locks are in place and there is little corrosion on metal parts.
		M	Gates are damaged or corroded but appear to be maintainable.
		U	Gates are damaged, corroded or impassable and require replacement. District or pass key is not accepted by attached locks.
Interior Drainage & Piping Systems	Vegetation & Obstructions	A	Minimal, scattered obstructions or vegetation. The flow is not impeded.
		M	Log jams, snags, vegetation growth (such as cat tails, bull rushes, bushes or saplings) or other obstructions block approximately 25% of the FCW.
		U	Log jams, snags, vegetation growth (such as cat tails, bull rushes, bushes or saplings) or other obstructions block approximately 50% of the FCW.
Interior Drainage & Piping Systems	Encroachments	A	No Trash, debris, excavation, structures, or other obstructions present within the project easement area. Encroachments which do not diminish proper functioning of the project have been previously approved by the Rec. Board.
		M	Trash, debris, excavations, structures, or other obstructions present, or inappropriate activities that will not inhibit project operations and maintenance or emergency operations. Encroachments have been approved by the Rec. Board.
		U	Trash, debris, excavation, structures, or other obstructions present, or inappropriate activities that will inhibit project operations and maintenance or emergency operation.
Interior Drainage & Piping Systems	Revetments	A	Existing riprap protection is properly maintained and is undamaged. Riprap clearly visible.
		M	No riprap displacement or scouring activity that could undercut banks, erode embankments, or restrict desired flow. Unwanted vegetation must be cleared and sprayed with an appropriate herbicide.
		U	Dense brush, trees, or grasses hide the rock protection, or meandering and/or scour activity is undercutting banks, eroding embankments, or impairing channel flows by causing turbulence or shoaling.

FEATURE	CATEGORY	RATING	RATING DESCRIPTION
Interior Drainage & Piping Systems	Erosion Areas	A	No active erosion or bank caving observed on the landward or on the riverward side of the levee.
		M	There are areas where active erosion is occurring or has occurred on or near the levee embankment, but levee integrity is not threatened.
		U	Erosion or caving is occurring or has occurred that threatens the stability and integrity of the levee. The erosion or caving has progressed into the levee section or into the extended footprint of the levee foundation and has compromised the levee foundation stability.
Interior Drainage & Piping Systems	Culverts: Inlets/ Outlets	A	There is little or no debris, sediment or vegetation blocking the culverts, inlets, sump or discharge areas. The channel capacity for designed flow is not affected.
		M	Debris, sediment or vegetation blocks less than 10% of the culvert opening, but must be removed.
		U	Accumulated debris, sediment or vegetation blocks more than 10% of the culvert opening, impairing the culvert's capacity and hydraulic effectiveness.
Interior Drainage & Piping Systems	Culverts: Breaks/ Holes/Cracks	A	There are no breaks, holes, cracks in the culvert that would result in significant water leakage. Corrugated metal pipes, if present, are in good condition or have been relined with appropriate material which is still in good condition.
		M	There are breaks, holes, cracks in the culvert that would result in water leakage and need to be repaired but do not threaten the integrity of the project. Corrugated metal pipes, if present, are showing deterioration, but the entire length of pipe is still structurally sound and is not in danger of collapsing.
		U	Culvert has deterioration and/or has significant leakage such that it threatens the integrity of the FCW. Corrugated metal pipes are in danger of collapsing or have already begun to collapse.
Interior Drainage & Piping Systems	Metal Pipes	A	There are no breaks, holes, cracks in the culvert that would result in significant water leakage. Corrugated metal pipes, if present are in good condition or have been relined with appropriate material which is still in good condition.
		M	There are breaks, holes, cracks in the culvert that would result in water leakage and need to be repaired but do not threaten the integrity of the project. Corrugated metal pipes, if present, are showing deterioration, but the entire length of pipe is still structurally sound and is not in danger of collapsing.
		U	Culvert has deterioration and/or has significant leakage such that it threatens the integrity of the FCW. Corrugated metal pipes are in danger of collapsing or have already begun to collapse.
Interior Drainage & Piping Systems	Trash Racks	A	Trash racks are fastened in place and properly maintained.
		M	Trash racks are in place but are unfastened or have bent bars that allow debris to enter into the pipe or pump station. Repair or replacement is required.
		U	Trash rack is missing or damaged to the extent that it is no longer functional and must be replaced.

FEATURE	CATEGORY	RATING	RATING DESCRIPTION
Interior Drainage & Piping Systems	Flap Gates	A	Flap gates open and close easily with minimal leakage. Gates show no corrosion damage and have been maintained.
		M	Gate will not fully open or close because of obstructions that can be easily removed or has corrosion damage that requires maintenance.
		U	Gate is missing, has been damaged or has deteriorated and needs repair.
Interior Drainage & Piping Systems	Sluice / Slide Gates	A	Gates open and close freely with minor leakage. Sill is free of sediment and other obstructions. Gates and lifters have been maintained.
		M	Gates have been damaged, have deteriorated, or open or close with resistance or binding. Leakage quantity is controllable and is not a threat to project performance. Maintenance is required.
		U	Gates do not open or close. Gate, stem, lifter, and/or guides are damaged or corroded.
Interior Drainage & Piping Systems	Electric Gate Operators	A	All electric gate operators are in good working condition, are adequately powered, and are capable of opening and closing the gate properly. Preventative maintenance is being performed and the system is tested periodically.
		M	All electric gate operators are operational with minor deficiencies but should perform through the next period of usage.
		U	The electric gate operators are not operational, or the power source is not considered reliable to sustain operations during flood conditions.
Interior Drainage & Piping Systems	Manual Gate Operators	A	All manual gate operators are in good working condition and are capable of opening and closing the gate properly. Preventative maintenance is being performed and the system is tested periodically.
		M	Manual gate operators are operational with minor deficiencies but should perform through the next period of usage.
		U	Manual gate operators are not operational.
Interior Drainage & Piping Systems	Concrete Surfaces	A	Negligible spalling, scaling, or cracking. If the concrete surface is weathered, rough to the touch, or holds moisture, it is still satisfactory but should be seal coated to prevent freeze / thaw damage.
		M	Spalling, scaling, and open cracking present, but the immediate integrity or performance of the structure is not threatened. Reinforcing steel may be exposed. Repairs / sealing is necessary to prevent additional damage during periods of thawing and freezing.
		U	Surface deterioration or deep, controlled cracks present that result in an unreliable structure.
Interior Drainage & Piping Systems	Concrete Tilting/ Settlement	A	There are no significant areas of tilting, sliding, or settlement that would endanger the integrity of the project.
		M	There are areas of tilting, sliding, or settlement (either active or inactive) that need to be repaired. The integrity of the structure is not in danger.
		U	There are areas of tilting, sliding, or settlement (either active or inactive) that threaten the structure's integrity and performance.

FEATURE	CATEGORY	RATING	RATING DESCRIPTION
Interior Drainage & Piping Systems	Concrete Foundations	A	No scouring / erosion or undermining near the structure.
		M	Scouring / erosion near the footing of the structure but not close enough to affect structure stability during the next flood.
		U	Scouring or undermining at the foundation that has affected structural integrity.
Interior Drainage & Piping Systems	Security Fencing	A	Safety / security fencing is in good condition and provides protection against falling or unauthorized access. Gates open and close freely, locks are in place, and there is little corrosion on metal parts.
		M	Safety / security fencing or gates are damaged or corroded but appear to be maintainable. Locks may be missing or damaged.
		U	Safety / security fencing and gates are damaged or corroded to the point that replacement is required, or potentially dangerous project features are not secured.
Concrete Floodwalls	Concrete Surfaces	A	Negligible spalling, scaling, or cracking. If the concrete surface is weathered, rough to the touch, or holds moisture, it is still satisfactory but should be seal coated to prevent freeze / thaw damage.
		M	Spalling, scaling, and open cracking present, but the immediate integrity or performance of the structure is not threatened. Reinforcing steel may be exposed. Repairs / sealing is necessary to prevent additional damage during periods of thawing and freezing.
		U	Surface deterioration or deep, controlled cracks present that result in an unreliable structure.
Concrete Floodwalls	Concrete Tilting/ Settlement	A	There are no significant areas of tilting, sliding, or settlement that would endanger the integrity of the project.
		M	There are areas of tilting, sliding, or settlement (either active or inactive) that need to be repaired. The integrity of the structure is not in danger.
		U	There are areas of tilting, sliding, or settlement (either active or inactive) that threaten the structure's integrity and performance.
Concrete Floodwalls	Concrete Foundations	A	No scouring / erosion or undermining near the structure.
		M	Scouring / erosion near the footing of the structure but not close enough to affect structure stability during the next flood.
		U	Scouring or undermining at the foundation that has affected structural integrity.
Concrete Floodwalls	Monolith Joints	A	The monolith joint material is in good condition.
		M	The monolith joint material is deteriorating and needs to be repaired or replaced to prevent spalling and cracking during freeze / thaw cycles.
		U	The monolith joint material is severely deteriorated and the concrete has spalled and cracked, damaging the water stop to the point where it will not provide the intended level of protection during a flood.

FEATURE	CATEGORY	RATING	RATING DESCRIPTION
Concrete Floodwalls	Erosion / Bank Caving	A	No active erosion or bank caving observed on the landward or on the riverward side of the levee.
		M	There are areas where active erosion is occurring or has occurred on or near the levee embankment, but levee integrity is not threatened.
		U	Erosion or caving is occurring or has occurred that threatens the stability and integrity of the levee. The erosion or caving has progressed into the levee section or into the extended footprint of the levee foundation and has compromised the levee foundation stability.
Concrete Floodwalls	Vegetation & Obstructions	A	No Trash, debris, excavation, structures, or other obstructions present within the project easement area. Encroachments which do not diminish proper functioning of the project have been previously approved by the Rec. Board.
		M	Trash, debris, excavations, structures, other obstructions present, or inappropriate activities that will not inhibit project operations and maintenance or emergency operations. Encroachments have been approved by the Rec. Board.
		U	Trash, debris, excavation, structures, other obstructions present, or inappropriate activities that will inhibit project operations and maintenance or emergency operation.
Concrete Floodwalls	Closure Structures	A	Closure structure in good repair. Placing equipment, stoplogs, and other materials are readily available at all times. Components of closure clearly marked and installation instructions / procedures readily available.
		U	Closure structure in poor condition. Parts missing or corroded. Placing equipment may not be available within normal warning time.
Concrete Floodwalls	Underseepage Relief Wells	A	Toe drainage system and pressure relief wells necessary for maintaining FCW stability during flood events functioned properly during the last flood event and no sediment is observed in horizontal system. Nothing is observed which would indicate that the system won't function properly during the next flood.
		M	Toe drainage system or pressure relief wells are damaged and may become clogged if they are not repaired.
		U	Toe drainage systems or pressure relief wells necessary for maintaining FCW stability during flood events have fallen into disrepair or have become clogged.

Table C-2: Channel Inspection Rating Categories

CATEGORY	RATING	RATING DESCRIPTION
Vegetation & Obstructions	A	Minimal, scattered obstructions or vegetation. The flow is not impeded.
	M	Log jams, snags, vegetation growth (such as cat tails, bull rushes, bushes, or saplings), or other obstructions block approximately 25% of the FCW.
	U	Log jams, snags, vegetation growth (such as cat tails, bull rushes, bushes, or saplings), or other obstructions block approximately 50% of the FCW.
	N	This item does not apply to this inspection.
Shoaling / Sedimentation	A	No shoaling or sedimentation present.
	M	Non-aquatic grasses present on shoal. No trees or brush is present on shoal, and channel flow is not impeded.
	U	Shoaling is well established, stabilized by trees, brush, or other vegetation. Shoals are diverting flow to channel bank causing bank erosion and undercutting.
	N	This item does not apply to this inspection.
Erosion / Bank Caving	A	No head cutting or horizontal deviation observed.
	M	Head cutting and horizontal deviation evident, but less than 1 foot from designed grade or cross section.
	U	Apparent head cutting and horizontal deviation of more than 1 foot from designed grade or cross section. Corrective actions required to stop or slow erosion.
	N	This item does not apply to this inspection.
Revetments	A	Existing riprap protection is properly maintained and is undamaged. Riprap clearly visible.
	M	No riprap displacement or scouring activity that could undercut banks, erode embankments, or restrict desired flow. Unwanted vegetation must be cleared and sprayed with an appropriate herbicide.
	U	Dense brush, trees, or grasses hide the rock protection, or meandering and/or scour activity is undercutting banks, eroding embankments, or impairing channel flows by causing turbulence or shoaling.
	N	This item does not apply to this inspection.
Encroachments	A	No Trash, debris, excavation, structures, or other obstructions present within the project easement area. Encroachments which do not diminish proper functioning of the project have been previously approved by the Rec. Board.
	M	Trash, debris, excavations, structures, or other obstructions present, or inappropriate activities that will not inhibit project operations and maintenance or emergency operations. Encroachments have been approved by the Rec. Board.
	U	Trash, debris, excavation, structures, or other obstructions present, or inappropriate activities that will inhibit project operations and maintenance or emergency operation.
	N	This item does not apply to this inspection.

CATEGORY	RATING	RATING DESCRIPTION
Concrete Tilting / Settlement	A	There are no significant areas of tilting, sliding, or settlement that would endanger the integrity of the project.
	M	There are areas of tilting, sliding, or settlement (either active or inactive) that need to be repaired. The integrity of the structure is not in danger.
	U	There are areas of tilting, sliding, or settlement (either active or inactive) that threaten the structure's integrity and performance.
	N	This item does not apply to this inspection.
Concrete Foundations	A	No scouring / erosion or undermining near the structure.
	M	Scouring / erosion near the footing of the structure but not close enough to affect structure stability during the next flood.
	U	Scouring or undermining at the foundation that has affected structural integrity.
	N	This item does not apply to this inspection.
Concrete Surfaces	A	Negligible spalling, scaling, or cracking. If the concrete surface is weathered, rough to the touch, or holds moisture, it is still satisfactory but should be seal coated to prevent freeze / thaw damage.
	M	Spalling, scaling, and open cracking present, but the immediate integrity or performance of the structure is not threatened. Reinforcing steel may be exposed. Repairs / sealing is necessary to prevent additional damage during periods of thawing and freezing.
	U	Surface deterioration or deep, controlled cracks present that result in an unreliable structure.
	N	This item does not apply to this inspection.
Gates	A	Flap gates open and close easily with minimal leakage. Gates show no corrosion damage and have been maintained.
	M	Gate will not fully open or close because of obstructions that can be easily removed or has corrosion damage that requires maintenance.
	U	Gate is missing, has been damaged or has deteriorated and needs repair.
	N	This item does not apply to this inspection.

Table C-3: Structure Rating Categories

CATEGORY	RATING	RATING DESCRIPTION
Vegetation & Obstructions	A	Minimal, scattered obstructions or vegetation. The flow is not impeded.
	M	Log jams, snags, vegetation growth (such as cat tails, bull rushes, bushes or saplings) or other obstructions block approximately 25% of the FCW.
	U	Log jams, snags, vegetation growth (such as cat tails, bull rushes, bushes or saplings) or other obstructions block approximately 50% of the FCW.
	N	This item does not apply to this inspection.
Shoaling / Sedimentation	A	No shoaling or sedimentation present.
	M	Non-aquatic grasses present on shoal. No trees or brush are present on shoal, and structure operation and channel flows are not impeded.
	U	Shoaling is well established, stabilized by trees, brush or other vegetation. Shoals are obstructing structure operation or diverting flow to channel bank causing bank erosion and undercutting.
	N	This item does not apply to this inspection.
Erosion / Bank Caving	A	No active erosion or bank caving observed on the landward or on the riverward side of the levee.
	M	There are areas where active erosion is occurring or has occurred on or near the levee embankment, but levee integrity is not threatened.
	U	Erosion or caving is occurring or has occurred that threatens the stability and integrity of the levee. The erosion or caving has progressed into the levee section or into the extended footprint of the levee foundation and has compromised the levee foundation stability.
	N	This item does not apply to this inspection.
Revetments	A	Existing riprap protection is properly maintained and is undamaged. Riprap clearly visible.
	M	No riprap displacement or scouring activity that could undercut banks, erode embankments, or restrict desired flow. Unwanted vegetation must be cleared and sprayed with an appropriate herbicide.
	U	Dense brush, trees, or grasses hide the rock protection, or meandering and/or scour activity is undercutting banks, eroding embankments, or impairing channel flows by causing turbulence or shoaling.
	N	This item does not apply to this inspection.
Encroachments	A	No Trash, debris, excavation, structures, or other obstructions present within the project easement area. Encroachments which do not diminish proper functioning of the project have been previously approved by the Rec. Board.
	M	Trash, debris, excavations, structures, other obstructions present, or inappropriate activities that will not inhibit project operations and maintenance or emergency operations. Encroachments have been approved by the Rec. Board.
	U	Trash, debris, excavation, structures, other obstructions present, or inappropriate activities that will inhibit project operations and maintenance or emergency operation.
	N	This item does not apply to this inspection.

CATEGORY	RATING	RATING DESCRIPTION
Culverts: Inlets / Outlets	A	There is little or no debris, sediment, or vegetation blocking the culverts, inlets, sump, or discharge areas. The channel capacity for designed flow is not affected.
	M	Debris, sediment, or vegetation blocks less than 10% of the culvert opening but must be removed.
	U	Accumulated debris, sediment, or vegetation blocks more than 10% of the culvert opening, impairing the culvert's capacity and hydraulic effectiveness.
	N	This item does not apply to this inspection.
Culverts: Breaks / Holes / Cracks	A	There are no breaks, holes, cracks in the culvert that would result in significant water leakage. Corrugated metal pipes, if present, are in good condition or have been relined with appropriate material which is still in good condition.
	M	There are breaks, holes, cracks in the culvert that would result in water leakage and need to be repaired but do not threaten the integrity of the project. Corrugated metal pipes, if present, are showing deterioration, but the entire length of pipe is still structurally sound and is not in danger of collapsing.
	U	Culvert has deterioration and/or has significant leakage such that it threatens the integrity of the FCW. Corrugated metal pipes are in danger of collapsing or have already begun to collapse.
	N	This item does not apply to this inspection.
Metal Pipes	A	There are no breaks, holes, cracks in the culvert that would result in significant water leakage. Corrugated metal pipes, if present, are in good condition or have been relined with appropriate material which is still in good condition.
	M	There are breaks, holes, cracks in the culvert that would result in water leakage and need to be repaired but do not threaten the integrity of the project. Corrugated metal pipes, if present, are showing deterioration, but the entire length of pipe is still structurally sound and is not in danger of collapsing.
	U	Culvert has deterioration and/or has significant leakage such that it threatens the integrity of the FCW. Corrugated metal pipes are in danger of collapsing or have already begun to collapse.
	N	This item does not apply to this inspection.
Trash Racks	A	Trash racks are fastened in place and properly maintained.
	M	Trash racks are in place but are unfastened or have bent bars that allow debris to enter into the pipe or pump station. Repair or replacement is required.
	U	Trash rack is missing or damaged to the extent that it is no longer functional and must be replaced.
	N	This item does not apply to this inspection.

CATEGORY	RATING	RATING DESCRIPTION
Flap Gates	A	Flap gates open and close easily with minimal leakage. Gates show no corrosion damage and have been maintained.
	M	Gate will not fully open or close because of obstructions that can be easily removed or has corrosion damage that requires maintenance.
	U	Gate is missing, has been damaged, or has deteriorated and needs repair.
	N	This item does not apply to this inspection.
Sluice / Slide Gates	A	Gates open and close freely with minor leakage. Sill is free of sediment and other obstructions. Gates and lifters have been maintained.
	M	Gates have been damaged, have deteriorated, or open or close with resistance or binding. Leakage quantity is controllable and is not a threat to project performance. Maintenance is required.
	U	Gates do not open or close. Gate, stem, lifter, and/or guides are damaged or corroded.
	N	This item does not apply to this inspection.
Electric Gate Operators	A	All electric gate operators are in good working condition, are adequately powered, and are capable of opening and closing the gate properly. Preventative maintenance is being performed and the system is tested periodically.
	M	All electric gate operators are operational with minor deficiencies but should perform through the next period of usage.
	U	The electric gate operators are not operational, or the power source is not considered reliable to sustain operations during flood conditions.
	N	This item does not apply to this inspection.
Manual Gate Operators	A	All manual gate operators are in good working condition and are capable of opening and closing the gate properly. Preventative maintenance is being performed and the system is tested periodically.
	M	Manual gate operators are operational with minor deficiencies but should perform through the next period of usage.
	U	Manual gate operators are not operational.
	N	This item does not apply to this inspection.
Concrete Surfaces	A	Negligible spalling, scaling, or cracking. If the concrete surface is weathered, rough to the touch, or holds moisture, it is still satisfactory but should be seal coated to prevent freeze / thaw damage.
	M	Spalling, scaling, and open cracking present, but the immediate integrity or performance of the structure is not threatened. Reinforcing steel may be exposed. Repairs / sealing is necessary to prevent additional damage during periods of thawing and freezing.
	U	Surface deterioration or deep, controlled cracks present that result in an unreliable structure.
	N	This item does not apply to this inspection.

CATEGORY	RATING	RATING DESCRIPTION
Concrete Tilting / Settlement	A	There are no significant areas of tilting, sliding, or settlement that would endanger the integrity of the project.
	M	There are areas of tilting, sliding, or settlement (either active or inactive) that need to be repaired. The integrity of the structure is not in danger.
	U	There are areas of tilting, sliding, or settlement (either active or inactive) that threaten the structure's integrity and performance.
	N	This item does not apply to this inspection.
Concrete Foundations	A	No scouring / erosion or undermining near the structure.
	M	Scouring / erosion near the footing of the structure but not close enough to affect structure stability during the next flood.
	U	Scouring or undermining at the foundation that has affected structural integrity.
	N	This item does not apply to this inspection.
Security Fencing	A	Safety / security fencing is in good condition and provides protection against falling or unauthorized access. Gates open and close freely, locks are in place, and there is little corrosion on metal parts.
	M	Safety / security fencing or gates are damaged or corroded but appear to be maintainable. Locks may be missing or damaged.
	U	Safety / security fencing and gates are damaged or corroded to the point that replacement is required, or potentially dangerous project features are not secured.
	N	This item does not apply to this inspection.
Closure Structures	A	Closure structure in good repair. Placing equipment, stoplogs, and other materials are readily available at all times. Components of closure clearly marked and installation instructions / procedures readily available.
	U	Closure structure in poor condition. Parts missing or corroded. Placing equipment may not be available within normal warning time.
	N	This item does not apply to this inspection.
Trash Rakes	A	Drive chain, bearings, gear reducers, and other components are in good operating condition and are being properly maintained.
	M	The trash rake is in need of maintenance but is still operational.
	U	Trash rake is not operational or deficiencies will inhibit operations during the next flood event.
	N	This item does not apply to this inspection.
Other Metallic Items	A	All metal parts are protected from corrosion damage and show no rust or deterioration that would cause a safety concern.
	M	Corrosion seen on metallic parts (except equipment anchors) appears maintainable.
	U	Metallic parts are severely corroded and require replacement to prevent failure, equipment damage, or safety issues.
	N	This item does not apply to this inspection.

CATEGORY	RATING	RATING DESCRIPTION
Monolith Joints	A	The monolith joint material is in good condition.
	M	The monolith joint material is deteriorating and needs to be repaired or replaced to prevent spalling and cracking during freeze / thaw cycles.
	U	The monolith joint material is severely deteriorated and the concrete has spalled and cracked, damaging the water stop to the point where it will not provide the intended level of protection during a flood.
	N	This item does not apply to this inspection.
Safety	A	Safety hardware installed. Adequate protection for fall hazards exists. No hazardous conditions that might affect the operation of the structure exist.
	M	Minor safety hazards are present, but do not pose an immediate threat to the structure or personnel at the structure. Corrections should be made prior to the next annual inspection.
	U	Safety issues exist that could cause injury or loss of life.
	N	This item does not apply to this inspection.

Table C-4: Pump Station Rating Categories

CATEGORY	RATING	RATING DESCRIPTION
Operating Log	A	Operation and Maintenance log is present at the pump station and is being used and updated, and personnel have been trained in pump station operations. Names and last training date shown in the log book.
	U	No operating log present, or refresher training for personnel has not been conducted.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.
Operation & Maintenance Manual	A	Operation and Maintenance (O&M) Manual and/or posted operating instructions are present and adequately cover all pertinent pump station features.
	U	Operation and Maintenance (O&M) Manual and/or posted operating instructions are missing or sponsor is unsure of location.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.
Plant Building	A	Plant building is in good structural condition with no major cracks in concrete or brick. The roof is not leaking, exhaust fans are operational, there are no exposed electrical components, and the working environment is safe.
	M	There is significant cracking in the building structure, or the building is damaged in other ways such that it needs repair but does not threaten pumping operations.
	U	The structural integrity or stability of the building is threatened, or there is other damage to the building such that pumping operations cannot be performed as intended.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.
Communications	A	Telephone, cellular telephone, two-way radio, or similar device is available to pump station operator or maintenance personnel.
	U	Pump station operator or maintenance personnel required to leave the pump station and drive to access communications.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.

CATEGORY	RATING	RATING DESCRIPTION
Safety	A	No exhaust leaks in building. Fuel storage/distribution meets state/local requirement. Fire extinguishers on hand, of sufficient quantity, and properly charged. Safety hardware installed. Required safety items used (hearing, eyes, etc.).
	M	Minor safety hazards are present, but do not pose an immediate threat to the pumping plant or personnel at the plant. Corrections should be made prior to the next annual inspection.
	U	Safety issues exist that could cause injury or loss of life.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.
Cranes	A	Crane operational and has been inspected and load tested in accordance with OSHA requirements.
	M	Crane has not been inspected or operationally tested within the past year, or there are visible signs of corrosion, oil leakage, etc, requiring maintenance.
	U	Crane not operational or tagged out of service.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.
Pumps	A	All pumps are properly maintained and lubricated. System is periodically tested, and there is no evidence of cavitation, vibration, or unusual sounds.
	M	Minor deficiencies exist which need to be closely monitored or repaired, such as the presence of minor vibrations or the corrosion of the pump shaft housing. However, the pumps are operational and are expected to perform through the next expected period of usage.
	U	One or more of the pumps are not operational, or the pump capacity has degraded to the point where project performance is in question.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.
Power	A	The power source is adequate, safe, and reliable. Backup generators are on hand or there is a reliable backup power plan in place. Backup units are properly sized, operational, periodically exercised, and properly maintained.
	U	Power source not considered safe or reliable to sustain operations during flood conditions.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.

CATEGORY	RATING	RATING DESCRIPTION
Motors, Engines, Fans & Gear Reducers	A	All items are operational. Preventative maintenance and lubrication are being performed and the system is periodically subjected to performance testing. Instrumentation, alarms, and auto shutdowns are operational.
	M	Systems have minor deficiencies but are operational and will function adequately through the next flood.
	U	One or more primary motors or systems are not operational.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.
Pump Control Systems	A	Operational and maintained free of damage, corrosion, or other debris.
	M	Operational with minor discrepancies. Will function adequately during the next flood event.
	U	Pump controls not operational. May not function adequately during the next flood season.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.
Sumps/Wet Well	A	Clear of excessive debris, sediment, or other obstructions. Procedures are in place to move debris accumulation during operation.
	M	Debris, sediment, or other obstructions are present and must be removed, but the sump / wet well will function as intended during the next flood event. Procedures are in place to remove debris accumulation during operation.
	U	Large debris or excessive silt present which will hinder or damage pumps during operation, or no procedures have been established to remove debris accumulation during operation.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.
Trash Racks	A	Trash racks are fastened in place and properly maintained.
	M	Trash racks are in place but are unfastened or have bent bars that allow debris to enter into the pipe or pump station. Repair or replacement is required.
	U	Trash rack is missing, damaged, not operational, or deficiencies will inhibit operations during the next flood event.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.

CATEGORY	RATING	RATING DESCRIPTION
Trash Rakes	A	Drive chain, bearings, gear reducers, and other components are in good operating condition and are being properly maintained.
	M	The trash rake is in need of maintenance but is still operational.
	U	Trash rake is not operational, or deficiencies will inhibit operations during the next flood event.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.
Sluice / Slide Gates	A	Gates open and close freely with minor leakage. Sill is free of sediment and other obstructions. Gates and lifters have been maintained.
	M	Gates have been damaged, have deteriorated, or open or close with resistance or binding. Leakage quantity is controllable and is not a threat to project performance. Maintenance is required.
	U	Gates do not open or close. Gate, stem, lifter, and/or guides are damaged or corroded.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.
Electric Gate Operators	A	All electric gate operators are in good working condition, are adequately powered, and are capable of opening and closing the gate properly. Preventative maintenance is being performed and the system is tested periodically.
	M	All electric gate operators are operational with minor deficiencies but should perform through the next period of usage.
	U	The electric gate operators are not operational, or the power source is not considered reliable to sustain operations during flood conditions.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.
Manual Gate Operators	A	All manual gate operators are in good working condition, are capable of opening and closing the gate properly. Preventative maintenance is being performed and the system is tested periodically.
	M	Manual gate operators are operational with minor deficiencies but should perform through the next period of usage.
	U	Manual gate operators are not operational.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.

CATEGORY	RATING	RATING DESCRIPTION
Other Metallic Items	A	All metal parts are protected from corrosion damage and show no rust or deterioration that would cause a safety concern.
	M	Corrosion seen on metallic parts (except equipment anchors) appears maintainable.
	U	Metallic parts are severely corroded and require replacement to prevent failure, equipment damage, or safety issues.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.
Flap Gates	A	Flap gates open and close easily with minimal leakage. Gates show no corrosion damage and have been maintained.
	M	Gates will not fully open or close because of obstructions that can be easily removed or have corrosion damage that requires maintenance.
	U	Gate is missing, has been damaged, or has deteriorated and needs repair.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.
Closure Structures	A	Closure structure in good repair. Placing equipment, stoplogs, and other materials are readily available at all times. Components of closure clearly marked and installation instructions / procedures readily available.
	U	Closure structure in poor condition. Parts missing or corroded. Placing equipment may not be available within normal warning time.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.
Security Fencing	A	Safety / security fencing is good condition and provides protection against falling or unauthorized access. Gates open and close freely, locks are in place, and there is little corrosion on metal parts.
	M	Safety / security fencing or gates are damaged or corroded but appear to be maintainable. Locks may be missing or damaged.
	U	Safety / security fencing and gates are damaged or corroded to the point that replacement is required, or potentially dangerous project features are not secured.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.

CATEGORY	RATING	RATING DESCRIPTION
Intake and Discharge Pipes	A	There are no breaks, holes, corrosion, or cracks in the pipe that would result in significant water leakage. The pipe shape is essentially circular. All joints appear to be closed and the soil tight.
	M	A pipe is slightly leaking but DOES NOT threaten stability of anything nor cause any damage. A pipe is ovalized in some locations but does not appear to be approaching a curvature reversal. Pipe needs repair prior to next inspection.
	U	Pipe has deterioration and/or significant leakage, is in danger of collapsing, or has already collapsed. Immediate repair or replacement required.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.
Pressurized Pipe	A	There is NO evidence of erosion or leakage around or near the pipe. No corrosion on pipe.
	M	There is NO evidence of erosion or leakage around or near the pipe. Very little corrosion on pipe.
	U	ANY evidence of erosion around or near or leaking from the pipe. Corrosion that threatens pipe. Immediate repair required.
	N	This item does not apply to the pumping plant, conditions prevent inspection (e.g. low water, inaccessible location, time constraints), or inspection would cause physical danger or unreasonable cost.

Appendix D: Fall 2011 Levee Maintenance Inspection Summary Reports

Flood Control Project Maintenance
Levee Inspections

Fall 2011 Levee Maintenance Deficiency Summary Report

Overall LMA Ratings, Compare 2010 & 2011

Sacramento River Basin

LD0001G	Total LMA Miles	12.45										
Levee District No. 0001 (Glenn County)	Fall 2010				Fall 2011				Change			
	Overall LMA Rating			U	Overall LMA Rating			M				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	2.80		2.80	**22.49**	0.45		0.45	**3.61**	-2.35		-2.35	**-18.88**
Trim / Thin Trees	0.11		0.11	**0.88**	0.11		0.11	**0.88**				**0.00**
Encroachments	0.33		0.33	**2.65**	0.31		0.31	**2.49**	-0.02		-0.02	**-0.16**
Animal Control	0.86		0.86	**6.91**	0.34		0.34	**2.73**	-0.52		-0.52	**-4.18**
Slope Stability	0.01		0.01	**0.08**					-0.01		-0.01	**-0.08**
Erosion / Bank Caving						0.01	0.04	**0.32**		0.01	0.04	**0.32**
LMA Totals:	4.11	0.00	4.11	**33.01**	1.21	0.01	1.25	**10.04**	-2.90	0.01	-2.86	**-22.97**

LD0001S	Total LMA Miles	16.65										
Levee District No. 0001 (Sutter County)	Fall 2010				Fall 2011				Change			
	Overall LMA Rating			M *	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Encroachments	0.01		0.01	**0.06**	0.01		0.01	**0.06**				**0.00**
Interior Drainage & Piping Systems												
Metal Pipes					0.01		0.01	**0.06**	0.01		0.01	**0.06**
Supplemental												
USACE Erosion Survey		0.22	0.88	**5.29**						-0.22	-0.88	**-5.29**
LMA Totals:	0.01	0.22	0.89	**5.35***	0.02	0.00	0.02	**0.12**	0.01	-0.22	-0.87	**-5.23**

LD0002	Total LMA Miles	4.89										
Levee District No. 0002 (Glenn County)	Fall 2010				Fall 2011				Change			
	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.14		0.14	**2.86**	0.01		0.01	**0.20**	-0.13		-0.13	**-2.66**
Animal Control	0.14		0.14	**2.86**	0.16		0.16	**3.27**	0.02		0.02	**0.41**
Supplemental												
USACE Erosion Survey					0.01		0.01	**0.20**	0.01		0.01	**0.20**
LMA Totals:	0.28	0.00	0.28	**5.73**	0.18	0.00	0.18	**3.68**	-0.10	0.00	-0.10	**-2.05**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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Sacramento River Basin (cont.)

