

Potential Restoration Activities

- Channel Widening
- Terrace or Overbank Lowering
- Gradient Restoration Facilities (GRF)
- High flow side channels
- Micro-habitat Inlets
- Restore native riparian habitat **mosiac**, including salt grass, shrub, and bosque communities
- Combinations of the above

Santa Ana Project

- Example of a large scale river maintenance/restoration project

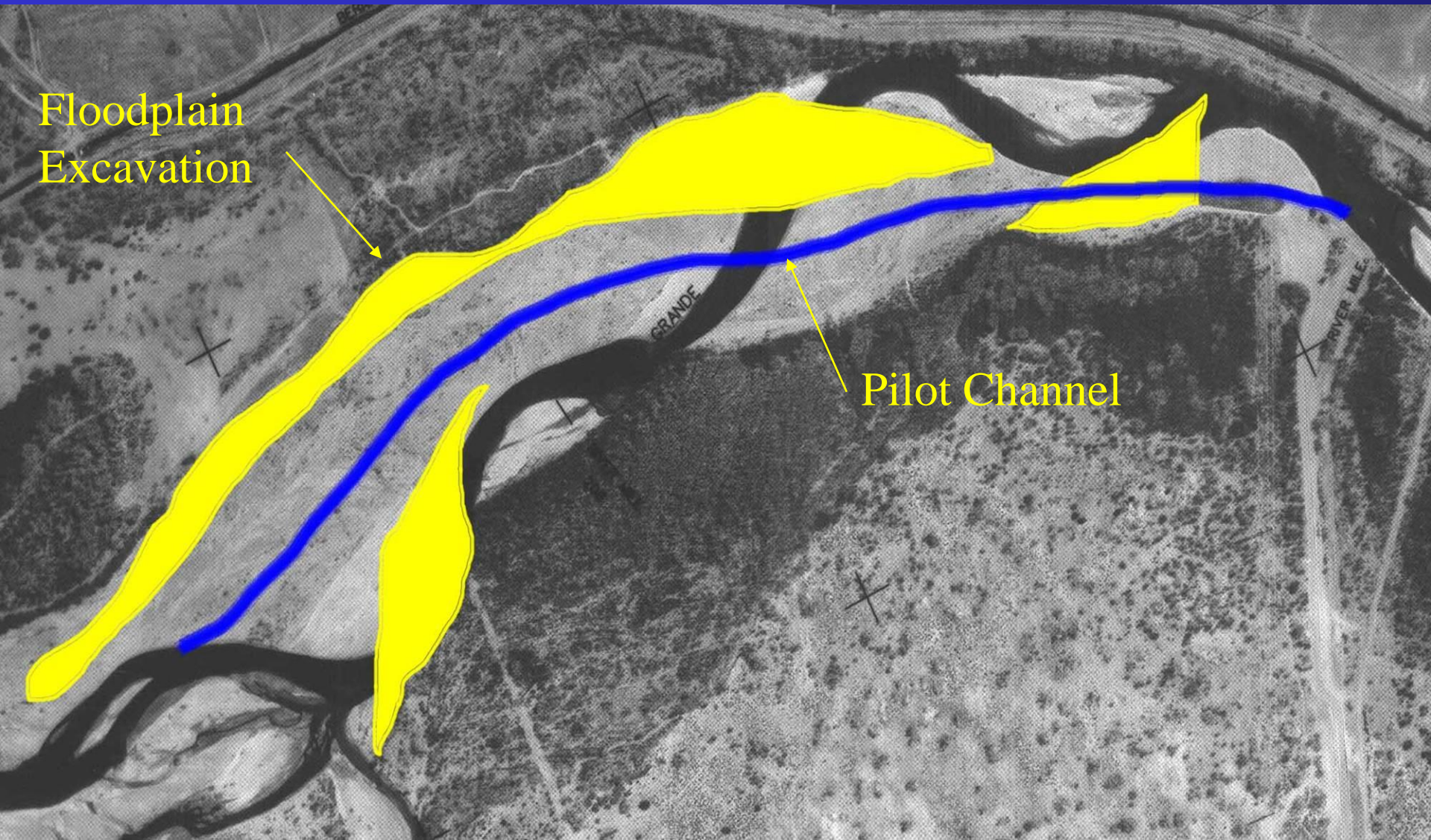




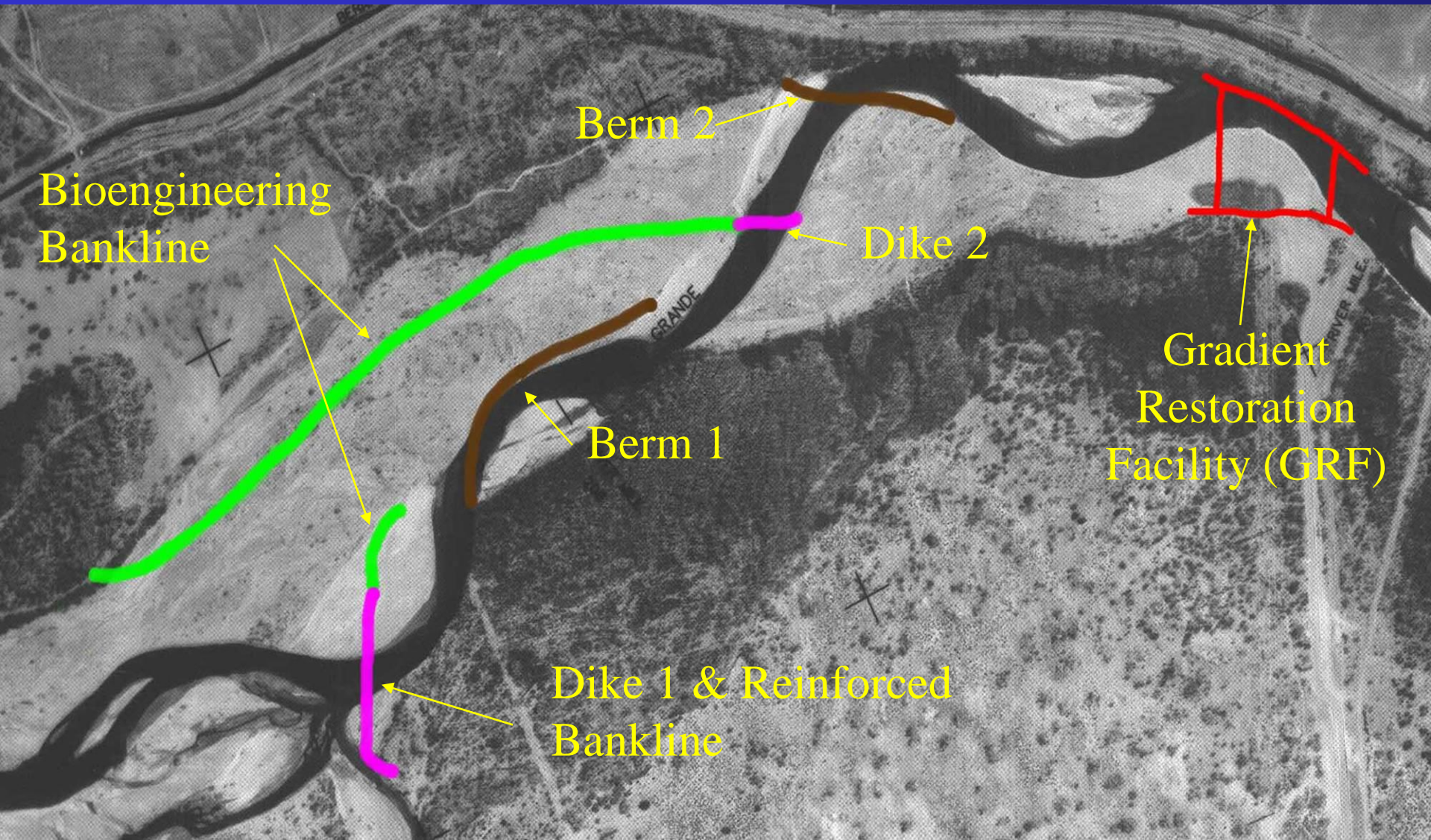




Santa Ana Phase 1 Earth Work

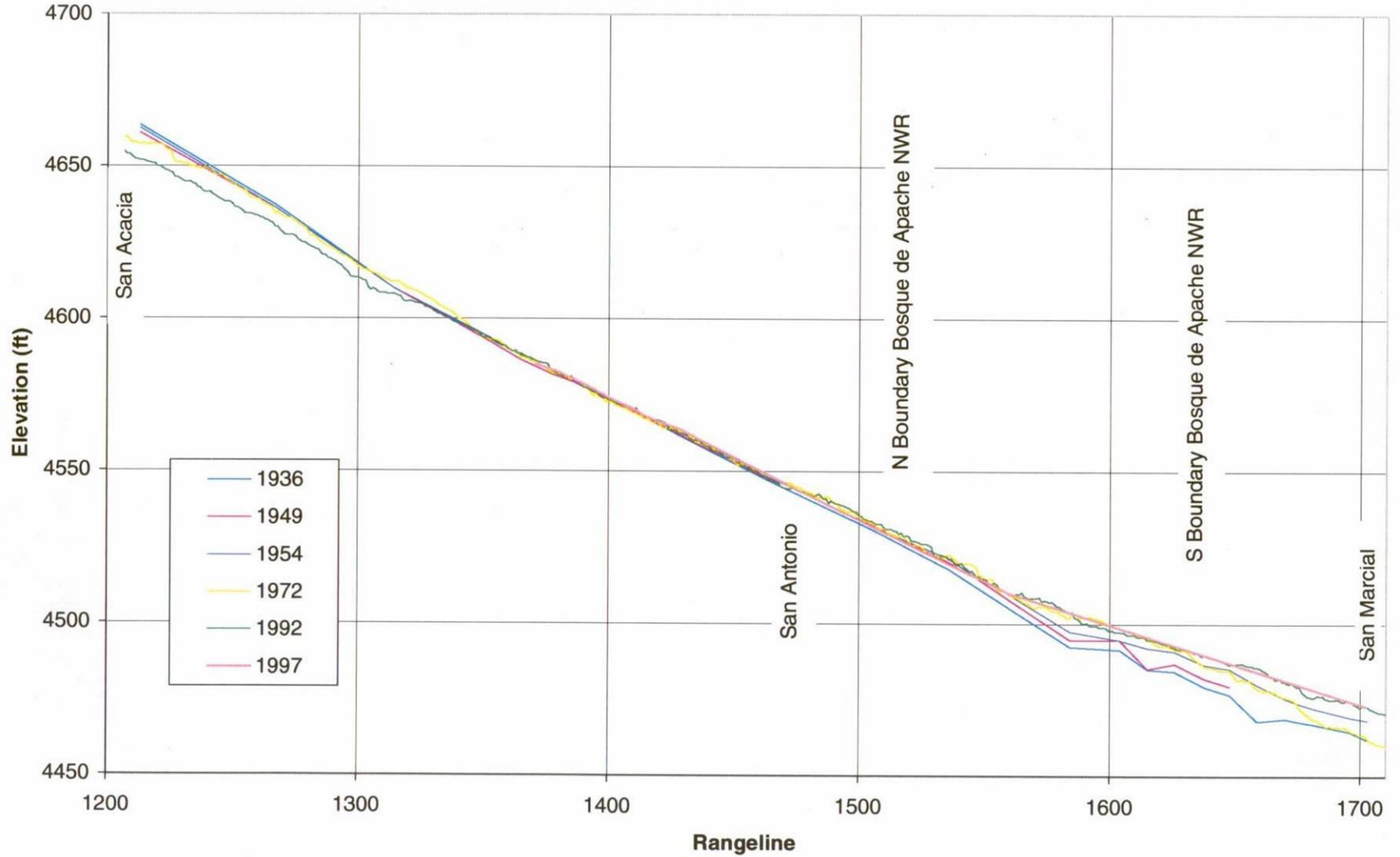


Santa Ana Phase 1 Structural Elements



