

# Rio Grande Citizen's Forum

## February 15, 2006

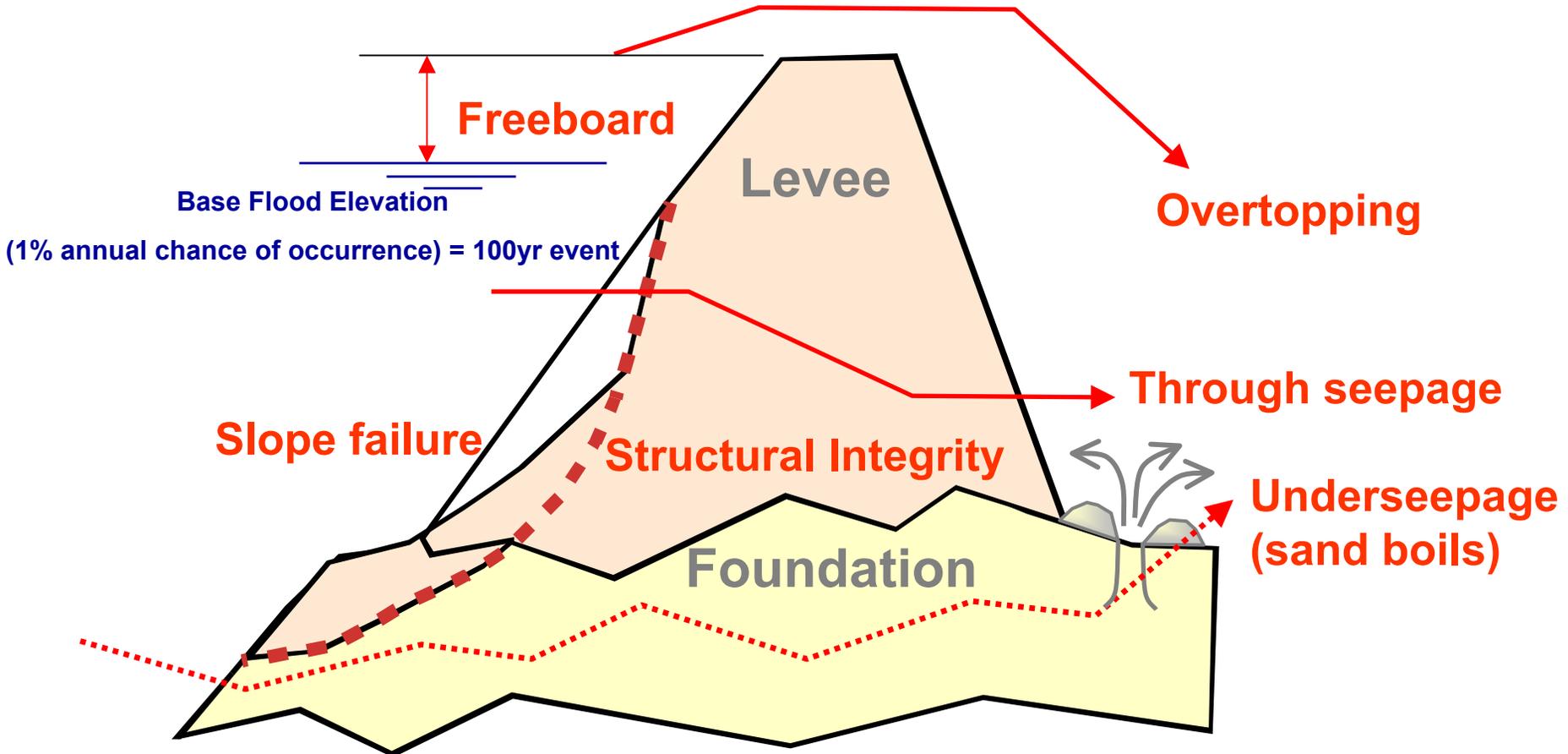
### FEMA Levee Certification



# Levee Terminology

River side

Land side



# USIBWC Involvement in Levee Certification



- Sep 2005 - Letter from FEMA requesting USIBWC:
  - certify levees provide for 1 percent annual chance flood event protection,
  - certify proper maintenance
  - provide up-to-date hydraulic models
  
- Nov 2005 - Meeting with FEMA to discuss request
  
- Feb 2006 - USIBWC response letter to FEMA
  - Include latest hydraulic models (FLO-2D Canalization, HECRAS Rectification)
  - Note: Developing FLO-2D model for Rectification**
  - Levee deficiency maps.
  - Certify non-deficient levee
  - Request continued interagency coordination
  - USIBWC will seek “AR” flood zone designation for non-certifiable levee segments