LD0003	Total LMA Miles	12.24										
Levee District No. 0003 (Glenn County)	Fall 2010				Fall 2011				Change			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Trim / Thin Trees	0.17		0.17	**1.39**	0.32		0.32	**2.61**	0.15		0.15	**1.23**
Encroachments	0.16		0.16	**1.31**	0.24		0.24	**1.96**	0.08		0.08	**0.65**
Animal Control	1.79		1.79	**14.62**	2.17		2.17	**17.73**	0.38		0.38	**3.11**
Slope Stability	0.04		0.04	**0.33**	0.04		0.04	**0.33**				**0.00**
Erosion / Bank Caving	0.01		0.01	**0.08**	0.01		0.01	**0.08**				**0.00**
Supplemental												
USACE Erosion Survey		0.20	0.80	**6.54**	0.54		0.54	**4.41**	0.54	-0.20	-0.26	**-2.12**
LMA Totals:	2.17	0.20	2.97	**24.26**	3.32	0.00	3.32	**27.12**	1.15	-0.20	0.35	**2.86**

LD0009	Total LMA Miles	6.24										
Levee District No. 0009 (Sutter County)	Fall 2010				Fall 2011				Change			
	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Encroachments	0.02		0.02	**0.32**	0.01		0.01	**0.16**	-0.01		-0.01	**-0.16**
Animal Control	0.02		0.02	**0.32**	0.01		0.01	**0.16**	-0.01		-0.01	**-0.16**
Erosion / Bank Caving	0.07		0.07	**1.12**					-0.07		-0.07	**-1.12**
LMA Totals:	0.11	0.00	0.11	**1.76**	0.02	0.00	0.02	**0.32**	-0.09	0.00	-0.09	**-1.44**

MA0001	Total LMA Miles	17.12										
Sutter Maintenance Yard Maintenance Area 0001 Fall 2010 : Not Inspected	Fall 2009				Fall 2011				Change			
	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.02		0.02	**0.12**	0.04		0.04	**0.23**	0.02		0.02	**0.12**
Trim / Thin Trees	0.03		0.03	**0.18**	0.01		0.01	**0.06**	-0.02		-0.02	**-0.12**
Encroachments	0.02		0.02	**0.12**	0.01		0.01	**0.06**	-0.01		-0.01	**-0.06**
Animal Control	1.61		1.61	**9.40**	0.23		0.23	**1.34**	-1.38		-1.38	**-8.06**
Slope Stability					0.01		0.01	**0.06**	0.01		0.01	**0.06**
Erosion / Bank Caving	0.01		0.01	**0.06**					-0.01		-0.01	**-0.06**
Supplemental												
USACE Erosion Survey					0.39		0.39	**2.28**	0.39		0.39	**2.28**
LMA Totals:	1.69	0.00	1.69	**9.87**	0.69	0.00	0.69	**4.03**	-1.00	0.00	-1.00	**-5.84**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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Sacramento River Basin (cont.)

MA0003	Total LMA Miles	5.19										
Sutter Maintenance Yard Maintenance Area 0003	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Animal Control	0.02		0.02	**0.39**					-0.02		-0.02	**-0.39**
Slope Stability					0.13		0.13	**2.51**	0.13		0.13	**2.51**
Crown Surface / Depressions / Rutting					0.13		0.13	**2.51**	0.13		0.13	**2.51**
Interior Drainage & Piping Systems												
Sluice / Slide Gates					0.01		0.01	**0.19**	0.01		0.01	**0.19**
LMA Totals:	0.02	0.00	0.02	**0.39**	0.27	0.00	0.27	**5.20**	0.25	0.00	0.25	**4.82**

MA0004	Total LMA Miles	3.40										
Sacramento Maintenance Yard Maintenance Area 0004	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation					0.01		0.01	**0.29**	0.01		0.01	**0.29**
Trim / Thin Trees	0.16		0.16	**4.71**	0.16		0.16	**4.71**				**0.00**
Animal Control					0.04		0.04	**1.18**	0.04		0.04	**1.18**
Erosion / Bank Caving	0.01		0.01	**0.29**					-0.01		-0.01	**-0.29**
LMA Totals:	0.17	0.00	0.17	**5.00**	0.21	0.00	0.21	**6.18**	0.04	0.00	0.04	**1.18**

MA0005	Total LMA Miles	33.32										
Sutter Maintenance Yard Maintenance Area 0005	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			M *	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.02		0.02	**0.06**	0.02		0.02	**0.06**				**0.00**
Encroachments	0.10		0.10	**0.30**	0.10		0.10	**0.30**				**0.00**
Animal Control	0.03		0.03	**0.09**	0.01		0.01	**0.03**	-0.02		-0.02	**-0.06**
Slope Stability	0.01		0.01	**0.03**	0.01		0.01	**0.03**				**0.00**
Repair Gates	0.01		0.01	**0.03**	0.02		0.02	**0.06**	0.01		0.01	**0.03**
Supplemental												
USACE Erosion Survey		0.03	0.12	**0.36**	0.01		0.01	**0.03**	0.01	-0.03	-0.11	**-0.33**
LMA Totals:	0.17	0.03	0.29	**0.87***	0.17	0.00	0.17	**0.51**	0.00	-0.03	-0.12	**-0.36**

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Sacramento River Basin (cont.)

MA0007	Total LMA Miles	12.07										
Sutter Maintenance Yard Maintenance Area 0007	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Encroachments					0.04		0.04	**0.33**	0.04		0.04	**0.33**
Slope Stability	0.38		0.38	**3.15**	0.38		0.38	**3.15**				**0.00**
Erosion / Bank Caving	0.02		0.02	**0.17**	0.04		0.04	**0.33**	0.02		0.02	**0.17**
Supplemental												
USACE Erosion Survey					0.01		0.01	**0.08**	0.01		0.01	**0.08**
LMA Totals:	0.40	0.00	0.40	**3.31**	0.47	0.00	0.47	**3.89**	0.07	0.00	0.07	**0.58**

MA0009	Total LMA Miles	19.61										
Sacramento Maintenance Yard Maintenance Area 0009	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			M	Overall LMA Rating			M				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.14		0.14	**0.71**	0.76		0.76	**3.88**	0.62		0.62	**3.16**
Trim / Thin Trees	0.04		0.04	**0.20**	0.01		0.01	**0.05**	-0.03		-0.03	**-0.15**
Encroachments	1.80		1.80	**9.18**	1.82		1.82	**9.28**	0.02		0.02	**0.10**
Animal Control	0.01		0.01	**0.05**	0.01		0.01	**0.05**				**0.00**
Erosion / Bank Caving	0.01		0.01	**0.05**					-0.01		-0.01	**-0.05**
Supplemental												
USACE Erosion Survey	0.13	0.07	0.41	**2.09**	0.59		0.59	**3.01**	0.46	-0.07	0.18	**0.92**
LMA Totals:	2.13	0.07	2.41	**12.29**	3.19	0.00	3.19	**16.27**	1.06	-0.07	0.78	**3.98**

MA0012	Total LMA Miles	11.31										
Sutter Maintenance Yard Maintenance Area 0012	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Animal Control					0.02		0.02	**0.18**	0.02		0.02	**0.18**
Slope Stability					0.01		0.01	**0.09**	0.01		0.01	**0.09**
Supplemental												
USACE Erosion Survey					0.01		0.01	**0.09**	0.01		0.01	**0.09**
LMA Totals:	0.00	0.00	0.00	**0.00**	0.04	0.00	0.04	**0.35**	0.04	0.00	0.04	**0.35**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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Sacramento River Basin (cont.)

MA0013	Total LMA Miles	41.97										
Sutter Maintenance Yard Maintenance Area 0013	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			M *	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Trim / Thin Trees	0.03		0.03	**0.07**	0.03		0.03	**0.07**				**0.00**
Encroachments	0.16		0.16	**0.38**	0.59		0.59	**1.41**	0.43		0.43	**1.03**
Animal Control	0.01		0.01	**0.02**	0.03		0.03	**0.07**	0.02		0.02	**0.05**
Erosion / Bank Caving	0.37	0.06	0.61	**1.45**	0.02		0.02	**0.05**	-0.35	-0.06	-0.59	**-1.41**
Supplemental												
USACE Erosion Survey	0.39		0.39	**0.93**	0.01		0.01	**0.02**	-0.38		-0.38	**-0.91**
LMA Totals:	0.96	0.06	1.20	**2.86***	0.68	0.00	0.68	**1.62**	-0.28	-0.06	-0.52	**-1.24**

MA0016	Total LMA Miles	4.09										
Sutter Maintenance Yard Maintenance Area 0016	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			M	Overall LMA Rating			M *				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Encroachments					0.01		0.01	**0.24**	0.01		0.01	**0.24**
Animal Control	0.06		0.06	**1.47**	0.02		0.02	**0.49**	-0.04		-0.04	**-0.98**
Slope Stability	0.68		0.68	**16.63**					-0.68		-0.68	**-16.63**
Interior Drainage & Piping Systems												
Metal Pipes						0.01	0.04	**0.98**		0.01	0.04	**0.98**
LMA Totals:	0.74	0.00	0.74	**18.09**	0.03	0.01	0.07	**1.71***	-0.71	0.01	-0.67	**-16.38**

MA0017	Total LMA Miles	3.90										
Sutter Maintenance Yard Maintenance Area 0017	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation		3.13	12.52	**321.03**		3.13	12.52	**321.03**				**0.00**
Trim / Thin Trees		3.12	12.48	**320.00**		3.12	12.48	**320.00**				**0.00**
LMA Totals:	0.00	6.25	25.00	**641.03**	0.00	6.25	25.00	**641.03**	0.00	0.00	0.00	**0.00**

NA0001	Total LMA Miles	32.51										
American River Flood Control District	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.04		0.04	**0.12**	0.04		0.04	**0.12**				**0.00**
Encroachments	0.14		0.14	**0.43**	0.31		0.31	**0.95**	0.17		0.17	**0.52**
Animal Control	0.04		0.04	**0.12**	0.27		0.27	**0.83**	0.23		0.23	**0.71**
Erosion / Bank Caving					0.06		0.06	**0.19**	0.06		0.06	**0.19**
Supplemental												
USACE Erosion Survey	0.11		0.11	**0.34**	0.02		0.02	**0.06**	-0.09		-0.09	**-0.28**
LMA Totals:	0.33	0.00	0.33	**1.02**	0.70	0.00	0.70	**2.15**	0.37	0.00	0.37	**1.14**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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Sacramento River Basin (cont.)

NA0002	Total LMA Miles	19.32										
Brannan Andrus Levee Maintenance District	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			M				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation					0.36	0.01	0.40	**2.07**	0.36	0.01	0.40	**2.07**
Trim / Thin Trees	0.49		0.49	**2.54**	1.04		1.04	**5.38**	0.55		0.55	**2.85**
Encroachments					0.04		0.04	**0.21**	0.04		0.04	**0.21**
Animal Control					0.01		0.01	**0.05**	0.01		0.01	**0.05**
Supplemental												
USACE Erosion Survey					1.08	0.25	2.08	**10.77**	1.08	0.25	2.08	**10.77**
LMA Totals:	0.49	0.00	0.49	**2.54**	2.53	0.26	3.57	**18.48**	2.04	0.26	3.08	**15.94**

NA0003	Total LMA Miles	24.71										
Butte County Public Works	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Encroachments	0.09		0.09	**0.36**	0.05		0.05	**0.20**	-0.04		-0.04	**-0.16**
Animal Control	0.09		0.09	**0.36**	0.04		0.04	**0.16**	-0.05		-0.05	**-0.20**
Slope Stability	0.01		0.01	**0.04**	0.01		0.01	**0.04**				**0.00**
Supplemental												
USACE Erosion Survey					0.01		0.01	**0.04**	0.01		0.01	**0.04**
LMA Totals:	0.19	0.00	0.19	**0.77**	0.11	0.00	0.11	**0.45**	-0.08	0.00	-0.08	**-0.32**

NA0004	Total LMA Miles	11.38										
Marysville Levee Commission	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	1.10		1.10	**9.67**					-1.10		-1.10	**-9.67**
Slope Stability					0.01		0.01	**0.09**	0.01		0.01	**0.09**
LMA Totals:	1.10	0.00	1.10	**9.67**	0.01	0.00	0.01	**0.09**	-1.09	0.00	-1.09	**-9.58**

NA0005	Total LMA Miles	3.63										
City of Sacramento	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Encroachments	0.02		0.02	**0.55**					-0.02		-0.02	**-0.55**
Supplemental												
USACE Erosion Survey	0.07		0.07	**1.93**	0.15		0.15	**4.13**	0.08		0.08	**2.20**
LMA Totals:	0.09	0.00	0.09	**2.48**	0.15	0.00	0.15	**4.13**	0.06	0.00	0.06	**1.65**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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Sacramento River Basin (cont.)

NA0006	Total LMA Miles	1.50										
Eastern Honcut Creek	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	2.94		2.94	**196.00**	2.94		2.94	**196.00**				**0.00**
Crown Surface / Depressions / Rutting	0.67		0.67	**44.67**	0.67		0.67	**44.67**				**0.00**
LMA Totals:	3.61	0.00	3.61	**240.67**	3.61	0.00	3.61	**240.67**	0.00	0.00	0.00	**0.00**

NA0008	Total LMA Miles	12.57										
Knights Landing Ridge Drainage District	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.07		0.07	**0.56**					-0.07		-0.07	**-0.56**
Trim / Thin Trees	0.01		0.01	**0.08**					-0.01		-0.01	**-0.08**
Encroachments	0.25		0.25	**1.99**	0.24		0.24	**1.91**	-0.01		-0.01	**-0.08**
Animal Control	0.04		0.04	**0.32**					-0.04		-0.04	**-0.32**
Cracking					0.01		0.01	**0.08**	0.01		0.01	**0.08**
Supplemental												
USACE Erosion Survey	2.27		2.27	**18.06**	0.07		0.07	**0.56**	-2.20		-2.20	**-17.50**
LMA Totals:	2.64	0.00	2.64	**21.00**	0.32	0.00	0.32	**2.55**	-2.32	0.00	-2.32	**-18.46**

NA0009	Total LMA Miles	10.47										
Lake County Watershed Protection District	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.01		0.01	**0.10**	0.20		0.20	**1.91**	0.19		0.19	**1.81**
Trim / Thin Trees	0.02		0.02	**0.19**	0.13		0.13	**1.24**	0.11		0.11	**1.05**
Encroachments	0.01		0.01	**0.10**	0.04		0.04	**0.38**	0.03		0.03	**0.29**
LMA Totals:	0.04	0.00	0.04	**0.38**	0.37	0.00	0.37	**3.53**	0.33	0.00	0.33	**3.15**

NA0012	Total LMA Miles	0.59										
Solano County Public Works Mellin Levee	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.11		0.11	**18.64**	0.01		0.01	**1.70**	-0.10		-0.10	**-16.95**
Encroachments	0.01		0.01	**1.70**	0.01		0.01	**1.70**				**0.00**
Slope Stability	0.01		0.01	**1.70**					-0.01		-0.01	**-1.70**
LMA Totals:	0.13	0.00	0.13	**22.03**	0.02	0.00	0.02	**3.39**	-0.11	0.00	-0.11	**-18.64**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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Sacramento River Basin (cont.)

NA0014	Total LMA Miles	0.78										
Murphy Slough at M&T Ranch	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.50		0.50	**64.10**	0.70		0.70	**89.74**	0.20		0.20	**25.64**
LMA Totals:	0.50	0.00	0.50	**64.10**	0.70	0.00	0.70	**89.74**	0.20	0.00	0.20	**25.64**

NA0015	Total LMA Miles	3.22										
Plumas County	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Encroachments					0.01		0.01	**0.31**	0.01		0.01	**0.31**
Slope Stability					0.04	0.16	0.68	**21.12**	0.04	0.16	0.68	**21.12**
LMA Totals:	0.00	0.00	0.00	**0.00**	0.05	0.16	0.69	**21.43**	0.05	0.16	0.69	**21.43**

NA0016	Total LMA Miles	50.21										
Sacramento River West Side Levee District	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			M *	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.09		0.09	**0.18**	0.21		0.21	**0.42**	0.12		0.12	**0.24**
Trim / Thin Trees	0.03		0.03	**0.06**	0.02		0.02	**0.04**	-0.01		-0.01	**-0.02**
Encroachments	0.12	0.01	0.16	**0.32**	0.06		0.06	**0.12**	-0.06	-0.01	-0.10	**-0.20**
Animal Control	0.22		0.22	**0.44**	0.04		0.04	**0.08**	-0.18		-0.18	**-0.36**
Erosion / Bank Caving	0.02		0.02	**0.04**					-0.02		-0.02	**-0.04**
Crown Surface / Depressions / Rutting		0.01	0.04	**0.08**						-0.01	-0.04	**-0.08**
Supplemental												
USACE Erosion Survey	0.18		0.18	**0.36**	1.60		1.60	**3.19**	1.42		1.42	**2.83**
LMA Totals:	0.66	0.02	0.74	**1.47***	1.93	0.00	1.93	**3.84**	1.27	-0.02	1.19	**2.37**

NA0018	Total LMA Miles	0.30										
California Department of Fish and Game Shea Levee	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation					0.09		0.09	**30.00**	0.09		0.09	**30.00**
LMA Totals:	0.00	0.00	0.00	**0.00**	0.09	0.00	0.09	**30.00**	0.09	0.00	0.09	**30.00**

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Sacramento River Basin (cont.)

NA0019	Total LMA Miles	13.64										
Tehama County Flood Control and Water Conservation District	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			A	Overall LMA Rating			M				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.62		0.62	**4.55**	0.67		0.67	**4.91**	0.05		0.05	**0.37**
Encroachments	0.19		0.19	**1.39**	0.18		0.18	**1.32**	-0.01		-0.01	**-0.07**
Animal Control	0.02		0.02	**0.15**	0.03		0.03	**0.22**	0.01		0.01	**0.07**
Slope Stability	0.28		0.28	**2.05**	0.30		0.30	**2.20**	0.02		0.02	**0.15**
Erosion / Bank Caving	0.02		0.02	**0.15**	0.02		0.02	**0.15**				**0.00**
Crown Surface / Depressions / Rutting					0.22		0.22	**1.61**	0.22		0.22	**1.61**
Supplemental												
USACE Erosion Survey	0.07		0.07	**0.51**	0.32		0.32	**2.35**	0.25		0.25	**1.83**
LMA Totals:	1.20	0.00	1.20	**8.80**	1.74	0.00	1.74	**12.76**	0.54	0.00	0.54	**3.96**

NA0020	Total LMA Miles	4.76										
Sutter Maintenance Yard East-West Interceptor	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	3.17		3.17	**66.60**	3.17		3.17	**66.60**				**0.00**
Encroachments	0.24		0.24	**5.04**	0.27		0.27	**5.67**	0.03		0.03	**0.63**
Erosion / Bank Caving	0.39	0.04	0.55	**11.55**	0.43	0.03	0.55	**11.55**	0.04	-0.01		**0.00**
Channels												
Erosion / Bank Caving					0.01		0.01	**0.21**	0.01		0.01	**0.21**
LMA Totals:	3.80	0.04	3.96	**83.19**	3.88	0.03	4.00	**84.03**	0.08	-0.01	0.04	**0.84**

NA0021	Total LMA Miles	0.29										
Yolo County Planning Resources and Public Works	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.51		0.51	**175.86**		0.51	2.04	**703.45**	-0.51	0.51	1.53	**527.59**
Trim / Thin Trees	0.09		0.09	**31.03**	0.09		0.09	**31.03**				**0.00**
Encroachments					0.02		0.02	**6.90**	0.02		0.02	**6.90**
Crown Surface / Depressions / Rutting					0.23		0.23	**79.31**	0.23		0.23	**79.31**
LMA Totals:	0.60	0.00	0.60	**206.90**	0.34	0.51	2.38	**820.69**	-0.26	0.51	1.78	**613.79**

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NA0022	Total LMA Miles	5.97										
Yolo County Service Area 6	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.44		0.44	**7.37**	0.88		0.88	**14.74**	0.44		0.44	**7.37**
Trim / Thin Trees	0.02		0.02	**0.34**	0.03	0.01	0.07	**1.17**	0.01	0.01	0.05	**0.84**
Encroachments	0.06		0.06	**1.01**	0.07		0.07	**1.17**	0.01		0.01	**0.17**
Animal Control	0.03		0.03	**0.50**	0.07		0.07	**1.17**	0.04		0.04	**0.67**
Erosion / Bank Caving					0.01		0.01	**0.17**	0.01		0.01	**0.17**
Supplemental												
USACE Erosion Survey					0.45		0.45	**7.54**	0.45		0.45	**7.54**
LMA Totals:	0.55	0.00	0.55	**9.21**	1.51	0.01	1.55	**25.96**	0.96	0.01	1.00	**16.75**

RD0003	Total LMA Miles	28.65										
Reclamation District No. 0003 Grand Island	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			M *	Overall LMA Rating			M *				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	1.12	0.03	1.24	**4.33**	0.03	0.01	0.07	**0.24**	-1.09	-0.02	-1.17	**-4.08**
Trim / Thin Trees	0.67	0.04	0.83	**2.90**	0.33	0.02	0.41	**1.43**	-0.34	-0.02	-0.42	**-1.47**
Encroachments	0.10		0.10	**0.35**	0.06		0.06	**0.21**	-0.04		-0.04	**-0.14**
Slope Stability					0.01		0.01	**0.04**	0.01		0.01	**0.04**
Erosion / Bank Caving	0.02		0.02	**0.07**	0.01		0.01	**0.04**	-0.01		-0.01	**-0.04**
Supplemental												
USACE Erosion Survey	0.20	0.07	0.48	**1.68**	0.39	0.01	0.43	**1.50**	0.19	-0.06	-0.05	**-0.17**
LMA Totals:	2.11	0.14	2.67	**9.32***	0.83	0.04	0.99	**3.46***	-1.28	-0.10	-1.68	**-5.86**

RD0010	Total LMA Miles	21.93										
Reclamation District No. 0010 Honcut	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.44		0.44	**2.01**	35.94		35.94	**163.89**	35.50		35.50	**161.88**
Trim / Thin Trees	0.04		0.04	**0.18**					-0.04		-0.04	**-0.18**
Encroachments	0.03		0.03	**0.14**	0.12		0.12	**0.55**	0.09		0.09	**0.41**
Animal Control	0.08		0.08	**0.37**	0.11		0.11	**0.50**	0.03		0.03	**0.14**
Erosion / Bank Caving					0.01		0.01	**0.05**	0.01		0.01	**0.05**
Crown Surface / Depressions / Rutting					3.75		3.75	**17.10**	3.75		3.75	**17.10**
LMA Totals:	0.59	0.00	0.59	**2.69**	39.93	0.00	39.93	**182.08**	39.34	0.00	39.34	**179.39**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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RD0070	Total LMA Miles	23.57										
Reclamation District No. 0070 Meridian	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Encroachments					0.05		0.05	**0.21**	0.05		0.05	**0.21**
Animal Control					0.26		0.26	**1.10**	0.26		0.26	**1.10**
Supplemental												
USACE Erosion Survey	0.29		0.29	**1.23**	1.16		1.16	**4.92**	0.87		0.87	**3.69**
LMA Totals:	0.29	0.00	0.29	**1.23**	1.47	0.00	1.47	**6.24**	1.18	0.00	1.18	**5.01**

RD0108	Total LMA Miles	20.59										
Reclamation District No. 0108 River Farms	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.02		0.02	**0.10**	0.01		0.01	**0.05**	-0.01		-0.01	**-0.05**
Trim / Thin Trees	0.89		0.89	**4.32**					-0.89		-0.89	**-4.32**
Animal Control	0.06		0.06	**0.29**	0.01		0.01	**0.05**	-0.05		-0.05	**-0.24**
Cracking	0.03		0.03	**0.15**	0.07		0.07	**0.34**	0.04		0.04	**0.19**
Supplemental												
USACE Erosion Survey					0.01		0.01	**0.05**	0.01		0.01	**0.05**
LMA Totals:	1.00	0.00	1.00	**4.86**	0.10	0.00	0.10	**0.49**	-0.90	0.00	-0.90	**-4.37**

RD0150	Total LMA Miles	18.07										
Reclamation District No. 0150 Merrit Island	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			M *	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.09		0.09	**0.50**	0.11		0.11	**0.61**	0.02		0.02	**0.11**
Trim / Thin Trees	0.51		0.51	**2.82**	0.28		0.28	**1.55**	-0.23		-0.23	**-1.27**
Encroachments	0.28		0.28	**1.55**	0.27		0.27	**1.49**	-0.01		-0.01	**-0.06**
Animal Control					0.03		0.03	**0.17**	0.03		0.03	**0.17**
Slope Stability	0.07		0.07	**0.39**	0.09		0.09	**0.50**	0.02		0.02	**0.11**
Erosion / Bank Caving	0.11		0.11	**0.61**	0.07		0.07	**0.39**	-0.04		-0.04	**-0.22**
Crown Surface / Depressions / Rutting	0.04		0.04	**0.22**	0.07		0.07	**0.39**	0.03		0.03	**0.17**
Interior Drainage & Piping Systems												
Metal Pipes	0.01		0.01	**0.06**					-0.01		-0.01	**-0.06**
Supplemental												
USACE Erosion Survey	0.12	0.03	0.24	**1.33**	0.01		0.01	**0.06**	-0.11	-0.03	-0.23	**-1.27**
LMA Totals:	1.23	0.03	1.35	**7.47***	0.93	0.00	0.93	**5.15**	-0.30	-0.03	-0.42	**-2.32**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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RD0307	Total LMA Miles	6.65										
Reclamation District No. 0307 Lisbon	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			M				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.81	0.09	1.17	**17.59**	0.21		0.21	**3.16**	-0.60	-0.09	-0.96	**-14.44**
Trim / Thin Trees	3.86	0.05	4.06	**61.05**	0.09		0.09	**1.35**	-3.77	-0.05	-3.97	**-59.70**
Encroachments	0.04		0.04	**0.60**	0.01		0.01	**0.15**	-0.03		-0.03	**-0.45**
Animal Control	0.08		0.08	**1.20**	0.08		0.08	**1.20**				**0.00**
Erosion / Bank Caving						0.02	0.08	**1.20**		0.02	0.08	**1.20**
Supplemental												
USACE Erosion Survey					0.37		0.37	**5.56**	0.37		0.37	**5.56**
LMA Totals:	4.79	0.14	5.35	**80.45**	0.76	0.02	0.84	**12.63**	-4.03	-0.12	-4.51	**-67.82**

RD0341	Total LMA Miles	9.62										
Reclamation District No. 0341 Sherman Island	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			M *				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Trim / Thin Trees					0.03		0.03	**0.31**	0.03		0.03	**0.31**
Supplemental												
USACE Erosion Survey					0.28	0.05	0.48	**4.99**	0.28	0.05	0.48	**4.99**
LMA Totals:	0.00	0.00	0.00	**0.00**	0.31	0.05	0.51	**5.30***	0.31	0.05	0.51	**5.30**

RD0349	Total LMA Miles	12.49										
Reclamation District No. 0349 Sutter Island	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.20		0.20	**1.60**	3.21	0.20	4.01	**32.11**	3.01	0.20	3.81	**30.50**
Trim / Thin Trees	2.39		2.39	**19.14**	0.01		0.01	**0.08**	-2.38		-2.38	**-19.06**
Encroachments	0.11		0.11	**0.88**	0.53	0.04	0.69	**5.52**	0.42	0.04	0.58	**4.64**
Supplemental												
USACE Erosion Survey					0.65	0.01	0.69	**5.52**	0.65	0.01	0.69	**5.52**
LMA Totals:	2.70	0.00	2.70	**21.62**	4.40	0.25	5.40	**43.23**	1.70	0.25	2.70	**21.62**

RD0369	Total LMA Miles	0.80										
Reclamation District No. 0369 Libby McNeil	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			A	Overall LMA Rating			M				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.01		0.01	**1.25**	0.14		0.14	**17.50**	0.13		0.13	**16.25**
Trim / Thin Trees					0.01		0.01	**1.25**	0.01		0.01	**1.25**
LMA Totals:	0.01	0.00	0.01	**1.25**	0.15	0.00	0.15	**18.75**	0.14	0.00	0.14	**17.50**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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RD0501	Total LMA Miles	20.48										
Reclamation District No. 0501 Ryer Island	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	9.41	1.50	15.41	**75.24**	11.30	1.77	18.38	**89.75**	1.89	0.27	2.97	**14.50**
Trim / Thin Trees	1.76	0.20	2.56	**12.50**	3.58	0.20	4.38	**21.39**	1.82		1.82	**8.89**
Encroachments	0.02		0.02	**0.10**	0.02	0.01	0.06	**0.29**		0.01	0.04	**0.19**
Animal Control	0.51		0.51	**2.49**	0.52		0.52	**2.54**	0.01		0.01	**0.05**
Erosion / Bank Caving	0.06		0.06	**0.29**	0.06	0.01	0.10	**0.49**		0.01	0.04	**0.20**
Cracking	0.01		0.01	**0.05**					-0.01		-0.01	**-0.05**
Supplemental												
USACE Erosion Survey		0.04	0.16	**0.78**	0.14		0.14	**0.68**	0.14	-0.04	-0.02	**-0.10**
LMA Totals:	11.77	1.74	18.73	**91.46**	15.62	1.99	23.58	**115.14**	3.85	0.25	4.85	**23.68**

RD0536	Total LMA Miles	10.63										
Reclamation District No. 0536 Egbert	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	1.03		1.03	**9.69**	9.86	5.71	32.70	**307.62**	8.83	5.71	31.67	**297.93**
Encroachments	0.05		0.05	**0.47**	0.12		0.12	**1.13**	0.07		0.07	**0.66**
Erosion / Bank Caving	0.01		0.01	**0.09**	0.02		0.02	**0.19**	0.01		0.01	**0.09**
Cracking					0.62		0.62	**5.83**	0.62		0.62	**5.83**
Crown Surface / Depressions / Rutting	2.38		2.38	**22.39**	2.24		2.24	**21.07**	-0.14		-0.14	**-1.32**
Supplemental												
USACE Erosion Survey					0.52		0.52	**4.89**	0.52		0.52	**4.89**
LMA Totals:	3.47	0.00	3.47	**32.64**	13.38	5.71	36.22	**340.73**	9.91	5.71	32.75	**308.09**

RD0537	Total LMA Miles	5.95										
Reclamation District No. 0537 Lovdal	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	1.39		1.39	**23.36**					-1.39		-1.39	**-23.36**
Trim / Thin Trees	0.06		0.06	**1.01**					-0.06		-0.06	**-1.01**
Encroachments	0.06		0.06	**1.01**	0.02		0.02	**0.34**	-0.04		-0.04	**-0.67**
Animal Control					0.03		0.03	**0.50**	0.03		0.03	**0.50**
Erosion / Bank Caving	0.01		0.01	**0.17**	0.03		0.03	**0.50**	0.02		0.02	**0.34**
Supplemental												
USACE Erosion Survey	0.03	0.04	0.19	**3.19**	0.06		0.06	**1.01**	0.03	-0.04	-0.13	**-2.19**
LMA Totals:	1.55	0.04	1.71	**28.74**	0.14	0.00	0.14	**2.35**	-1.41	-0.04	-1.57	**-26.39**

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RD0551	Total LMA Miles	6.84										
Reclamation District No. 0551 Pearson	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Encroachments	0.03		0.03	**0.44**	0.04		0.04	**0.59**	0.01		0.01	**0.15**
Animal Control					0.02		0.02	**0.29**	0.02		0.02	**0.29**
LMA Totals:	0.03	0.00	0.03	**0.44**	0.06	0.00	0.06	**0.88**	0.03	0.00	0.03	**0.44**

RD0554	Total LMA Miles	1.09										
Reclamation District No. 0554 Walnut Grove	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			M				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.14		0.14	**12.84**					-0.14		-0.14	**-12.84**
Trim / Thin Trees	0.01		0.01	**0.92**					-0.01		-0.01	**-0.92**
Encroachments	0.01		0.01	**0.92**					-0.01		-0.01	**-0.92**
Animal Control	0.02		0.02	**1.84**					-0.02		-0.02	**-1.84**
Supplemental												
USACE Erosion Survey		0.09	0.36	**33.03**	0.11		0.11	**10.09**	0.11	-0.09	-0.25	**-22.94**
LMA Totals:	0.18	0.09	0.54	**49.54**	0.11	0.00	0.11	**10.09**	-0.07	-0.09	-0.43	**-39.45**

RD0556	Total LMA Miles	11.19										
Reclamation District No. 0556 Upper Andrus	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	4.99	1.39	10.55	**94.28**	4.07	0.03	4.19	**37.44**	-0.92	-1.36	-6.36	**-56.84**
Trim / Thin Trees	0.02	0.33	1.34	**11.97**	3.27	0.02	3.35	**29.94**	3.25	-0.31	2.01	**17.96**
Encroachments	0.09	0.04	0.25	**2.23**	0.02	0.22	0.90	**8.04**	-0.07	0.18	0.65	**5.81**
Animal Control					0.27		0.27	**2.41**	0.27		0.27	**2.41**
Slope Stability		0.25	1.00	**8.94**						-0.25	-1.00	**-8.94**
Erosion / Bank Caving					0.01		0.01	**0.09**	0.01		0.01	**0.09**
Supplemental												
USACE Erosion Survey	0.37	0.14	0.93	**8.31**	1.19		1.19	**10.63**	0.82	-0.14	0.26	**2.32**
LMA Totals:	5.47	2.15	14.07	**125.74**	8.83	0.27	9.91	**88.56**	3.36	-1.88	-4.16	**-37.18**

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Sacramento River Basin (cont.)

