Las Vegas Wash Stabilization Program 2000-2016

Background

- 12 miles of outfall stream
- 1,600 Square Mile Watershed
- 26 Million Downstream Residents

Las Vegas Wash Stabilization Program

- Oversight
  - SNWA, Manager
  - Las Vegas Wash Coordination Committee
  - Las Vegas Valley Watershed Advisory Committee
  - SNWA Board of Directors

- Supporting Documentation
  - Wetlands Park EIS
  - Wetlands Park Masterplan
  - Comprehensive Adaptive Management Plan
  - Environmental Documentation
  - Sediment Transport Analysis

Why?

- 2100 acres wetlands reduced to 200 acres
- Wash channel incisement
- Contaminated groundwater interception
- 5 - 8 m tons sediment to Lake Mead in 15 years
- Upstream infrastructure threat
- Recreation opportunities
- Habitat restoration

2008

Demonstration Weir Area

Las Vegas Wash Stabilization Program

- Stabilization components:
  - Channel bed stabilization
  - Channel bank protection
  - Site Revegetation
  - Comprehensive tasks

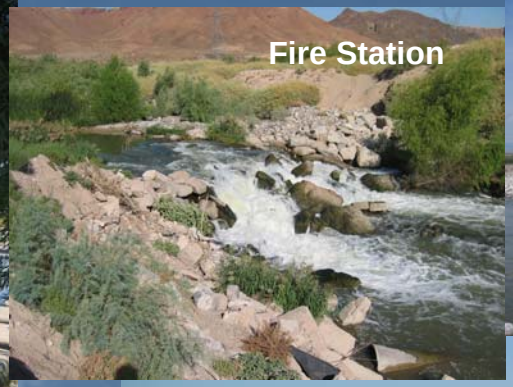
- $169 million capital program (January 2009)

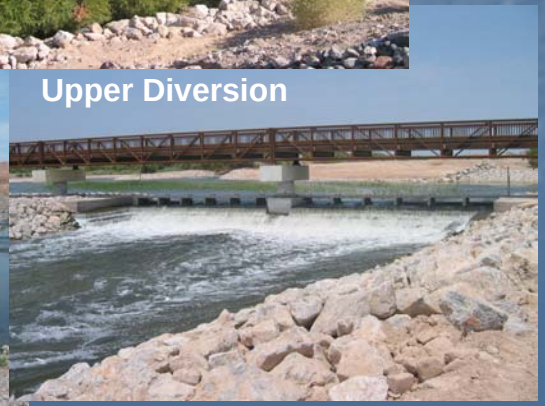
Priority Criteria

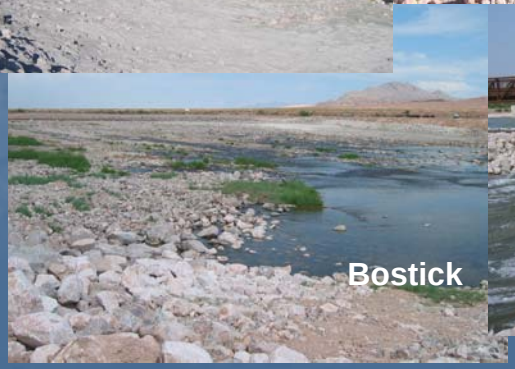
- Water Quality
- Upstream Stability Needs
- Facility Relationship
- Cost Avoidance
- Ecosystem Enhancement
- Recreational Opportunities
- Public Safety
- Permitting Requirements
- ROW & Access
- Available Funding

Progress To Date

- Cash Flow (1999 – 2008)
  - Funding: $72.9 m
  - Expenditures: $69.7 m
- Completed Work
  - 11 Permanent Grade Stabilization Weirs
  - 1 Temporary Grade Stabilization Weir
  - 5.7 Miles Bank Stabilization
  - Over 200 Acres of Revegetation
- Projected Expenditures: $99.4 m