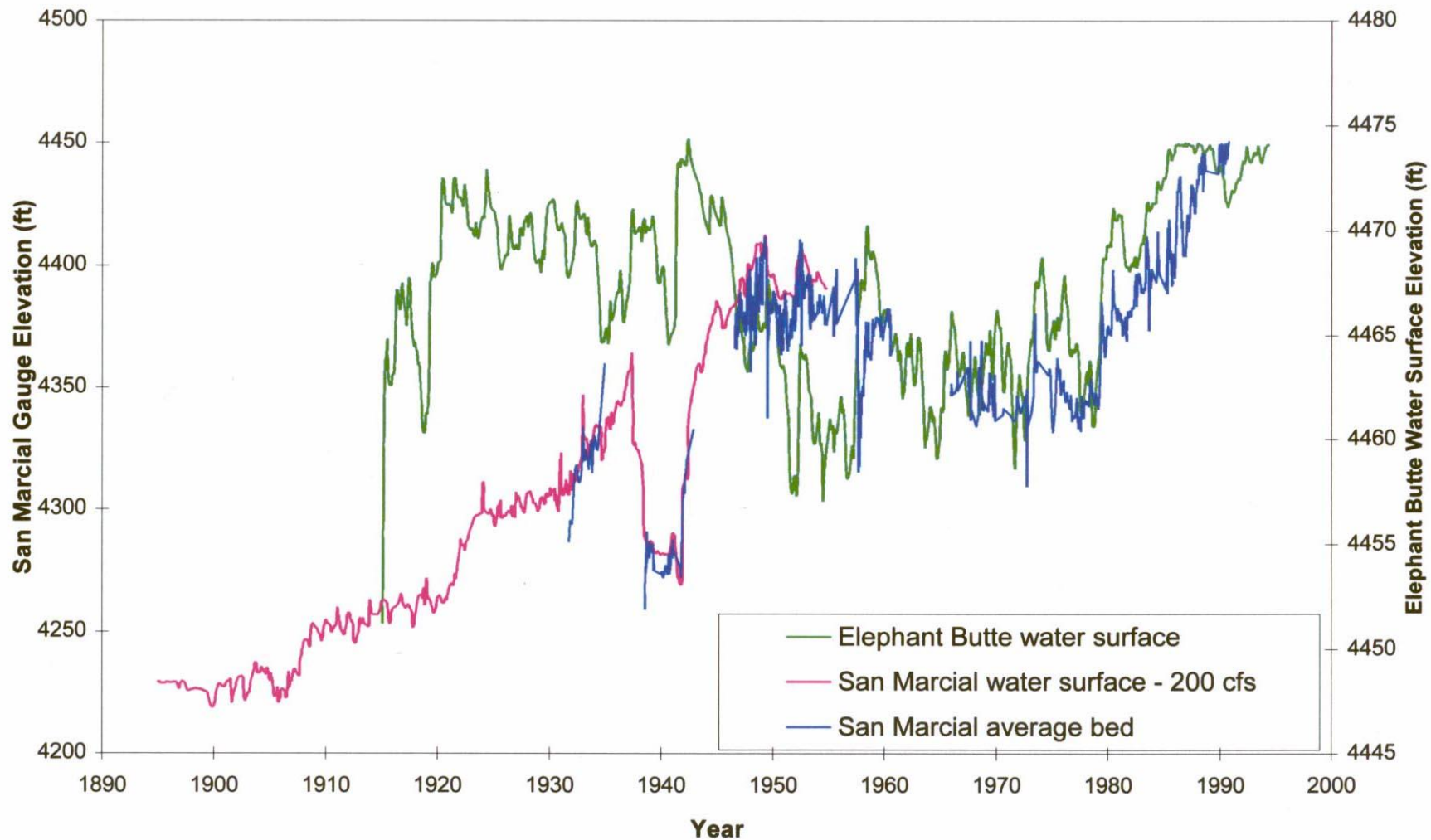
San Marcial Area Sediment Transport

Middle Rio Grande Average Bed Elevations

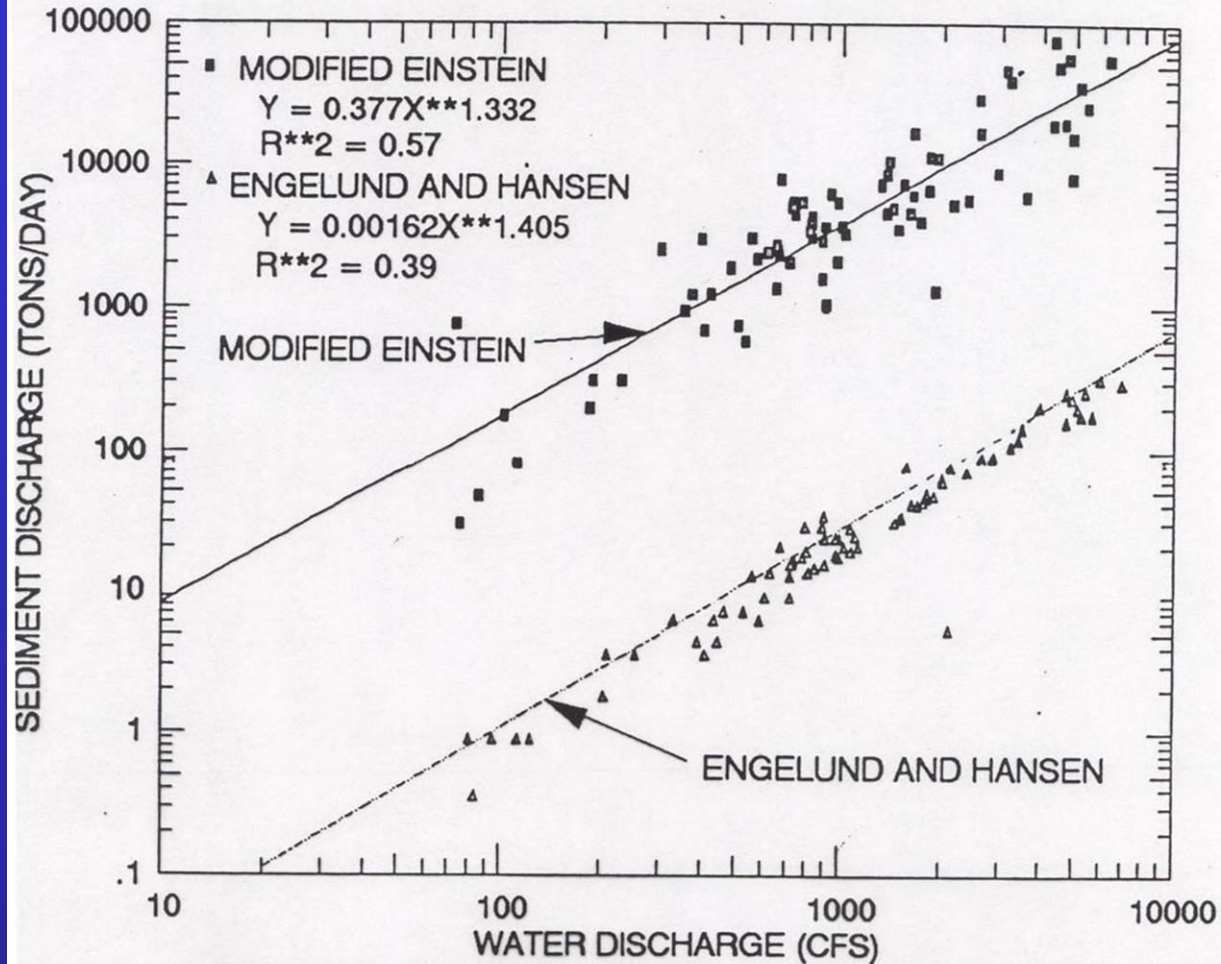


Middle Rio Grande

San Marcial Gauge Elevations and Elephant Butte Water Surface Elevation