RD0563	Total LMA Miles	12.38										
Reclamation District No. 0563 Tyler Island	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.09	0.11	0.53	**4.28**	0.43	0.25	1.43	**11.55**	0.34	0.14	0.90	**7.27**
Trim / Thin Trees	0.21	0.05	0.41	**3.31**	0.22	0.04	0.38	**3.07**	0.01	-0.01	-0.03	**-0.24**
Encroachments	0.24	0.01	0.28	**2.26**	0.25	0.01	0.29	**2.34**	0.01		0.01	**0.08**
Animal Control	0.02		0.02	**0.16**	0.05	0.04	0.21	**1.70**	0.03	0.04	0.19	**1.53**
Slope Stability	0.01	0.01	0.05	**0.40**	0.02	0.01	0.06	**0.48**	0.01		0.01	**0.08**
Erosion / Bank Caving		0.01	0.04	**0.32**						-0.01	-0.04	**-0.32**
Crown Surface / Depressions / Rutting		0.01	0.04	**0.32**						-0.01	-0.04	**-0.32**
Supplemental												
USACE Erosion Survey	2.72	0.35	4.12	**33.28**	2.26	1.37	7.74	**62.52**	-0.46	1.02	3.62	**29.24**
LMA Totals:	3.29	0.55	5.49	**44.35**	3.23	1.72	10.11	**81.66**	-0.06	1.17	4.62	**37.32**

RD0755	Total LMA Miles	1.86										
Reclamation District No. 0755 Randall	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.02		0.02	**1.08**	0.01		0.01	**0.54**	-0.01		-0.01	**-0.54**
Animal Control	1.27		1.27	**68.28**	1.23		1.23	**66.13**	-0.04		-0.04	**-2.15**
Supplemental												
USACE Erosion Survey					0.09		0.09	**4.84**	0.09		0.09	**4.84**
LMA Totals:	1.29	0.00	1.29	**69.36**	1.33	0.00	1.33	**71.51**	0.04	0.00	0.04	**2.15**

RD0765	Total LMA Miles	1.74										
Reclamation District No. 0765 Glide	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.13	0.03	0.25	**14.37**	0.03	0.04	0.19	**10.92**	-0.10	0.01	-0.06	**-3.45**
Trim / Thin Trees	0.63	0.20	1.43	**82.18**	0.84	0.21	1.68	**96.55**	0.21	0.01	0.25	**14.37**
Encroachments	0.01		0.01	**0.58**	0.01		0.01	**0.58**				**0.00**
LMA Totals:	0.77	0.23	1.69	**97.13**	0.88	0.25	1.88	**108.05**	0.11	0.02	0.19	**10.92**

RD0784	Total LMA Miles	44.16										
Reclamation District No. 0784 Plumas Lake	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.32		0.32	**0.73**	0.93		0.93	**2.11**	0.61		0.61	**1.38**
Supplemental												
USACE Erosion Survey					0.35		0.35	**0.79**	0.35		0.35	**0.79**
LMA Totals:	0.32	0.00	0.32	**0.73**	1.28	0.00	1.28	**2.90**	0.96	0.00	0.96	**2.17**

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RD0785	Total LMA Miles	5.61										
Reclamation District No. 0785 Driver	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	5.30		5.30	**94.47**					-5.30		-5.30	**-94.47**
Encroachments					0.02		0.02	**0.36**	0.02		0.02	**0.36**
Crown Surface / Depressions / Rutting	2.64		2.64	**47.06**	2.29		2.29	**40.82**	-0.35		-0.35	**-6.24**
LMA Totals:	7.94	0.00	7.94	**141.53**	2.31	0.00	2.31	**41.18**	-5.63	0.00	-5.63	**-100.36**

RD0787	Total LMA Miles	4.40										
Reclamation District No. 0787 Fair	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation					0.05		0.05	**1.14**	0.05		0.05	**1.14**
Animal Control					0.02		0.02	**0.46**	0.02		0.02	**0.46**
Supplemental												
USACE Erosion Survey					0.02		0.02	**0.46**	0.02		0.02	**0.46**
LMA Totals:	0.00	0.00	0.00	**0.00**	0.09	0.00	0.09	**2.05**	0.09	0.00	0.09	**2.05**

RD0817	Total LMA Miles	9.19										
Reclamation District No. 0817 Carlin	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			M				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.09		0.09	**0.98**	0.07		0.07	**0.76**	-0.02		-0.02	**-0.22**
Slope Stability					1.11		1.11	**12.08**	1.11		1.11	**12.08**
Crown Surface / Depressions / Rutting	0.17		0.17	**1.85**					-0.17		-0.17	**-1.85**
Interior Drainage & Piping Systems												
Metal Pipes						0.01	0.04	**0.44**		0.01	0.04	**0.44**
Flap Gates						0.01	0.04	**0.44**		0.01	0.04	**0.44**
LMA Totals:	0.26	0.00	0.26	**2.83**	1.18	0.02	1.26	**13.71**	0.92	0.02	1.00	**10.88**

RD0827	Total LMA Miles	4.19										
Reclamation District No. 0827 Elkhorn	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.12		0.12	**2.86**					-0.12		-0.12	**-2.86**
Trim / Thin Trees	0.13		0.13	**3.10**					-0.13		-0.13	**-3.10**
Encroachments	0.02		0.02	**0.48**	0.02		0.02	**0.48**				**0.00**
Animal Control	0.01		0.01	**0.24**	0.01		0.01	**0.24**				**0.00**
Erosion / Bank Caving					0.02		0.02	**0.48**	0.02		0.02	**0.48**
Crown Surface / Depressions / Rutting	1.61		1.61	**38.43**	1.61		1.61	**38.43**				**0.00**
LMA Totals:	1.89	0.00	1.89	**45.11**	1.66	0.00	1.66	**39.62**	-0.23	0.00	-0.23	**-5.49**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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RD0900	Total LMA Miles	13.57										
Reclamation District No. 0900 West Sacramento	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			M	Overall LMA Rating			M				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	1.22		1.22	**8.99**	1.83		1.83	**13.49**	0.61		0.61	**4.50**
Trim / Thin Trees	0.02		0.02	**0.15**	0.01		0.01	**0.07**	-0.01		-0.01	**-0.07**
Encroachments	0.02		0.02	**0.15**	0.17		0.17	**1.25**	0.15		0.15	**1.11**
Animal Control					0.06		0.06	**0.44**	0.06		0.06	**0.44**
Slope Stability	0.01		0.01	**0.07**	0.09		0.09	**0.66**	0.08		0.08	**0.59**
Cracking	0.01		0.01	**0.07**					-0.01		-0.01	**-0.07**
Supplemental												
USACE Erosion Survey		0.27	1.08	**7.96**	0.43		0.43	**3.17**	0.43	-0.27	-0.65	**-4.79**
LMA Totals:	1.28	0.27	2.36	**17.39**	2.59	0.00	2.59	**19.09**	1.31	-0.27	0.23	**1.69**

RD0999	Total LMA Miles	32.37										
Reclamation District No. 0999 Netherlands	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.20		0.20	**0.62**	0.54	0.05	0.74	**2.29**	0.34	0.05	0.54	**1.67**
Trim / Thin Trees	2.43	0.17	3.11	**9.61**	2.64	0.17	3.32	**10.26**	0.21		0.21	**0.65**
Encroachments	0.49	0.41	2.13	**6.58**	0.38	0.29	1.54	**4.76**	-0.11	-0.12	-0.59	**-1.82**
Animal Control	1.32		1.32	**4.08**	1.43		1.43	**4.42**	0.11		0.11	**0.34**
Slope Stability						0.03	0.12	**0.37**		0.03	0.12	**0.37**
Crown Surface / Depressions / Rutting	0.73		0.73	**2.26**	3.12	0.07	3.40	**10.50**	2.39	0.07	2.67	**8.25**
Repair Gates	0.01		0.01	**0.03**	0.01		0.01	**0.03**				**0.00**
Supplemental												
USACE Erosion Survey	0.59	9.44	38.35	**118.47**	0.29		0.29	**0.90**	-0.30	-9.44	-38.06	**-117.58**
LMA Totals:	5.77	10.02	45.85	**141.64**	8.41	0.61	10.85	**33.52**	2.64	-9.41	-35.00	**-108.12**

RD1000	Total LMA Miles	42.48										
Reclamation District No. 1000 Natomas	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	3.39		3.39	**7.98**	0.13		0.13	**0.31**	-3.26		-3.26	**-7.67**
Trim / Thin Trees					0.02		0.02	**0.05**	0.02		0.02	**0.05**
Encroachments					0.01		0.01	**0.02**	0.01		0.01	**0.02**
Slope Stability					0.01		0.01	**0.02**	0.01		0.01	**0.02**
Supplemental												
USACE Erosion Survey	0.13		0.13	**0.31**	0.25		0.25	**0.59**	0.12		0.12	**0.28**
LMA Totals:	3.52	0.00	3.52	**8.29**	0.42	0.00	0.42	**0.99**	-3.10	0.00	-3.10	**-7.30**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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Sacramento River Basin (cont.)

RD1001	Total LMA Miles	44.03										
Reclamation District No. 1001 Nicolaus	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			**M ***	Overall LMA Rating			**M**				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.58		0.58	**1.32**	4.71		4.71	**10.70**	4.13		4.13	**9.38**
Encroachments	0.14		0.14	**0.32**	0.14	0.20	0.94	**2.13**		0.20	0.80	**1.82**
Animal Control					0.01		0.01	**0.02**	0.01		0.01	**0.02**
Slope Stability	0.01		0.01	**0.02**	0.06		0.06	**0.14**	0.05		0.05	**0.11**
Supplemental												
USACE Erosion Survey	0.03	0.34	1.39	**3.16**	1.71		1.71	**3.88**	1.68	-0.34	0.32	**0.73**
LMA Totals:	0.76	0.34	2.12	**4.81***	6.63	0.20	7.43	**16.87**	5.87	-0.14	5.31	**12.06**

RD1500	Total LMA Miles	54.35										
Reclamation District No. 1500 Sutter Basin	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			**M ***	Overall LMA Rating			**A**				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.24		0.24	**0.44**					-0.24		-0.24	**-0.44**
Trim / Thin Trees	0.27		0.27	**0.50**	0.46		0.46	**0.85**	0.19		0.19	**0.35**
Encroachments	0.10		0.10	**0.18**	0.15		0.15	**0.28**	0.05		0.05	**0.09**
Animal Control	0.10		0.10	**0.18**	0.11		0.11	**0.20**	0.01		0.01	**0.02**
Erosion / Bank Caving	0.02		0.02	**0.04**	0.01		0.01	**0.02**	-0.01		-0.01	**-0.02**
Crown Surface / Depressions / Rutting	0.01		0.01	**0.02**	0.02		0.02	**0.04**	0.01		0.01	**0.02**
Concrete Floodwalls												
Underseepage Relief Wells					0.01		0.01	**0.02**	0.01		0.01	**0.02**
Supplemental												
USACE Erosion Survey	1.43	0.21	2.27	**4.18**	0.40		0.40	**0.74**	-1.03	-0.21	-1.87	**-3.44**
LMA Totals:	2.17	0.21	3.01	**5.54***	1.16	0.00	1.16	**2.13**	-1.01	-0.21	-1.85	**-3.40**

RD1600	Total LMA Miles	14.73										
Reclamation District No. 1600 Mull	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			**U**	Overall LMA Rating			**U**				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	2.55		2.55	**17.31**	0.85		0.85	**5.77**	-1.70		-1.70	**-11.54**
Trim / Thin Trees	0.01	0.01	0.05	**0.34**	0.01	0.01	0.05	**0.34**				**0.00**
Encroachments	0.04		0.04	**0.27**	0.02		0.02	**0.14**	-0.02		-0.02	**-0.14**
Animal Control	0.04		0.04	**0.27**					-0.04		-0.04	**-0.27**
Erosion / Bank Caving	1.02		1.02	**6.93**	0.73		0.73	**4.96**	-0.29		-0.29	**-1.97**
Crown Surface / Depressions / Rutting					1.74		1.74	**11.81**	1.74		1.74	**11.81**
Supplemental												
USACE Erosion Survey					0.05		0.05	**0.34**	0.05		0.05	**0.34**
LMA Totals:	3.66	0.01	3.70	**25.12**	3.40	0.01	3.44	**23.35**	-0.26	0.00	-0.26	**-1.77**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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Sacramento River Basin (cont.)

RD1601	Total LMA Miles	2.47										
Reclamation District No. 1601 Twitchell	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Erosion / Bank Caving	0.05		0.05	**2.02**					-0.05		-0.05	**-2.02**
LMA Totals:	0.05	0.00	0.05	**2.02**	0.00	0.00	0.00	**0.00**	-0.05	0.00	-0.05	**-2.02**

RD1660	Total LMA Miles	12.14										
Reclamation District No. 1660 Tisdale	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Encroachments	0.01		0.01	**0.08**	0.01		0.01	**0.08**				**0.00**
Animal Control					0.13		0.13	**1.07**	0.13		0.13	**1.07**
Slope Stability					0.05		0.05	**0.41**	0.05		0.05	**0.41**
Supplemental												
USACE Erosion Survey					0.01		0.01	**0.08**	0.01		0.01	**0.08**
LMA Totals:	0.01	0.00	0.01	**0.08**	0.20	0.00	0.20	**1.65**	0.19	0.00	0.19	**1.57**

RD2035	Total LMA Miles	12.09										
Reclamation District No. 2035 Conaway	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation					2.54		2.54	**21.01**	2.54		2.54	**21.01**
Crown Surface / Depressions / Rutting					0.01		0.01	**0.08**	0.01		0.01	**0.08**
Supplemental												
USACE Erosion Survey					0.39		0.39	**3.23**	0.39		0.39	**3.23**
LMA Totals:	0.00	0.00	0.00	**0.00**	2.94	0.00	2.94	**24.32**	2.94	0.00	2.94	**24.32**

RD2060	Total LMA Miles	15.67										
Reclamation District No. 2060 Hastings	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.18		0.18	**1.15**					-0.18		-0.18	**-1.15**
Erosion / Bank Caving	0.01		0.01	**0.06**	0.01		0.01	**0.06**				**0.00**
Repair Gates					0.01		0.01	**0.06**	0.01		0.01	**0.06**
Supplemental												
USACE Erosion Survey	0.16		0.16	**1.02**	0.63		0.63	**4.02**	0.47		0.47	**3.00**
LMA Totals:	0.35	0.00	0.35	**2.23**	0.65	0.00	0.65	**4.15**	0.30	0.00	0.30	**1.91**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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Sacramento River Basin (cont.)

RD2068	Total LMA Miles	8.73										
Reclamation District No. 2068 Yolano	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			M				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation					0.02		0.02	**0.23**	0.02		0.02	**0.23**
Animal Control					0.99		0.99	**11.34**	0.99		0.99	**11.34**
LMA Totals:	0.00	0.00	0.00	**0.00**	1.01	0.00	1.01	**11.57**	1.01	0.00	1.01	**11.57**

RD2098	Total LMA Miles	10.96										
Reclamation District No. 2098 Cache and Haas Slough	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	1.06		1.06	**9.67**	3.29		3.29	**30.02**	2.23		2.23	**20.35**
Trim / Thin Trees					0.01		0.01	**0.09**	0.01		0.01	**0.09**
Supplemental												
USACE Erosion Survey					0.02		0.02	**0.18**	0.02		0.02	**0.18**
LMA Totals:	1.06	0.00	1.06	**9.67**	3.32	0.00	3.32	**30.29**	2.26	0.00	2.26	**20.62**

RD2103	Total LMA Miles	9.77										
Reclamation District No. 2103 Wheatland Vicinity	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Animal Control	0.01		0.01	**0.10**	0.01		0.01	**0.10**				**0.00**
LMA Totals:	0.01	0.00	0.01	**0.10**	0.01	0.00	0.01	**0.10**	0.00	0.00	0.00	**0.00**

RD2104	Total LMA Miles	7.40										
Reclamation District No. 2104 Peters Pocket Tract	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.54	1.60	6.94	**93.78**	15.86	1.64	22.42	**302.97**	15.32	0.04	15.48	**209.19**
Trim / Thin Trees	0.03	0.05	0.23	**3.11**	0.05	0.05	0.25	**3.38**	0.02		0.02	**0.27**
Encroachments					0.01		0.01	**0.14**	0.01		0.01	**0.14**
Erosion / Bank Caving	0.02		0.02	**0.27**	0.05		0.05	**0.68**	0.03		0.03	**0.41**
Crown Surface / Depressions / Rutting	1.25		1.25	**16.89**	2.19		2.19	**29.60**	0.94		0.94	**12.70**
LMA Totals:	1.84	1.65	8.44	**114.05**	18.16	1.69	24.92	**336.76**	16.32	0.04	16.48	**222.70**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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Sacramento River Basin (cont.)

ST0001	Total LMA Miles	25.52										
Sacramento Maintenance Yard Cache Creek	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			M *	Overall LMA Rating			M *				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.02		0.02	**0.08**					-0.02		-0.02	**-0.08**
Encroachments	0.28		0.28	**1.10**	0.26		0.26	**1.02**	-0.02		-0.02	**-0.08**
Animal Control					0.01		0.01	**0.04**	0.01		0.01	**0.04**
Supplemental												
USACE Erosion Survey	0.22	0.18	0.94	**3.68**	0.29	0.19	1.05	**4.11**	0.07	0.01	0.11	**0.43**
LMA Totals:	0.52	0.18	1.24	**4.86***	0.56	0.19	1.32	**5.17***	0.04	0.01	0.08	**0.31**

ST0002	Total LMA Miles	22.12										
Sutter Maintenance Yard East Levee Sutter Bypass	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Animal Control	0.03		0.03	**0.14**	0.04		0.04	**0.18**	0.01		0.01	**0.05**
Supplemental												
USACE Erosion Survey					0.07		0.07	**0.32**	0.07		0.07	**0.32**
LMA Totals:	0.03	0.00	0.03	**0.14**	0.11	0.00	0.11	**0.50**	0.08	0.00	0.08	**0.36**

ST0003	Total LMA Miles	27.17										
Sutter Maintenance Yard East Levee Sacramento River	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.02		0.02	**0.07**	0.05		0.05	**0.18**	0.03		0.03	**0.11**
Trim / Thin Trees	0.01		0.01	**0.04**	0.01		0.01	**0.04**				**0.00**
Encroachments	0.19		0.19	**0.70**	0.25		0.25	**0.92**	0.06		0.06	**0.22**
Animal Control	0.86		0.86	**3.17**	0.95		0.95	**3.50**	0.09		0.09	**0.33**
Erosion / Bank Caving					0.19		0.19	**0.70**	0.19		0.19	**0.70**
Supplemental												
USACE Erosion Survey					0.45		0.45	**1.66**	0.45		0.45	**1.66**
LMA Totals:	1.08	0.00	1.08	**3.98**	1.90	0.00	1.90	**6.99**	0.82	0.00	0.82	**3.02**

ST0004	Total LMA Miles	2.00										
Sacramento Maintenance Yard East Levee Yolo Bypass	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
No Items												**0.00**
LMA Totals:	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**

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ST0005	Total LMA Miles	3.22										
Sutter Maintenance Yard Hamilton Bend	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
No Items												**0.00**
LMA Totals:	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**

ST0006	Total LMA Miles	0.50										
Sutter Maintenance Yard Nelson Bend	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.99		0.99	**198.00**	0.99		0.99	**198.00**				**0.00**
Trim / Thin Trees	0.44		0.44	**88.00**	0.44		0.44	**88.00**				**0.00**
LMA Totals:	1.43	0.00	1.43	**286.00**	1.43	0.00	1.43	**286.00**	0.00	0.00	0.00	**0.00**

ST0007	Total LMA Miles	16.29										
Sacramento Maintenance Yard Putah Creek	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			M				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation					1.68		1.68	**10.31**	1.68		1.68	**10.31**
Trim / Thin Trees	0.11		0.11	**0.68**	0.04		0.04	**0.25**	-0.07		-0.07	**-0.43**
Encroachments	0.01		0.01	**0.06**	0.19		0.19	**1.17**	0.18		0.18	**1.11**
Animal Control	0.06		0.06	**0.37**	0.06		0.06	**0.37**				**0.00**
Erosion / Bank Caving	0.02		0.02	**0.12**	0.02		0.02	**0.12**				**0.00**
Supplemental												
USACE Erosion Survey					0.02		0.02	**0.12**	0.02		0.02	**0.12**
LMA Totals:	0.20	0.00	0.20	**1.23**	2.01	0.00	2.01	**12.34**	1.81	0.00	1.81	**11.11**

ST0008	Total LMA Miles	3.51										
Sacramento Maintenance Yard Sacramento Bypass	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Encroachments	0.01		0.01	**0.29**					-0.01		-0.01	**-0.29**
LMA Totals:	0.01	0.00	0.01	**0.29**	0.00	0.00	0.00	**0.00**	-0.01	0.00	-0.01	**-0.29**

ST0009	Total LMA Miles	8.93										
Sutter Maintenance Yard Tisdale Bypass	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Erosion / Bank Caving					0.01		0.01	**0.11**	0.01		0.01	**0.11**
LMA Totals:	0.00	0.00	0.00	**0.00**	0.01	0.00	0.01	**0.11**	0.01	0.00	0.01	**0.11**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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Sacramento River Basin (cont.)

ST0010	Total LMA Miles	9.32										
Sutter Maintenance Yard Wadsworth Canal	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Animal Control	0.04		0.04	**0.43**	0.07		0.07	**0.75**	0.03		0.03	**0.32**
Slope Stability					0.01		0.01	**0.11**	0.01		0.01	**0.11**
Erosion / Bank Caving	0.54		0.54	**5.79**	0.48		0.48	**5.15**	-0.06		-0.06	**-0.64**
Supplemental												
USACE Erosion Survey					0.05		0.05	**0.54**	0.05		0.05	**0.54**
LMA Totals:	0.58	0.00	0.58	**6.22**	0.61	0.00	0.61	**6.55**	0.03	0.00	0.03	**0.32**

ST0011	Total LMA Miles	9.33										
Sacramento Maintenance Yard West Levee Yolo Bypass	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			M *	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Encroachments		0.01	0.04	**0.43**						-0.01	-0.04	**-0.43**
Animal Control					0.01		0.01	**0.11**	0.01		0.01	**0.11**
Cracking	0.07		0.07	**0.75**					-0.07		-0.07	**-0.75**
Supplemental												
USACE Erosion Survey	0.15		0.15	**1.61**	0.15		0.15	**1.61**				**0.00**
LMA Totals:	0.22	0.01	0.26	**2.79***	0.16	0.00	0.16	**1.72**	-0.06	-0.01	-0.10	**-1.07**

ST0012	Total LMA Miles	12.46										
Sacramento Maintenance Yard Willow Slough Bypass	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Erosion / Bank Caving					0.05		0.05	**0.40**	0.05		0.05	**0.40**
Supplemental												
USACE Erosion Survey	0.54		0.54	**4.33**					-0.54		-0.54	**-4.33**
LMA Totals:	0.54	0.00	0.54	**4.33**	0.05	0.00	0.05	**0.40**	-0.49	0.00	-0.49	**-3.93**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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NA0010	Total LMA Miles	191.36										
Lower San Joaquin Levee District	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			M *	Overall LMA Rating			M				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.21		0.21	**0.11**	19.91		19.91	**10.40**	19.70		19.70	**10.29**
Trim / Thin Trees	0.01		0.01	**0.01**	0.08		0.08	**0.04**	0.07		0.07	**0.04**
Encroachments		0.01	0.04	**0.02**	0.06	0.01	0.10	**0.05**	0.06		0.06	**0.03**
Animal Control	0.88		0.88	**0.46**	1.09		1.09	**0.57**	0.21		0.21	**0.11**
Slope Stability	0.02		0.02	**0.01**	0.76		0.76	**0.40**	0.74		0.74	**0.39**
Erosion / Bank Caving	0.01		0.01	**0.01**	0.02	0.01	0.06	**0.03**	0.01	0.01	0.05	**0.03**
Crown Surface / Depressions / Rutting					3.78		3.78	**1.98**	3.78		3.78	**1.98**
Repair Gates	0.01		0.01	**0.01**	0.01	0.01	0.05	**0.03**		0.01	0.04	**0.02**
Channels												
Encroachments	0.02		0.02	**0.01**	0.02		0.02	**0.01**				**0.00**
Concrete Foundations					0.01		0.01	**0.01**	0.01		0.01	**0.01**
Supplemental												
DWR Erosion Survey						0.16	0.64	**0.33**		0.16	0.64	**0.33**
LMA Totals:	1.16	0.01	1.20	**0.63***	25.74	0.19	26.50	**13.85**	24.58	0.18	25.30	**13.22**

NA0011	Total LMA Miles	26.65										
Madera County FCWCA	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.14		0.14	**0.53**	21.73	1.58	28.05	**105.25**	21.59	1.58	27.91	**104.73**
Trim / Thin Trees	0.34		0.34	**1.28**	0.50		0.50	**1.88**	0.16		0.16	**0.60**
Encroachments	0.16	0.01	0.20	**0.75**	0.44	0.03	0.56	**2.10**	0.28	0.02	0.36	**1.35**
Animal Control	8.31		8.31	**31.18**	12.24	0.08	12.56	**47.13**	3.93	0.08	4.25	**15.95**
Slope Stability						0.01	0.04	**0.15**		0.01	0.04	**0.15**
Erosion / Bank Caving					0.01		0.01	**0.04**	0.01		0.01	**0.04**
Crown Surface / Depressions / Rutting					0.44		0.44	**1.65**	0.44		0.44	**1.65**
Channels												
Vegetation & Obstructions						0.01	0.04	**0.15**		0.01	0.04	**0.15**
Supplemental												
DWR Erosion Survey	0.12		0.12	**0.45**	0.12		0.12	**0.45**				**0.00**
LMA Totals:	9.07	0.01	9.11	**34.18**	35.48	1.71	42.32	**158.80**	26.41	1.70	33.21	**124.62**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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NA0013	Total LMA Miles	6.40										
Merced Streams Group	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.01	0.32	1.29	**20.16**	0.46	0.32	1.74	**27.19**	0.45		0.45	**7.03**
Trim / Thin Trees	0.04		0.04	**0.63**	0.02		0.02	**0.31**	-0.02		-0.02	**-0.31**
Encroachments	0.07		0.07	**1.09**	0.03		0.03	**0.47**	-0.04		-0.04	**-0.63**
Animal Control	0.61	0.04	0.77	**12.03**	1.48	0.02	1.56	**24.38**	0.87	-0.02	0.79	**12.34**
Crown Surface / Depressions / Rutting					0.51		0.51	**7.97**	0.51		0.51	**7.97**
Interior Drainage & Piping Systems												
Culverts: Inlets / Outlets	0.01		0.01	**0.16**					-0.01		-0.01	**-0.16**
Channels												
Vegetation & Obstructions		0.01	0.04	**0.63**						-0.01	-0.04	**-0.63**
Encroachments	1.14		1.14	**17.81**	2.52		2.52	**39.38**	1.38		1.38	**21.56**
Supplemental												
DWR Erosion Survey	0.15	0.01	0.19	**2.97**	0.15	0.01	0.19	**2.97**				**0.00**
LMA Totals:	2.03	0.38	3.55	**55.47**	5.17	0.35	6.57	**102.66**	3.14	-0.03	3.02	**47.19**

NA0017	Total LMA Miles	103.96										
San Joaquin County Flood Control and Water Conservation District	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			M				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	10.79		10.79	**10.38**	0.66		0.66	**0.64**	-10.13		-10.13	**-9.74**
Trim / Thin Trees	0.49		0.49	**0.47**	0.04		0.04	**0.04**	-0.45		-0.45	**-0.43**
Encroachments	6.29	1.10	10.69	**10.28**	3.93	0.39	5.49	**5.28**	-2.36	-0.71	-5.20	**-5.00**
Animal Control	0.77	0.04	0.93	**0.89**	0.62	0.02	0.70	**0.67**	-0.15	-0.02	-0.23	**-0.22**
Slope Stability	0.25	0.02	0.33	**0.32**	0.81	0.09	1.17	**1.13**	0.56	0.07	0.84	**0.81**
Erosion / Bank Caving	0.50	0.01	0.54	**0.52**	0.32		0.32	**0.31**	-0.18	-0.01	-0.22	**-0.21**
Cracking					0.01		0.01	**0.01**	0.01		0.01	**0.01**
Crown Surface / Depressions / Rutting	0.09		0.09	**0.09**	0.19		0.19	**0.18**	0.10		0.10	**0.10**
Repair Gates					0.01		0.01	**0.01**	0.01		0.01	**0.01**
Interior Drainage & Piping Systems												
Culverts: Inlets / Outlets	0.01		0.01	**0.01**	0.02		0.02	**0.02**	0.01		0.01	**0.01**
Flap Gates	0.01	0.03	0.13	**0.13**	0.01	0.02	0.09	**0.09**		-0.01	-0.04	**-0.04**
Sluice / Slide Gates		0.01	0.04	**0.04**						-0.01	-0.04	**-0.04**
Concrete Floodwalls												
Concrete Surfaces					0.01		0.01	**0.01**	0.01		0.01	**0.01**
Monolith Joints	0.01		0.01	**0.01**	0.06		0.06	**0.06**	0.05		0.05	**0.05**
Supplemental												
DWR Erosion Survey	0.02	0.99	3.98	**3.83**	0.01	0.92	3.69	**3.55**	-0.01	-0.07	-0.29	**-0.28**
LMA Totals:	19.23	2.20	28.03	**26.96**	6.70	1.44	12.46	**11.99**	-12.53	-0.76	-15.57	**-14.98**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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Overall LMA Ratings, Compare 2010 & 2011

San Joaquin River Basin (cont.)