# Federal Emergency Management Agency (FEMA) Certification Criteria



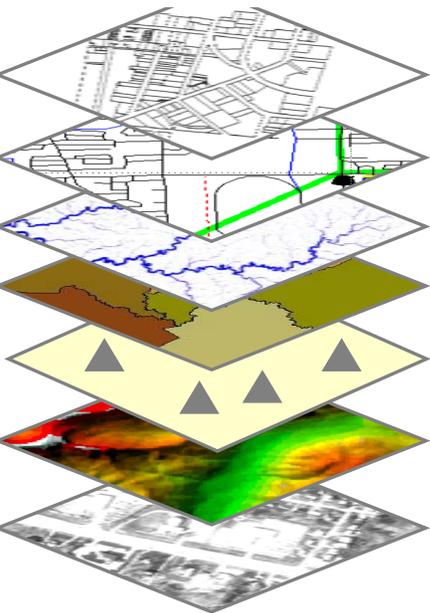
- ✓ Minimum of 3 ft freeboard above base flood elevation, with additional 1 foot of freeboard around structures & where flow is constricted, such as bridges.
- ✓ Geotechnical/structural analyses that address closures, embankment and foundation stability, and settlement to demonstrate that the levee foundations and embankments will remain stable during the base flood.
- ✓ An operation and maintenance plan to ensure the continued flood protection capacity of the levee system in the future.

**Note: FEMA allows USIBWC to set its own freeboard requirements (2ft by treaty) and make levee structural integrity determination.**

# Structural Integrity of USIBWC Levees



The USIBWC contracted the U.S. Army Engineer Research Development Center (ERDC) to perform an integrated condition assessment of the USIBWC Canalization and Rectification projects using airborne geophysics, geologic studies, ground truth investigations and enterprise Geographic Information System.



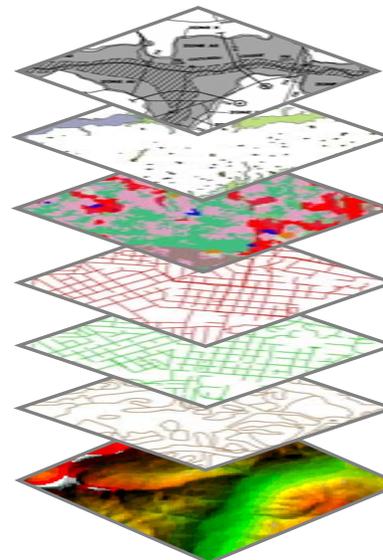
**Baseline Data**  
Topographic Maps  
Transportation  
Surface Waters  
Boundaries  
Engr. Borings  
Elevation  
Aerial Photos



