



Rincon WHEN: Water Habitat Energy Nexus

Overview presented to the
Paso del Norte Watershed Council
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Zack Libbin, PE
District Engineer
Elephant Butte Irrigation District

The Rio Grande Project



- ▶ 90,640 water-righted acres in Elephant Butte Irrigation District (EBID) in New Mexico
- ▶ 69,010 water-righted acres in El Paso County Water Improvement District No. 1 (EPCWID) in Texas
- ▶ 60,000 acre-feet of water for the Republic of Mexico by the Treaty of 1906
- ▶ Construction largely completed by 1917; drainage system built in 1920s
- ▶ Operated as a single irrigation system by Bureau of Reclamation
- ▶ City of El Paso began treating surface water in 1940s
- ▶ Districts paid off construction costs in late 1970s

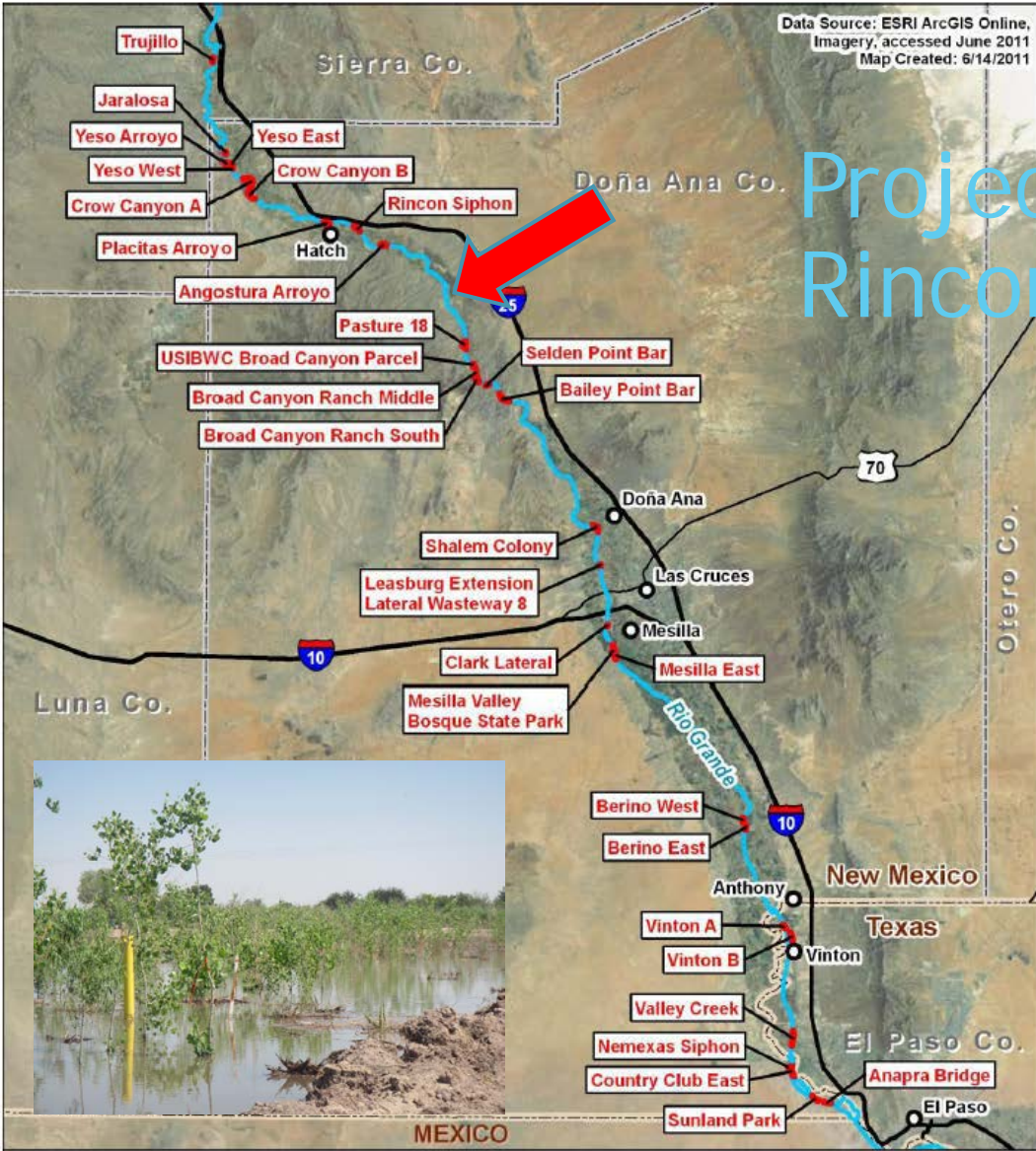
UNITED STATES
DEPARTMENT OF THE INTERIOR
WALTER J. HICKEL, SECRETARY
BUREAU OF RECLAMATION
ELLIS L. ARMSTRONG, COMMISSIONER
RIO GRANDE PROJECT
NEW MEXICO-Texas