RD0001	Total LMA Miles	1.15										
Reclamation District No. 0001 Union Island	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.38		0.38	**33.04**	0.01		0.01	**0.87**	-0.37		-0.37	**-32.17**
Encroachments	0.01		0.01	**0.87**					-0.01		-0.01	**-0.87**
Animal Control	0.01		0.01	**0.87**	0.04		0.04	**3.48**	0.03		0.03	**2.61**
Erosion / Bank Caving	0.02	0.01	0.06	**5.22**					-0.02	-0.01	-0.06	**-5.22**
LMA Totals:	0.42	0.01	0.46	**40.00**	0.05	0.00	0.05	**4.35**	-0.37	-0.01	-0.41	**-35.65**

RD0017	Total LMA Miles	16.24										
Reclamation District No. 0017 Mossdale	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.03		0.03	**0.19**	0.03		0.03	**0.19**				**0.00**
Trim / Thin Trees					0.05		0.05	**0.31**	0.05		0.05	**0.31**
Encroachments					0.01		0.01	**0.06**	0.01		0.01	**0.06**
LMA Totals:	0.03	0.00	0.03	**0.19**	0.09	0.00	0.09	**0.55**	0.06	0.00	0.06	**0.37**

RD0404	Total LMA Miles	4.12										
Reclamation District No. 0404 Boggs	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			M				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.73		0.73	**17.72**	0.04		0.04	**0.97**	-0.69		-0.69	**-16.75**
Trim / Thin Trees					0.08		0.08	**1.94**	0.08		0.08	**1.94**
Encroachments	0.04		0.04	**0.97**	0.06		0.06	**1.46**	0.02		0.02	**0.49**
Animal Control	0.32		0.32	**7.77**	0.34		0.34	**8.25**	0.02		0.02	**0.48**
Slope Stability	0.02		0.02	**0.49**	0.02		0.02	**0.49**				**0.00**
Erosion / Bank Caving	0.03		0.03	**0.73**	0.03		0.03	**0.73**				**0.00**
Repair Gates		0.01	0.04	**0.97**						-0.01	-0.04	**-0.97**
Supplemental												
DWR Erosion Survey		0.30	1.20	**29.13**		0.04	0.16	**3.88**		-0.26	-1.04	**-25.24**
LMA Totals:	1.14	0.31	2.38	**57.77**	0.57	0.04	0.73	**17.72**	-0.57	-0.27	-1.65	**-40.05**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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RD0524	Total LMA Miles	6.26										
Reclamation District No. 0524 Middle Roberts Island	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.22	0.10	0.62	**9.90**	0.07	0.28	1.19	**19.01**	-0.15	0.18	0.57	**9.11**
Trim / Thin Trees	0.78	0.01	0.82	**13.10**	0.77	0.08	1.09	**17.41**	-0.01	0.07	0.27	**4.31**
Encroachments	0.25	0.01	0.29	**4.63**	0.24	0.01	0.28	**4.47**	-0.01		-0.01	**-0.16**
Animal Control	0.35		0.35	**5.59**	0.35		0.35	**5.59**	0.00			**0.00**
Slope Stability	0.12		0.12	**1.92**	0.10		0.10	**1.60**	-0.02		-0.02	**-0.32**
Erosion / Bank Caving	0.23	0.02	0.31	**4.95**	0.22		0.22	**3.51**	-0.01	-0.02	-0.09	**-1.44**
Crown Surface / Depressions / Rutting	0.02		0.02	**0.32**	0.02		0.02	**0.32**				**0.00**
Supplemental												
DWR Erosion Survey	0.02	0.22	0.90	**14.38**	0.02	0.35	1.42	**22.68**		0.13	0.52	**8.31**
LMA Totals:	1.99	0.36	3.43	**54.79**	1.79	0.72	4.67	**74.60**	-0.20	0.36	1.24	**19.81**

RD0544	Total LMA Miles	10.33										
Reclamation District No. 0544 Upper Roberts Island	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	9.52	0.39	11.08	**107.26**	5.32	0.41	6.96	**67.38**	-4.20	0.02	-4.12	**-39.88**
Trim / Thin Trees	0.03		0.03	**0.29**	0.01		0.01	**0.10**	-0.02		-0.02	**-0.19**
Encroachments	0.27		0.27	**2.61**	0.21	0.01	0.25	**2.42**	-0.06	0.01	-0.02	**-0.19**
Animal Control	0.23		0.23	**2.23**	0.23		0.23	**2.23**	0.00			**0.00**
Slope Stability	0.03	0.01	0.07	**0.68**	0.01	0.02	0.09	**0.87**	-0.02	0.01	0.02	**0.19**
Erosion / Bank Caving	0.01		0.01	**0.10**	0.02	0.02	0.10	**0.97**	0.01	0.02	0.09	**0.87**
Crown Surface / Depressions / Rutting	0.34		0.34	**3.29**		0.01	0.04	**0.39**	-0.34	0.01	-0.30	**-2.90**
Interior Drainage & Piping Systems												
Erosion Areas		0.01	0.04	**0.39**		0.01	0.04	**0.39**				**0.00**
Channels												
Encroachments						0.01	0.04	**0.39**		0.01	0.04	**0.39**
Supplemental												
DWR Erosion Survey		0.04	0.16	**1.55**		0.04	0.16	**1.55**				**0.00**
LMA Totals:	10.43	0.45	12.23	**118.39**	5.80	0.53	7.92	**76.67**	-4.63	0.08	-4.31	**-41.72**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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RD1602	Total LMA Miles	6.29										
Reclamation District No. 1602 Del Puerto	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			**M**	Overall LMA Rating			**U**				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.64		0.64	**10.18**	4.54		4.54	**72.18**	3.90		3.90	**62.00**
Trim / Thin Trees	0.04		0.04	**0.64**	0.03		0.03	**0.48**	-0.01		-0.01	**-0.16**
Encroachments	0.01		0.01	**0.16**	0.05		0.05	**0.80**	0.04		0.04	**0.64**
Animal Control	0.31		0.31	**4.93**	0.29		0.29	**4.61**	-0.02		-0.02	**-0.32**
Slope Stability	0.04		0.04	**0.64**	0.04		0.04	**0.64**				**0.00**
Interior Drainage & Piping Systems												
Encroachments	0.01		0.01	**0.16**	0.01		0.01	**0.16**				**0.00**
Flap Gates	0.01		0.01	**0.16**	0.01		0.01	**0.16**				**0.00**
Concrete Tilting / Settlement	0.01		0.01	**0.16**	0.01		0.01	**0.16**				**0.00**
LMA Totals:	1.07	0.00	1.07	**17.01**	4.98	0.00	4.98	**79.17**	3.91	0.00	3.91	**62.16**

RD2031	Total LMA Miles	13.19										
Reclamation District No. 2031 Elliot	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			**A**	Overall LMA Rating			**M ***				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.10		0.10	**0.76**	0.02		0.02	**0.15**	-0.08		-0.08	**-0.61**
Trim / Thin Trees	0.61		0.61	**4.63**	0.62		0.62	**4.70**	0.01		0.01	**0.08**
Encroachments	0.02		0.02	**0.15**	0.01		0.01	**0.08**	-0.01		-0.01	**-0.08**
Animal Control					0.03	0.01	0.07	**0.53**	0.03	0.01	0.07	**0.53**
Erosion / Bank Caving					0.03	0.01	0.07	**0.53**	0.03	0.01	0.07	**0.53**
Crown Surface / Depressions / Rutting	0.03		0.03	**0.23**	0.02		0.02	**0.15**	-0.01		-0.01	**-0.08**
Seepage / Sandboils						0.01	0.04	**0.30**		0.01	0.04	**0.30**
Supplemental												
DWR Erosion Survey	0.04		0.04	**0.30**	0.04		0.04	**0.30**				**0.00**
LMA Totals:	0.80	0.00	0.80	**6.07**	0.77	0.03	0.89	**6.75***	-0.03	0.03	0.09	**0.68**

RD2058	Total LMA Miles	6.71										
Reclamation District No. 2058 Pescadaro	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			**U**	Overall LMA Rating			**U**				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	9.83	0.02	9.91	**147.69**	4.17	0.02	4.25	**63.34**	-5.66		-5.66	**-84.35**
Trim / Thin Trees	0.28	0.14	0.84	**12.52**	0.19		0.19	**2.83**	-0.09	-0.14	-0.65	**-9.69**
Encroachments	0.02		0.02	**0.30**	0.01	0.01	0.05	**0.75**	-0.01	0.01	0.03	**0.45**
Animal Control	0.07		0.07	**1.04**					-0.07		-0.07	**-1.04**
Supplemental												
DWR Erosion Survey	0.05		0.05	**0.75**	0.05		0.05	**0.75**				**0.00**
LMA Totals:	10.25	0.16	10.89	**162.30**	4.42	0.03	4.54	**67.66**	-5.83	-0.13	-6.35	**-94.63**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

Flood Control Project Maintenance
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Fall 2011 Levee Maintenance Deficiency Summary Report

Overall LMA Ratings, Compare 2010 & 2011

San Joaquin River Basin (cont.)

RD2062	Total LMA Miles	12.35										
Reclamation District No. 2062 Stewart	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.47		0.47	**3.81**	0.01		0.01	**0.08**	-0.46		-0.46	**-3.73**
Trim / Thin Trees	0.02		0.02	**0.16**					-0.02		-0.02	**-0.16**
Encroachments	1.43		1.43	**11.58**	1.81		1.81	**14.66**	0.38		0.38	**3.08**
Animal Control	0.10	0.01	0.14	**1.13**	0.09		0.09	**0.73**	-0.01	-0.01	-0.05	**-0.40**
Slope Stability					0.01		0.01	**0.08**	0.01		0.01	**0.08**
Erosion / Bank Caving	0.02		0.02	**0.16**	0.03		0.03	**0.24**	0.01		0.01	**0.08**
Crown Surface / Depressions / Rutting	0.01		0.01	**0.08**	0.01	0.22	0.89	**7.21**		0.22	0.88	**7.13**
Supplemental												
DWR Erosion Survey	0.14	0.11	0.58	**4.70**	0.15	0.21	0.99	**8.02**	0.01	0.10	0.41	**3.32**
LMA Totals:	2.19	0.12	2.67	**21.62**	2.11	0.43	3.83	**31.01**	-0.08	0.31	1.16	**9.39**

RD2063	Total LMA Miles	10.63										
Reclamation District No. 2063 Crows Landing	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	2.34		2.34	**22.01**	2.03		2.03	**19.10**	-0.31		-0.31	**-2.92**
Trim / Thin Trees	0.01		0.01	**0.09**	0.03		0.03	**0.28**	0.02		0.02	**0.19**
Encroachments	0.01	0.01	0.05	**0.47**	0.12	0.01	0.16	**1.51**	0.11		0.11	**1.03**
Animal Control	0.10		0.10	**0.94**	0.11		0.11	**1.04**	0.01		0.01	**0.09**
Slope Stability	0.01		0.01	**0.09**	0.01		0.01	**0.09**				**0.00**
Erosion / Bank Caving		0.16	0.64	**6.02**		0.16	0.64	**6.02**				**0.00**
Crown Surface / Depressions / Rutting	0.24		0.24	**2.26**	10.58		10.58	**99.53**	10.34		10.34	**97.27**
Channels												
Encroachments		0.01	0.04	**0.38**						-0.01	-0.04	**-0.38**
LMA Totals:	2.71	0.18	3.43	**32.27**	12.88	0.17	13.56	**127.56**	10.17	-0.01	10.13	**95.30**

RD2064	Total LMA Miles	11.90										
Reclamation District No. 2064 River Junction	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			A	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.01		0.01	**0.08**	6.93		6.93	**58.24**	6.92		6.92	**58.15**
Encroachments					0.09	0.20	0.89	**7.48**	0.09	0.20	0.89	**7.48**
LMA Totals:	0.01	0.00	0.01	**0.08**	7.02	0.20	7.82	**65.71**	7.01	0.20	7.81	**65.63**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

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Overall LMA Ratings, Compare 2010 & 2011

San Joaquin River Basin (cont.)

RD2075	Total LMA Miles	7.52										
Reclamation District No. 2075 McMullin	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			M *	Overall LMA Rating			M				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.02		0.02	**0.27**	0.71		0.71	**9.44**	0.69		0.69	**9.18**
Trim / Thin Trees	0.04		0.04	**0.53**	0.04		0.04	**0.53**				**0.00**
Crown Surface / Depressions / Rutting	0.01		0.01	**0.13**	0.01		0.01	**0.13**				**0.00**
Supplemental												
DWR Erosion Survey		0.01	0.04	**0.53**		0.01	0.04	**0.53**				**0.00**
LMA Totals:	0.07	0.01	0.11	**1.46***	0.76	0.01	0.80	**10.64**	0.69	0.00	0.69	**9.18**

RD2085	Total LMA Miles	6.18										
Reclamation District No. 2085 Kasson	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.97		0.97	**15.70**	5.26		5.26	**85.11**	4.29		4.29	**69.42**
Trim / Thin Trees	0.09		0.09	**1.46**	0.25		0.25	**4.05**	0.16		0.16	**2.59**
Encroachments	0.34	0.01	0.38	**6.15**	0.34	0.01	0.38	**6.15**				**0.00**
Animal Control	0.04		0.04	**0.65**	0.07		0.07	**1.13**	0.03		0.03	**0.49**
Slope Stability	0.01		0.01	**0.16**					-0.01		-0.01	**-0.16**
LMA Totals:	1.45	0.01	1.49	**24.11**	5.92	0.01	5.96	**96.44**	4.47	0.00	4.47	**72.33**

RD2089	Total LMA Miles	2.90										
Reclamation District No. 2089 Stark	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			U	Overall LMA Rating			U				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	1.21	0.33	2.53	**87.24**	1.20	1.30	6.40	**220.69**	-0.01	0.97	3.87	**133.45**
Trim / Thin Trees	0.18	0.15	0.78	**26.90**	0.27	0.15	0.87	**30.00**	0.09	0.00	0.09	**3.10**
Encroachments	0.04		0.04	**1.38**	0.06	0.01	0.10	**3.45**	0.02	0.01	0.06	**2.07**
Animal Control	0.05	0.01	0.09	**3.10**	0.08	0.06	0.32	**11.03**	0.03	0.05	0.23	**7.93**
Crown Surface / Depressions / Rutting	0.01		0.01	**0.35**	0.05		0.05	**1.72**	0.04		0.04	**1.38**
Supplemental												
DWR Erosion Survey		0.02	0.08	**2.76**	0.01	0.02	0.09	**3.10**	0.01		0.01	**0.34**
LMA Totals:	1.49	0.51	3.53	**121.72**	1.67	1.54	7.83	**270.00**	0.18	1.03	4.30	**148.28**

RD2091	Total LMA Miles	7.92										
Reclamation District No. 2091 Chase	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			M *				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Trim / Thin Trees					0.01		0.01	**0.13**	0.01		0.01	**0.13**
Animal Control					0.01		0.01	**0.13**	0.01		0.01	**0.13**
Slope Stability						0.01	0.04	**0.51**		0.01	0.04	**0.51**
LMA Totals:	0.00	0.00	0.00	**0.00**	0.02	0.01	0.06	**0.76***	0.02	0.01	0.06	**0.76**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

Flood Control Project Maintenance
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Fall 2011 Levee Maintenance Deficiency Summary Report

Overall LMA Ratings, Compare 2010 & 2011

San Joaquin River Basin (cont.)

RD2092	Total LMA Miles	3.76										
Reclamation District No. 2092 Dos Rios	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			A	Overall LMA Rating			M *				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Animal Control	0.04		0.04	**1.06**	0.12		0.12	**3.19**	0.08		0.08	**2.13**
Slope Stability					0.05		0.05	**1.33**	0.05		0.05	**1.33**
Crown Surface / Depressions / Rutting					0.01		0.01	**0.27**	0.01		0.01	**0.27**
Seepage / Sandboils						0.01	0.04	**1.06**		0.01	0.04	**1.06**
Interior Drainage & Piping Systems												
Flap Gates	0.01		0.01	**0.27**					-0.01		-0.01	**-0.27**
Supplemental												
DWR Erosion Survey	0.14		0.14	**3.72**					-0.14		-0.14	**-3.72**
LMA Totals:	0.19	0.00	0.19	**5.05**	0.18	0.01	0.22	**5.85***	-0.01	0.01	0.03	**0.80**

RD2094	Total LMA Miles	3.28										
Reclamation District No. 2094 Wathal	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			A	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
LMA Totals:	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**

RD2095	Total LMA Miles	4.83										
Reclamation District No. 2095 Paradise Cut	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			M *	Overall LMA Rating			M *				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.05	0.01	0.09	**1.86**	0.05	0.01	0.09	**1.86**				**0.00**
Encroachments	0.01		0.01	**0.21**					-0.01		-0.01	**-0.21**
Supplemental												
DWR Erosion Survey	0.05	0.05	0.25	**5.18**	0.05	0.05	0.25	**5.18**				**0.00**
LMA Totals:	0.11	0.06	0.35	**7.25***	0.10	0.06	0.34	**7.04***	-0.01	0.00	-0.01	**-0.21**

RD2096	Total LMA Miles	0.17										
Reclamation District No. 2096 Wetherbee Lake	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			M	Overall LMA Rating			A				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	0.01		0.01	**5.88**					-0.01		-0.01	**-5.88**
Animal Control	0.01		0.01	**5.88**					-0.01		-0.01	**-5.88**
LMA Totals:	0.02	0.00	0.02	**11.77**	0.00	0.00	0.00	**0.00**	-0.02	0.00	-0.02	**-11.77**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

Flood Control Project Maintenance
Levee Inspections

Fall 2011 Levee Maintenance Deficiency Summary Report

Overall LMA Ratings, Compare 2010 & 2011

San Joaquin River Basin (cont.)

RD2101	Total LMA Miles	3.51										
Reclamation District No. 2101 Blewett	**Fall 2010**				**Fall 2011**				**Change**			
	Overall LMA Rating			**U**	Overall LMA Rating			**U**				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Vegetation	5.93		5.93	**168.95**	2.98		2.98	**84.90**	-2.95		-2.95	**-84.05**
Trim / Thin Trees	0.26		0.26	**7.41**	0.24		0.24	**6.84**	-0.02		-0.02	**-0.57**
Encroachments		0.25	1.00	**28.49**						-0.25	-1.00	**-28.49**
Animal Control	0.04	0.01	0.08	**2.28**	0.03	0.21	0.87	**24.79**	-0.01	0.20	0.79	**22.51**
Erosion / Bank Caving	0.02		0.02	**0.57**	0.02		0.02	**0.57**				**0.00**
Supplemental												
DWR Erosion Survey		0.10	0.40	**11.40**		0.10	0.40	**11.40**				**0.00**
LMA Totals:	6.25	0.36	7.69	**219.09**	3.27	0.31	4.51	**128.49**	-2.98	-0.05	-3.18	**-90.60**

RD2107	Total LMA Miles	4.21										
Reclamation District No. 2107 Mossdale Island	**Fall 2009**				**Fall 2011**				**Change**			
Fall 2010 : Not Inspected	Overall LMA Rating			**A**	Overall LMA Rating			**A**				
Rated Item	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %	M Miles	U Miles	M+4U Miles	Thresh. %
Earthen Levee												
Encroachments	0.06		0.06	**1.43**					-0.06		-0.06	**-1.43**
Slope Stability	0.01		0.01	**0.24**					-0.01		-0.01	**-0.24**
LMA Totals:	0.07	0.00	0.07	**1.66**	0.00	0.00	0.00	**0.00**	-0.07	0.00	-0.07	**-1.66**

* Overall LMA Threshold Percent is less than 10.00%; however, U Rated Miles are present, so the Overall LMA Rating is M instead of A.

Appendix E: 2011 Channel Maintenance Inspection Summary Reports

Flood Control Project Maintenance

2011 Channel Summary Report

Overall Unit and Item Ratings

Adin Community Service District

Ash Creek

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A

Dry Creek

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A

2011 Channel Summary Report

Overall Unit and Item Ratings

DWR Sutter Maintenance Yard

Big Chico Creek

Overall Unit Rating	Rated Item	Item Rating
M *	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	M *
	Encroachments	A

* *Overall channel rating average is less than 0.2, however, U rated issues are present, so the overall rating is M instead of A.*

Lindo Channel & Sandy Gulch

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	M
	Encroachments	A

Little Chico Creek

Overall Unit Rating	Rated Item	Item Rating
M *	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	M *
	Encroachments	A

* *Overall channel rating average is less than 0.2, however, U rated issues are present, so the overall rating is M instead of A.*

Flood Control Project Maintenance

2011 Channel Summary Report

Overall Unit and Item Ratings

Fairfield Suisun Sewer District

Laurel Creek

Overall Unit Rating	Rated Item	Item Rating
M	Vegetation & Obstructions	U
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A

Ledgewood Creek

Overall Unit Rating	Rated Item	Item Rating
M *	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Gates	U *

* *Overall channel rating average is less than 0.2, however, U rated issues are present, so the overall rating is M instead of A.*

McCoy Creek

Overall Unit Rating	Rated Item	Item Rating
M	Vegetation & Obstructions	M
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A

Union Avenue Diversion

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A

2011 Channel Summary Report

Overall Unit and Item Ratings

Madera County FCWCA

Ash Slough

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	N
	Encroachments	A

Berenda Slough

Overall Unit Rating	Rated Item	Item Rating
U	Vegetation & Obstructions	U
	Shoaling / Sedimentation	U
	Erosion / Bank Caving	M
	Revetments	U
	Encroachments	M

Chowchilla River

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	M
	Erosion / Bank Caving	A
	Revetments	N
	Encroachments	A

Fresno River

Overall Unit Rating	Rated Item	Item Rating
M	Vegetation & Obstructions	M
	Shoaling / Sedimentation	U
	Erosion / Bank Caving	A
	Revetments	M
	Encroachments	A

Flood Control Project Maintenance

2011 Channel Summary Report

Overall Unit and Item Ratings

Merced Streams Group

Bear Creek

Overall Unit Rating	Rated Item	Item Rating
M	Vegetation & Obstructions	A
	Shoaling / Sedimentation	M
	Erosion / Bank Caving	M
	Revetments	A
	Encroachments	A

Black Rascal Creek

Overall Unit Rating	Rated Item	Item Rating
M	Vegetation & Obstructions	M
	Shoaling / Sedimentation	M
	Erosion / Bank Caving	M
	Revetments	M
	Encroachments	A

Burns Creek

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	M
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	N
	Encroachments	A

Mariposa Creek & Duck Slough

Overall Unit Rating	Rated Item	Item Rating
M	Vegetation & Obstructions	M
	Shoaling / Sedimentation	M
	Erosion / Bank Caving	M
	Revetments	N
	Encroachments	A

Miles Creek

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A

Owens Creek

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	M

Flood Control Project Maintenance

2011 Channel Summary Report

Overall Unit and Item Ratings

Placer County

Truckee River

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A

2011 Channel Summary Report

Overall Unit and Item Ratings

San Joaquin County Flood Control and Water Conservation District

Duck Creek Diversion Channel

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A

North Littlejohn Creek

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	M
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	M
	Concrete Surfaces	A
	Gates	A

South Littlejohn Creek

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	M
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	M

South Littlejohn Creek North Branch

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	M

Flood Control Project Maintenance

2011 Channel Summary Report

Overall Unit and Item Ratings

Tehama County Flood Control and Water Conservation District

McClure Creek

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	M
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	N
	Encroachments	A

Salt Creek

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A

Appendix F: 2011 Structure Maintenance Inspection Summary Reports

Flood Control Project Maintenance

2011 Structure Summary Report

Overall Unit and Item Ratings

Butte County Public Works

Big Chico Creek Diversion Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	A
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	A
	Electric Gate Operators	N
	Manual Gate Operators	A
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	A
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

Lindo Channel Control Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	A
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	A
	Electric Gate Operators	N
	Manual Gate Operators	A
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	A
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

2011 Structure Summary Report

Overall Unit and Item Ratings

Butte County Public Works (cont.)

Lindo Channel Diversion Weir

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

Flood Control Project Maintenance

2011 Structure Summary Report

Overall Unit and Item Ratings

City of Sacramento

El Camino Avenue Bridge

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

2011 Structure Summary Report

Overall Unit and Item Ratings

DWR Sacramento Maintenance Yard

Cache Creek Setting Basin Weir And Drainage Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	A
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	A
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	A
	Concrete Surfaces	A
	Concrete Tilting / Settlement	N
	Concrete Foundations	A
	Security Fencing	A
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	N
	Safety	A

Fremont Weir

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	A
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

2011 Structure Summary Report

Overall Unit and Item Ratings

DWR Sacramento Maintenance Yard (cont.)

Knights Landing Outfall Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	N
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	A
	Sluice/Slide Gates	N
	Electric Gate Operators	M
	Manual Gate Operators	A
	Concrete Surfaces	A
	Concrete Tilting / Settlement	N
	Concrete Foundations	A
	Security Fencing	A
	Closure Structures	A
	Trash Rakes	N
	Other Metallic Items	M
	Monolith Joints	N
	Safety	A

Paradise Dam

Overall Unit Rating	Rated Item	Item Rating
M	Vegetation & Obstructions	M
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	N
	Concrete Tilting / Settlement	N
	Concrete Foundations	N
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	N
	Safety	M

2011 Structure Summary Report

Overall Unit and Item Ratings

DWR Sacramento Maintenance Yard (cont.)

Sacramento Weir

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	N
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	M
	Concrete Tilting / Settlement	N
	Concrete Foundations	A
	Security Fencing	A
	Closure Structures	A
	Trash Rakes	N
	Other Metallic Items	A
	Monolith Joints	N
	Safety	A

2011 Structure Summary Report

Overall Unit and Item Ratings

DWR Sutter Maintenance Yard

Butte Slough Drainage Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	A
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	A
	Trash Racks	N
	Flap Gates	A
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	N
	Concrete Tilting / Settlement	N
	Concrete Foundations	N
	Security Fencing	N
	Closure Structures	A
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	N
	Safety	A

Butte Slough Outfall Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	A
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	A
	Electric Gate Operators	N
	Manual Gate Operators	A
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	A
	Monolith Joints	A
	Safety	A

2011 Structure Summary Report

Overall Unit and Item Ratings

DWR Sutter Maintenance Yard (cont.)

Colusa Weir

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	M
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	A
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

Little Chico Creek Control And Weir Structures

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	N
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	A
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	A
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

2011 Structure Summary Report

Overall Unit and Item Ratings

DWR Sutter Maintenance Yard (cont.)

Moulton Weir

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	A
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

Nelson Bend

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	N
	Concrete Tilting / Settlement	N
	Concrete Foundations	N
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	N
	Safety	A

2011 Structure Summary Report

Overall Unit and Item Ratings

DWR Sutter Maintenance Yard (cont.)

Sutter Bypass Weir No. 2

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	A
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	A
	Closure Structures	A
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

Tisdale Weir

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	M
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

2011 Structure Summary Report

Overall Unit and Item Ratings

DWR Sutter Maintenance Yard (cont.)

Wadsworth Canal Weir No. 4

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	M
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	A
	Closure Structures	A
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

Flood Control Project Maintenance

2011 Structure Summary Report

Overall Unit and Item Ratings

Lake County Watershed Protection District

Clover Creek Diversion Structure

Overall Unit Rating	Rated Item	Item Rating
M	Vegetation & Obstructions	M
	Shoaling / Sedimentation	M
	Erosion / Bank Caving	A
	Revetments	N
	Encroachments	A
	Culverts: Inlets / Outlets	M
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	A
	Trash Racks	N
	Flap Gates	A
	Sluice/Slide Gates	A
	Electric Gate Operators	N
	Manual Gate Operators	A
	Concrete Surfaces	N
	Concrete Tilting / Settlement	N
	Concrete Foundations	N
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	N
	Safety	M

Highland Canal Diversion Weir And Drainage Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	M
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	N
	Encroachments	A
	Culverts: Inlets / Outlets	M
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	A
	Trash Racks	N
	Flap Gates	M
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	A
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	A
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

Flood Control Project Maintenance

2011 Structure Summary Report

Overall Unit and Item Ratings

Lower San Joaquin Levee District

Ash Slough Drop Structure No. 1

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	M
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

Ash Slough Drop Structure No. 2

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	M
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

2011 Structure Summary Report

Overall Unit and Item Ratings

Lower San Joaquin Levee District (cont.)

Ash Slough Drop Structure No. 3

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

Ash Slough Drop Structure No. 4

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	M
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

2011 Structure Summary Report

Overall Unit and Item Ratings

Lower San Joaquin Levee District (cont.)

Bear Creek Diversion Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	A
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	A
	Concrete Surfaces	M
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

Eastside Bypass Control Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	A
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	A
	Electric Gate Operators	A
	Manual Gate Operators	A
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	A
	Closure Structures	A
	Trash Rakes	N
	Other Metallic Items	A
	Monolith Joints	A
	Safety	A

2011 Structure Summary Report

Overall Unit and Item Ratings

Lower San Joaquin Levee District (cont.)

Eastside Bypass Drop Structure No. 1

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	N
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	A
	Monolith Joints	A
	Safety	A

Eastside Bypass Drop Structure No. 2

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

2011 Structure Summary Report

Overall Unit and Item Ratings

Lower San Joaquin Levee District (cont.)

Fresno River Drainage Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	A
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	A
	Sluice/Slide Gates	A
	Electric Gate Operators	N
	Manual Gate Operators	A
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	A
	Monolith Joints	A
	Safety	A

Mariposa Bypass Control Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	A
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	A
	Electric Gate Operators	A
	Manual Gate Operators	A
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	A
	Monolith Joints	A
	Safety	A

2011 Structure Summary Report

Overall Unit and Item Ratings

Lower San Joaquin Levee District (cont.)

Mariposa Bypass Drop Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

Owens Creek Control Structure

Overall Unit Rating	Rated Item	Item Rating
M	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	M
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	A
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	M
	Concrete Tilting / Settlement	M
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	A
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	M
	Safety	A

2011 Structure Summary Report

Overall Unit and Item Ratings

Lower San Joaquin Levee District (cont.)

Owens Creek Overflow Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	A
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	A
	Electric Gate Operators	N
	Manual Gate Operators	A
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	A
	Monolith Joints	N
	Safety	A

San Joaquin River And Chowchilla Canal Bypass Control Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	A
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	N
	Trash Racks	A
	Flap Gates	N
	Sluice/Slide Gates	M
	Electric Gate Operators	A
	Manual Gate Operators	A
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	A
	Closure Structures	N
	Trash Rakes	A
	Other Metallic Items	A
	Monolith Joints	A
	Safety	A

2011 Structure Summary Report

Overall Unit and Item Ratings

Lower San Joaquin Levee District (cont.)

San Joaquin River Structure And Sand Slough Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	A
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	A
	Concrete Surfaces	M
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	A
	Monolith Joints	M
	Safety	A

Flood Control Project Maintenance

2011 Structure Summary Report

Overall Unit and Item Ratings

Madera County FCWCA

Ash And Berenda Slough Control Structures

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	A
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	A
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	A
	Closure Structures	A
	Trash Rakes	N
	Other Metallic Items	A
	Monolith Joints	N
	Safety	M

Fresno River Diversion Weir

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	M
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	A
	Sluice/Slide Gates	A
	Electric Gate Operators	N
	Manual Gate Operators	A
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	A
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	N
	Safety	A

2011 Structure Summary Report

Overall Unit and Item Ratings

Merced Streams Group

Black Rascal Creek Drop Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	M
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	M
	Revetments	N
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	A
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	N
	Safety	A

Owens Creek Siphon Structure

Overall Unit Rating	Rated Item	Item Rating
M	Vegetation & Obstructions	M
	Shoaling / Sedimentation	U
	Erosion / Bank Caving	A
	Revetments	N
	Encroachments	A
	Culverts: Inlets / Outlets	U
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	N
	Safety	A

Flood Control Project Maintenance

2011 Structure Summary Report

Overall Unit and Item Ratings

Reclamation District No. 0999 Netherlands

Elk Slough Inlet Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	N
	Culverts: Breaks / Holes / Cracks	N
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	A
	Electric Gate Operators	N
	Manual Gate Operators	A
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	A
	Monolith Joints	N
	Safety	A

Flood Control Project Maintenance

2011 Structure Summary Report

Overall Unit and Item Ratings

Plumas County

North Fork Feather River Diversion Channel Drop Structure No. 1 Through 7

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	A
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	N
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	N
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	N
	Safety	A

North Fork Feather River Diversion Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	A
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	A
	Trash Racks	A
	Flap Gates	N
	Sluice/Slide Gates	A
	Electric Gate Operators	N
	Manual Gate Operators	A
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	A
	Closure Structures	A
	Trash Rakes	N
	Other Metallic Items	N
	Monolith Joints	A
	Safety	A

Flood Control Project Maintenance

2011 Structure Summary Report

Overall Unit and Item Ratings

San Joaquin County Flood Control and Water Conservation District

Duck Creek Diversion Weir And Control Structure

Overall Unit Rating	Rated Item	Item Rating
A	Vegetation & Obstructions	A
	Shoaling / Sedimentation	A
	Erosion / Bank Caving	A
	Revetments	A
	Encroachments	A
	Culverts: Inlets / Outlets	A
	Culverts: Breaks / Holes / Cracks	A
	Metal Pipes	A
	Trash Racks	N
	Flap Gates	N
	Sluice/Slide Gates	M
	Electric Gate Operators	N
	Manual Gate Operators	A
	Concrete Surfaces	A
	Concrete Tilting / Settlement	A
	Concrete Foundations	A
	Security Fencing	N
	Closure Structures	N
	Trash Rakes	N
	Other Metallic Items	A
	Monolith Joints	A
	Safety	A

Appendix G: 2011 Pumping Plant Maintenance Inspection Summary Reports

Flood Control Project Maintenance

2011 Pumping Plant Summary Report

Overall Unit and Item Ratings

City of Sacramento

Magpie Creek Pumping Plant

Overall Unit Rating	Rated Item	Item Rating
A	Operating Log	A
	Operation & Maintenance Manual	A
	Plant Building	A
	Communications	A
	Safety	A
	Cranes	A
	Pumps	A
	Power	A
	Motors, Engines, Fans & Gear Reducers	A
	Pump Control Systems	A
	Sumps/Wet Well	A
	Trash Racks	A
	Trash Rakes	N
	Electric Gate Operators	N
	Manual Gate Operators	A
	Other Metallic Items	A
	Flap Gates	A
	Closure Structures	A
	Security Fencing	A
	Intake and Discharge Pipes	A
	Pressurized Pipe	A

Flood Control Project Maintenance

2011 Pumping Plant Summary Report

Overall Unit and Item Ratings

Reclamation District No. 2063 Crows Landing

Reclamation District No. 2063 Pumping Plant (Nelson Drain)

Overall Unit Rating	Rated Item	Item Rating
U	Operating Log	N
	Operation & Maintenance Manual	N
	Plant Building	A
	Communications	N
	Safety	A
	Cranes	N
	Pumps	U
	Power	A
	Motors, Engines, Fans & Gear Reducers	U
	Pump Control Systems	U
	Sumps/Wet Well	M
	Trash Racks	A
	Trash Rakes	N
	Sluice / Slide Gates	N
	Electric Gate Operators	N
	Manual Gate Operators	A
	Flap Gates	N
	Security Fencing	A
	Intake and Discharge Pipes	A
	Pressurized Pipe	A

2011 Pumping Plant Summary Report

Overall Unit and Item Ratings

DWR Sutter Maintenance Yard

Middle Creek Pumping Plant

Overall Unit Rating	Rated Item	Item Rating
A	Operating Log	A
	Operation & Maintenance Manual	A
	Plant Building	M
	Communications	A
	Safety	A
	Cranes	N
	Pumps	A
	Power	A
	Motors, Engines, Fans & Gear Reducers	N
	Pump Control Systems	A
	Sumps/Wet Well	A
	Trash Racks	A
	Trash Rakes	N
	Sluice / Slide Gates	A
	Electric Gate Operators	N
	Manual Gate Operators	A
	Other Metallic Items	A
	Flap Gates	N
	Closure Structures	N
	Security Fencing	A
	Intake and Discharge Pipes	A
	Pressurized Pipe	A

Sutter Bypass Pumping Plant No. 1

Overall Unit Rating	Rated Item	Item Rating
A	Operating Log	N
	Operation & Maintenance Manual	N
	Plant Building	N
	Communications	A
	Safety	N
	Cranes	N
	Pumps	A
	Power	A
	Motors, Engines, Fans & Gear Reducers	A
	Pump Control Systems	A
	Sumps/Wet Well	A
	Trash Racks	A
	Trash Rakes	N
	Sluice / Slide Gates	A
	Electric Gate Operators	N
	Manual Gate Operators	A
	Other Metallic Items	A
	Flap Gates	A
	Closure Structures	N
	Security Fencing	A
	Intake and Discharge Pipes	A
	Pressurized Pipe	A

2011 Pumping Plant Summary Report

Overall Unit and Item Ratings

DWR Sutter Maintenance Yard (cont.)