**Airborne Equipment**



**Test Pond Study**



**Other Data**  
Geology  
Segments  
Borrow pits  
Utilities  
Levee drains  
Soils  
LiDAR,  
EM data



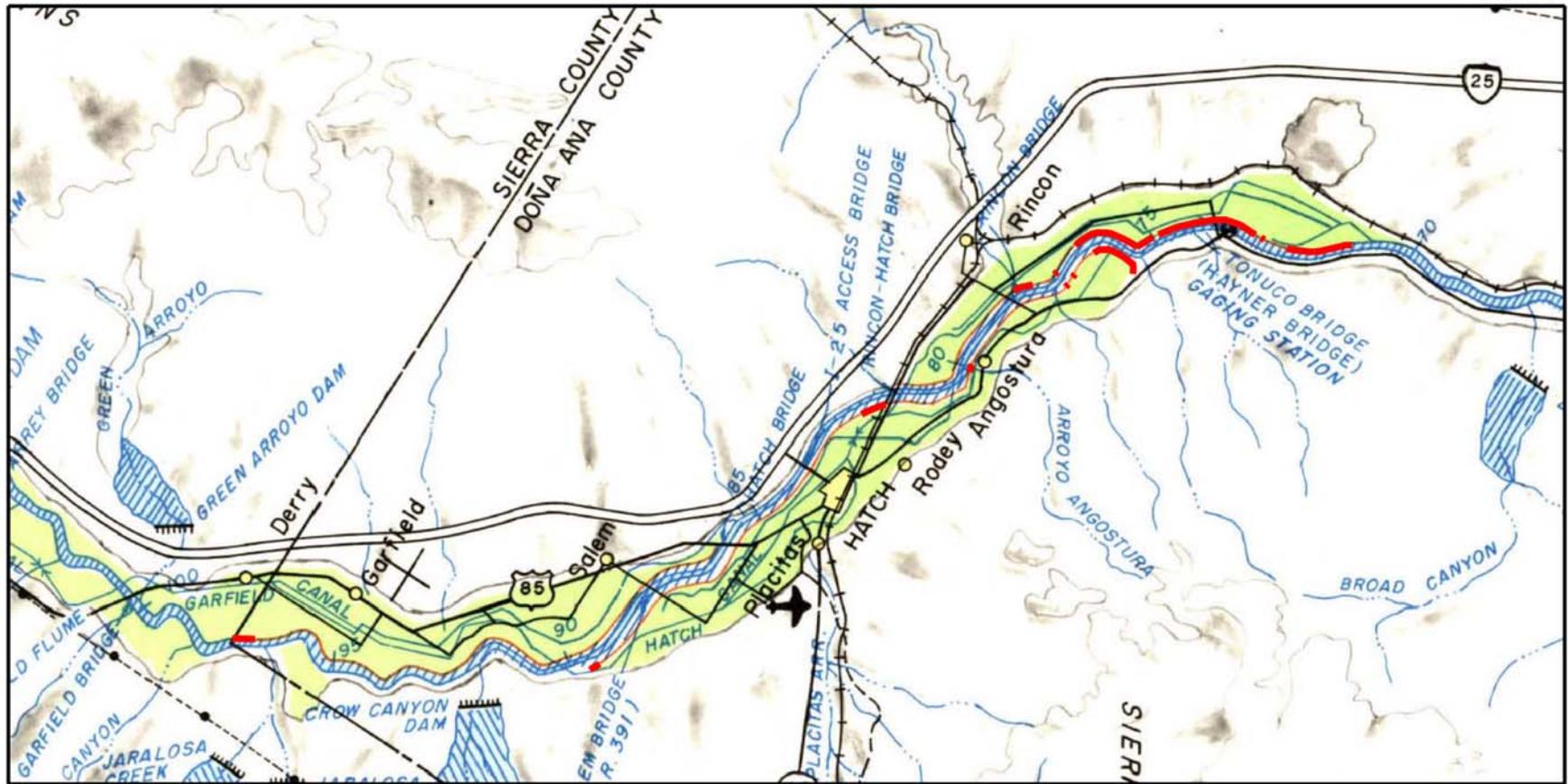
# USIBWC will certify to FEMA

- Upon examination of the ERDC condition assessment findings and current hydraulic models, the USIBWC will certify to FEMA all levee segments in the Canalization and Rectification projects that meet or exceed USIBWC freeboard requirements of 2 feet.
- The following maps identify levee segments which the USIBWC cannot certify at this time due to freeboard encroachment or levee overtopping.