Completed Weirs

Powerline Weir

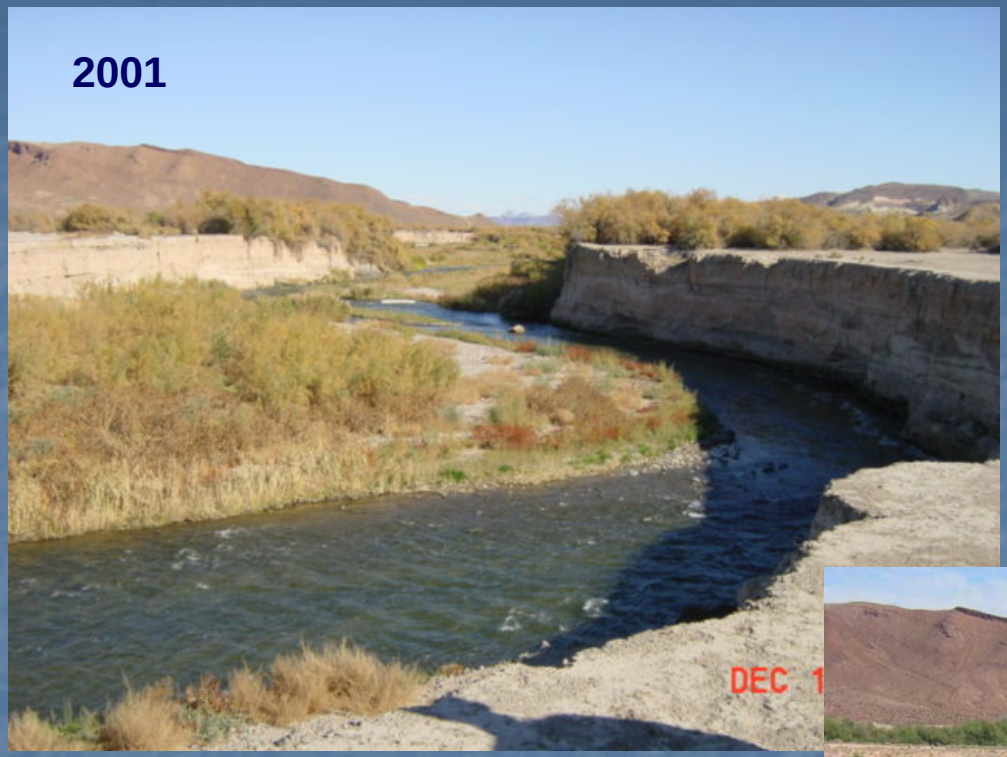
Rainbow Gardens Weir Backwater Area

Las Vegas Wash

Calico Ridge Weir

Backwater Area

Las Vegas Wash



Bostick Weir

Backwater Area

Las Vegas Wash

Historic Lateral Weir Upstream Banks

Las Vegas Wash

Historic Lateral Weir

Las Vegas Wash

Monson Weir

Las Vegas Wash

Upper Diversion Weir

Las Vegas Wash

Upper Diversion Weir Bypass Channel

Las Vegas Wash