RIO GRANDE AT SAN MARCIAL

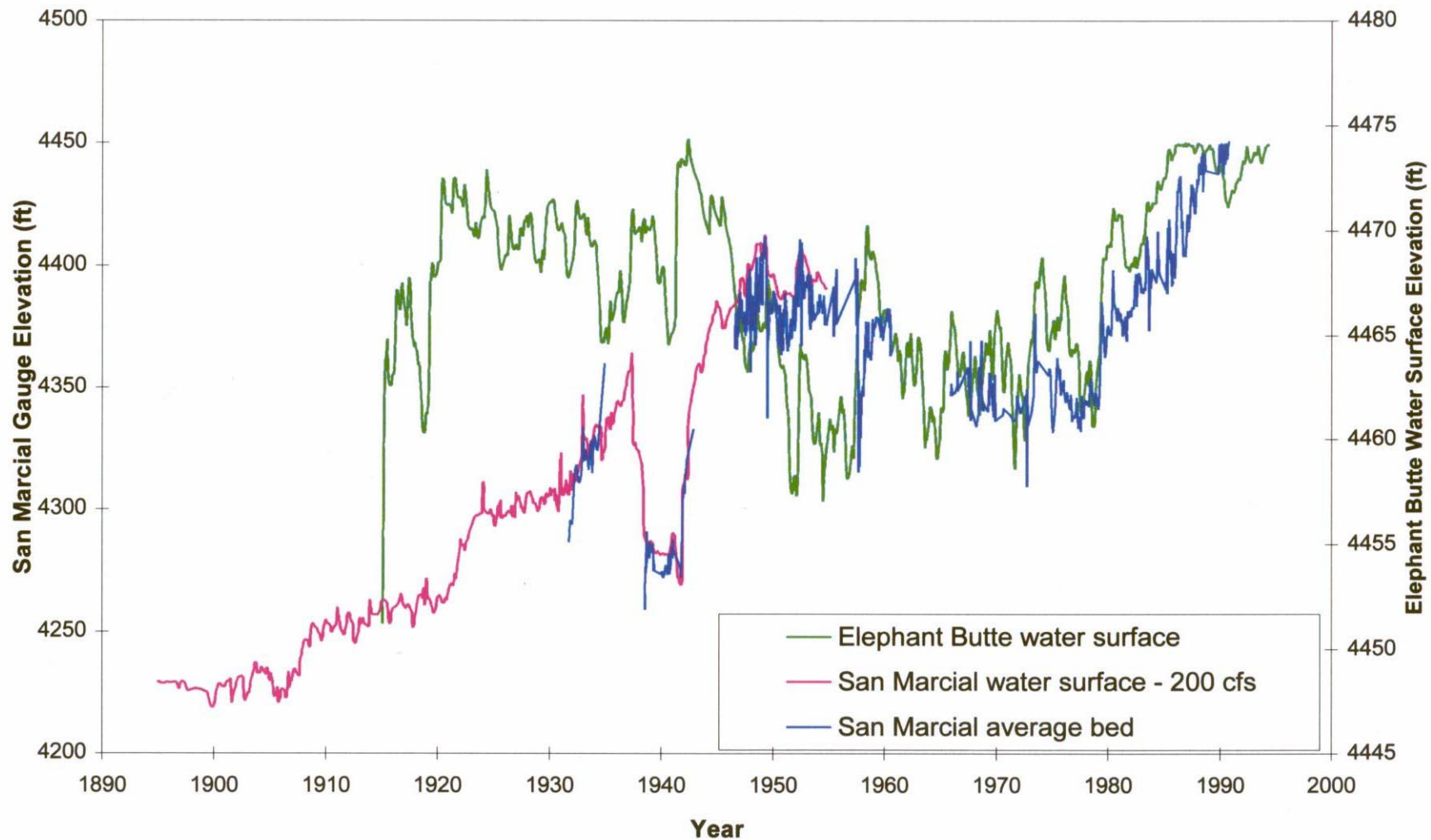


COMPARISON OF SAND LOAD RATING CURVES MODIFIED EINSTEIN AND ENGELUND AND HANSEN

Figure 3 - Comparison of sand load rating curves, Modified Einstein and Engelund and Hansen.

Middle Rio Grande

