Flood Protection Issues for Stockton and Surrounding Area

By Roger Churchwell
San Joaquin Area Flood Control Agency

www.SJAFCA.com
Urban flood control facilities have performed over the last 59 years.
Locally we are at the “bottom of the bathtub”
Nearly 500,000 people live in the Delta.
San Joaquin Area Flood Control Agency
Our Activities

- Lower San Joaquin River Feasibility Study
  $10 million effort to determine future flood control efforts to reach a higher level of flood protection
- Smith Canal Gate
  $36 million project to remove the Country Club area in Stockton from a FEMA 100-year floodplain
- Regional Flood Management Plan
  A $1.6 million Planning Effort funded by the State to determine future local flood protection priorities and funding
- Levee Re-Accreditation
- RD 404
- RD 17
Lower San Joaquin River Feasibility Study

- Locally provide information for levee improvements and levee issues
- Nexus for State and Federal project funding
- Study cost-share 50% Federal, 25% State, 25% Local
Lower San Joaquin River Feasibility Study

- San Joaquin County
- SJ AFCA
- Stockton
- Manteca
- Lathrop
- Lodi
- 11 Reclamation Districts
- Corps of Engineers
- Central Valley Flood Protection Board (State)
Alternatives and EO 11988
Smith Canal Gate Project

- Smith Canal levees do not meet Federal Emergency Management Agency (FEMA) standards
  - Levee encroachments
- FEMA Special Flood Hazard Area
  - First properties “mapped” in 2009
  - Additional properties to be mapped
  - Requires mandatory flood insurance
  - Building restrictions
    - Elevation for new/replacement construction and significant repairs/remodels
Smith Canal Proposed FEMA Map
# Project Budget

<table>
<thead>
<tr>
<th>Estimated Cost</th>
<th>Design</th>
<th>$ 4,925,000</th>
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<tbody>
<tr>
<td></td>
<td>Construction</td>
<td>31,141,000</td>
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<tr>
<td>Total Costs</td>
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<td>$36,066,000</td>
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* Assessment District passed with 59% approval on July 3, 2013

** $2.4M State grant approved for design [Sept. 14, 2012]

Construction grant subject to future competitive process

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<table>
<thead>
<tr>
<th>Percentage</th>
<th>Source</th>
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<tbody>
<tr>
<td>45%</td>
<td>Assessment District</td>
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<tr>
<td>55%</td>
<td>State Grant **</td>
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*Assessment District**

Property Owners

**State Grant**
Miter Gate
Lower San Joaquin and Delta South Regional Flood Management Plan
Lower San Joaquin River and Delta South Regional Flood Management Plan (RFMP)

RFMP Status Update

- Coordinated with RD’s, local agencies and stakeholders
  - Monthly TAC meetings
  - 1st Round Small Group Meetings – Summer 2013
  - Presentation at City of Lathrop Council Meeting
  - Paradise Cut Symposium – December 2013
- Gathered & compiled data into the RFMP document
- RFMP Projects List created for each region over 180 projects
Lower San Joaquin River and Delta South Regional Flood Management Plan (RFMP)

Next Steps

- Continued Coordination with stakeholders
  - 2nd Round of Small Group Meetings – Summer 2014
  - 2nd Paradise Cut Symposium – Early September 2014
- Draft Financial Plan – August 2014
- Draft RFMP Document with Projects listed in tiers – August 2014
- Final Draft RFMP Document for DWR Review – September 2014
Next Round of RFMP (RFMP2)

- DWR requested at 2.5 year extension of regional work w/ annual work plan
- Draft scope ideas & regional accomplishments sent to DWR
- DWR to prepare one scope (all 9 regions)
RFMP 2

- Funded by DWR Through 2017
  - Identifying encroachments
  - Coordination/Communication and Engagement, State, federal and local
  - Governance
  - Operation and Maintenance solutions
  - Legislative changes
  - Emergency Response
  - Refine Projects to enhance Multi-Benefit aspect
  - Local SB5 support
  - Financial planning
  - PL84-99 Restoration
  - Preliminary Budget $3 million
FEMA Levee Re-Accreditation Project
Bear Creek & Calaveras River Systems
FEMA Levee Re-Accreditation Project

POTENTIAL LEVEE DEFICIENCIES FROM PRELIMINARY ANALYSES

Legend:

▲ Underseepage
Progress Update

- Surveying and Mapping Completed
- Hydrology & Hydraulics Modeling Ongoing
- Freeboard Analysis Ongoing
- Geotechnical Analyses Ongoing – pending DWR data availability
- Interior Drainage Analyses Ongoing
- Closures and O&M Information gathered
- Embank Protection Assessment Ongoing
- Preparation of Certification Packages Initiated
FEMA Levee Re-Accreditation Project
Bear Creek & Calaveras River Systems

Next Steps:

- Complete LOMR Packages –
  - to be signed by both City of Stockton and San Joaquin County Floodplain Administrators
- Submit LOMR Certification Package to FEMA for review– Fall 2014
Reclamation District No. 404
Project Status
Reclamation District No. 404
Seepage Repair Projects
Reclamation District No. 404

ALL WATERSIDE HABITAT VEGETATION AND ROCK SLOPE PROTECTION IS NOT TO BE DISTURBED

AREAS TO RECEIVE FILL SHALL BE SCARIFIED 8", MOISTURE CONDITIONED TO A MIN. 3% OVER OPTIMUM, AND RECOMPACTED TO MIN. 90% R.C. PRIOR TO PLACING IMPORTED FILL MATERIAL

EXCAVATE AND STOCKPILE SOIL AT CONSTRUCTION STAGING AREA, REPLACE WITH IMPORTED FILL MATERIAL, AS PER SPEC SECTION 02220H.

PROPOSED SLURRY WALL

TIP ELEV -23.00

3'

6'

EX. GROUND

ELEV 18.00

ELEV 15.00

7'±

ELEV 18.00

WATERSIDE

LEVEE

LANDSIDE

DWSL: 12.8
Reclamation District No. 404
Overview

- **Completed Projects**
  - San Joaquin River Cutoff Wall (2013) $1.6M

- **Projects Underway**
  - Erosion Repairs, Priority 1 $300k
  - French Camp Slough Cutoff Wall $1.4M

- **Upcoming Projects**
  - Erosion Repairs, Priorities 2 & 3 $500k
  - Encroachments / Penetrations $500k

Total: $4.3M
Reclamation District No. 17
Levee Seepage Repair Projects

- **Project Scope**
  - Phase 1 – Constructed in 2008-09
  - Phase 2 – Constructed in 2009-11
  - Phase 3 – Design and Environmental 2010-14
    - DEIR/DEIS Circulated
    - 65% Design Plans Completed
    - Final EIR/EIS in process
    - Section 408 & CVFPB Permit in process
  - Phase 3 – Construction in 2015-16
  - Total Estimated Cost $60M
  - (Phase 1 $4M, Phase 2, $16M, Phase 3 $40M)
Reclamation District No. 17

Overview

- **RD-17 Levees currently 100-yr FEMA Certified and Accredited**
- **Under & Through Seepage Repair Project**
- **Seepage Design Guidelines**
  - 44CFR65.10, USACE, ULDC
- **Seepage Mitigation Alternatives**
  - Drained Seepage Berm
  - Cutoff Wall
  - Drainage Trench
  - Landslide Chimney Drain
  - Setback Levee with cutoff wall
Reclamation District No. 17

Typical Seepage Berm with Chimney Drain
Reclamation District No. 17
Chimney Drain Detail

LIMIT OF WORK

6" MIN AGGREGATE BASE ROAD
GRaded with a centered crown at
2% in either direction. 24" MIN
WIDTH UNLESS OTHERWISE APPROVED.
PREPARE SURFACE PER NOTE 4.
TOP OF LEVEE ELEVATION

TOP OF SLOPE

EMBANKMENT SHALL BE
KEYED INTO EXISTING
LEVEE SLOPE WITH
SHEEPSFOOT PER SPECS.

COMPACT WITH LIGHT
COMPACTION ONLY WITHIN
1.0' OF DRAIN ROCK

TEMP. ACCESS ESMT.
20' MINIMUM

GROUND SURFACE

TEMPORARY EROSION CONTROL WATTLE
SEE DETAIL SHEET 6

2% SUBGRADE
RD 17
Seepage Repair

**Phase I:** III-a, VI-b
**Phase II:** I-c, I-d, IV-b, VI-a.2, VI-a.3, VII-c, VII-f
**Phase III:** I-a, I-b, I-e, II-ab, III-b, IV-a, IV-c, V-a, VI-a.1, VI-a.4, VI-cde, VII-b, VII-e, VII-g
Emergency Evacuation