# Canalization - Levee Deficiency



SHEET 1 of 3



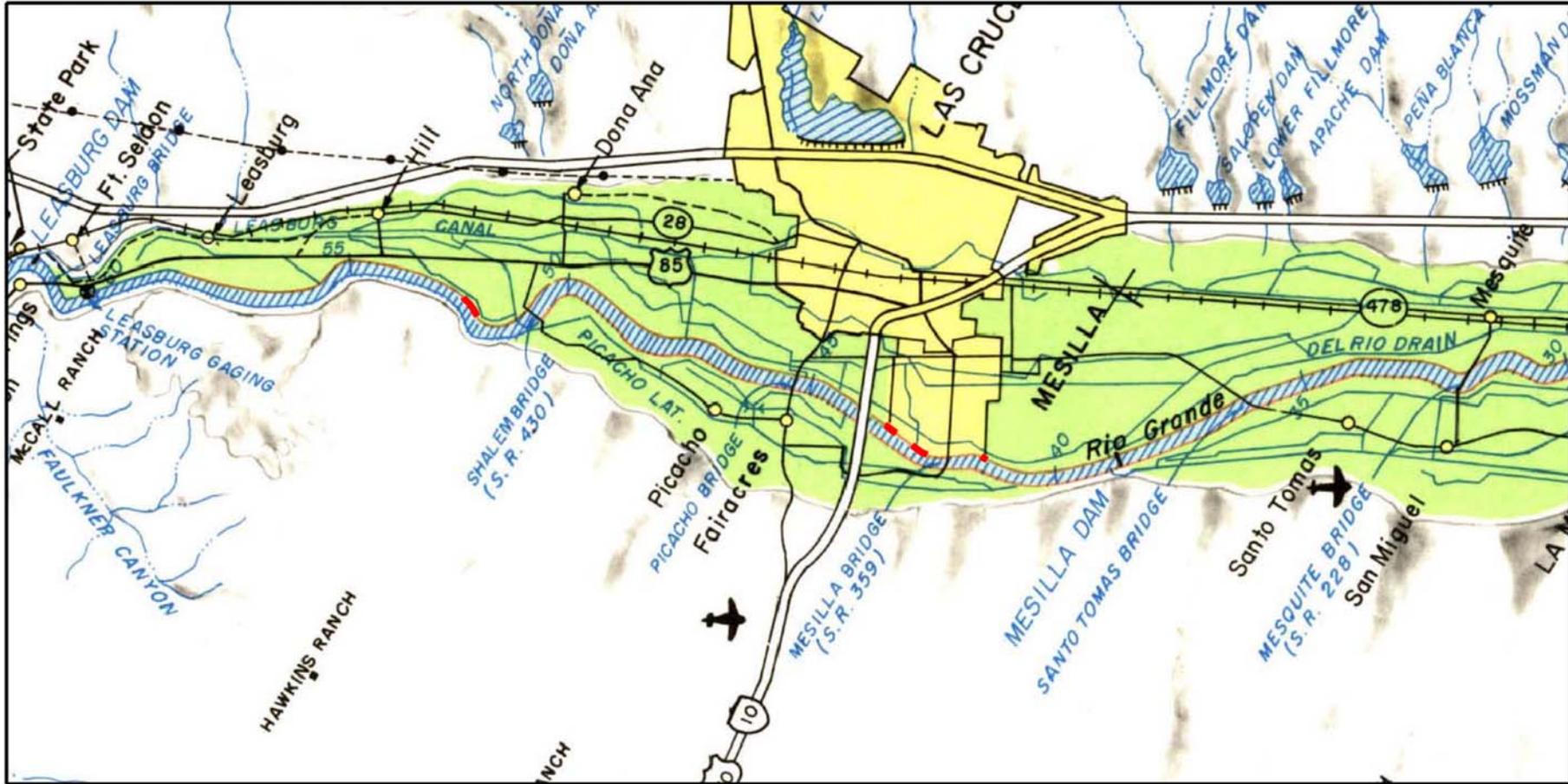
CANALIZATION

 LEVEE WITH LESS THAN 2' FREEBOARD

# Canalization - Levee Deficiency



SHEET 2 of 3



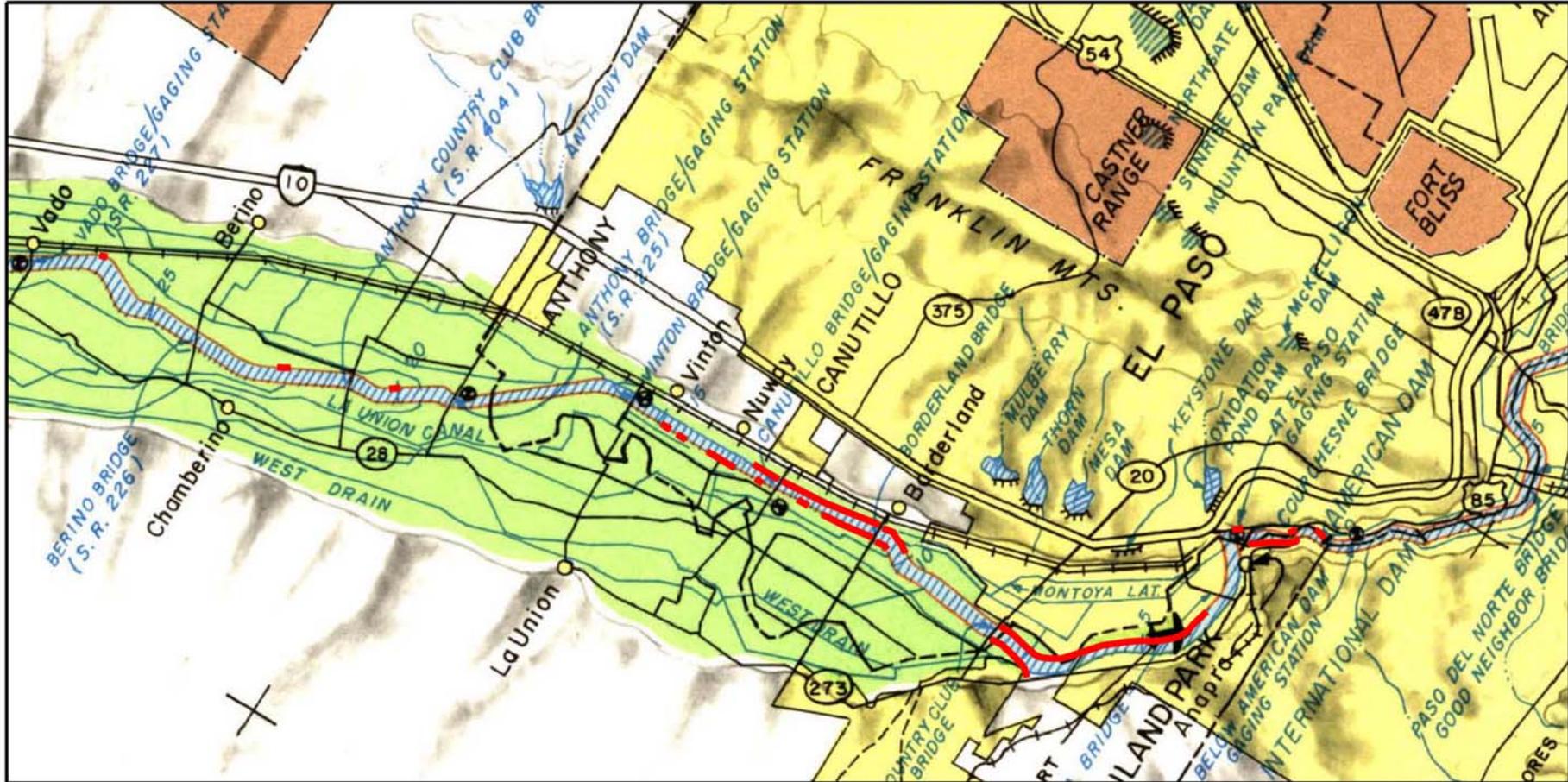
CANALIZATION