EXPLANATION
BUREAU OF RECLAMATION
COMPLETED AND AUTHORIZED WORKS

FABENS WASTE CHANNEL
ISLAND DRAIN SIPHON
HUDSPETH FEEDER CANAL NO. 1
HUDSPETH FEEDER CANAL NO. 2
HUDSPETH REGULATING RESERVOIR NO. 1
HUDSPETH CANAL
HUDSPETH REGULATING RESERVOIR NO. 2
SOUTHERN PACIFIC AND INTERNATIONAL
ALAMO HEADING
FORT HANCOCK

Project Location:
Rincon, NM

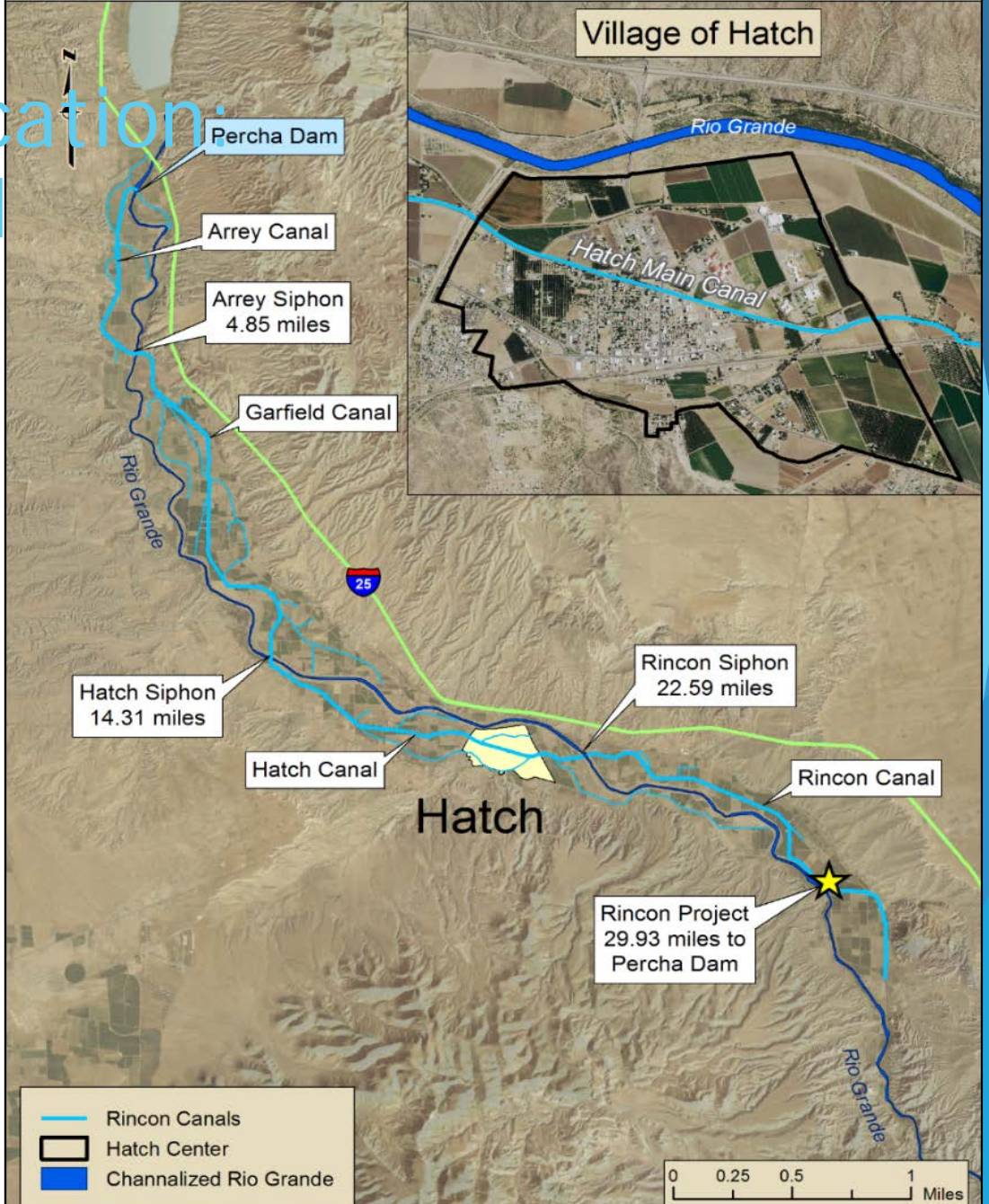
Rincon Valley



Rio Grande Canalization Project Restoration Sites Overview

- City/Town
- Restoration Site
- Rio Grande
- Interstate
- U.S. Highway
- County Boundary
- State Boundary