Surface Dewatering System

Bypass Channel Construction
Powerline Weir
2005

Bypass Channel Operation
Powerline Weir
2006

Groundwater Dewatering System

Dewatering Well Construction
Bostick Weir
2002

Dewatering Wells and
Collection System
Bostick Weir
2002

Groundwater Dewatering System

Settling Tanks
Rainbow Gardens Weir
2003

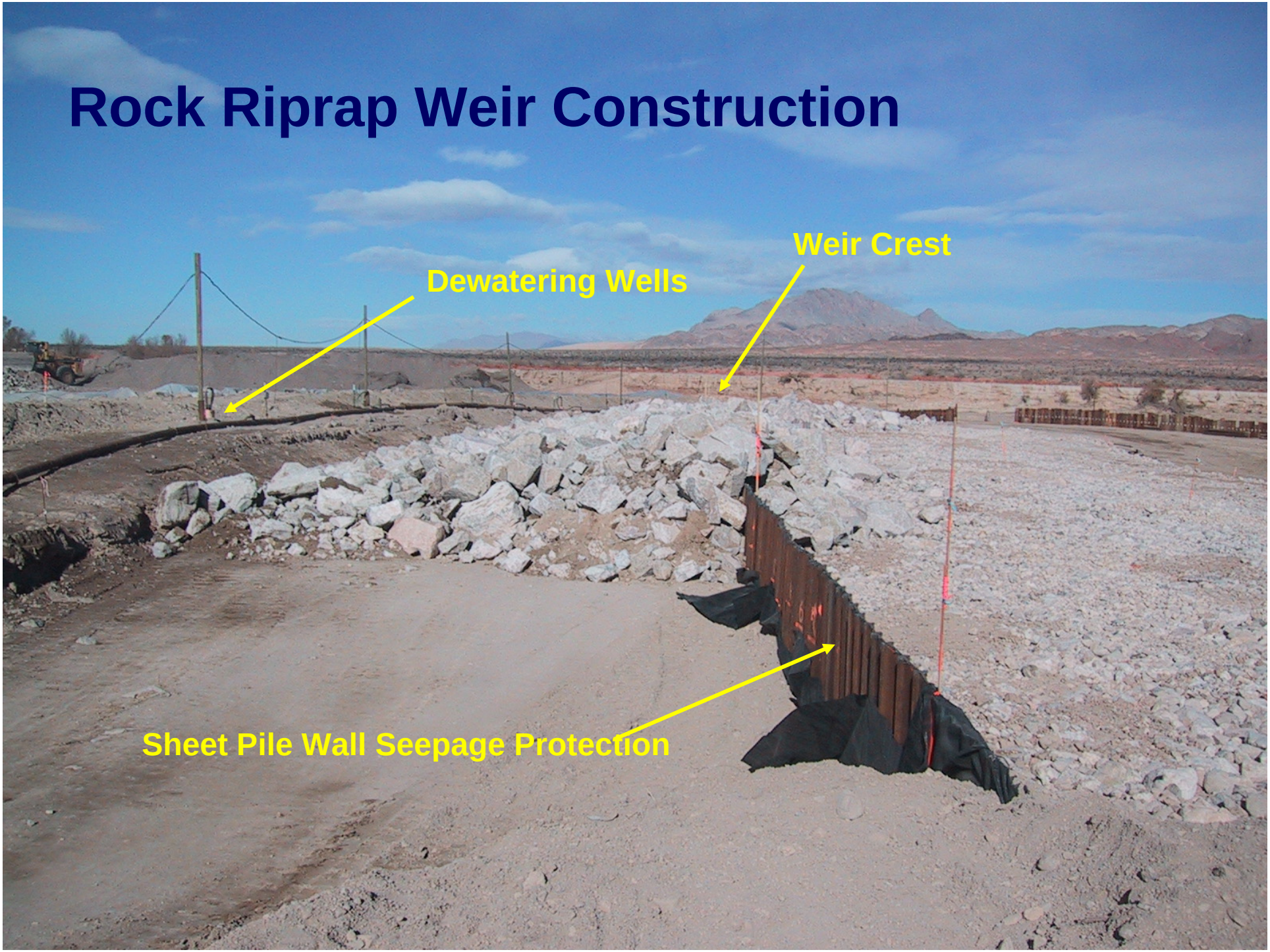
Multi-chambered Settling Tank
Powerline Weir
2006