Sutter Bypass Pumping Plant No. 2

Overall Unit Rating	Rated Item	Item Rating
A	Operating Log	N
	Operation & Maintenance Manual	N
	Plant Building	N
	Communications	A
	Safety	N
	Cranes	N
	Pumps	N
	Power	A
	Motors, Engines, Fans & Gear Reducers	N
	Pump Control Systems	N
	Sumps/Wet Well	A
	Trash Racks	A
	Trash Rakes	N
	Sluice / Slide Gates	A
	Electric Gate Operators	N
	Manual Gate Operators	A
	Other Metallic Items	A
	Flap Gates	A
	Closure Structures	N
	Security Fencing	A
	Intake and Discharge Pipes	A
	Pressurized Pipe	A

Sutter Bypass Pumping Plant No. 3

Overall Unit Rating	Rated Item	Item Rating
A	Operating Log	N
	Operation & Maintenance Manual	N
	Plant Building	N
	Communications	A
	Safety	N
	Cranes	N
	Pumps	A
	Power	A
	Motors, Engines, Fans & Gear Reducers	A
	Pump Control Systems	A
	Sumps/Wet Well	A
	Trash Racks	A
	Trash Rakes	N
	Sluice / Slide Gates	A
	Electric Gate Operators	N
	Manual Gate Operators	A
	Other Metallic Items	A
	Flap Gates	A
	Closure Structures	N
	Security Fencing	A
	Intake and Discharge Pipes	A
	Pressurized Pipe	A

Flood Control Project Maintenance

2011 Pumping Plant Summary Report

Overall Unit and Item Ratings

Turlock Irrigation District Gomes Lake

Gomes Lake Pumping Plant

Overall Unit Rating	Rated Item	Item Rating
A	Operating Log	A
	Operation & Maintenance Manual	A
	Plant Building	A
	Communications	A
	Safety	A
	Cranes	N
	Pumps	A
	Power	A
	Motors, Engines, Fans & Gear Reducers	N
	Pump Control Systems	A
	Sumps/Wet Well	A
	Trash Racks	A
	Trash Rakes	N
	Sluice / Slide Gates	A
	Electric Gate Operators	A
	Manual Gate Operators	A
	Other Metallic Items	A
	Flap Gates	A
	Closure Structures	N
	Security Fencing	A
	Intake and Discharge Pipes	A
	Pressurized Pipe	A

Flood Control Project Maintenance

2011 Pumping Plant Summary Report

Overall Unit and Item Ratings

Sacramento County

American River Pumping Plant No. 1 Howe Avenue Storm Drain D - 05

Overall Unit Rating	Rated Item	Item Rating
A	Operating Log	A
	Operation & Maintenance Manual	A
	Plant Building	A
	Communications	A
	Safety	A
	Cranes	A
	Pumps	A
	Power	A
	Motors, Engines, Fans & Gear Reducers	A
	Pump Control Systems	A
	Sumps/Wet Well	A
	Trash Racks	A
	Trash Rakes	A
	Sluice / Slide Gates	N
	Electric Gate Operators	A
	Manual Gate Operators	A
	Other Metallic Items	A
	Flap Gates	A
	Closure Structures	N
	Security Fencing	A
	Intake and Discharge Pipes	A
	Pressurized Pipe	A

American River Pumping Plant No. 2 Willhaggin Storm Drain D - 43

Overall Unit Rating	Rated Item	Item Rating
A	Operating Log	A
	Operation & Maintenance Manual	A
	Plant Building	A
	Communications	A
	Safety	A
	Cranes	A
	Pumps	A
	Power	A
	Motors, Engines, Fans & Gear Reducers	A
	Pump Control Systems	A
	Sumps/Wet Well	A
	Trash Racks	A
	Trash Rakes	N
	Sluice / Slide Gates	N
	Electric Gate Operators	A
	Manual Gate Operators	A
	Other Metallic Items	A
	Flap Gates	A
	Closure Structures	N
	Security Fencing	A
	Intake and Discharge Pipes	A
	Pressurized Pipe	A

2011 Pumping Plant Summary Report

Overall Unit and Item Ratings

San Joaquin County Flood Control and Water Conservation District

Mormon Slough Pumping Plant No. 1

Overall Unit Rating	Rated Item	Item Rating
A	Operating Log	A
	Operation & Maintenance Manual	A
	Plant Building	A
	Communications	A
	Safety	A
	Cranes	N
	Pumps	A
	Power	A
	Motors, Engines, Fans & Gear Reducers	A
	Pump Control Systems	A
	Sumps/Wet Well	A
	Trash Racks	A
	Trash Rakes	N
	Sluice / Slide Gates	A
	Electric Gate Operators	N
	Manual Gate Operators	A
	Other Metallic Items	A
	Flap Gates	N
	Closure Structures	N
	Security Fencing	A
	Intake and Discharge Pipes	A
	Pressurized Pipe	A

Mormon Slough Pumping Plant No. 2

Overall Unit Rating	Rated Item	Item Rating
A	Operating Log	A
	Operation & Maintenance Manual	A
	Plant Building	A
	Communications	A
	Safety	A
	Cranes	N
	Pumps	A
	Power	A
	Motors, Engines, Fans & Gear Reducers	A
	Pump Control Systems	A
	Sumps/Wet Well	A
	Trash Racks	A
	Trash Rakes	N
	Sluice / Slide Gates	A
	Electric Gate Operators	N
	Manual Gate Operators	A
	Other Metallic Items	A
	Flap Gates	A
	Closure Structures	A
	Security Fencing	A
	Intake and Discharge Pipes	A
	Pressurized Pipe	A

2011 Pumping Plant Summary Report

Overall Unit and Item Ratings

San Joaquin County Flood Control and Water Conservation District (cont.)

Mormon Slough Pumping Plant No. 3

Overall Unit Rating	Rated Item	Item Rating
A	Operating Log	A
	Operation & Maintenance Manual	A
	Plant Building	A
	Communications	A
	Safety	A
	Cranes	N
	Pumps	A
	Power	A
	Motors, Engines, Fans & Gear Reducers	A
	Pump Control Systems	A
	Sumps/Wet Well	A
	Trash Racks	A
	Trash Rakes	N
	Sluice / Slide Gates	A
	Electric Gate Operators	N
	Manual Gate Operators	A
	Other Metallic Items	A
	Flap Gates	A
	Closure Structures	N
	Security Fencing	A
	Intake and Discharge Pipes	A
	Pressurized Pipe	A

Flood Control Project Maintenance

2011 Pumping Plant Summary Report

Overall Unit and Item Ratings

Reclamation District No. 2096 Wetherbee Lake

Wetherbee Lake Pumping Plant & Navigation Gate

Overall Unit Rating	Rated Item	Item Rating
A	Operating Log	A
	Operation & Maintenance Manual	A
	Plant Building	A
	Communications	A
	Safety	A
	Cranes	N
	Pumps	A
	Power	A
	Motors, Engines, Fans & Gear Reducers	A
	Pump Control Systems	A
	Sumps/Wet Well	A
	Trash Racks	M
	Trash Rakes	N
	Sluice / Slide Gates	N
	Electric Gate Operators	A
	Manual Gate Operators	A
	Other Metallic Items	A
	Flap Gates	A
	Closure Structures	A
	Security Fencing	A
	Intake and Discharge Pipes	A
	Pressurized Pipe	A

Appendix H: 2011 Supplemental Erosion Survey of the San Joaquin River System Summary Reports

LMA:	**NA0010 U23 Lower San Joaquin Levee District**
Waterway:	**RB San Joaquin River**
Site ID:	**NA0010U23RM224.27**
Status:	**New Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
36.802116	**-120.173847**	**224.27**	**9.15**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**555**
Scarp Height (ft):	**14**
Location of Erosion:	**Levee Toe**
WS Berm Width (ft):	**12**
WS Vegetation:	**Ground surrounding site fully covere**

WS Burrow Hole Activity:	**Signs of activity**
WS Levee Slope (H:V):	**3:1 or greater**
WS Soil Type:	**Clay (CL, CH, SC, GC)**
Site Relative to Bend:	**Outside of bend > 90 deg**
Radius of Curvature(Rc/W):	**10.00**

II. Criteria

	Score:	Weighted Score:	
Length (ft):	**5**	x2	**10**
Scarp Height (ft):	**5**	x3	**15**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**3**	x1	**3**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**5**	x1	**5**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**3**	x4	**12**
Site Relative to Bend:	**3**	x1	**3**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 53

Normalized Score (out of 100%): **58**

III. Misc.

Crown Width (ft):	**12**
Crown Type:	**Gravel**
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/16/2011**
Comments:	

08/16/2011: This site is immediately downstream of the riparian protection section. Dense vegetation growing on the toe and slope of the bank seems to indicate the most part of the erosion occurred prior to last winter. The closest spot is 12 feet away from the levee toe.

Looking downstream at the downstream erosion site from the upstream site location. The boulders shows the riparian protection.

Looking downstream standing at the middle of the erosion site.

Close look at the site. Dense vegetation is visible.

Looking upstream. This image shows the ending point of the riparian protection.

LMA:	**NA0010 U23 Lower San Joaquin Levee District**
Waterway:	**RB San Joaquin River**
Site ID:	**NA0010U23RM224.33**
Status:	**New Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
36.802898	**-120.173278**	**224.33**	**9.23**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**280**
Scarp Height (ft):	**16**
Location of Erosion:	**Levee Toe**
WS Berm Width (ft):	
WS Vegetation:	**Ground surrounding site fully covere**
WS Burrow Hole Activity:	**Signs of activity**
WS Levee Slope (H:V):	**3:1 or greater**
WS Soil Type:	**Clay (CL, CH, SC, GC)**
Site Relative to Bend:	**Outside of bend > 90 deg**
Radius of Curvature(Rc/W):	**1.90**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**4**	x2	**8**
Scarp Height (ft):	**5**	x3	**15**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**5**	x1	**5**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**3**	x4	**12**
Site Relative to Bend:	**3**	x1	**3**
Radius of Curvature(Rc/W):	**4**	x1	**4**

Total Score (out of 91): 57

Normalized Score (out of 100%): **63**

III. Misc.

Crown Width (ft):	**12**
Crown Type:	**Gravel**
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/16/2011**
Comments:	

08/16/2011: The erosion is cutting into the levee. The site is located at the outside of a river bend, and the erosions were caused by river flows during the last flooding season. The ground was covered by dense grasses. Animal burrow holes are visible.

The tree in the image marks the starting point of this erosion site.

Standing next to the erosion point cutting into the levee.

Looking downstream. The image shows the point where the erosion is cutting into the levee.

Looking downstream. The image shows the starting point of the riparian protection.

LMA:	**NA0011 U01 Madera County FCWCA**
Waterway:	**RB Ash Slough**
Site ID:	**NA0011U01RM2.57**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.055596	**-120.412647**	**2.57**	**1.15**	**M**

I. Site Feature *WS - Waterside

Length (ft):	**460**
Scarp Height (ft):	**3**
Location of Erosion:	**Levee Toe**
WS Berm Width (ft):	**0**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Sand (SP, SM and mixtures)**
Site Relative to Bend:	**Outside of bend > 90 deg**
Radius of Curvature(Rc/W):	**8.90**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**5**	x2	**10**
Scarp Height (ft):	**2**	x3	**6**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**1**	x2	**2**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**1**	x3	**3**
WS Soil Type:	**4**	x4	**16**
Site Relative to Bend:	**3**	x1	**3**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 50

Normalized Score (out of 100%): **55**

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**Trees on site and with visible roots and leaning**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/9/2011**
Comments:	

08/09/2011: Site was inspected. No visible change was observed from the previous condition. A fallen tree was seen at the levee toe about 20 feet upstream, and tree root exposed. There has been no report from the district that this site was corrected.
11/30/2010: Site was not inspected due to time constraints. There have been no reports from the district that the site was corrected. Continue to monitor site during flood events.
08/05/2010: Recommended for annual assessment and monitoring during flood events, per CLRO.
2009: Site is recommended as a local maintenance issue, per Critical Levee Repair Office, Critical Erosion Sites Evaluation 2008 Report; site was prevously rated "M"
9/6/2007: Undercutting of the toe; several trees along the WS slope with roots exposed.

Close-in view at the erosion site

The fallen tree about 20 feet from the site.

The fallen tree and exposed root

LMA:	**NA0011 U01 Madera County FCWCA**
Waterway:	**RB Ash Slough**
Site ID:	**NA0011U01RM3.8**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.06857	**-120.39862**	**3.80**	**2.38**	M

I. Site Feature *WS - Waterside

Length (ft):	**100**
Scarp Height (ft):	**5**
Location of Erosion:	**Toe & Slope**
WS Berm Width (ft):	**10**
WS Vegetation:	**Ground surrounding site fully covere**
WS Burrow Hole Activity:	**Signs of activity**
WS Levee Slope (H:V):	**3:1 or greater**
WS Soil Type:	**Sand (SP, SM and mixtures)**
Site Relative to Bend:	**Immediately Downstream of Bend**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**2**	x2	**4**
Scarp Height (ft):	**2**	x3	**6**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**4**	x1	**4**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**5**	x1	**5**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**4**	x4	**16**
Site Relative to Bend:	**2**	x1	**2**
Radius of Curvature(Rc/W):	**5**	x1	**5**

Total Score (out of 91): 47

Normalized Score (out of 100%): 52

III. Misc.

Crown Width (ft):	
Crown Type:	**Earthen**
Tree Hazard:	**Trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/9/2011**
Comments:	

08/09/2011: Site was inspected. No visible change was observed from the previous condition.There have been no reports from the district that this site was corrected.
11/30/2010: Site was not inspected this year due to time constraints. There have been no reports from the district that this site was corrected. Continue monitor during flood events.
08/05/2010: Recommended for annual assessment and monitoring during flood events, per CLRO.
2009: Site is recommended as a local maintenance issue, per CLRO CES Evaluation 2008 Report; it was previously rated "M".
8/26/2008: Undulating waterside slope surface; vehicular damage along the waterside slope possibly caused by farming equipment; levee crown is composed of sandy material; there is a collection of concrete rubble on the waterside crown hinge; vehicular damage extends from levee toe to crown surface.
9/6/2007: Farmer degraded levee on waterward slope and crown.

Close look at the site

The erosion is covered with dense grass and bushes.

The erosion is covered with dense grass and bushes.

LMA:	**NA0013 U03 Merced Streams Group**
Waterway:	**RB Owens Creek Diversion**
Site ID:	**NA0013U03RM1**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.2708	**-120.28418**	**1.00**	**1**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**10**
Scarp Height (ft):	**7**
Location of Erosion:	**Toe & Slope**
WS Berm Width (ft):	
WS Vegetation:	**No Ground Coverage**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**3:1 or greater**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Outside of bend > 90 deg**
Radius of Curvature(Rc/W):	**11.60**

II. Criteria

	Score:	Weighted Score:	
Length (ft):	**1**	x2	**2**
Scarp Height (ft):	**4**	x3	**12**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**3**	x2	**6**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**3**	x1	**3**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 53

Normalized Score (out of 100%): **58**

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/16/2011**
Comments:	

08/16/2011: No visible change. 100 percent vegetation coverage with star thistles. Minor cracking visible on the waterside slope.
11/30/2010: Site was not inspected this year due to time constraint. There have been no reports from the district that this site was corrected. Continue to monitor during flood events.
2009: Site is recommended as local maintenance issue, per CLRO CES Evaluation 2008 Report; it was previously rated "U".
8/26/2008: Terracetting erosion; frequent livestock traversing the slopes has caused deformation of the waterside levee slope.
9/11/2007: GPS extended from opposite bank using Google Earth.

A close look at the site, which is covered by thick star thistles.

Site covered with dense vegetation.

Some cracking on the site.

LMA:	**NA0013 U03 Merced Streams Group**
Waterway:	**RB Owens Creek Diversion**
Site ID:	**NA0013U03RM1.25**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.27263	**-120.28039**	**1.25**	**1.25**	**M**

I. Site Feature *WS - Waterside

Length (ft):	**10**
Scarp Height (ft):	**3**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**2**
WS Vegetation:	**No Ground Coverage**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**3:1 or greater**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Inside of Bend**
Radius of Curvature(Rc/W):	**3.80**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**1**	x2	**2**
Scarp Height (ft):	**2**	x3	**6**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**3**	x2	**6**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**2**	x1	**2**

Total Score (out of 91): 46

Normalized Score (out of 100%): **51**

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/16/2011**
Comments:	

08/16/2011: No visible change. 100 percent vegetation coverage with star thistles. Minor cracking visible on the waterside slope. Burrow holes visible.
11/30/2010: Site was not inspected this year due to time contstraint. There have been no reports from the district that the site was repaired. Continue to monitor during flood events.
2009: Bank erosion scour that is immediately downstream of Mission Avenue bridge; noticeable terracetting damage from livestock traversing the slope; site is recommended as local maintenance issue, per CLRO Evaluation 2008 Report; site was previously rated "M".
8/26/2008: Terracetting damage from livestock; there is now a pocket erosion developing on the levee toe; site is 100 feet downstream of Mission Avenue bridge.

The site is covered with dense thistles.

No significant change visible from the levee top

The site is covered with dense thistles.

Minor cracking visible at the levee shoulder

LMA:	**NA0013 U04 Merced Streams Group**
Waterway:	**LB Owens Creek Diversion**
Site ID:	**NA0013U04RM0.21**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.272283	**-120.280869**	**0.21**	**0.21**	**M**

I. Site Feature *WS - Waterside

Length (ft):	**700**
Scarp Height (ft):	**4**
Location of Erosion:	**On berm**
WS Berm Width (ft):	**20**
WS Vegetation:	**1/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**3:1 or greater**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:	Weighted Score:	
Length (ft):	**5**	x2	**10**
Scarp Height (ft):	**2**	x3	**6**
Location of Erosion:	**1**	x1	**1**
WS Berm Width (ft):	**2**	x1	**2**
WS Vegetation:	**2**	x2	**4**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**1**	x1	**1**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 44

Normalized Score (out of 100%): **48**

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/16/2011**
Comments:	

08/16/2011: No significant change was visible. Minor cracking on the waterside levee slope was spotted. 100 percent vegetation coverage with star thistles.
11/30/2010: Site was not inspected this year due to time constraints. There have been no reports from the district that the site has been corrected.
2009: Site recommended as local maintenance issue, per CLRO CES Evaluation 2008 Report; previously rated "U".
9/10/2007: GPS extended from opposite bank using Google Earth; signs of vehicular damage on levee.

The site is covered with dense star thistles. No significant changes visible

The site is covered with dense star thistles

Minor cracking visible on the site

Minor cracking visible on the site

LMA:	**NA0013 U04 Merced Streams Group**
Waterway:	**LB Owens Creek Diversion**
Site ID:	**NA0013U04RM0.42**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.27063	**-120.28397**	**0.42**	**0.42**	**M**

I. Site Feature *WS - Waterside

Length (ft):	**50**
Scarp Height (ft):	**4**
Location of Erosion:	**Toe & Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**No Ground Coverage**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**3:1 or greater**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Inside of Bend**
Radius of Curvature(Rc/W):	**26.50**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**1**	x2	**2**
Scarp Height (ft):	**2**	x3	**6**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**3**	x2	**6**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 44

Normalized Score (out of 100%): **48**

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/16/2011**
Comments:	

08/16/2011: No visible significant changes. 100 percent vegetation coverage with star thistles. Minor cracking visible on the waterside slope.
11/30/2010: Site was not inspected this year due to time constraints. There have been no reports from the district that the site has been corrected.
2009: Site is recommended as local maintenance issue, per CLRO CES Evaluation 2008 Report; terracetting damage from livestock traversing; there is a wooden platform installed on site; landside is on high ground; site was previously rated "M".
9/10/2007: GPS extended from opposite bank using Google Earth; GPS on file is correct.

The site is covered with thick vegetation

The site is covered with thick vegetation

Minor cracking on waterside levee shoulder

Minor cracking on waterside levee shoulder

LMA:	**NA0017 U15 San Joaquin County Flood Control and Water Conservation Distric**
Waterway:	**RB Mormon Slough**
Site ID:	**NA0017U15RM0.86**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
38.045818	**-121.023955**	**0.86**	**0.86**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**4800**
Scarp Height (ft):	**12**
Location of Erosion:	**Toe & Slope**
WS Berm Width (ft):	**11**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**Signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Clay (CL, CH, SC, GC)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**5**	x2	**10**
Scarp Height (ft):	**5**	x3	**15**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**3**	x1	**3**
WS Vegetation:	**1**	x2	**2**
WS Burrow Hole Activity:	**5**	x1	**5**
WS Levee Slope (H:V):	**2**	x3	**6**
WS Soil Type:	**3**	x4	**12**
Site Relative to Bend:	**1**	x1	**1**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 59

Normalized Score (out of 100%): **65**

III. Misc.

Crown Width (ft):	**12**
Crown Type:	**Earthen**
Tree Hazard:	**Trees on site and with visible roots**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**9/2/2011**
Comments:	

09/02/2011: No signficant changes observed on site.
11/02/2010: No signficant changes observed on site. The mile-long erosion continues to degrade the bank. There are a few trees along the mile-long stretch on the lower bank slope that are affected by the scarp. WS Levee Slope was changed to 2:1. As a result, normalized score increased from 62 to 65.
08/05/2010: Recommended for waterside repair, per CLRO; "water velocity is a major factor for accelerating bank slope erosion."
8/12/2009: Near-vertical bank erosion; degrading channel is incising the banks; recommend annual assessment and monitoring of critical erosion site, per CLRO CES Evaluation 2008 Report; district is monitoring site for changes in condition; site was previously rated "U".
2007: Visited site 02/06/2007; possible critical site.

Looking upstream

Close view of the erosion. Note the dense vegetation and tree on site.

Close view of erosion site. Note the exposed soil at the top might be caused by animal activities.

Looking downstream

LMA:	**NA0017 U15 San Joaquin County Flood Control and Water Conservation Distric**
Waterway:	**RB Mormon Slough**
Site ID:	**NA0017U15RM1.58**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
38.04017	**-121.0338**	**1.58**	**1.58**	

I. Site Feature *WS - Waterside

Length (ft):	**350**
Scarp Height (ft):	**5**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**1/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**1.5:1**
WS Soil Type:	**Clay (CL, CH, SC, GC)**
Site Relative to Bend:	**Outside of bend > 90 deg**
Radius of Curvature(Rc/W):	**15.10**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	**12**
Crown Type:	**Earthen**
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**9/2/2011**
Comments:	

09/02/2011: Site was repaired in 2011 summer by the district. Needs to monitor during the next flood season for performance. The site was previously rated "U".
11/02/2010: No significant changes observed on site. Bank erosion extends approximately 100 feet downstream and 250 feet upstream of the drop structure.
8/12/2009: No major change observed; erosion is upstream and downstream of drop structure; bank erosion is associated with high velocities; it is recommended for annual assessment and monitoring of critical erosion site per CLRO CES Evaluation 2008 Report; it was previously rated "U".
2007: Visited site 02/06/2007.

Looking at the repaired site upstream of the drop structure.

Close look of the repaired site

Looking downsream to the drop structure.

Close view of the repaired site. Note the riprap at the toe

LMA:	**NA0017 U15 San Joaquin County Flood Control and Water Conservation Distric**
Waterway:	**RB Mormon Slough**
Site ID:	**NA0017U15RM3.14**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
38.026257	**-121.054829**	**3.14**	**3.14**	

I. Site Feature *WS - Waterside

Length (ft):	**30**
Scarp Height (ft):	**6**
Location of Erosion:	**On berm**
WS Berm Width (ft):	**15**
WS Vegetation:	**No Ground Coverage**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Clay (CL, CH, SC, GC)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	**16**
Crown Type:	**Earthen**
Tree Hazard:	**No trees on site**
Bank Protection Type:	**Concrete Lining**
Bank Protection Location:	**Slope**
Survey Date:	**9/2/2011**
Comments:	

09/02/2011: Site was fixed in April 2011 by the district. Suggest continue to monitor performance during flooding. The site was previously rated "M".
11/02/2010: No signficant changes observed on site. Upon further inspection, it appears that a slab of aging concrete lining on the bank slope has slipped, possibly due to a weakend subsoil layer. Fissure cracks have developed and now extend outward from where the initial slip occurred. Erosion of the subsoil layer could further weaken the bank and intrude into the levee prism. It could also affect the stability of the pump structure.
8/12/2009: Downward creep of the soil that was possibly caused during pipe installation; erosion is between 2 to 3 feet cut into the bank; vertical pump inlet is located adjacent to erosion; District personnel Jay Howdigi and Jim Caruso were present during the site visit.

Looking down at the repaired site.

Looking down at the repaired site.

View from levee top

Looking at the levee shoulder

LMA:	NA0017 U15 San Joaquin County Flood Control and Water Conservation Distric
Waterway:	RB Mormon Slough
Site ID:	NA0017U15RM7.23
Status:	Existing Site

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.980625	-121.097194	7.23	7.23	M

I. Site Feature *WS - Waterside

Length (ft):	25
Scarp Height (ft):	4
Location of Erosion:	Lower 1/2 Slope
WS Berm Width (ft):	0
WS Vegetation:	2/3 of ground covered
WS Burrow Hole Activity:	Signs of activity
WS Levee Slope (H:V):	1.5:1
WS Soil Type:	Clay (CL, CH, SC, GC)
Site Relative to Bend:	Straight Reach
Radius of Curvature(Rc/W):	0.00

II. Criteria

	Score:		Weighted Score:
Length (ft):	1	x2	2
Scarp Height (ft):	3	x3	9
Location of Erosion:	5	x1	5
WS Berm Width (ft):	5	x1	5
WS Vegetation:	1	x2	2
WS Burrow Hole Activity:	5	x1	5
WS Levee Slope (H:V):	3	x3	9
WS Soil Type:	3	x4	12
Site Relative to Bend:	1	x1	1
Radius of Curvature(Rc/W):	0	x1	0

Total Score (out of 91): 50

Normalized Score (out of 100%): 55

III. Misc.

Crown Width (ft):	12
Crown Type:	
Tree Hazard:	No trees on site
Bank Protection Type:	None
Bank Protection Location:	None
Survey Date:	9/2/2011
Comments:	

09/02/2011: Found no erosion resembling the one pictured in the 2009 Report.
11/02/2010: Upon review of the site, we found no erosion resembling the one pictured in the 2009 Report. Our team went upstream and downstream of the GPS location and did not find any erosion as described and pictured in the 2009 Report. There is, however, a scarp on the bank that is approximately 20 feet long and a 30 feet wide berm. This item will be removed from the inventory. Site was previously rated "M".
8/12/2009: Near-vertical scarp on the slope; note that levee is on high ground.

Looking downstream at the site.

Looking downstream at the site.

Looking downstream at the bank scarp. Minor erosion is not affecting the levee due to a wide berm.

LMA:	**NA0017 U15 San Joaquin County Flood Control and Water Conservation Distric**
Waterway:	**RB Mormon Slough**
Site ID:	**NA0017U15RM9.11**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.9672	**-121.12484**	**9.11**	**9.11**	

I. Site Feature *WS - Waterside

Length (ft):	**100**
Scarp Height (ft):	**5**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**1/3 of ground covered**
WS Burrow Hole Activity:	**Signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Clay (CL, CH, SC, GC)**
Site Relative to Bend:	**Inside of Bend**
Radius of Curvature(Rc/W):	**17.60**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	**16**
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**9/2/2011**
Comments:	

09/02/2011: A pocket erosion was found downstream of the repaired site. The pocket erosion is at the lower slope of the levee, with a size of approximately 5ft long and 3 ft in height.
11/02/2010: The site has been repaired by the district. It was previously rated "M."
8/12/2009: Erosion is incising into the levee; a pipe outlet is located on the levee toe; there are traces of concrete lining originally placed over the WS slope; landside is on high ground; inspect for pipe condition.

Upstream view of repaired site.

Upstream view of repaired site.

Downstream view of repaired site. Note the pocket erosion downstream of the riparian protection.

Downstream view of repaired site.

LMA:	**NA0017 U15 San Joaquin County Flood Control and Water Conservation Distric**
Waterway:	**RB Mormon Slough**
Site ID:	**NA0017U15RM9.16**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.966943	**-121.125468**	**9.16**	**9.16**	

Looking directly at the repaired site.

Looking directly at the repaired site.

I. Site Feature *WS - Waterside

Length (ft):	**100**
Scarp Height (ft):	**5**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**Signs of activity**
WS Levee Slope (H:V):	**1.5:1**
WS Soil Type:	**Clay (CL, CH, SC, GC)**
Site Relative to Bend:	**Inside of Bend**
Radius of Curvature(Rc/W):	**21.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	
Bank Protection Location:	
Survey Date:	**9/2/2011**
Comments:	

09/02/2011: No sigh of new erosion activities found.
11/02/2010: Site has been repaired by the district. It was previously rated "M."
8/11/2009: Near-vertical cut of 1 to 2 feet into the levee along lower 1/2 slope; Note that landside is on high ground.

LMA:	**NA0017 U15 San Joaquin County Flood Control and Water Conservation Distric**
Waterway:	**RB Mormon Slough**
Site ID:	**NA0017U15RM10.37**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.965057	**-121.146595**	**10.37**	**10.37**	

I. Site Feature *WS - Waterside

Length (ft):	**20**
Scarp Height (ft):	**3**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**Signs of activity**
WS Levee Slope (H:V):	**1.5:1**
WS Soil Type:	**Clay (CL, CH, SC, GC)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**9/2/2011**
Comments:	

09/02/2011: No sign of new erosion activities on site. Recommand site be removed from list.
11/02/2010: Site has been repaired by the district. Shot rock was placed on site where pocket erosion occurred. It wasp reviously rated "M."
08/12/2009: Localized erosion; sloughing at the lower slope; minor pocket erosion developing.

Looking upstream at the repaired site.

A close look at the repaired site.

Direct view of the repaired site.

A close look at the repaired site.

LMA:	**NA0017 U15 San Joaquin County Flood Control and Water Conservation Distric**
Waterway:	**RB Mormon Slough**
Site ID:	**NA0017U15RM10.62**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.96494	**-121.151127**	**10.62**	**10.62**	

I. Site Feature *WS - Waterside

Length (ft):	**300**
Scarp Height (ft):	**5**
Location of Erosion:	**Upper 1/2 Slope**
WS Berm Width (ft):	**10**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**Signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Clay (CL, CH, SC, GC)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:	Weighted Score:	
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	**16**
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**9/2/2011**
Comments:	

09/02/2011: A minor pocket erosion was found at the toe upstream of the repaired site. The erosion is clealy visible from the levee top, and looks stable, covered with vegetation.
11/02/2010: Erosion site has been repaired by the district. It was previously rated "M."
8/12/2009: Scarp with varying height of 1 to 5 ft; landside is on high ground; erosion occurs just downstream of rip rap section; at the time of survey, there were burn piles at various location along the waterside levee slope.

Looking downstream at the repaired site.

Looking at the upstream of the repaired site. Note the pocket erosion at the toe.

Looking downstream at the repaired site

Looking upstream of the repaired site. The burning wood pile still on site.

LMA:	NA0017 U16 San Joaquin County Flood Control and Water Conservation Distric
Waterway:	LB Mormon Slough
Site ID:	NA0017U16RM4.57
Status:	Repaired Site

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
38.009201	-121.069224	4.57	4.57	

I. Site Feature *WS - Waterside

Length (ft):	80
Scarp Height (ft):	1
Location of Erosion:	Upper 1/2 Slope
WS Berm Width (ft):	0
WS Vegetation:	No Ground Coverage
WS Burrow Hole Activity:	No signs of activity
WS Levee Slope (H:V):	2:1
WS Soil Type:	Clay (CL, CH, SC, GC)
Site Relative to Bend:	Straight Reach
Radius of Curvature(Rc/W):	0.00

II. Criteria

	Score:		Weighted Score:
Length (ft):	0	x2	0
Scarp Height (ft):	0	x3	0
Location of Erosion:	0	x1	0
WS Berm Width (ft):	0	x1	0
WS Vegetation:	0	x2	0
WS Burrow Hole Activity:	0	x1	0
WS Levee Slope (H:V):	0	x3	0
WS Soil Type:	0	x4	0
Site Relative to Bend:	0	x1	0
Radius of Curvature(Rc/W):	0	x1	0

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	16
Crown Type:	Earthen
Tree Hazard:	No trees on site
Bank Protection Type:	None
Bank Protection Location:	None
Survey Date:	9/2/2011
Comments:	

09/02/2011: No sign of new erosion activity.
11/02/2010: Erosion site has been repaired by the district. Site was previously rated "M."
8/12/2009: Differential settlement of 1 to 2 feet; erosion appears to be a shallow slide caused by undercutting; settlement has carved into the crown; area adjacent to site was recently repaired for burrow den activity on the lower slope; rocks were placed on the repair site.

Looking downstream at the repaired site.

Looking downstream at the repaired site.

Looking upstream at the repaired site

Photo Not Available

Photo Not Available

LMA:	**NA0017 U16 San Joaquin County Flood Control and Water Conservation Distric**
Waterway:	**LB Mormon Slough**
Site ID:	**NA0017U16RM6.47**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.986959	**-121.087544**	**6.47**	**6.47**	

I. Site Feature *WS - Waterside

Length (ft):	**30**
Scarp Height (ft):	**4**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**No Ground Coverage**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Clay (CL, CH, SC, GC)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	**16**
Crown Type:	**Earthen**
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**9/2/2011**
Comments:	

09/02/2011: The site has been repaired by the district. The site was previously rated "M".
11/02/2010: No signficant changes observed on site. Bridge scour has created a pocket erosion, exposing a portion of the underlaying concrete padding.
8/11/2009: Site is adjacent to abutment on Milton Road Bridge; pocket erosion has developed and will continue to expose the bridge foundation; this erosion appears to be critical as it may affect the bridge foundation.

Looking at the site from right bank, downstream of the bridge

Looking at the site from right bank, downstream of the bridge

Upstream view of the site below east end abutment of Milton Bridge.

Close view of the fixed site from upstream of the Milton Bridge.

LMA:	**RD0017 U02 Mossdale**
Waterway:	**RB San Joaquin River**
Site ID:	**RD0017U02RM43.95**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.907119	**-121.324224**	**43.95**	**0.68**	

Vegetation and dead trees visible on the site.

Frontal view of the levee slope.

I. Site Feature *WS - Waterside

Length (ft):	**50**
Scarp Height (ft):	**2**
Location of Erosion:	**Levee Toe**
WS Berm Width (ft):	**0**
WS Vegetation:	**1/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Immediately Downstream of Bend**
Radius of Curvature(Rc/W):	**2.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**Broken Concrete**
Bank Protection Location:	**Toe**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: Repaired site shows no new signs of erosion. Vegetation and dead trees visible on the site.
9/07/2010: Site appears to have been repaired by using shot rock as revetment along the lower slope. There are some emergent vegetation at the water line. Site was previously rated "M".
9/29/2009: Undercutting of the toe just above the existing rip rap; note there is housing development on the landside of levee (refer to Aerial Atlas).

