Certification Process for North Indio East Side Dike in the Coachella Valley

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Presentation Outline

- Site Background
- Description of Overall System
- Local Levee Partnership Team (LLPT)
- Hydrology and Hydraulics Study
- Erosion and Scour
- Geotechnical Investigation
- FEMA Preliminary Review
- Next Steps in Certification Process
East Side Dike (Adams to I-10)

- Unaccredited
- USBR Facility
- CVWD Operated/Regional Flood Control
- Designed for Standard Project Flood
- Originally Built to Protect the Coachella Canal and Downstream Farmland
- Development Downstream
- 9 Mile Stretch of Levee Applying for Certification
- 144 Square Mile Watershed
Local Levee Partnership Team (LLPT)

- Coordination with tribal, territorial, state, local officials and levee owners
- Participant List Developed by FEMA and CVWD
- Participants
  - FEMA, CVWD, NHC, USBR, Riverside County, Cabazon and 29 Palms Band of Mission Indians, Torres Martinez Desert Cahuilla Indians, Coachella Valley Association of Governments, City of Indio, City of Coachella, Local HOA’s and Others
LLPT Meetings

• Meetings held periodically to review available data, documentation and information
• Discuss the participants concerns
• Provide preliminary maps
• Outline potential next steps in the analysis and mapping process
• Meeting (#1) held after H&H Report was complete
• Meeting (#2) held after Erosion and Geotechnical Studies
Technical Study Overview

- Hydrology and Hydraulics
- Erosion and Scour Study
- Geotechnical Investigation
- Erosion Protection Design (Next Step)
Hydrology and Hydraulics

- HEC-HMS Model
  NOAA Atlas 14; Multiple Storm Centerings; CVWD Standards
- MIKE 2D Models
  - Floodplain Routing from Alluvial Fans
  - Sediment Analysis on Water Levels
  - Fine and Coarse Mesh
- Sufficient Freeboard Throughout
2D Model Domain

Francis Way Channel Berms

East Side Dike (North)

East Side Dike (South)

Culvert to Wasteway 3
Potential Flooding (Breach Scenario)
Erosion and Scour

- Potential Scour Calculation, using CVWD Standard Procedures (Blench Regime)
- MIKE Model Results Used
- Peak Unit Discharge
- Threshold Velocities
- Effective Flow Width (Lacey Equation)
- Scour Protection Needed for 12,300 feet of Dike (~2.3 miles); Upstream Reach Only
Erosion Protection Reaches
Geotechnical Investigation

- Completed by GENTERRA
- Used H&H and Erosion and Scour Report Findings
- Seepage and Slope Stability met Minimum Factors of Safety
- O&M Plan for Seismic Activity Required
- Recommended Soil Cement Blanket Liner for Areas of Potential Erosion
- Estimated Cost of Soil Cement $6 Million to $7.5 Million
Overall Summary

• Updated Hydrology and Hydraulics
• Adequate Freeboard for Reach
• Stability and Seepage Minimum Factors of Safety
• Slope Protection Necessary for 2.3 miles of Dike
• Recommendation of 8-foot wide soil cement blanket liner where Erosion and Scour Analysis Showed Potential Erosion
FEMA Review

- FEMA Provided General Overall Review of CVWD Documents
  - Hydrology and Hydraulics Report
  - Geotechnical Analysis
  - Erosion and Scour Analysis
- If recommendations are implemented the dike should meet the requirements of 44 CFR Section 65.10 of the NFIP Regulations
Certification Steps Completed

• H&H Report
  – Freeboard Estimation
  – Sediment Transport
• Erosion and Scour Study
  – Embankment Protection
• Geotechnical Investigation
  – Stability
  – Seepage
  – Potential Settling of Levee
Next Steps for Certification

• Feedback from LLPT Meeting #2
• Technical Review from FEMA
• Detailed Design of Erosion Protection Measures, Plans and Specifications
• Complete Remaining 44 CFR 65.10 Requirements
  – Topographic Workmap, Engineering Drawings, O&M Plan and Closure/Interior Drainage Reports
• LLPT Meeting #3
• Application for CLOMR
Timeline

• Re-mapping of Flood Hazards (2 to 3 years)
  – LAMP Procedure
  – Physical Map Revision (PMR)

• Certification of Levee (3 to 4 years)
  – Design of Erosion Protection and Environmental Studies (ESA)
  – CLOMR
  – Prepare Bid Document and Select Contractor
  – Construction followed by LOMR

• Moving Towards Certification Only
Questions?