Scale: 0 to 10 Miles / 0 to 20 Kilometers. Scale: 1:700,000. SWCA ENVIRONMENTAL CONSULTANTS. New Mexico



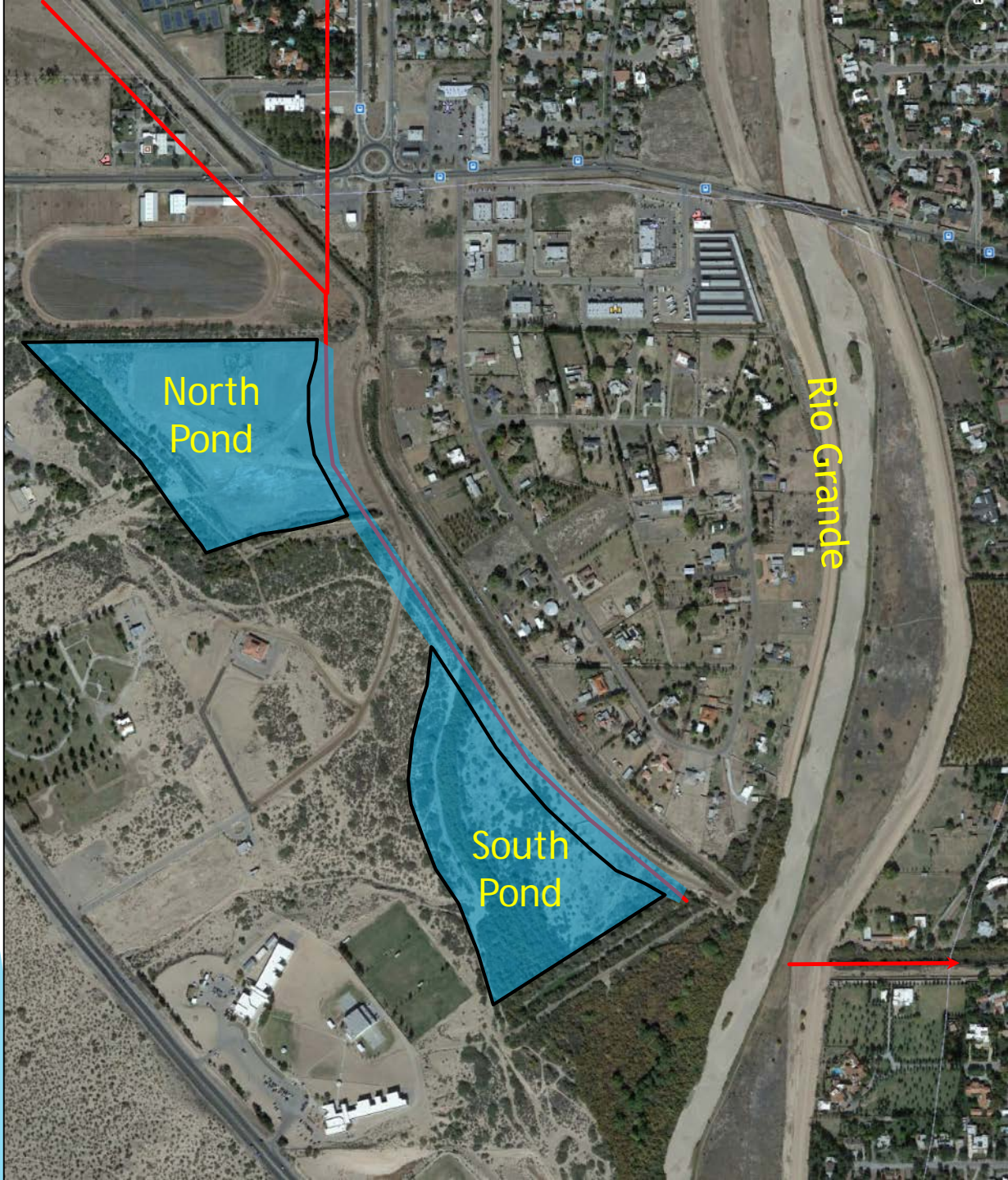
EBID



Selden Drain Multi-objective project

- ▶ Flood control: Protect local neighborhoods
- ▶ Water supply: Storm water capture, infiltration
- ▶ Habitat: Topography and vegetation create riparian meadow, forest zones
- ▶ Water Quality: Mitigate E. coli loading
- ▶ Research/Education: Partners from NMED and BSA
- ▶ An Eagle Scout Project on Memorial Day Weekend 2015 turned the project into a community park with a trail and picnic table