LMA:	**RD0017 U02 Mossdale**
Waterway:	**RB San Joaquin River**
Site ID:	**RD0017U02RM46.13**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.878234	**-121.331693**	**46.13**	**2.89**	

Direct view of the repaired site. Vegetation visible on site.

Shot rock was used to fill an existing pocket erosion just above the water line.

I. Site Feature *WS - Waterside

Length (ft):	**15**
Scarp Height (ft):	**3**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**1/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Outside of bend > 90 deg**
Radius of Curvature(Rc/W):	**5.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: The repaired site shows no sign of new erosion avtivity. Vegetation visible on the site.
9/07/2010: Site has been repaired. Shot rock was placed on site. Site was previously rated "M".
9/29/2009: Pocket erosion just below and across the abutment of Howard Road Bridge; existing toe rip rap and concrete slabs in place; erosion may develop into a larger pocket erosion if no corrective action is taken.

LMA:	**RD0017 U02 Mossdale**
Waterway:	**RB San Joaquin River**
Site ID:	**RD0017U02RM52.8**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.811165	**-121.318605**	**52.80**	**9.99**	

Direct view of the repaired site. Vegetation visible

Tree and vegetation visible on the site

I. Site Feature

*WS - Waterside

Length (ft):	**50**
Scarp Height (ft):	**3**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**10**
WS Vegetation:	**1/3 of ground covered**
WS Burrow Hole Activity:	**Signs of activity**
WS Levee Slope (H:V):	**3:1 or greater**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:	Weighted Score:	
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**Size Riprap**
Bank Protection Location:	**Toe**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: The repaired site shows no sign of new erosion activity. Vegetation visible on the site.
9/07/2010: Site has been repaired by placing shot rock as revetment. Site was previously rated "M".
9/28/2009: A 50 feet section of the lower slump has slumped just above existing rip rap; there is also a rip rap protection along the levee toe.

LMA:	**RD0017 U02 Mossdale**
Waterway:	**RB San Joaquin River**
Site ID:	**RD0017U02RM53.54**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.80574	**-121.32424**	**53.54**	**10.66**	

Direct view of the repaired site

Direct view of the repaired site.

I. Site Feature *WS - Waterside

Length (ft):	**225**
Scarp Height (ft):	**7**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**No Ground Coverage**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**3:1 or greater**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Inside of Bend**
Radius of Curvature(Rc/W):	**6.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**Trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: The repaired site shows no sign of new erosion activity. Vegetation and trees visible on the site.
09/07/2010: Site appears to have been repaired by placing shot rock revetment on the lower slope. Some emergent vegetation at the lower slope. Site was previously rated "U."
08/05/2010: Recommended for annual assessment and monitoring during flood events, per CLRO.
9/29/2009: No major change obsrved; erosion site is immediately upstream of a rehabilitation site; recommend annual monitoring of site, per Critical Erosion Sites Evaluation 2008 Report; note site # is the same as RM53.7; previously rated "U".
20089: Observed to be caused by wave-wash erosion.
2007: Visited site 06/07/2007; site could be combined with Site 32.

LMA:	**RD0404 U01 Boggs**
Waterway:	**RB San Joaquin River**
Site ID:	**RD0404U01RM40.86**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.93948	**-121.34273**	**40.86**	**0.23**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**200**
Scarp Height (ft):	**2**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**Signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Inside of Bend**
Radius of Curvature(Rc/W):	**2.10**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**3**	x2	**6**
Scarp Height (ft):	**1**	x3	**3**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**1**	x2	**2**
WS Burrow Hole Activity:	**5**	x1	**5**
WS Levee Slope (H:V):	**1**	x3	**3**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**3**	x1	**3**

Total Score (out of 91): 52

Normalized Score (out of 100%): **57**

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: Pockets erosions observed by last survey seem have progressed during the last food season. Continuous monitoring of this site suggested
9/07/2010: No significant change observed on site. There is emergent vegetation at the water line. Several pocket erosions lined along the lower slope that stretches from RM 40.86 to RM 41.14.
9/30/2009: No major change observed; the site was combined with other existing sites are RM's 40.93, 40.98, and 41.14 as one site; several pocket erosion just above non-uniform toe rip rap; previously rated "U"; bare spots along the upper slope.
2008: Possibly caused by wave wash erosion; several pocket erosion along the lower slope; site is inside of a bend.
2006: Visited site 09/12/06.

Upstream view of Site. Progressing pocket erosion visible.

Front view of the site

Front view of the site

Upstream view of the site

LMA:	**RD0404 U02 Boggs**
Waterway:	**RB French Camp Slough**
Site ID:	**RD0404U02RM1.56**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.91844	**-121.29704**	**1.56**	**1.45**	

I. Site Feature *WS - Waterside

Length (ft):	**1350**
Scarp Height (ft):	**6**
Location of Erosion:	**Upper 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**No Ground Coverage**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Outside of bend > 90 deg**
Radius of Curvature(Rc/W):	**8.90**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**9/2/2011**
Comments:	

09/02/2011: Site has been repaired with added soil and crashed rock. No new erosion activities found on site.
11/30/2010: Site was not inspected this year due to time constraints. There has been no reports from the district that the site was corrected. Continue to monitor during flood events.
08/05/2010: Recommended for annual assessment and monitoring during flood events, per CLRO.
2009: Erosion appears to be maintenance-related, and not caused by riverflow; recommend annual assessment and monitoring of erosion site, per Critical Erosion Sites Evaluation 2008 Report; previously rated "U".
9/12/2006: Headward erosion along the levee bank; erosion has created "notches" estimated to be about 12 feet in height; erosion appears to be maintenance related; DWR Inspector for the area says the erosion has been present for years.

Looking upstream of the repaired site.

Looking from the levee toe at the site.

Looking from the levee toe at the site.

Looking donnstream from levee toe

LMA:	**RD0524 U01 Middle Roberts Island**
Waterway:	**LB San Joaquin River**
Site ID:	**RD0524U01RM41.15**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.938895	**-121.337602**	**41.15**	**0.56**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**360**
Scarp Height (ft):	**6**
Location of Erosion:	**Toe & Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**1/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**1.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Inside of Bend**
Radius of Curvature(Rc/W):	**6.30**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**5**	x2	**10**
Scarp Height (ft):	**4**	x3	**12**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**2**	x2	**4**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**3**	x3	**9**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 65

Normalized Score (out of 100%): **71**

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**Broken Concrete**
Bank Protection Location:	**Toe**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: No signficant changes observed on site.
09/07/2010: No signficant changes observed on site. Some emergent vegetation at the lower and middle slope. Existing revetment is no longer adequately protecting the oversteepened slope. Some of the broken concrete used as revetment has slid, dragging levee materials away from the slope and creating notches.
09/29/2009: Erosion site extends from RM 41.11 to 41.18; existing revetment is no longer adequately protecting the oversteepened slope.
2008: Existing concrete slabs were placed as temporary fix; some of the slabs have started to slide, dragging levee materials away from the slope and creating notches; note that a sewage treatment plant is located on the landside of the levee.

Upstream view of the site. Broken concrete used as revetment is sliding, dragging down levee materials.

Direct view of the site.

Upstream view. Sloughing mid-slope possibly caused by sliding of the revetment.

Direct view of the site showing emergent vegetation growing at the midslope.

LMA:	**RD0524 U01 Middle Roberts Island**
Waterway:	**LB San Joaquin River**
Site ID:	**RD0524U01RM41.39**
Status:	**New Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.936821	**-121.334582**	**41.39**	**0.77**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**35**
Scarp Height (ft):	**8**
Location of Erosion:	**Toe & Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**1/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**1.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**1**	x2	**2**
Scarp Height (ft):	**3**	x3	**9**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**2**	x2	**4**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**3**	x3	**9**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**1**	x1	**1**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 55

Normalized Score (out of 100%): **60**

III. Misc.

Crown Width (ft):	**12**
Crown Type:	**Earthen**
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: The site is located immediately upstream of a Railroad bridge. Dense vegetation at the water line interfers the view of erosion.

Upstream view of the erosion site. Note the railroad bridge.

Front view of the erosion site. Vegetation visible

Front view of erosion

LMA:	**RD0524 U01 Middle Roberts Island**
Waterway:	**LB San Joaquin River**
Site ID:	**RD0524U01RM41.5**
Status:	**New Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.935576	**-121.333202**	**41.50**	**0.91**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**15**
Scarp Height (ft):	**5**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**1.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Inside of Bend**
Radius of Curvature(Rc/W):	**6.62**

II. Criteria

	Score:	Weighted Score:	
Length (ft):	**1**	x2	**2**
Scarp Height (ft):	**3**	x3	**9**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**1**	x2	**2**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**3**	x3	**9**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 52

Normalized Score (out of 100%): **57**

III. Misc.

Crown Width (ft):	**12**
Crown Type:	**Earthen**
Tree Hazard:	**Trees on site**
Bank Protection Type:	**Broken Concrete**
Bank Protection Location:	**Toe**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: The erosion site is immediately donstream of the riprap protection.

Front view of the erosion. Not the riprap protection near the site

A close view of the erosion

Front view of the upstream riprap protecion.

LMA:	RD0524 U01 Middle Roberts Island
Waterway:	LB San Joaquin River
Site ID:	RD0524U01RM41.59
Status:	New Site

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.935326	-121.331537	41.59	1	U

I. Site Feature *WS - Waterside

Length (ft):	55
Scarp Height (ft):	10
Location of Erosion:	Lower 1/2 Slope
WS Berm Width (ft):	0
WS Vegetation:	1/3 of ground covered
WS Burrow Hole Activity:	No signs of activity
WS Levee Slope (H:V):	1.5:1
WS Soil Type:	Silt (ML)
Site Relative to Bend:	Inside of Bend
Radius of Curvature(Rc/W):	6.62

II. Criteria

	Score:		Weighted Score:
Length (ft):	2	x2	4
Scarp Height (ft):	2	x3	6
Location of Erosion:	5	x1	5
WS Berm Width (ft):	5	x1	5
WS Vegetation:	2	x2	4
WS Burrow Hole Activity:	0	x1	0
WS Levee Slope (H:V):	3	x3	9
WS Soil Type:	5	x4	20
Site Relative to Bend:	0	x1	0
Radius of Curvature(Rc/W):	0	x1	0

Total Score (out of 91): 53

Normalized Score (out of 100%): 58

III. Misc.

Crown Width (ft):	12
Crown Type:	Earthen
Tree Hazard:	No trees on site
Bank Protection Type:	Size Riprap
Bank Protection Location:	Toe
Survey Date:	8/23/2011
Comments:	

08/23/2011: The site is about 500 ft downstream of bridge. The levee toe seems to be protected, but the protection is being washed away.

Close view of the erosion. Note that the riprap protection next to the erosion.

Close view of the erosion. The protection has been washed away.

Front view of the erosion

Front view of the erosion

LMA:	**RD0524 U01 Middle Roberts Island**
Waterway:	**LB San Joaquin River**
Site ID:	**RD0524U01RM41.79**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.933347	**-121.32911**	**41.79**	**1.2**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**400**
Scarp Height (ft):	**5**
Location of Erosion:	**Toe & Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**No Ground Coverage**
WS Burrow Hole Activity:	**Signs of activity**
WS Levee Slope (H:V):	**1.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**5**	x2	**10**
Scarp Height (ft):	**2**	x3	**6**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**3**	x2	**6**
WS Burrow Hole Activity:	**5**	x1	**5**
WS Levee Slope (H:V):	**3**	x3	**9**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**1**	x1	**1**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 67

Normalized Score (out of 100%): **74**

III. Misc.

Crown Width (ft):	**12**
Crown Type:	**Earthen**
Tree Hazard:	**No trees on site**
Bank Protection Type:	**River Rock**
Bank Protection Location:	**Slope**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: No significant changes observed on site.
9/07/2010: No significant changes observed on site. Some emergent vegetation at the water line. There is an exposed pipe discharge partially hanging at the mid-slope, possibly still used for discharging irrigation/runoff water. There is minimal rip rap protection along the bank, and what's left of it is no longer adequately protecting the bank.
9/29/2009: Site consists of a 400-foot long eroding bank with minimal vegetation and protection; the existing rip rap has sloughed, rendering it useless; note that there is an exposed section of a pipe.
10/18/2006: There is extensive loss of rip rap on some sections; sewage disposal pond is on the landside of the levee; there is an exposed pipe outlet "hanging" from the upper slope.

Downstream view of the site where sloughing is occurring.

Upstream view of the site.

Direct view of the site.

Direct view of the site.

LMA:	**RD0524 U01 Middle Roberts Island**
Waterway:	**LB San Joaquin River**
Site ID:	**RD0524U01RM42.2**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.92777	**-121.32787**	**42.20**	**1.61**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**300**
Scarp Height (ft):	**4**
Location of Erosion:	**Upper 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Outside of Bend < 90 deg**
Radius of Curvature(Rc/W):	**2.20**

II. Criteria

	Score:	Weighted Score:	
Length (ft):	**4**	x2	**8**
Scarp Height (ft):	**2**	x3	**6**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**1**	x2	**2**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**2**	x3	**6**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**5**	x1	**5**
Radius of Curvature(Rc/W):	**3**	x1	**3**

Total Score (out of 91): 60

Normalized Score (out of 100%): **66**

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**Trees on site and with visible roots and leaning**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: No signifcant changes observed on site. Trees concerned still in place.
09/07/2010: No signifcant changes observed on site. The concern here is the undermining of the levee toe where most of trees are. There are erosion pockets lined along the lower slope and at the base of the trees, exposing tree roots. There is minimal slope protection.
09/29/2009: The lower slope is lined with minor erosion pockets; some tree roots are exposed; there is visible undermining of the levee toe; site is immediately upstream of the Highway 4 Bridge; the bridge is possibly causing a scour to occur, eroding the bank.

Front view of the site where undermining has occurred.

Large trees along the levee toe. There is minimal slope protection. The erosion near tree visible.

LMA:	**RD0524 U01 Middle Roberts Island**
Waterway:	**LB San Joaquin River**
Site ID:	**RD0524U01RM43.83**
Status:	**New Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.908544	**-121.324894**	**43.83**	**3.27**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**400**
Scarp Height (ft):	**5**
Location of Erosion:	**Levee Toe**
WS Berm Width (ft):	**0**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**5**	x2	**10**
Scarp Height (ft):	**2**	x3	**6**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**1**	x2	**2**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**1**	x3	**3**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**1**	x1	**1**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 52

Normalized Score (out of 100%): **57**

III. Misc.

Crown Width (ft):	
Crown Type:	**Gravel**
Tree Hazard:	**Trees on site**
Bank Protection Type:	**Size Riprap**
Bank Protection Location:	**Toe**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: Sloughing rip rap is visible on the site

Direct view of the site.

A closer view of the erosion

Closer view of the erosion

Front view of the erosion

LMA:	**RD0524 U01 Middle Roberts Island**
Waterway:	**LB San Joaquin River**
Site ID:	**RD0524U01RM45.27**
Status:	**New Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.889809	**-121.329342**	**45.27**	**4.71**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**12**
Scarp Height (ft):	**6**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**1/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:	Weighted Score:	
Length (ft):	**1**	x2	**2**
Scarp Height (ft):	**4**	x3	**12**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**2**	x2	**4**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**1**	x3	**3**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**1**	x1	**1**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 52

Normalized Score (out of 100%): **57**

III. Misc.

Crown Width (ft):	**16**
Crown Type:	**Earthen**
Tree Hazard:	**No trees on site**
Bank Protection Type:	**Size Riprap**
Bank Protection Location:	**Toe**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: Cracking erosion along the levee bank. Erosion appears to be caused by river flows.

Front view of the erosion site

Front view of the erosion. Note the notches caused by the cracking

Front view of the site.

LMA:	**RD0524 U01 Middle Roberts Island**
Waterway:	**LB San Joaquin River**
Site ID:	**RD0524U01RM46.12**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.87788	**-121.33255**	**46.12**	**5.65**	**M**

I. Site Feature *WS - Waterside

Length (ft):	**30**
Scarp Height (ft):	**3**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**1/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Inside of Bend**
Radius of Curvature(Rc/W):	**5.00**

II. Criteria

	Score:	Weighted Score:	
Length (ft):	**1**	x2	**2**
Scarp Height (ft):	**2**	x3	**6**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**2**	x2	**4**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**1**	x3	**3**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**1**	x1	**1**

Total Score (out of 91): 46

Normalized Score (out of 100%): **51**

III. Misc.

Crown Width (ft):	**16**
Crown Type:	**Earthen**
Tree Hazard:	**No trees on site**
Bank Protection Type:	**Size Riprap**
Bank Protection Location:	**Slope**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: No signficant changes observed on site.
09/07/2010: No signficant changes observed on site. Erosion site is located beneath Howard Road Bridge. Majority of the existing rip rap has slipped, dragging away levee materials and exposing the underlying soft soil.
08/06/2010: Recommend for annual assessment and monitoring during flood events, per CLRO.
09/30/2009: No major changes observed since the last visit; upper portion of existing revetment has slipped, exposing the degrading bank; note that site # is the same as RM46.30, LM5.69 found in the CLRO CES Evaluation 2008 Report; site was previously rated "M".
11/04/2008: Previously repaired using rock revetment; upper portion of th revetment is sliding, causing deformation on the levee slope; site is upstream of Howards Road Bridge.

Sloughing rip rap just below the Howard Bridge abutment.

Sloughing rip rap adjacent to Howard Bridge.

Upstream view of sloughing rip rap.

LMA:	**RD0544 U01 Upper Roberts Island**
Waterway:	**LB San Joaquin River**
Site ID:	**RD0544U01RM47.12**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.86482	**-121.3272**	**47.12**	**0.43**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**200**
Scarp Height (ft):	**4**
Location of Erosion:	**Toe & Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**Signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Outside of Bend < 90 deg**
Radius of Curvature(Rc/W):	**3.10**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**3**	x2	**6**
Scarp Height (ft):	**2**	x3	**6**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**1**	x2	**2**
WS Burrow Hole Activity:	**5**	x1	**5**
WS Levee Slope (H:V):	**2**	x3	**6**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**5**	x1	**5**
Radius of Curvature(Rc/W):	**2**	x1	**2**

Total Score (out of 91): 62

Normalized Score (out of 100%): **68**

III. Misc.

Crown Width (ft):	**16**
Crown Type:	**Earthen**
Tree Hazard:	**Trees on site and with visible roots**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: No significant changes observed on site.
09/07/2010: No significant changes observed on site. There are minor pockets of erosion lining the lower slope and undermining of the toe. There are annual grasses and emergent vegetation at the lower slope. Burrow holes were observed along the slope and persist throughout the 200-foot long site.
08/05/2010: Recommended for annual assessment and monitoring during flood events, per CLRO.
09/30/2009: No major change observed since last visit; despite dense vegetation, the bank contiues to erode and slough; the levee toe is being undermined; note the tree on site; the site was previously rated "U".
10/21/2008: Undermining of the levee toe; rodent holes in several location; trees with roots partially exposed; sloughing on slope.

Downstream view of the site where a 4-foot vertical scarp has occurred.

Upstream view of the site where undermining of the slope has occurred.

Front view of the site.

LMA:	**RD2031 U01 Elliot**
Waterway:	**LB Stanislaus River**
Site ID:	**RD2031U01RM0.48**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.70474	**-121.15914**	**0.48**	**0.48**	M

I. Site Feature *WS - Waterside

Length (ft):	**150**
Scarp Height (ft):	**5**
Location of Erosion:	**Toe & Slope**
WS Berm Width (ft):	**10**
WS Vegetation:	**1/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Clay (CL, CH, SC, GC)**
Site Relative to Bend:	**Outside of bend > 90 deg**
Radius of Curvature(Rc/W):	**5.90**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**3**	x2	**6**
Scarp Height (ft):	**2**	x3	**6**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**4**	x1	**4**
WS Vegetation:	**2**	x2	**4**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**1**	x3	**3**
WS Soil Type:	**3**	x4	**12**
Site Relative to Bend:	**3**	x1	**3**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 43

Normalized Score (out of 100%): 47

III. Misc.

Crown Width (ft):	**16**
Crown Type:	**Earthen**
Tree Hazard:	**Trees on site and with visible roots and leaning**
Bank Protection Type:	**Broken Concrete**
Bank Protection Location:	**Slope**
Survey Date:	**8/18/2011**
Comments:	

08/18/2011: No significant changes observed on site. Debris that blocks the irrigation outlet visible.
10/19/2010: No significant changes observed on site. Sloughing of the bank is occurring adjacent to an irrigation outlet structure. There is moderate to heavy vegetation along the bank that is well established. Broken chunks and slabs of concrete are used as rip rap and line the outside of the irrigation outlet structure. However, much of the rip rap along the slope is sloughing and could possibly lead to future slope instability.
08/05/2010: Recommended as a local maintenance issue, per CLRO.
08/20/2009: No major change observed since last visit; 1 inch fissure cracks developing on the slope; rip rap is showing signs of sloughing; recommend as local maintenance issue; site was previously rated "U".
2008: No change from previous year; irrigation outlet located on site; rip rap placed on river bank.
09/06/2007: Near agricultural diversion; only 3' landside height differential.

Looking downstream of the site.

Looking downstream of the site. The irrigation outlet operating. Debris at the outlet visible

View of the current condition of the levee slope just above the irrigation outlet.

Downstream view of the site.

LMA:	**RD2031 U02 Elliot**
Waterway:	**RB San Joaquin River**
Site ID:	**RD2031U02RM78.7**
Status:	**Not Rated**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.631716	**-121.18937**	**78.70**	**4.35**	

I. Site Feature *WS - Waterside

Length (ft):	**200**
Scarp Height (ft):	**10**
Location of Erosion:	**On berm**
WS Berm Width (ft):	**100**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**Signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Outside of bend > 90 deg**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	**16**
Crown Type:	**Gravel**
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/18/2011**
Comments:	

08/18/2011: No significant changes observed on the site. Dead trees and animal activities visible. The closest point of the erosion site to the levee toe is about 100 ft.
10/19/2010: There is active scouring occurring on the bank due to the nature of the flow and the lack of armor protection. There is also a fallen log immediately downstream of where the erosion has occurred and is protruding outward, possibly creating an eddy and scouring the bank. With the remaining 100-foot wide berm, the levee prism is not yet affected. However, the bank will continue to degrade, and eventually intrude into the levee prism if no protection is put in place. Erosion site is recommended for annual assessment and monitoring during flood events.

From the berm looking upstream. This the closest point to the levee toe.

Upstream view of adjacent bank affected by erosion. The loose sand visible on the site.

Looking downstream. The starting point of the protection visible.

A close look of the erosion. The loose sandy material visible.

LMA:	**RD2058 U01 Pescadero**
Waterway:	**LB Paradise Cut**
Site ID:	**RD2058U01RM1.78**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.803769	**-121.386341**	**1.78**	**2.15**	M

I. Site Feature *WS - Waterside

Length (ft):	**20**
Scarp Height (ft):	**5**
Location of Erosion:	**Upper 1/2 Slope**
WS Berm Width (ft):	**25**
WS Vegetation:	**No Ground Coverage**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**1**	x2	**2**
Scarp Height (ft):	**2**	x3	**6**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**1**	x1	**1**
WS Vegetation:	**3**	x2	**6**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**1**	x3	**3**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**1**	x1	**1**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 44

Normalized Score (out of 100%): 48

III. Misc.

Crown Width (ft):	**24**
Crown Type:	**Gravel**
Tree Hazard:	**No trees on site**
Bank Protection Type:	**Broken Concrete**
Bank Protection Location:	**Berm**
Survey Date:	**9/2/2011**
Comments:	

09/02/2011: Site was not visited due to the time limit.
09/22/2010: No significant changes observed. Vegetation downstream, upstream and on the lower slope of the site have been recently sprayed. These areas were also fenced off during the site visit, making it difficult for us to examine the condition of the lower slope. Possible leak or spill from the siphon breaker is creating notches along the slope and devloping into a headward erosion. If the problem continues, it will erode the slope and fully expose the pipe to outside elements.
07/23/2009: A possible leak or spill from a siphon breaker is eroding the slope and developing into a headward erosion; a portion of the buried pipe is exposed; the lower slope seems to be lined with chunks of concrete debris or other rock material.

Downstream view of site. Note the fenced area

Direct view of siphon breaker.

Direct view of siphon breaker.

Notches created by water leaking/overflowing from the siphon breaker.

LMA:	**RD2058 U01 Pescadero**
Waterway:	**LB Paradise Cut**
Site ID:	**RD2058U01RM3.97**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.78981	**-121.35249**	**3.97**	**4.51**	**M**

I. Site Feature *WS - Waterside

Length (ft):	**200**
Scarp Height (ft):	**5**
Location of Erosion:	**On berm**
WS Berm Width (ft):	**10**
WS Vegetation:	**1/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Inside of Bend**
Radius of Curvature(Rc/W):	**5.20**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**3**	x2	**6**
Scarp Height (ft):	**2**	x3	**6**
Location of Erosion:	**1**	x1	**1**
WS Berm Width (ft):	**4**	x1	**4**
WS Vegetation:	**2**	x2	**4**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**1**	x3	**3**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 44

Normalized Score (out of 100%): **48**

III. Misc.

Crown Width (ft):	**15**
Crown Type:	**Gravel**
Tree Hazard:	**Trees on site and with visible roots**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**9/2/2011**
Comments:	

09/02/2011: This site was not visited due to the time limit.
09/22/2010: No significant changes observed. Minor pocket erosions are lined at the lower bank. Upper slope and bench were recently sprayed for vegetation control. Two large Oak and Willow trees are on midslope and bench. The remaining bench was re-measured and found to be approximately 10 feet. There was no indication of active erosion on site during the site visit.
08/05/2010: Recommended for annual assessment and monitoring of site during flood events, per CLRO.
07/23/2009: No major change observed since last visit; site is a 200-ft. long near-vertical berm erosion; recommend annual assessment and monitoring of erosion site, per CLRO CES Evaluation 2008 Report; Site # is the same site previously reported as RM4.0,LM4.51; previously rated "U".
09/10/2008: Two large trees (2-3' DBH) with partial roots exposed.
2007: Visited site 03/13/2007.

Downstream view. Seasonal vegetation covering one of several pocket erosions lined along the bank.

Upstream view of the base of 1 of 2 large Oake trees on site. No signs of scouring on the base.

Upstream view of both Oak trees located on the bench.

Upstream view of the waterside slope. Vegetation on the slope was recently sprayed.

LMA:	**RD2062 U01 Stewart**
Waterway:	**LB San Joaquin River**
Site ID:	**RD2062U01RM54.14**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.80408	**-121.31406**	**54.14**	**0.91**	**M**

Front view of the erosion

Front view of the rip rap

I. Site Feature *WS - Waterside

Length (ft):	**15**
Scarp Height (ft):	**4**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Inside of Bend**
Radius of Curvature(Rc/W):	**2.10**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**1**	x2	**2**
Scarp Height (ft):	**2**	x3	**6**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**1**	x2	**2**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**1**	x3	**3**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**3**	x1	**3**

Total Score (out of 91): 46

Normalized Score (out of 100%): **51**

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**Broken Concrete**
Bank Protection Location:	**Slope**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: No signficant changes observed on site. Vegetation on the slope. There is a bridge construction site just upstream of the erosion. The impact of the construction may need to be monitored.
09/07/2010: No signficant changes observed on site. Sloughing of the existing rip rap revetment on the lower slope has developed into an erosion pocket. There is moderate annual grass growth on the slope.
08/06/2010: Recommended as local maintenance issue, per CLRO.
03/09/2010: Per Michael Moncrief of MBK, site is scheduled for repair this year.
2009: Landside ground surface has been raised to the height of the levee crown; sloughing of the existing rip rap revetment on the lower slope that has created a pocket, exposing underlying soil; Site # is the same RM54.34,LM1.08; previously rated "M".
2006: Previously marked with stake.

LMA:	**RD2062 U01 Stewart**
Waterway:	**LB San Joaquin River**
Site ID:	**RD2062U01RM55.57**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.79312	**-121.30811**	**55.57**	**2.25**	

I. Site Feature *WS - Waterside

Length (ft):	**100**
Scarp Height (ft):	**3**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**25**
WS Vegetation:	**Ground surrounding site fully covere**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Inside of Bend**
Radius of Curvature(Rc/W):	**1.90**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**Broken Concrete**
Bank Protection Location:	**Slope**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: No new erosion activity visible. The site is removed from the watchlist.
09/07/2010: After further review of site, it will be removed from the inventory. Erosion is minimal. There is sufficient berm to provide levee protection. Annual vegetation also provides added protection.
08/06/2010: Recommended for annual assessment and monitoring during flood events, per CLRO.
03/09/2010: As discussed with Michael Moncrief of MBK, site will be removed from list; there is wide berm with thick vegetation.
2009: Not visited; portion of the rip rap has slipped ,leaving an exposed section; there is dense vegetation surrounding site; landside ground surface has been raised to height of levee crown; Site # same as RM55.75,LM2.25; previously rated "U".
09/14/2006: Pocket erosion approximately 0.3-0.4 miles downstream from SPRR Bridge.

Downstream view of site. Note the wide bench.

Downstream view of site.

Photograph taken in 2006. Close up view of scarp just above the lower slope revetment.

Photograph taken in 2006. Front view of scarp above the lower slope revetment.

LMA:	**RD2062 U02 Stewart**
Waterway:	**RB Paradise Cut**
Site ID:	**RD2062U02RM1.94**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.805422	**-121.383173**	**1.94**	**3.48**	**M**

I. Site Feature *WS - Waterside

Length (ft):	**500**
Scarp Height (ft):	**1**
Location of Erosion:	**Levee Toe**
WS Berm Width (ft):	**30**
WS Vegetation:	**No Ground Coverage**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**3:1 or greater**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**5**	x2	**10**
Scarp Height (ft):	**1**	x3	**3**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**1**	x1	**1**
WS Vegetation:	**3**	x2	**6**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**1**	x1	**1**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 46

Normalized Score (out of 100%): **51**

III. Misc.

Crown Width (ft):	**16**
Crown Type:	**Earthen**
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**9/2/2011**
Comments:	

09/02/2011: No significant changes observed on site from the previous visit.
09/22/2010: No significant changes observed on site. The foot-high near-vertical scarp still exists on levee toe. There is little to no vegetation on the slope.
03/09/2010: As discussed with Michael Moncrief of MBK, site will be addressed this year.
07/27/2009: 1 to 2 feet of near-vertical scarp on levee toe; damage was most likely caused by farming equipment during clearing or tilling operation; this is a maintenance-related issue.

Downstream view of site. Note the vertical scarp at the toe.

Direct view of site.

Upstream view of site.

Upstream view of site.

LMA:	RD2062 U02 Stewart
Waterway:	RB Paradise Cut
Site ID:	RD2062U02RM2.14
Status:	Existing Site

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.804604	-121.379454	2.14	3.27	M

I. Site Feature *WS - Waterside

Length (ft):	50
Scarp Height (ft):	2
Location of Erosion:	Levee Toe
WS Berm Width (ft):	30
WS Vegetation:	No Ground Coverage
WS Burrow Hole Activity:	No signs of activity
WS Levee Slope (H:V):	3:1 or greater
WS Soil Type:	Silt (ML)
Site Relative to Bend:	Straight Reach
Radius of Curvature(Rc/W):	0.00

II. Criteria

	Score:	Weighted Score:	
Length (ft):	1	x2	2
Scarp Height (ft):	1	x3	3
Location of Erosion:	5	x1	5
WS Berm Width (ft):	1	x1	1
WS Vegetation:	3	x2	6
WS Burrow Hole Activity:	0	x1	0
WS Levee Slope (H:V):	0	x3	0
WS Soil Type:	5	x4	20
Site Relative to Bend:	1	x1	1
Radius of Curvature(Rc/W):	0	x1	0

Total Score (out of 91): 38

Normalized Score (out of 100%): 42

III. Misc.

Crown Width (ft):	16
Crown Type:	Earthen
Tree Hazard:	No trees on site
Bank Protection Type:	None
Bank Protection Location:	None
Survey Date:	9/2/2011

Comments:

09/02/2011: : No significant changes observed on site from last visit.
09/22/2010: No significant changes observed on site. The fencing located on the berm was removed. Levee slope and berm area 10 feet from the levee toe are bare of any vegetation. The 1- to 2 feet of near-vertical scarp on the levee toe is unchanged.
03/09/2010: As discussed with Michael Moncrief of MBK Engineer, the district will address the site this year.
7/27/2009: 1 to 2 feet of near-vertical scarp on the levee toe; damage was most likely caused by agricultural equipment during clearing or tilling operation; this is a maintenance-related issue.

Downstream view of scarp caused by a maintenance equipment.

Upstream view of scarp.

Upstream view of site.

Downstream view of site.

LMA:	RD2062 U03 Stewart
Waterway:	LB Old River
Site ID:	RD2062U03RM29.93
Status:	New Site

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.809673	-121.390321	29.93	0.02	U

I. Site Feature *WS - Waterside

Length (ft):	450
Scarp Height (ft):	4
Location of Erosion:	Levee Toe
WS Berm Width (ft):	0
WS Vegetation:	1/3 of ground covered
WS Burrow Hole Activity:	No signs of activity
WS Levee Slope (H:V):	2:1
WS Soil Type:	Silt (ML)
Site Relative to Bend:	Straight Reach
Radius of Curvature(Rc/W):	0.00

II. Criteria

	Score:		Weighted Score:
Length (ft):	5	x2	10
Scarp Height (ft):	3	x3	9
Location of Erosion:	5	x1	5
WS Berm Width (ft):	5	x1	5
WS Vegetation:	2	x2	4
WS Burrow Hole Activity:	0	x1	0
WS Levee Slope (H:V):	2	x3	6
WS Soil Type:	5	x4	20
Site Relative to Bend:	1	x1	1
Radius of Curvature(Rc/W):	0	x1	0

Total Score (out of 91): 60

Normalized Score (out of 100%): 66

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	Trees on site
Bank Protection Type:	Size Riprap
Bank Protection Location:	Toe
Survey Date:	8/23/2011
Comments:	

08/23/2011: Site is at the upstream of a drainage ditch.