 LEVEE WITH LESS THAN 2' FREEBOARD

# Canalization - Levee Deficiency



SHEET 3 of 3



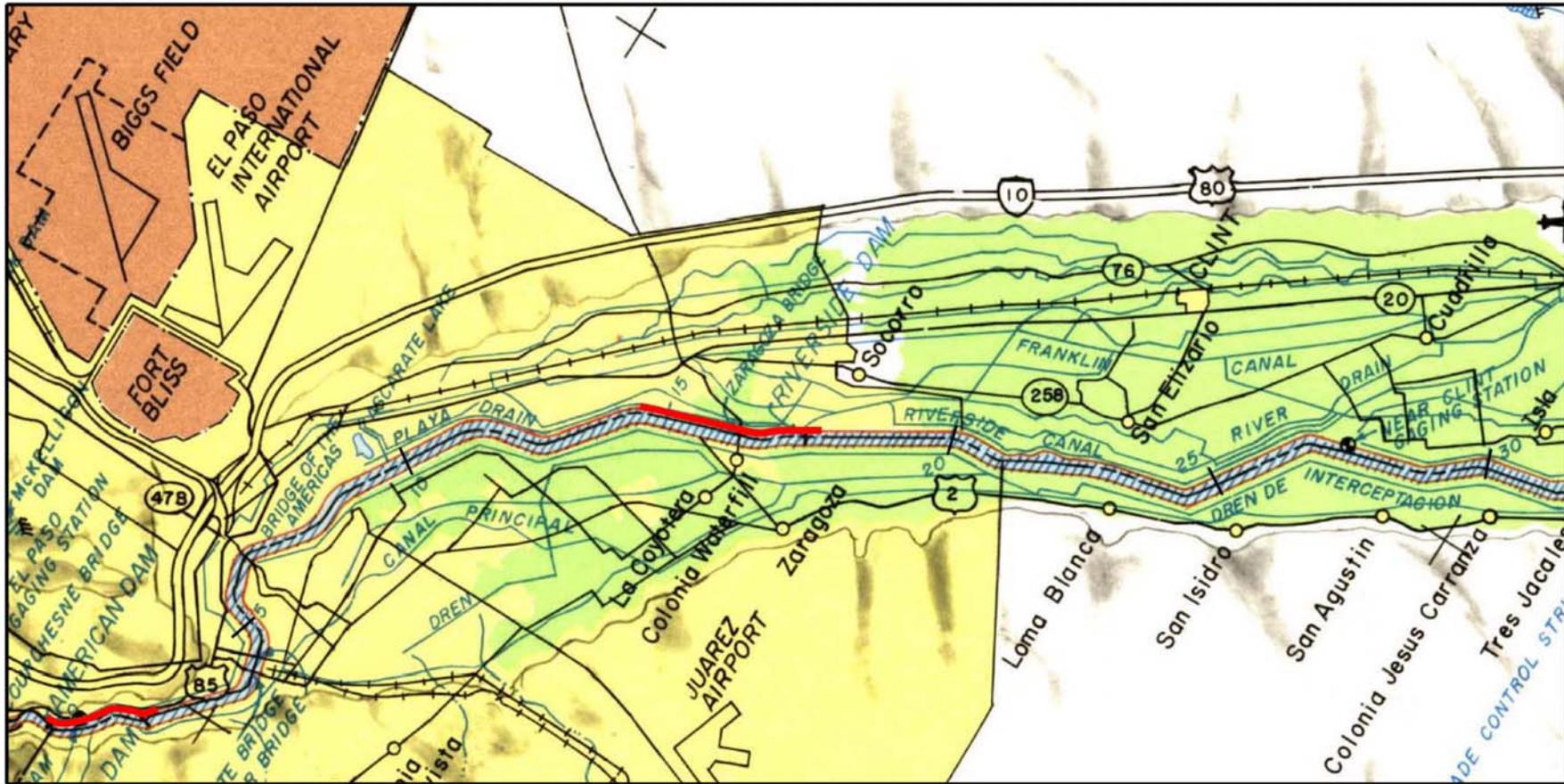
CANALIZATION

 LEVEE WITH LESS THAN 2' FREEBOARD

# Rectification - Levee Deficiency



SHEET 1 of 3