Groundwater Dewatering System

Direct Discharge To Wash
Bostick Weir
2002

Diverted Discharge to
Rapid Infiltration Basin
Bostick Weir
2002

Rock Riprap Weir Construction

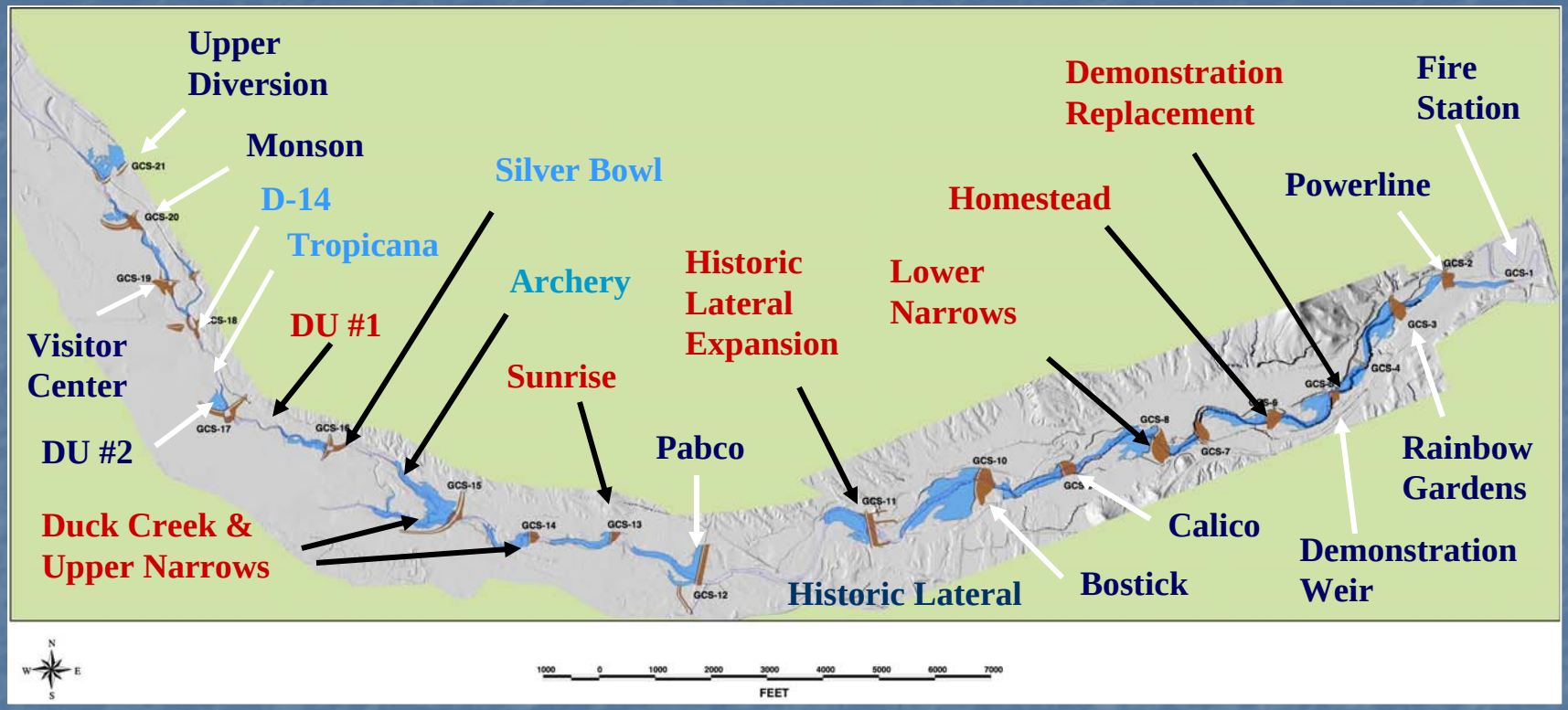


Rock Riprap Weir Construction

Colorado State University
Riprap Weir Testing