San Marcial Gauge Elevations and Elephant Butte Water Surface Elevation



Sediment Plug

1,400 cfs



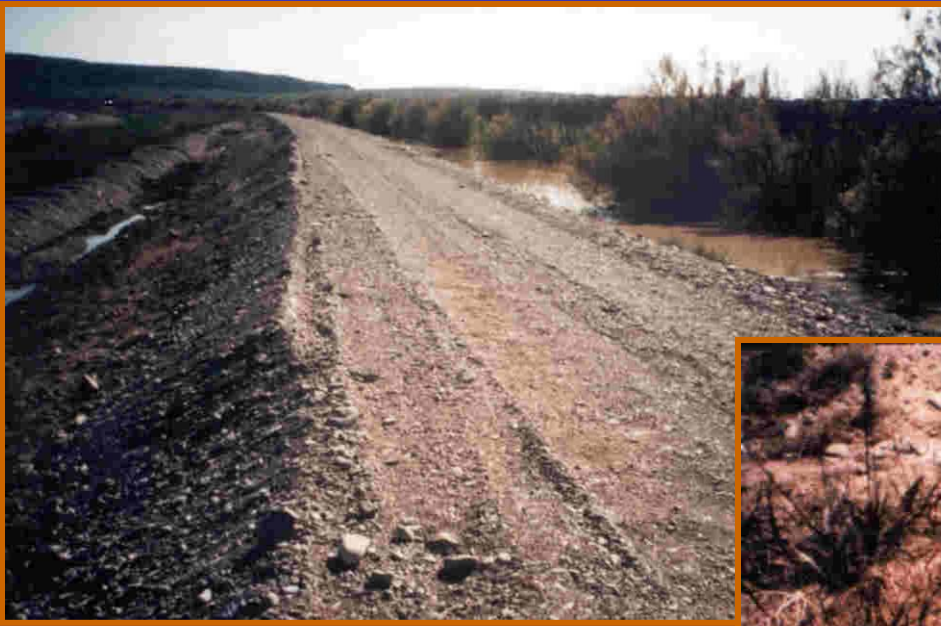








San Marcial Levee



Levee



Levee Seepage



Temporary Channel into Elephant









Salmon Recovery Columbia River Basin

- Multi-Agency Approach
- COE Passage at Large Dams
- BPA Water Operations and Funding some Restoration
- Reclamation Passage in tributary diversions
- Reclamation Main channel Habitat Restoration









03/02/2005











03/02/2005





02/28/2005



03/01/2005



03/01/2005



03/01/2005



03/01/2005



03/01/2005