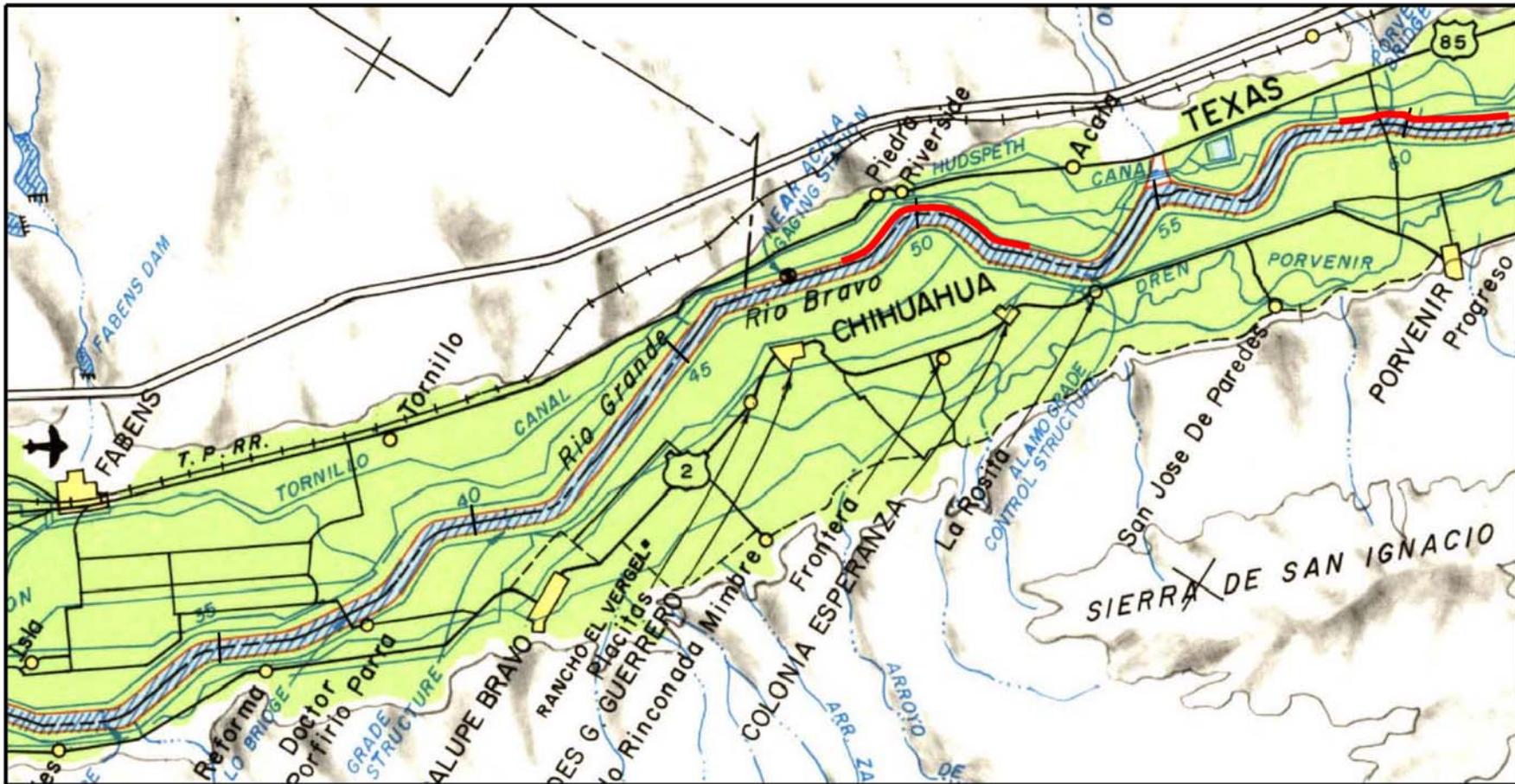
RECTIFICATION

 LEVEE WITH LESS THAN 2' FREEBOARD

# Rectification - Levee Deficiency



SHEET 2 of 3



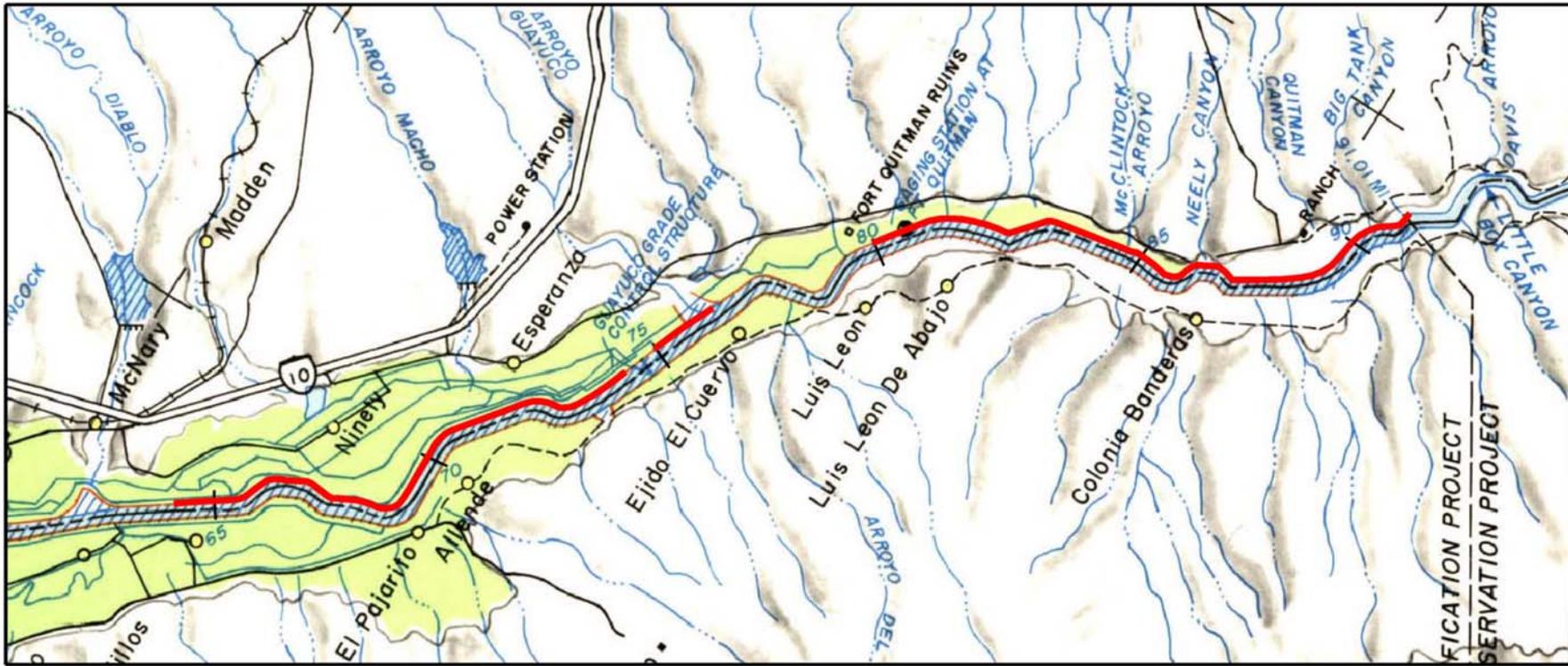
RECTIFICATION

 LEVEE WITH LESS THAN 2' FREEBOARD

# Rectification - Levee Deficiency



SHEET 3 of 3



RECTIFICATION

 LEVEE WITH LESS THAN 2' FREEBOARD



## What should the Public expect?

FEMA will revise flood insurance rate maps to properly identify flood risk for Dona Ana and El Paso counties using data provided by USIBWC.