Front view of erosion at the most upstream of the site

Front view of the erosion

Upstream view of the erosion near the end of the site

Front view of the erosion. Note the dense vegetation.

LMA:	RD2062 U03 Stewart
Waterway:	LB Old River
Site ID:	RD2062U03RM30.02
Status:	New Site

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.810052	-121.388847	30.02	0.1	M

I. Site Feature *WS - Waterside

Length (ft):	40
Scarp Height (ft):	3
Location of Erosion:	Levee Toe
WS Berm Width (ft):	0
WS Vegetation:	2/3 of ground covered
WS Burrow Hole Activity:	No signs of activity
WS Levee Slope (H:V):	2:1
WS Soil Type:	Silt (ML)
Site Relative to Bend:	Straight Reach
Radius of Curvature(Rc/W):	0.00

II. Criteria

	Score:		Weighted Score:
Length (ft):	1	x2	2
Scarp Height (ft):	2	x3	6
Location of Erosion:	5	x1	5
WS Berm Width (ft):	5	x1	5
WS Vegetation:	1	x2	2
WS Burrow Hole Activity:	0	x1	0
WS Levee Slope (H:V):	2	x3	6
WS Soil Type:	5	x4	20
Site Relative to Bend:	1	x1	1
Radius of Curvature(Rc/W):	0	x1	0

Total Score (out of 91): 47

Normalized Score (out of 100%): 52

III. Misc.

Crown Width (ft):	
Crown Type:	Earthen
Tree Hazard:	Trees on site
Bank Protection Type:	Size Riprap
Bank Protection Location:	Slope
Survey Date:	8/23/2011
Comments:	

08/23/2011: Hard to view the erosion because of the dense vegetation and trees on site. The site is under the bush, close to the tree.

Downstream view of the site

Downstream view of the site

Front view of the site. Note the vegetation and trees on site

Front view of the site

LMA:	**RD2062 U03 Stewart**
Waterway:	**LB Old River**
Site ID:	**RD2062U03RM30.1**
Status:	**New Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.810468	**-121.387492**	**30.10**	**0.18**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**20**
Scarp Height (ft):	**4**
Location of Erosion:	**Levee Toe**
WS Berm Width (ft):	**0**
WS Vegetation:	**1/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**1**	x2	**2**
Scarp Height (ft):	**3**	x3	**9**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**2**	x2	**4**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**2**	x3	**6**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**1**	x1	**1**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 52

Normalized Score (out of 100%): **57**

III. Misc.

Crown Width (ft):	
Crown Type:	**Earthen**
Tree Hazard:	**No trees on site**
Bank Protection Type:	
Bank Protection Location:	**Toe**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: The protection at the levee toe has been washed away.

Direct view of the site. The erosion is vertical

Front view of the erosion

Front view of the erosion

Front view of the site. Note the protection downstream of the erosion

LMA:	**RD2062 U03 Stewart**
Waterway:	**LB Old River**
Site ID:	**RD2062U03RM30.19**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.810609	**-121.385879**	**30.19**	**0.27**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**475**
Scarp Height (ft):	**4**
Location of Erosion:	**Toe & Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**Signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**5**	x2	**10**
Scarp Height (ft):	**3**	x3	**9**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**1**	x2	**2**
WS Burrow Hole Activity:	**5**	x1	**5**
WS Levee Slope (H:V):	**2**	x3	**6**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**1**	x1	**1**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 63

Normalized Score (out of 100%): **69**

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**Trees on site**
Bank Protection Type:	**Size Riprap**
Bank Protection Location:	**Toe**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: No signficant changes observed on site. Dense vegetation visible along the water line.
09/07/2010: No signficant changes observed on site. Much of the upper slope was recently cleared of vegetation by spraying. 4- to 6-foot vertical scarp and pocket erosions are lined along a span of 475 feet. In some sections, the vertical scarp encroaches into the levee prism. There is a lack of berm along this reach, exposing the levee slope to high flow velocities during normal and flood events.
08/06/2010: Recommended as local maintenance issue, per CLRO.
03/09/2010: As discussed with Michael Moncrief of MBK Engineers, the site will be 'addressed' later this year.
09/29/2009: No major change observed since last visit; pocket erosion and a vertical scarp forming; this site was combined with Site RM30.13 and 30.02 with a combined total erosion length of 475 feet; recommended as annual assessment and monitoring of site, per CLRO CES Evaluation 2008 Report; previously rated "M".
11/05/2008: Top of vertical scarp has rip rap that appears to be sliding; rodent holes; existing toe rip rap.

Downstream view of the 5-ft vertical scarp .

Another view of the same 5-ft scarp.

Front view of the site with dense vegetation.

Front view of the site with dense vegetation

LMA:	**RD2062 U03 Stewart**
Waterway:	**LB Old River**
Site ID:	**RD2062U03RM30.27**
Status:	**New Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.811281	**-121.384461**	**30.27**	**0.35**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**16**
Scarp Height (ft):	**4**
Location of Erosion:	**Levee Toe**
WS Berm Width (ft):	**0**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Immediately Downstream of Bend**
Radius of Curvature(Rc/W):	**2.59**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**1**	x2	**2**
Scarp Height (ft):	**2**	x3	**6**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**1**	x2	**2**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**2**	x3	**6**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**2**	x1	**2**
Radius of Curvature(Rc/W):	**3**	x1	**3**

Total Score (out of 91): 51

Normalized Score (out of 100%): **56**

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**Trees on site**
Bank Protection Type:	
Bank Protection Location:	**Toe**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: The site is right at the downstream of a river bend.

Direct view of the erosion. Note the broken concrete near the site.

downstream view of the site

Front view of the erosion. Note the protection at the upstream of the site.

Front view of the site

LMA:	**RD2062 U03 Stewart**
Waterway:	**LB Old River**
Site ID:	**RD2062U03RM30.43**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.81307	**-121.3831**	**30.43**	**0.56**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**30**
Scarp Height (ft):	**4**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**Signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Inside of Bend**
Radius of Curvature(Rc/W):	**1.90**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**1**	x2	**2**
Scarp Height (ft):	**2**	x3	**6**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**1**	x2	**2**
WS Burrow Hole Activity:	**5**	x1	**5**
WS Levee Slope (H:V):	**2**	x3	**6**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**4**	x1	**4**

Total Score (out of 91): 55

Normalized Score (out of 100%): **60**

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**Broken Concrete**
Bank Protection Location:	**Slope**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: No significant changes observed on site.
09/07/2010: No significant changes observed on site. Much of the placed rip rap revetment has slid. It is no longer adequately protecting the slope.
08/06/2010: Recommended as local maintenance issue, per CLRO Report.
03/09/2010: As discussed with Michael Moncrief of MBK, site will be 'addressed' this year.
09/29/2009: No major change observed since last visit; a section of the rip rap has slipped, exposing a levee section that has eroded; recommended as local maintenance issue, per CLRO CES Evaluation 2008 Report; Site # is the same as RM30.43,LM0.63; previously rated "U".
11/05/2008: Site is located inside of a bend; scarp looks to be into the levee prism; piles of concrete chunks placed on the slope, with some of them already starting to slide.

Upstream view of the site.

Front view of the site. Previously placed rip rap slipped, exposing the underlaying soils and creating a pocket.

Front view of the site. Rip rap no longer adequately protecting levee slope.

Downstream view of the site.

LMA:	**RD2062 U03 Stewart**
Waterway:	**LB Old River**
Site ID:	**RD2062U03RM31.12**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.81929	**-121.37888**	**31.12**	**1.2**	**M**

I. Site Feature *WS - Waterside

Length (ft):	**30**
Scarp Height (ft):	**2**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**Ground surrounding site fully covere**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Outside of Bend < 90 deg**
Radius of Curvature(Rc/W):	**1.80**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**1**	x2	**2**
Scarp Height (ft):	**1**	x3	**3**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**1**	x3	**3**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**5**	x1	**5**
Radius of Curvature(Rc/W):	**4**	x1	**4**

Total Score (out of 91): 47

Normalized Score (out of 100%): 52

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**Broken Concrete**
Bank Protection Location:	**Toe**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: No significant changes observed on site.
09/07/2010: No significant changes observed on site. Much of the seasonal grass along the slope was cleared. Site consists of an existing scalloped erosion approximately 30 feet long by 5 feet wide at its widest opening. The lateral crack is extended outwards along the middle slope. There is a 1 to 2 feet of differential settlement that could further develop into a shallow slide.
08/06/2010: Recommended as local maintenance issue, per CLRO.
03/09/2010: As discussed with Michael Moncrief of MBK Engineer, site will be 'addressed' this year.
09/28/2009: No major change observed; section of rip rap has slipped, creating a terraced effect; dense vegetation growth; recommended as a local maintenance issue, per CLRO CES Evaluation 2008 Report; Site # is the same as RM31.12,LM1.25; previously rated "U".
09/14/2006: 1-2' into prism.

Front view of the site. Existing scalloped erosion is immediately downstream of rip rap section.

Upstream view of the site

Front view of the site. Note the lateral crack along the middle slope

Front view of the site just above existing rip rap.

LMA:	**RD2062 U03 Stewart**
Waterway:	**LB Old River**
Site ID:	**RD2062U03RM31.28**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.82138	**-121.3769**	**31.28**	**1.42**	M

I. Site Feature *WS - Waterside

Length (ft):	**30**
Scarp Height (ft):	**2**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Inside of Bend**
Radius of Curvature(Rc/W):	**2.70**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**1**	x2	**2**
Scarp Height (ft):	**1**	x3	**3**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**1**	x2	**2**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**1**	x3	**3**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**3**	x1	**3**

Total Score (out of 91): 43

Normalized Score (out of 100%): 47

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**Trees on site and with visible roots and leaning**
Bank Protection Type:	**Broken Concrete**
Bank Protection Location:	**Slope**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: No signficant changes observed on site.
09/07/2010: No signficant changes observed on site. There is a small- to medium sized Oak tree on the mid-slope just above rip rap. Some of the rip rap has collapsed, creating a pocket erosion just above the existing toe rip rap and upstream of the Oak tree.
08/06/2010: Recommended as local maintenance issue, per CLRO.
03/09/2010: As discussed with Michael Moncrief of MBK Engineer, site will be 'adressed' in 2010.
09/29/2009: No major change since last visit; sliding of the rip rap at the base of the lone tree; there is noticeable man-made trail and foot traffic extending from the crown to the toe; much of the broken concrete used as temporary rip rap has slid, exposing portion of the bare levee slope; recommended as local maintenance issue, per CLRO CES Evaluation 2008 Report; Site # is the same as RM31.3,LM1.45; previously rated "M".
11/05/2008: Portion of rip rap collapsing.
09/14/2006: Portion of rip rap along the slope has collapsed; exposed levee section is starting to erode, exposing roots from the nearby tree.

Upstream view of the site where a small to medium sized Oak tree is located.

A closer look of the site

Front view of the site. Note existing broken concrete on the upper slope as well as on the lower slope and at the toe.

Downstream view of the site.

LMA:	**RD2063 U01 Crows Landing**
Waterway:	**RB San Joaquin River**
Site ID:	**RD2063U01RM103.49**
Status:	**Not Rated**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.442305	**-121.022727**	**103.49**	**3.16**	

I. Site Feature *WS - Waterside

Length (ft):	**1000**
Scarp Height (ft):	**25**
Location of Erosion:	**On berm**
WS Berm Width (ft):	**32**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	
WS Levee Slope (H:V):	**1.5:1**
WS Soil Type:	**Sand (SP, SM and mixtures)**
Site Relative to Bend:	**Outside of bend > 90 deg**
Radius of Curvature(Rc/W):	**3.93**

II. Criteria

	Score:	Weighted Score:	
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	
Crown Type:	**Earthen**
Tree Hazard:	**Trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**3/18/2011**
Comments:	

10/14/2011. This site was reported on Jan. 18. 2011. The first 100' of erosion appears to be a pervious cut with fresh activity. At station 2+00 the district president indicated that 60 - 80' of material eroded. The remainder berm width is at least 32 ft from the levee toe. As the levee is not at risk at this time, the site is not rated, but needs to be closely monitored for possible erosion failure during the upcoming flooding season.

Looking south from station 0+00. Image taken by Herman Phillips

Looking north from station 10+00. Image taken by Herman Phillips

Looking north at station 0+00. Image taken by Herman Phillips

Looking west at berm from station 1+00. Image taken by Herman Phillips

LMA:	**RD2063 U01 Crows Landing**
Waterway:	**RB San Joaquin River**
Site ID:	**RD2063U01RM105.5**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.44745	**-121.02609**	**105.50**	**2.72**	

I. Site Feature *WS - Waterside

Length (ft):	**7**
Scarp Height (ft):	**2**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**20**
WS Vegetation:	**1/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Clay (CL, CH, SC, GC)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	**16**
Crown Type:	**Earthen**
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/18/2011**
Comments:	

08/18/2011: No sign of new erosion activities observed on site.
10/20/2010: Site has been repaired by the district. Site was previously rated "M".
08/06/2010: Recommended as local maintenance issue, per CLRO.
2009: Note this site has not been reported to be repaired.
08/07/2007: sinkhole that is approximately 7'x7'x2'; rated "M".

Looking upstream of the site.

Looking upstream of the site . Vegetation developing

Looking downstream of the repaired site.

A close look of the repaired site

LMA:	**RD2075 U01 McMullin**
Waterway:	**RB San Joaquin River**
Site ID:	**RD2075U01RM64.34**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.727933	**-121.274491**	**64.34**	**5.34**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**75**
Scarp Height (ft):	**10**
Location of Erosion:	**Toe & Slope**
WS Berm Width (ft):	**10**
WS Vegetation:	**1/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Sand (SP, SM and mixtures)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**2**	x2	**4**
Scarp Height (ft):	**4**	x3	**12**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**4**	x1	**4**
WS Vegetation:	**2**	x2	**4**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**2**	x3	**6**
WS Soil Type:	**4**	x4	**16**
Site Relative to Bend:	**1**	x1	**1**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 52

Normalized Score (out of 100%): **57**

III. Misc.

Crown Width (ft):	**26**
Crown Type:	**Paved**
Tree Hazard:	**Trees on site and with visible roots and leaning**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/18/2011**
Comments:	

08/18/2011: No significant changes observed on site. Some new material added to the water side levee slope, but the added material is loose and seems not helping the levee protection.
10/05/2010: No significant changes observed on site. Levee slope has minimal vegetation and lacks rip rap protection. Sandy material found on the lower and middle slope is an undesirable material to have on a levee.
08/05/2010: Recommended for annual assessment and monitoring during flood events, per CLRO.
08/20/2009: No major change since last visit; site is located in an oxbow; slope surface consists of very sandy material; there is a tree on site leaning and with exposed tree roots; site is recommended as a local maintenance issue, per CLRO CES Evaluation 2008 Report; Eddy Cordoza from the district is aware of the site and is looking for recommendation; site is previously rated "U".
08/17/2007: Site is close to an irrigation pump inlet.

Looking upstream of the site towards the levee crown.

Looking up to the levee crown at the added material.

Looking upstream of the erosion site

Looking downstream from the added material to the levee

LMA:	**RD2089 U01 Stark**
Waterway:	**RB Old River**
Site ID:	**RD2089U01RM29.11**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.80553	**-121.4017**	**29.11**	**1.18**	

I. Site Feature *WS - Waterside

Length (ft):	**10**
Scarp Height (ft):	**5**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**3**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Inside of Bend**
Radius of Curvature(Rc/W):	**18.90**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**Size Riprap**
Bank Protection Location:	**Toe**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: Minor erosion activities are observed at the toe of the rip rap. Dense vegetation can block view for potential erosion.

09/07/2010: Site has been repaired. It appears that additional shot rock was placed on top of the exposed area, adding protection at the levee toe. Site was previously rated "M".
08/06/2010: Recommended as local maintenance issue, per CLRO.
2009: Existing revetment just above the toe is sloughing; site is recommended for local maintenance issue, per CLRO CES Evaluation 2008 Report; Site # is the same as RM29.10,LM1.10; previously rated "M".
10/20/2006: Toe slough; existing revetment.

A close view of the minor erosion activites.

Front view of the site.

Close view of the minor erosion activites.

Close view of the minor erosion activites.

LMA:	**RD2089 U01 Stark**
Waterway:	**RB Old River**
Site ID:	**RD2089U01RM29.61**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.80978	**-121.39623**	**29.61**	**0.66**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**20**
Scarp Height (ft):	**5**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**Signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Outside of bend > 90 deg**
Radius of Curvature(Rc/W):	**2.20**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**1**	x2	**2**
Scarp Height (ft):	**2**	x3	**6**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**1**	x2	**2**
WS Burrow Hole Activity:	**5**	x1	**5**
WS Levee Slope (H:V):	**2**	x3	**6**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**3**	x1	**3**
Radius of Curvature(Rc/W):	**3**	x1	**3**

Total Score (out of 91): 57

Normalized Score (out of 100%): **63**

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: The 5-foot vertical scarp shows no significant change from the last year inspection. No new ersion activities observed. Dense white willow trees on site.
09/07/2010: It was difficult to view the erosion due to the thick Willow thickets and other vegetation at the water line. At the time of the inspection, there were no signs of repair on site. As noted during the last survey, there is a 5-foot vertical scarp along the lower slope that may be subjected to high flow velocities.
08/05/2010: Recommended for repair, per CLRO; "Erosion of this site may be subjective to rapid rates of erosion."
09/28/2009: No major change observed; 5-foot vertical scarp is immediately downstream of where berm has tapered; site is recommended as local maintenance issue, per CLRO CES Evaluation 2008 Report; Site # is the same as RM29.6,LM0.60; previously rated "U".
11/05/2008: No change observed; rodent holes on lower slope; wide levee crown.

Front view of the site. The scarp is visible on the slope.

Downstream view of the site. Note the very dense white willow thickets on site.

Front view of the site.

Front view of the site.

LMA:	**RD2089 U01 Stark**
Waterway:	**RB Old River**
Site ID:	**RD2089U01RM29.8**
Status:	**New Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.809394	**-121.392791**	**29.80**	**0.45**	**M**

I. Site Feature *WS - Waterside

Length (ft):	**4**
Scarp Height (ft):	**2**
Location of Erosion:	**Upper 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Inside of Bend**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**1**	x2	**2**
Scarp Height (ft):	**1**	x3	**3**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**1**	x2	**2**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**2**	x3	**6**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**5**	x1	**5**

Total Score (out of 91): 48

Normalized Score (out of 100%): **53**

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**Trees on site**
Bank Protection Type:	**Size Riprap**
Bank Protection Location:	**Slope**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: The site shows loose material around the pipe crossing. The operation of the pipe might have caused certain impact on the levee.

Front view of the site. Note the color of material around the pipe crossing.

Front view of the site

Front view of the site

Front view of the site

LMA:	**RD2089 U01 Stark**
Waterway:	**RB Old River**
Site ID:	**RD2089U01RM29.83**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.80953	**-121.39216**	**29.83**	**0.41**	

I. Site Feature *WS - Waterside

Length (ft):	**5**
Scarp Height (ft):	**2**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**Ground surrounding site fully covere**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**Size Riprap**
Bank Protection Location:	**Toe**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: Boat survey uncovered a 10-ft vertical scarp just upstream of the revetment. Vegetation and trees on site.

09/07/2010: Site appears to have been repaired by placing shot rock as rip rap protection. Note patches of seasonal grass on revetment. It is recommended that an inspection in the near future be conducted to verify the condition of the revetment. Site was previously rated "M".
08/06/2010: Recommended as local maintenance issue, per CLRO.
09/28/2009: Rock protection was recently placed along the upper slope; photographs need to be updated; site is recommended for annual assessment and monitoring of erosion site, per CLRO CES Evaluation 2008 Report; Site # is the same as RM29.84,LM0.30; previously rated "M".
11/05/2008: Two sites have been combined as one supersite; steep ws slope and downstream of a pump.
10/20/2006: Visited site 10/20/2006.

Upstream view of the scarp at the levee toe

upstream view of the scarp.

Front view of the repaired site.

LMA:	**RD2089 U01 Stark**
Waterway:	**RB Old River**
Site ID:	**RD2089U01RM29.95**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.81005	**-121.39026**	**29.95**	**0.3**	

I. Site Feature *WS - Waterside

Length (ft):	**50**
Scarp Height (ft):	**7**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**Signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:	Weighted Score:	
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**Size Riprap**
Bank Protection Location:	**Slope**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: No significant changes observed on site.
09/07/2010: Site appears to have been repaired by placing shot rock along the entire slope as revetment. Seasonal grasses growing over the placed revetment. Emergent vegetation at the lower slope that could possibly be covering the vertical scarp that was previously observed. It is recommended that another inspection be conducted to verify status of site. It was previously rated "U".
08/06/2010: Recommended as local maintenance issue, per CLRO.
09/28/2009: Rock revetment placed on the upper slope; however, vertical scarp still exists; site is recommended for annual assessment and monitoring of erosion site, per CLRO CES Evaluation 2008 Report; Site # is the same as RM29.95, LM0.22; previously rated "M".
11/05/2008: Pocket erosion with vertical scarp; loss of rip rap; mild vegetation growth since previous survey.
10/20/2006: Site visited on 10/20/2006.

Front view of the site.

Front view of the site.

Front view of the site.

Front view of the site.

LMA:	**RD2089 U01 Stark**
Waterway:	**RB Old River**
Site ID:	**RD2089U01RM30.02**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.81046	**-121.38887**	**30.02**	**0.22**	

I. Site Feature *WS - Waterside

Length (ft):	**5**
Scarp Height (ft):	**3**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**8**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:	Weighted Score:	
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**Trees on site**
Bank Protection Type:	**Size Riprap**
Bank Protection Location:	**Slope**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: No new erosion activities observed on site. Dense vegetation and trees are visible.
09/07/2010: Site appears to have been repaired by placing shot rock along the slope for revetment. There is an abundance of seasonal grass all along the upper and middle slopes. It is recommended that a second inspection be conducted to confirm status of site.
09/28/2009: Localized sloughing near the toe; rock protection has been added on the lower slope and toe; site is recommended for annual assessment and monitoring, per CLRO CES Evaluation 2008 Report; previously rated "M".
11/05/2008: Minor toe erosion.
10/20/2006: Site visited 10/20/2006.

Downstream view of the site. Thick vegetation found on the middle and upper slopes.

Downstream view of the site. Note existing toe revetment.

Front view of the site.

Downstream view of the site.

LMA:	RD2089 U02 Stark
Waterway:	RB Old River
Site ID:	RD2089U02RM28.35
Status:	Existing Site

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.80996	-121.4132	28.35	0.42	U

I. Site Feature *WS - Waterside

Length (ft):	60
Scarp Height (ft):	6
Location of Erosion:	Lower 1/2 Slope
WS Berm Width (ft):	0
WS Vegetation:	Ground surrounding site fully covere
WS Burrow Hole Activity:	Signs of activity
WS Levee Slope (H:V):	2.5:1
WS Soil Type:	Silt (ML)
Site Relative to Bend:	Inside of Bend
Radius of Curvature(Rc/W):	7.00

II. Criteria

	Score:		Weighted Score:
Length (ft):	2	x2	4
Scarp Height (ft):	4	x3	12
Location of Erosion:	5	x1	5
WS Berm Width (ft):	5	x1	5
WS Vegetation:	0	x2	0
WS Burrow Hole Activity:	5	x1	5
WS Levee Slope (H:V):	1	x3	3
WS Soil Type:	5	x4	20
Site Relative to Bend:	0	x1	0
Radius of Curvature(Rc/W):	0	x1	0

Total Score (out of 91): 54

Normalized Score (out of 100%): 59

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	Trees on site and with visible roots
Bank Protection Type:	Size Riprap
Bank Protection Location:	Slope
Survey Date:	8/23/2011
Comments:	

08/23/2011: No significant changes observed on site.
09/07/2010: Site consists of a jutting rip rap that has created an eddy, scouring the levee slope. Most sections of the toe and lower slope are lined with rip rap. However, the rip rap is sloughing on the mid slope and at the toe, exposing the underlaying soils and tree roots. The remaining revetment is no longer adequately protecting the slope. There are 3 Sycamore trees at the toe with exposed tree roots.
08/05/2010: Recommended for repair, per CLRO.
09/28/2009: Pocket erosion on lower slope just above the toe rip rap; protruding rip rap upstream is creating an eddy, scouring the levee slope; Site # is the same as RM28.40,LM0.30; previously rated "U"; pictures will be made available during the next survey.
11/05/2008: Cut into levee profile; riprap slide; rodent holes; pictures do not match GPS and current condition.

Upstream view of the site where minor erosion activites observed.

A closer look of the site with minor erosions.

A closer look of the site with minor erosions.

A closer look of the site with minor erosions.

LMA:	**RD2092 U01 Dos Rios**
Waterway:	**RB San Joaquin River**
Site ID:	**RD2092U01RM84.6**
Status:	**Repaired Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.58713	**-121.16283**	**84.60**	**1.62**	

I. Site Feature *WS - Waterside

Length (ft):	**750**
Scarp Height (ft):	**2**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**1000**
WS Vegetation:	**No Ground Coverage**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2.5:1**
WS Soil Type:	**Clay (CL, CH, SC, GC)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**0**	x2	**0**
Scarp Height (ft):	**0**	x3	**0**
Location of Erosion:	**0**	x1	**0**
WS Berm Width (ft):	**0**	x1	**0**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**0**	x4	**0**
Site Relative to Bend:	**0**	x1	**0**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 0

Normalized Score (out of 100%):

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**Trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/18/2011**
Comments:	

08/18/2011: This site was repaired. No new erosion visible.
11/30/2010: Site was not surveyed this year due to time constraints. There have been no reports from the district that this site was corrected.
08/05/2010: Recommended for annual assessment and monitoring during flood events, per CLRO.
08/25/2009: No major change since last visit; sloughing of the lower slope that's created a terraced effect; damage could be caused by wave action during an extended flooding; site is recommended as local maintenance issue, per CLRO CES Evaluation 2008 Report; previously rated "M".
08/09/2007: Not as serious - use lower rating.

Upstream view of the site looking from the levee crown.

Upstream view of the site

Downstream view of the site.

Close-in view of the repaired site.

LMA:	**RD2095 U01 Paradise Cut**
Waterway:	**LB Paradise Cut**
Site ID:	**RD2095U01RM6.74**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.76363	**-121.319**	**6.74**	**0.73**	**M**

I. Site Feature *WS - Waterside

Length (ft):	**50**
Scarp Height (ft):	**8**
Location of Erosion:	**On berm**
WS Berm Width (ft):	**10**
WS Vegetation:	**1/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**1**	x2	**2**
Scarp Height (ft):	**4**	x3	**12**
Location of Erosion:	**1**	x1	**1**
WS Berm Width (ft):	**4**	x1	**4**
WS Vegetation:	**2**	x2	**4**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**2**	x3	**6**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**1**	x1	**1**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 50

Normalized Score (out of 100%): **55**

III. Misc.

Crown Width (ft):	**24**
Crown Type:	**Gravel**
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**9/2/2011**
Comments:	

09/02/2011: No significant changes observed on site.
09/22/2010: No significant changes observed on site. There is now considerable vegetation at the water line and along the lower berm slope. However, the erosion on the lower berm slope is still present and has not been corrected.
08/06/2010: Recommended for local maintenance issue, per CLRO.
07/29/2009: No major change since last visit; noticeable vegetation growth; erosion is on berm, but if left untreated, it will eventually erode into levee prism; site is recommended for annual assessment and monitoring of site, per CLRO CES 2008 Report; Site # is the same sa RM6.80,LM0.73; previously rated "U".
07/22/2008: Downstream of WPRR near siphon pipe & pump; sandy levee; visited by Jeff Van Gilder and LRO in 2008 for repair assessment; scouring downstream of RxR crossing, possibly caused by eddy effects.
03/13/2007: Site visited on 03/13/2007.

Downstream view of the site.

Upstream view of the site looking from the RxR crossing.

Downstream view of the site from the RxR crossing

Downstream view of the site.

LMA:	**RD2095 U01 Paradise Cut**
Waterway:	**LB Paradise Cut**
Site ID:	**RD2095U01RM6.88**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.76196	**-121.31814**	**6.88**	**0.86**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**25**
Scarp Height (ft):	**7**
Location of Erosion:	**Lower 1/2 Slope**
WS Berm Width (ft):	**0**
WS Vegetation:	**Ground surrounding site fully covere**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**1.5:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Straight Reach**
Radius of Curvature(Rc/W):	**0.00**

II. Criteria

	Score:	Weighted Score:	
Length (ft):	**1**	x2	**2**
Scarp Height (ft):	**4**	x3	**12**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**3**	x3	**9**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**1**	x1	**1**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 54

Normalized Score (out of 100%): **59**

III. Misc.

Crown Width (ft):	**16**
Crown Type:	**Earthen**
Tree Hazard:	**Trees on site**
Bank Protection Type:	**Broken Concrete**
Bank Protection Location:	**Slope**
Survey Date:	**9/2/2011**
Comments:	

09/02/2011: No significant changes observed.
09/22/2010: No significant changes observed. Sloughing of the existing rip rap possibly due to a combination of steep slope and undesirable flood conditions.
08/06/2010: Recommended as local maintenance issue, per CLRO.
07/29/2009: No major change observed since last visit; near-vertical slope that has rip rap sloughing; site is recommended as a local maintenance issue, per CLRO CES Evaluation 2008 Report; Site # is the same as RM6.90,LM0.86; previously rated "U".
07/22/2008: Previous erosion site that is partially protected with concrete rubble; erosion scarp is adjacent to the sloughing rip rap.
03/13/2007: Site visited on 03/13/2007.

Direct view of the iste.

Downstream view of the site.

Upwnstream view of the site.

Upstream view of the site from upper slope.

LMA:	**RD2095 U02 Paradise Cut**
Waterway:	**LB San Joaquin River**
Site ID:	**RD2095U02RM60.62**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.740196	**-121.297662**	**60.62**	**1.78**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**150**
Scarp Height (ft):	**10**
Location of Erosion:	**On berm**
WS Berm Width (ft):	**20**
WS Vegetation:	**1/3 of ground covered**
WS Burrow Hole Activity:	**Signs of activity**
WS Levee Slope (H:V):	**3:1 or greater**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Outside of bend > 90 deg**
Radius of Curvature(Rc/W):	**5.70**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**3**	x2	**6**
Scarp Height (ft):	**5**	x3	**15**
Location of Erosion:	**1**	x1	**1**
WS Berm Width (ft):	**2**	x1	**2**
WS Vegetation:	**2**	x2	**4**
WS Burrow Hole Activity:	**5**	x1	**5**
WS Levee Slope (H:V):	**0**	x3	**0**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**3**	x1	**3**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 56

Normalized Score (out of 100%): **62**

III. Misc.

Crown Width (ft):	**16**
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: No signficant changes observed on the site.
9/22/2010: No signficant changes observed on site. There is moderate vegetation growth on the berm. Despite the erosion occurring on the berm, corrective action should be taken before the issue becomes severe.
9/29/2009: Site is immediately downstream of a section of existing rip rap; there is a 20-foot berm remaining; berm will continue to erode unless erosion is mitigated; Site# is the same as RM62.6, LM1.87; recommended for annual assessment, per CES Evaluation 2008 Report
2006: Visited 10/20/06

Front view of the site. Note dense vegetation on the berm.

Front view of the site.

Upstream view of the site.

Front view of the site.

LMA:	**RD2095 U02 Paradise Cut**
Waterway:	**LB San Joaquin River**
Site ID:	**RD2095U02RM60.69**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.73888	**-121.29826**	**60.69**	**1.87**	**M**

I. Site Feature *WS - Waterside

Length (ft):	**200**
Scarp Height (ft):	**5**
Location of Erosion:	**On berm**
WS Berm Width (ft):	**20**
WS Vegetation:	**2/3 of ground covered**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Silt (ML)**
Site Relative to Bend:	**Outside of bend > 90 deg**
Radius of Curvature(Rc/W):	**5.70**

II. Criteria

	Score:		Weighted Score:
Length (ft):	**3**	x2	**6**
Scarp Height (ft):	**2**	x3	**6**
Location of Erosion:	**1**	x1	**1**
WS Berm Width (ft):	**2**	x1	**2**
WS Vegetation:	**1**	x2	**2**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**2**	x3	**6**
WS Soil Type:	**5**	x4	**20**
Site Relative to Bend:	**3**	x1	**3**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 46

Normalized Score (out of 100%): **51**

III. Misc.

Crown Width (ft):	
Crown Type:	
Tree Hazard:	**No trees on site**
Bank Protection Type:	**Size Riprap**
Bank Protection Location:	**Slope**
Survey Date:	**8/23/2011**
Comments:	

08/23/2011: Dense vegetation makes it difficult to view the possible erosion. No new development was observed on site.
09/23/2010: At the time of the inspection, the erosion site was difficult to view from the levee. Erosion is located on the bank toe, below the existing rip rap. There were no signs of repair on site, nor has the site been reported to be repaired by the district. Images taken from last year indicate that existing rip rap at the bank toe has sloughed exposing the underlaying soils. Weakening of the toe could lead to future bank instability.
08/05/2010: Recommended for annual assessment and monitoring during flood events, per CLRO.
09/29/2009: No major change observed since last visit; sloughing of the rip rap above toe; erosion begins immedately downstream of existing rip rap revetment; roughly 15-foot berm remains; however, it will countinue to erode and eventually intrude into the levee profile if left untreated.
10/20/2006: Just upstream of where berm starts to widen.