Diez Lagos Multi-objective project



- ▶ Flood control: Protect local neighborhoods
- ▶ Water supply: Storm water capture. Release storm water for downstream demand, keep more water in upstream reservoir storage
- ▶ Habitat: Topography and vegetation create riparian meadow, forest zones
- ▶ Water Quality: Mitigate E. coli loading
- ▶ Research/Education: Partners from NSF and NMSU



2014 WaterSMART Grant

- ▶ Rincon WHEN
 - ▶ Water
 - ▶ Habitat
 - ▶ Energy
 - ▶ Nexus



RECLAMATION

Managing Water in the West

Funding Opportunity Announcement No. R14AS00001

WaterSMART: Water and Energy Efficiency Grants for FY 2014



U.S. Department of the Interior
Bureau of Reclamation
Policy and Administration
Denver, Colorado

November 2013

2014 WaterSMART Grant



▶ Funding:

- ▶ \$808,557 Federal Funding - Bureau of Reclamation
- ▶ \$100,000 Cash from Bill Halsell - EBID Member
- ▶ \$248,000 Quit Claim of 31 acres from JP and Rosie Lack - EBID Member
- ▶ \$52,000 Easement 7.42 acres from Nick and Rene Carson - EBID Member
- ▶ \$712,196 EBID Cost share



Total Project Budget: 1,810,953

Water Nexus

- ▶ Pipe 12,830 feet of the tail end of the Rincon Lateral
 - ▶ Eliminate seepage and evaporation in this 12k foot stretch
 - ▶ Improve delivery timing and head pressure
- ▶ Supplemental Diversion at Wasteway 18
 - ▶ Improved timing of delivery
- ▶ Widen Rincon Drain for stormwater and groundwater drainage improvements
 - ▶ Improves groundwater quality
 - ▶ Improves quality of stormwater into the Rio Grande
- ▶ New water to pond from arroyo channel improvements
 - ▶ Introduces “new water” into drain and river that previously caused flooding problems



Water Conservation Lateral Seepage Reduction



	Lateral seepage reduction	Source
A	12,830feet	Project Plan
B	2.43miles	A x 5,280
C	385AF/mile/year	Haddad, 2005
D	936AF seepage reduct./year	B x C

Water Conservation WW 18 pumps

	Main On-farm deep percolation reduction	Source
E	2,242 acres	Project Plan
F	3.5ft/year Consumptive Irig. Req't	Est. SS 101
G	7,847AF/year Consumptive Irig. Req't	E x F
H	55%irrigation eff	Typical AEN 478
J	14,267Farm Delivery Req't	G/H
K	65%irrig eff	Planned
L	12,072Farm Delivery Requirement	G/K
M	2,195AF FDR reduction/year	J - L
	Conveyance Loss reduction	Source
N	25%main loss	Est.
O	3,773AF main loss reduction/year	N x (1+N) x L



Habitat Nexus

- ▶ Widen Rincon Drain for stormwater and groundwater drainage improvements -Tonoco Pond
 - ▶ Create native riparian habitat
 - ▶ Improve groundwater drainage
 - ▶ Pump water from "pond" to river when drain wont flow
 - ▶ Create capacity for stormwater flows
- ▶ New water to pond from arroyo channel improvements
 - ▶ Water quality improvements for stormwater
 - ▶ Natural irrigation of habitat



Habitat Nexus

- ▶ 21.25 acres Diverse Habitat
- ▶ 4.5 acres of Habitat suitable for Willow Flycatcher
 - ▶ 4000 black willow whips
- ▶ Widened drain
- ▶ Don't disturb existing habitat
- ▶ Small pump for drain flow



Energy Nexus

- ▶ Install 13kW of photovoltaic array along piped lateral
 - ▶ Offset energy required by supplemental diversion pumps
 - ▶ New use for space along lateral after piping
 - ▶ Demonstrate use of land for energy production



Questions?