# Community Floodplain Management and Map Adoption



- **Preliminary DFIRM to the Community**
- **Presentation of Preliminary DFIRM to Community (also known as CCO Meeting)**
- **90-Day Appeal Period**
- **Appeal Resolution**
- **Letter of Final Determination (LFD)**
- **6 Month Compliance (Map Adoption) Period**
- **Final adoption and/or revision of Floodplain Management Ordinance**
- **Effective DFIRM**



## Definitions of FEMA Flood Zone Designations

### Zones indicating mandatory purchase of flood insurance in participating communities

ZONE	DESCRIPTION
A	Areas subject to a one percent or greater annual chance of flooding in any given year. Because no detailed hydraulic analyses have been performed on these areas, no base flood elevations are shown.
AE, A1 - A30	Areas subject to a one percent or greater annual chance of flooding in any given year. Base flood elevations are shown as derived from detailed hydraulic analyses (Zone AE is used on new and revised maps in place of Zones A1-A30).
AH	Areas subject to a one percent or greater annual chance of shallow flooding in any given year. Flooding is usually in the form of "ponding" with average depths between one and three feet. Base flood elevations are shown as derived from detailed hydraulic analyses.
AO	Areas subject to a one percent or greater annual chance of shallow flooding in any given year. Flooding is usually in the form of sheet flow with average depths between one and three feet. Average flood depths are shown as derived from detailed hydraulic analyses.
AR	Areas subject to a one percent or greater annual chance of flooding in any given year, due to a temporary increase in flood hazard from a flood control system providing less than its previous level of protection.
A99	Areas subject to a one percent or greater annual chance of flooding in any given year, but will ultimately be protected by a flood protection system under construction. No base flood elevations or flood depths are shown.
V	Areas along coasts subject to a one percent or greater annual chance of flooding in any given year that also have additional hazards associated with velocity wave action. Because no detailed hydraulic analyses have been performed on these areas, no base flood elevations are shown.
VE, V1 - V30	Areas along coasts subject to a one percent or greater annual chance of flooding in any given year with additional hazards associated with velocity wave action. Base flood elevations are shown as derived from detailed hydraulic analyses. (Zone VE is used on new and revised maps in place of Zones V1-V30).

### Zones indicating non-mandatory (but available) purchase of flood insurance in participating communities

ZONE	DESCRIPTION
D	Areas of undetermined flood hazard where flooding is possible.
X, C	Areas of minimal flood hazard from the principal source of flood in the area and determined to be outside of the 0.2 percent annual chance floodplain. (Zone X is used on new and revised maps in place of Zone C).
X (Shaded), X500, B	Areas of moderate flood hazard from the principal source of flood in the area and determined to be between the limits of the one percent annual chance floodplain and the 0.2 percent annual chance floodplain. (Shaded Zone X is used on new and revised maps in place of Zone B).
XFUT	For communities which elect to incorporate future floodplain conditions into their FIRMs, the future flood zone shown on the new map indicates the areas which the community believes will become the one percent annual chance floodplain (or the future Special Flood Hazard Area) due to projected urban development and land use.
None	Areas of undetermined flood hazard that do not appear on a Flood Insurance Rate Map or Flood Hazard Boundary Map where flooding is possible.

Non-certifiable levees →

USIBWC will request →

Certifiable levees →



# FEMA Zone X Designation



X, C	Areas of minimal flood hazard from the principal source of flood in the area and determined to be outside of the 0.2 percent annual chance floodplain. (Zone X is used on new and revised maps in place of Zone C).
X (Shaded), X500, B	Areas of moderate flood hazard from the principal source of flood in the area and determined to be between the limits of the one percent annual chance floodplain and the 0.2 percent annual chance floodplain. (Shaded Zone X is used on new and revised maps in place of Zone B).

Zones B, C, and X are the flood insurance rate zones that correspond to:

- areas outside the 100-year floodplains,
- areas of 100-year sheet flow flooding where average depths are less than 1 foot,
- areas of 100-year stream flooding where the contributing drainage area is less than 1 square mile, or
- areas protected from the 100-year flood by levees.**

No BFEs or depths are shown within this zone.

# FEMA Zone A Designation



A

Areas subject to a one percent or greater annual chance of flooding in any given year. Because no detailed hydraulic analyses have been performed on these areas, no base flood elevations are shown.

Flood insurance rate zone that corresponds to the 100-yr floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no Base Flood Elevations or depths are shown within this zone. **Mandatory flood insurance purchase requirements apply.**

# FEMA Zone AR Designation



AR

Areas subject to a one percent or greater annual chance of flooding in any given year, due to a temporary increase in flood hazard from a flood control system providing less than its previous level of protection.

Flood insurance rate zone used to depict areas **protected from flood hazards by flood control structures, such as a levee, that are being restored**. FEMA will consider using the Zone AR designation for a community if the flood protection system has been **deemed restorable by a Federal agency** in consultation with a local project sponsor; a minimum level of flood protection is still provided to the community by the system; and restoration of the flood protection system is scheduled to begin within a designated time period and in accordance with a progress plan negotiated between the community and FEMA. **Mandatory purchase requirements for flood insurance will apply, but the rate will not exceed the rate for unnumbered A zones** if the structure is built in compliance with Zone AR floodplain management regulations.



# **FEMA Contact Information**

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