Direct view of the erosion.Note dense vegetation on site

Front view of the erosion.

Direct view of the erosion.

A closer look at the site

LMA:	**RD2101 U01 Blewett**
Waterway:	**LB San Joaquin River**
Site ID:	**RD2101U01RM73.92**
Status:	**Existing Site**

Latitude:	Longitude:	River Mile:	Levee Mile:	Overall Rating:
37.650259	**-121.228961**	**73.92**	**1.95**	**U**

I. Site Feature *WS - Waterside

Length (ft):	**500**
Scarp Height (ft):	**17**
Location of Erosion:	**Toe & Beyond**
WS Berm Width (ft):	**0**
WS Vegetation:	**Ground surrounding site fully covere**
WS Burrow Hole Activity:	**No signs of activity**
WS Levee Slope (H:V):	**2:1**
WS Soil Type:	**Sand (SP, SM and mixtures)**
Site Relative to Bend:	**Immediately Downstream of Bend**
Radius of Curvature(Rc/W):	**7.90**

II. Criteria

	Score:	Weighted Score:	
Length (ft):	**5**	x2	**10**
Scarp Height (ft):	**5**	x3	**15**
Location of Erosion:	**5**	x1	**5**
WS Berm Width (ft):	**5**	x1	**5**
WS Vegetation:	**0**	x2	**0**
WS Burrow Hole Activity:	**0**	x1	**0**
WS Levee Slope (H:V):	**2**	x3	**6**
WS Soil Type:	**4**	x4	**16**
Site Relative to Bend:	**2**	x1	**2**
Radius of Curvature(Rc/W):	**0**	x1	**0**

Total Score (out of 91): 59

Normalized Score (out of 100%): **65**

III. Misc.

Crown Width (ft):	**16**
Crown Type:	**Earthen**
Tree Hazard:	**Trees on site**
Bank Protection Type:	**None**
Bank Protection Location:	**None**
Survey Date:	**8/18/2011**
Comments:	

08/18/2011: Erosion progressed significantly during the past flood season. The levee toe along the erosion site was washed away, and the erosion has cut the levee structure up to the point about 1/3 of the levee slope. The scarp height is approximatly 17 feet. Very dense vegetation on the site. Trees visible.
10/19/2010: No significant changes observed on site. Remaining levee berm topsoil is of silty sand mixture. Erosion is near the downstream transition. An eddy has formed, and has scoured away a 100-foot section of the bank, possibly encroaching into the levee prism. Vegetation on site includes willows, oak, and cotton wood located from the bench to the toe. On the landside are rows of corn crop.
08/05/2010: Recommended for Repair, per CLRO.
2009: Site recommended as annual assessment and monitoring if critical erosion site, per CLRO CES Evaluation 2008 Report; an eddy has formed, eroding bank and intruding into the levee prism; Site # is the same as RM76.3,LM1.89; previously rated "U".
08/30/2007: Recommended for short list of immediate repair sites; silty sand levee material.

Looking upstream from levee top. The tree at the water edge is the visible starting point of the erosion.

A close look at the erosion. The viewing point is about halp of the levee slope.

Looking downstream at the scour site. The erosion has developed to about 1/3 of the levee slope. The levee toe has been washed away.

Looking upstream at the scour site. The dense vegetation visible.

Appendix I: Supplemental Figures and Tables

The following figures supplement information contained in Sections 2 through 4 of the main report. In general, these figures present different ways of analyzing maintenance results such as plotting information separately for the Sacramento and San Joaquin river basins or plotting results by type of deficiency. Data shown in these figures and tables for the thirty-one LMAs that were not inspected in 2010 are from fall 2009 data as discussed in the body of this report.

2011 Levee Maintenance Inspections

- Figure I-1 shows the levee maintenance inspection ratings grouped by Sacramento River, San Joaquin River, and Miscellaneous basins
- Figure I-2 shows the changes in ratings grouped by basin.
- Figure I-3 shows the percentage of miles of levees with deficiencies in the total system for each type of rated items. Vegetation deficiencies make up the vast majority of the miles in all years. In 2011 erosion and animal control deficiencies were also significant contributor to the total length of levees with deficiencies.
- Figure I-4 shows the same information as Figure I-3 but is separated by basin. Encroachment issues rated as Partially or Completely Obstructing are not included in these figures.
- Table I-1 shows the length, in miles, of Minimally Acceptable (M) and Unacceptable (U) issues for each category in the total system and the percentage of the total project length along which these lengths occur. Also shown in this table is the change in M and U lengths as well as the resultant change in the percent of total project lengths. Tables I-2, I-3, and I-4 show similar information to Table I-1 but only contain the lengths for the Sacramento River, San Joaquin River, and Miscellaneous basins, respectively.
- Figures I-5 and I-6 are maps of the Sacramento and San Joaquin systems, showing the location and rating of each LMA. To find the general location of an LMA, refer to Plates A-1 through A-1D in Appendix A.

LMA Maintenance Rating Comparison by Basin

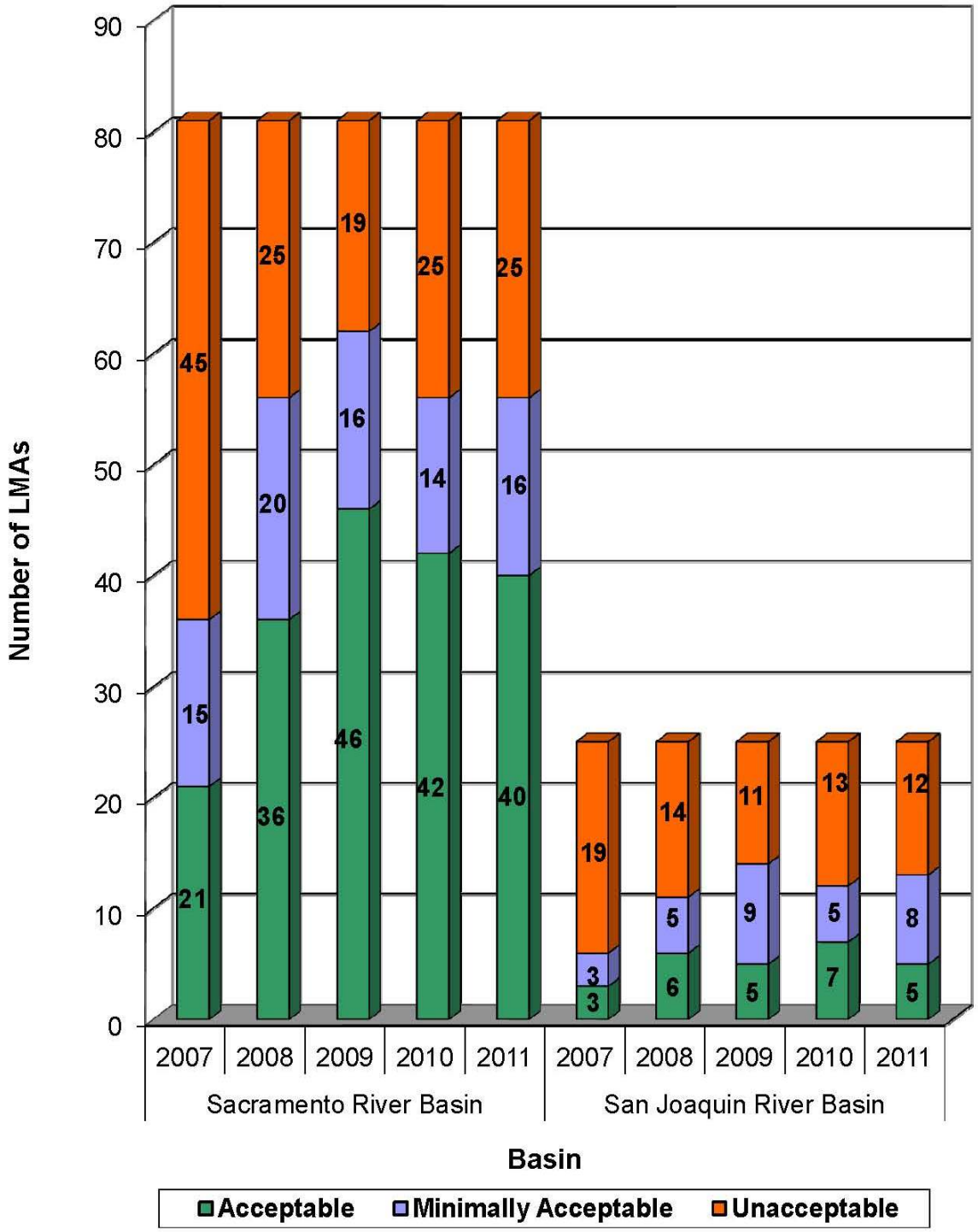

Figure I-1

LMA Maintenance Rating Changes from Fall 2007 to Fall 2011 by Basin

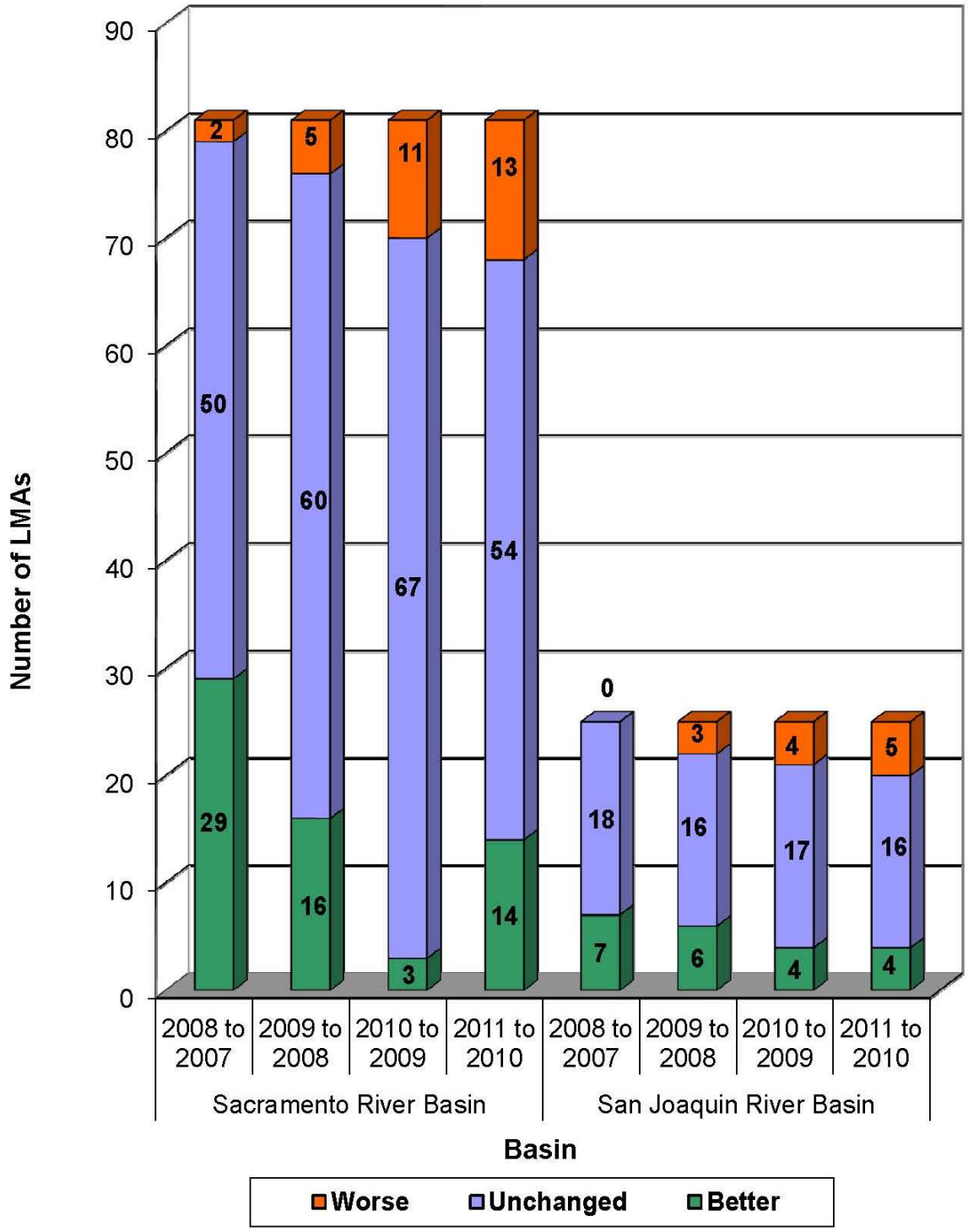

Figure I-2

Percentage of Total System Levee Miles with Maintenance Deficiencies

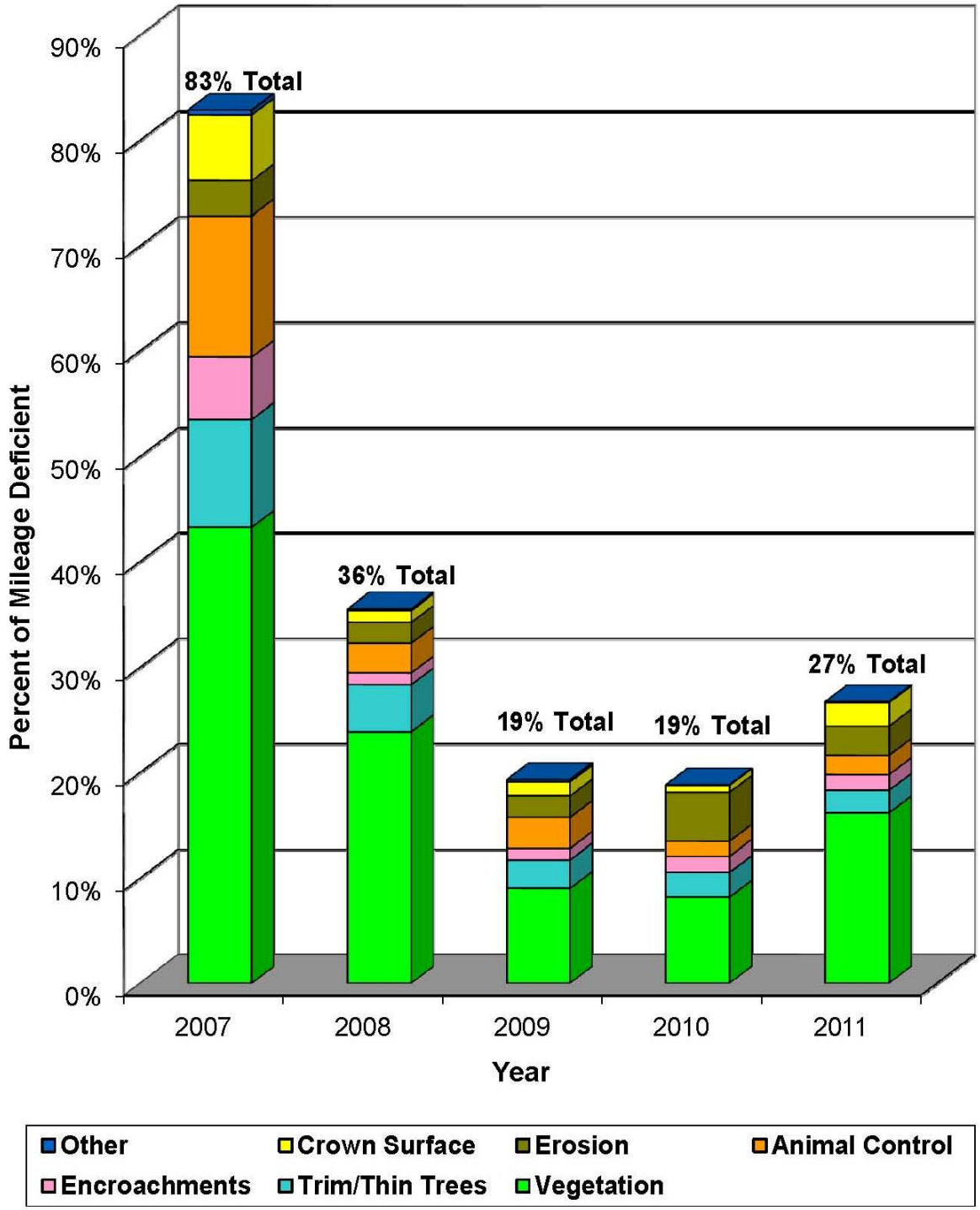

Figure I-3

Percentage of Levee Miles with Maintenance Deficiencies by Basin

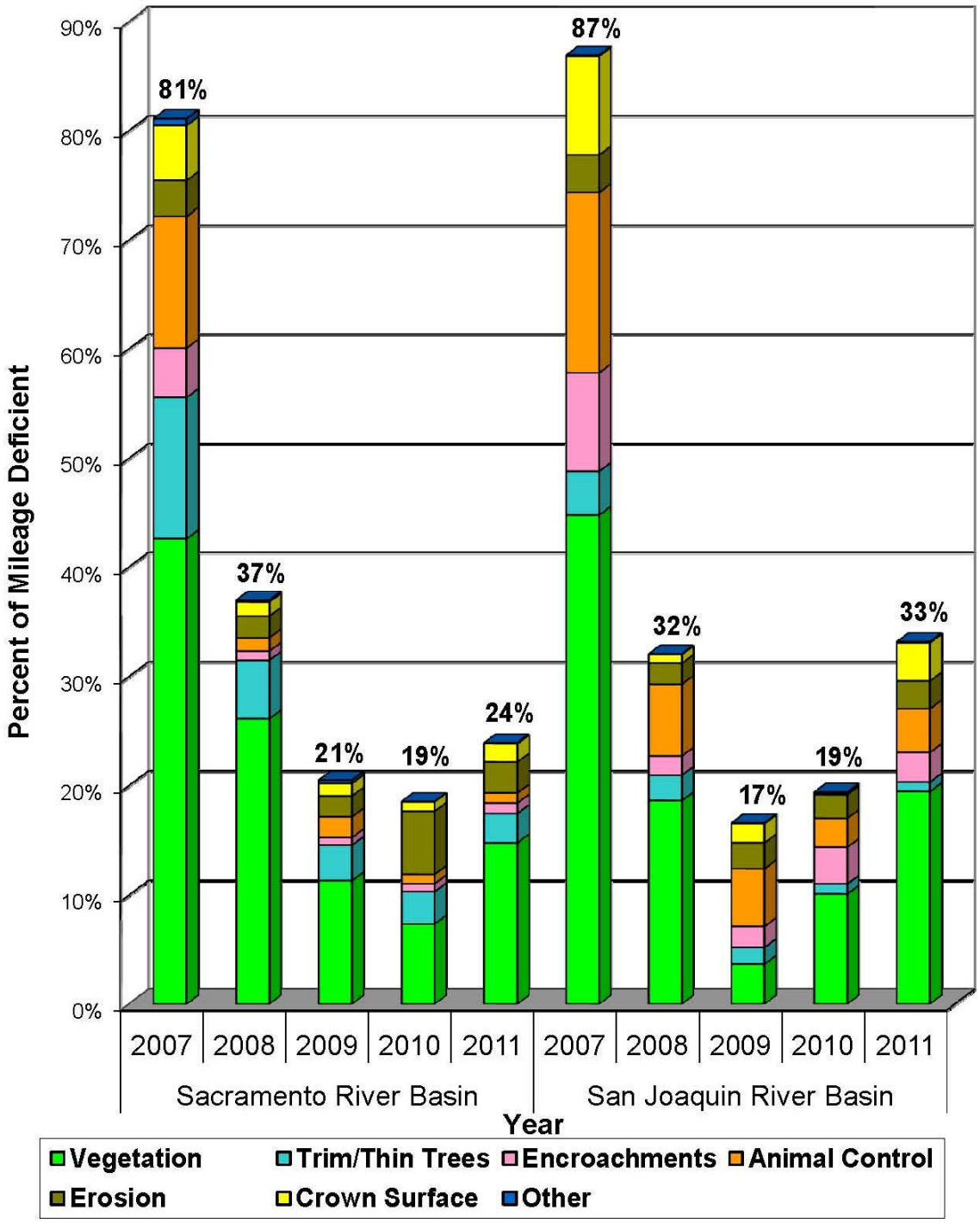

Figure I-4

Table I-1: Total of Maintenance Issue Lengths for 2010 and 2011

Total Project Length: 1573.98 miles	Fall 2010				Fall 2011				Change			
Rated Item	M Miles	U Miles	M+4U Miles	Threshold Percent	M Miles	U Miles	M+4U Miles	Threshold Percent	M Miles	U Miles	M+4U Miles	Threshold Percent
Vegetation	93.04	9.06	129.28	8.20%	185.58	17.28	254.70	16.16%	92.54	8.22	125.42	7.96
Trim/Thin Trees	18.92	4.52	37.00	2.35%	17.53	4.08	33.85	2.15%	-1.39	-0.44	-3.15	-0.20%
Encroachments	16.31	1.88	23.83	1.51%	17.61	1.47	23.49	1.49%	1.30	-0.42	-0.38	-0.02%
Animal Control	21.74	0.11	22.18	1.41%	27.24	0.44	29.00	1.84%	5.50	0.33	6.82	0.43
Erosion	16.62	14.18	73.34	4.65%	25.97	4.40	43.57	2.76%	9.35	-9.78	-29.77	-1.89
Crown Surface	16.62	0.02	10.33	0.66%	33.91	0.30	35.11	2.23%	23.66	0.28	24.78	1.57
Other	0.23	0.05	0.43	0.03%	0.93	0.08	1.25	0.08%	0.70	0.03	0.82	0.05%
Total	177.11	29.82	296.39	18.80%	308.77	28.05	420.97	26.71%	131.66	-1.78	124.54	7.90

Table I-2: Sacramento River Basin Maintenance Issue Lengths for 2010 and 2011

Sacramento River Basin Length: 1098.51 miles	Fall 2010				Fall 2011				Change			
Rated Item	M Miles	U Miles	M+4U Miles	Threshold Percent	M Miles	U Miles	M+4U Miles	Threshold Percent	M Miles	U Miles	M+4U Miles	Threshold Percent
Vegetation	49.43	7.88	80.95	7.37%	109.45	13.35	162.85	14.76%	60.02	5.47	81.90	7.42%
Trim/Thin Trees	15.70	4.22	32.58	2.97%	14.30	3.85	29.70	2.69%	-1.40	-0.37	-2.88	-0.26%
Encroachments	6.11	0.48	8.03	0.73%	7.59	0.77	10.67	0.97%	1.48	0.29	2.64	0.24%
Animal Control	9.50	0.00	9.50	0.86%	10.02	0.04	10.18	0.92%	0.52	0.04	0.68	0.06%
Erosion	14.54	12.09	62.90	5.73%	22.86	2.15	31.46	2.85%	8.32	-9.94	-31.44	-2.85%
Crown Surface	9.50	0.02	9.58	0.87%	18.29	0.07	18.57	1.68%	8.79	0.05	8.99	0.81
Other	0.15	0.00	0.15	0.01%	0.77	0.03	0.89	0.08%	0.62	0.03	0.74	0.07%
Total	104.93	24.69	203.69	18.54%	183.28	20.26	264.32	23.95%	78.35	-4.43	60.63	5.49%

Table I-3: San Joaquin River Basin Maintenance Issue Lengths for 2010 and 2011

San Joaquin River Basin Length: 478.04 miles	Fall 2010				Fall 2011				Change			
Rated Item	M Miles	U Miles	M+4U Miles	Threshold Percent	M Miles	U Miles	M+4U Miles	Threshold Percent	M Miles	U Miles	M+4U Miles	Threshold Percent
Vegetation	43.61	1.18	48.33	10.12%	76.13	3.93	91.85	19.47%	35.52	2.75	43.52	9.22%
Trim/Thin Trees	3.22	0.30	4.42	0.93%	3.23	0.23	4.15	0.88%	0.01	-0.07	-0.27	-0.06%
Encroachments	10.20	1.40	15.80	3.31%	10.02	0.70	12.82	2.72%	-0.18	-0.71	-3.02	-0.64
Animal Control	12.24	0.11	12.68	2.65%	17.22	0.40	18.82	3.99%	4.98	0.29	6.14	1.30%
Erosion	2.08	2.09	10.44	2.19%	3.11	2.25	12.11	2.57%	1.03	0.16	1.67	0.35%
Crown Surface	0.75	0.00	0.75	0.16%	15.62	0.23	16.54	3.51%	14.87	0.23	15.79	3.35%
Other	0.08	0.05	0.28	0.06%	0.16	0.05	0.36	0.08%	0.08	0.00	0.08	0.02%
Total	72.18	5.13	92.70	19.40%	125.49	7.79	156.65	33.20%	53.31	2.65	63.91	13.55%

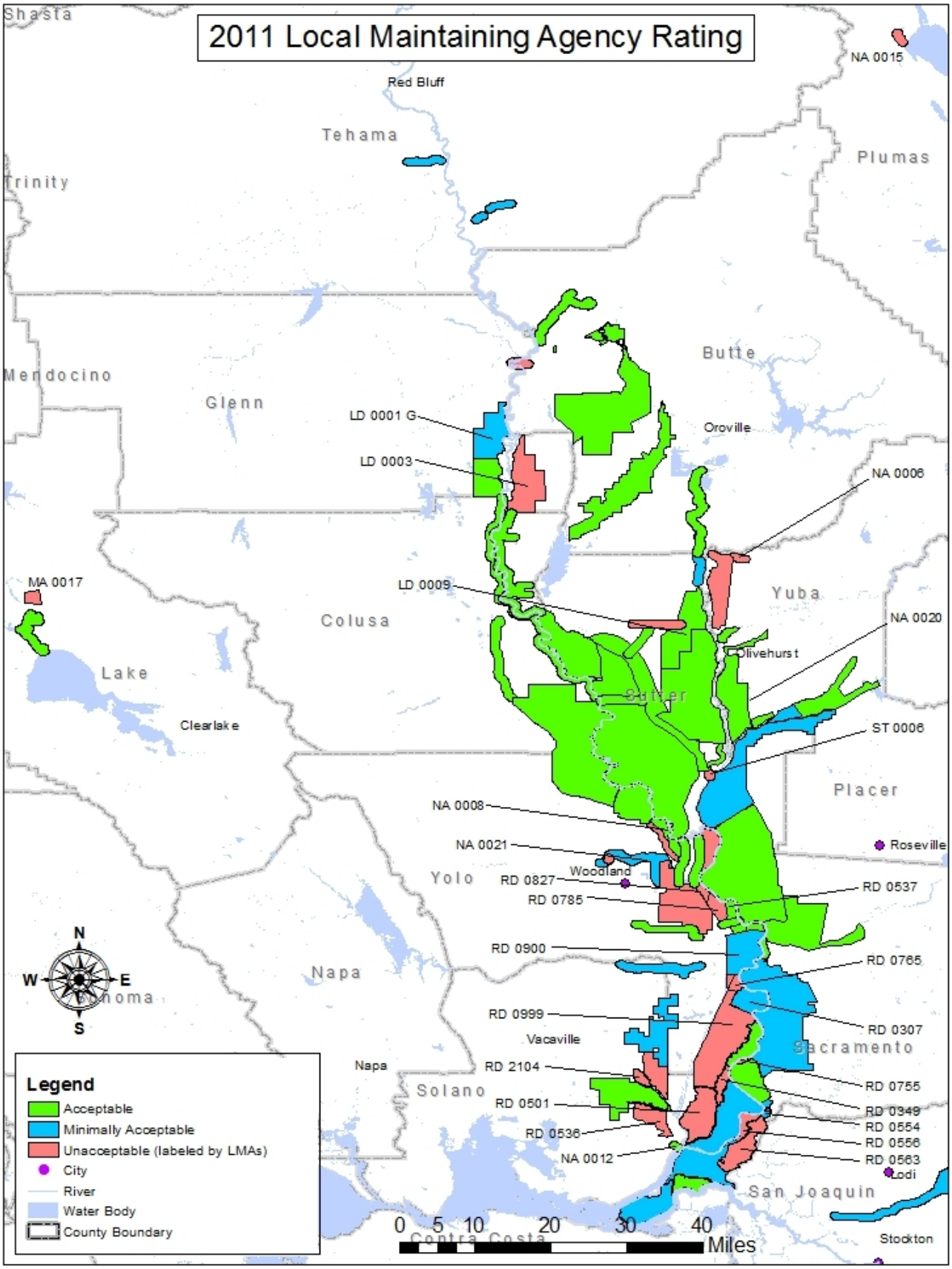
2011 Local Maintaining Agency Rating
Shasta
Red Bluff
Tehama
Trinity
Plumas
NA 0015
Mendocino
Glenn
Butte
Oroville
LD 0001 G
LD 0003
NA 0006
MA 0017
LD 0009
Yuba
Colusa
NA 0020
Olivehurst
Lake
Sutter
Clearlake
ST 0006
Placer
NA 0008
NA 0021
Roseville
Yolo
Woodland
RD 0827
RD 0537
RD 0785
RD 0900
RD 0765
Napa
Sonoma
RD 0999
RD 0307
Vacaville
Sacramento
Napa
RD 2104
RD 0755
Solano
RD 0501
RD 0349
RD 0554
RD 0536
RD 0556
NA 0012
RD 0563
Lodi
San Joaquin
Contra Costa
Stockton
N
W
E
S
Legend
Acceptable
Minimally Acceptable
Unacceptable (labeled by LMAs)
City
River
Water Body
County Boundary
0 5 10 20 30 40
Miles

Figure I-5

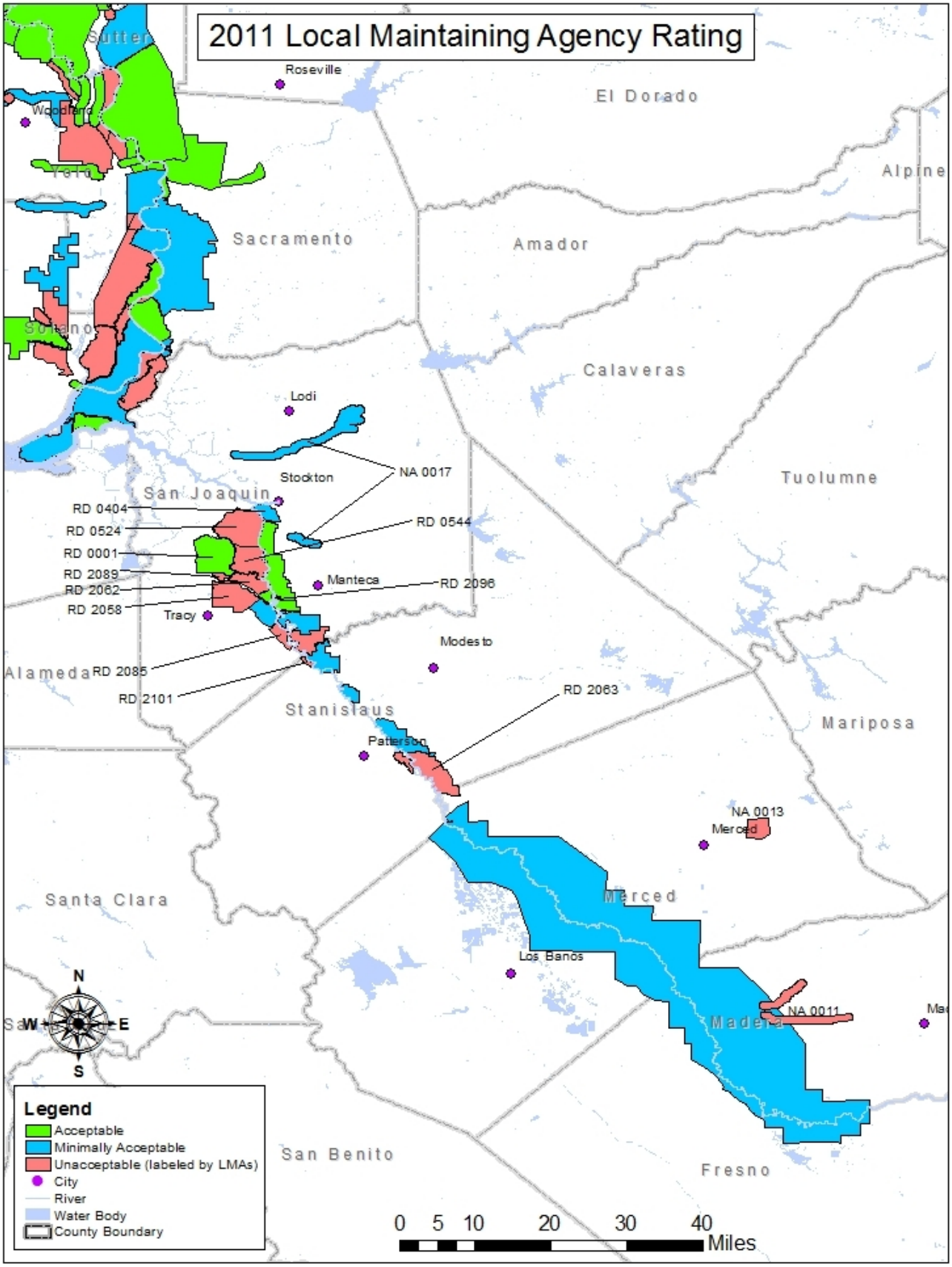
2011 Local Maintaining Agency Rating
Roseville
El Dorado
Alpine
Sacramento
Amador
Calaveras
Tuolumne
Lodi
Stockton
NA 0017
San Joaquin
RD 0404
RD 0524
RD 0001
RD 2089
RD 2062
RD 2058
RD 0544
Manteca
RD 2096
Tracy
Modesto
Alameda
RD 2085
RD 2101
RD 2063
Stanislaus
Mariposa
Patterson
NA 0013
Merced
Santa Clara
Merced
Los Banos
NA 0011
Madera
San Benito
Fresno
N
W
E
S
Legend
Acceptable
Minimally Acceptable
Unacceptable (labeled by LMAs)
City
River
Water Body
County Boundary
0 5 10 20 30 40
Miles

Figure I-6