Rock Riprap Weir Operation

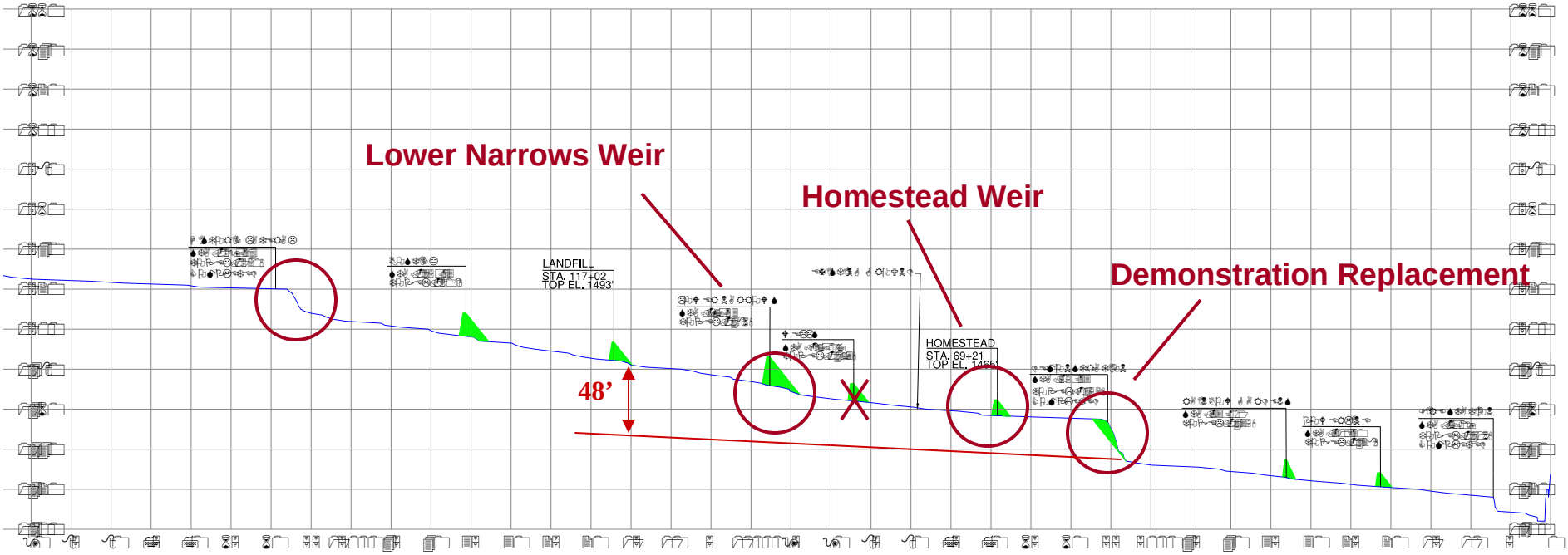
Design & Construction Activities



Las Vegas Wash
Clark County AWT to Lake Las Vegas

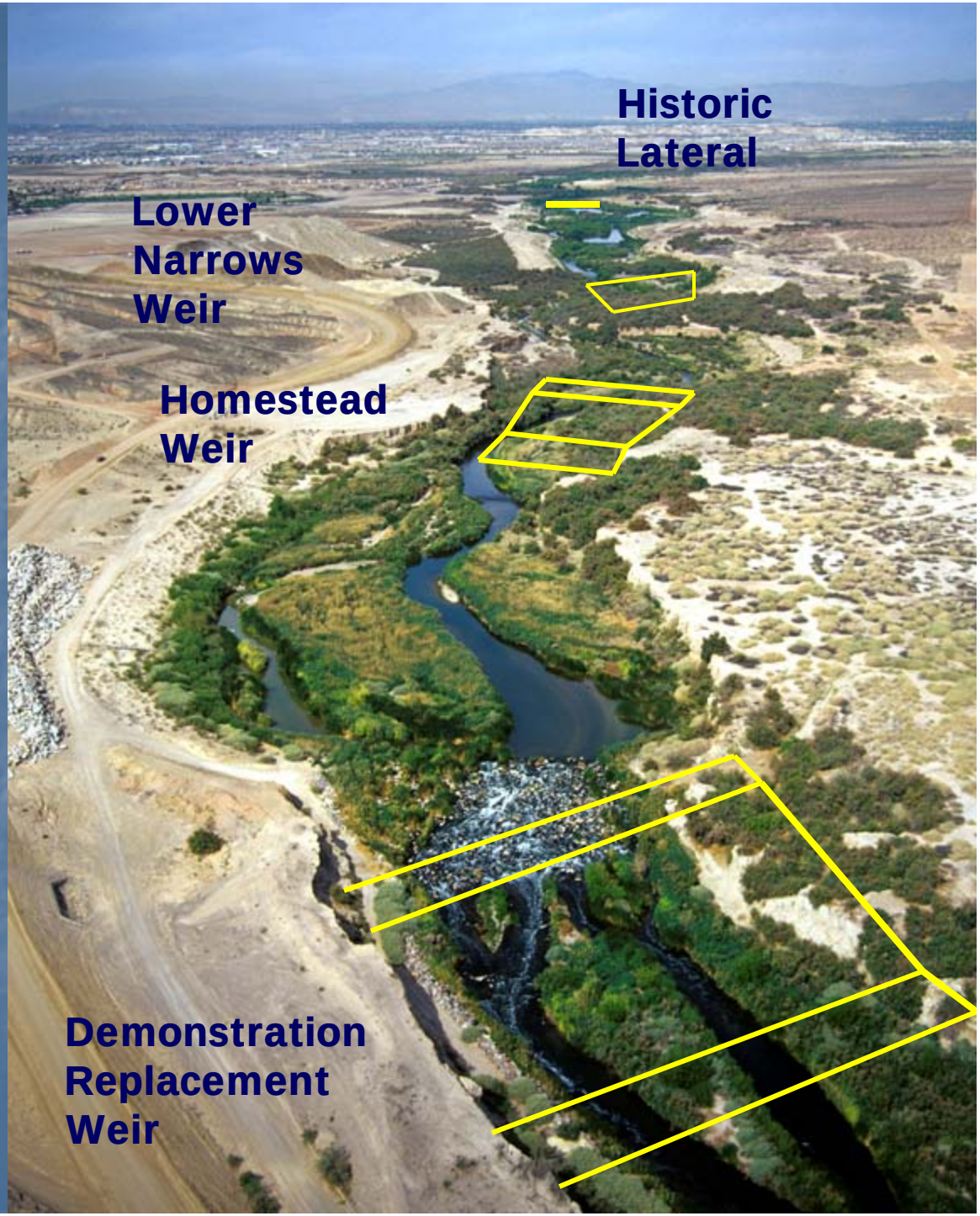
- Completed 1999-2009
- 2010 Design and Construction
- Future Design and Construction

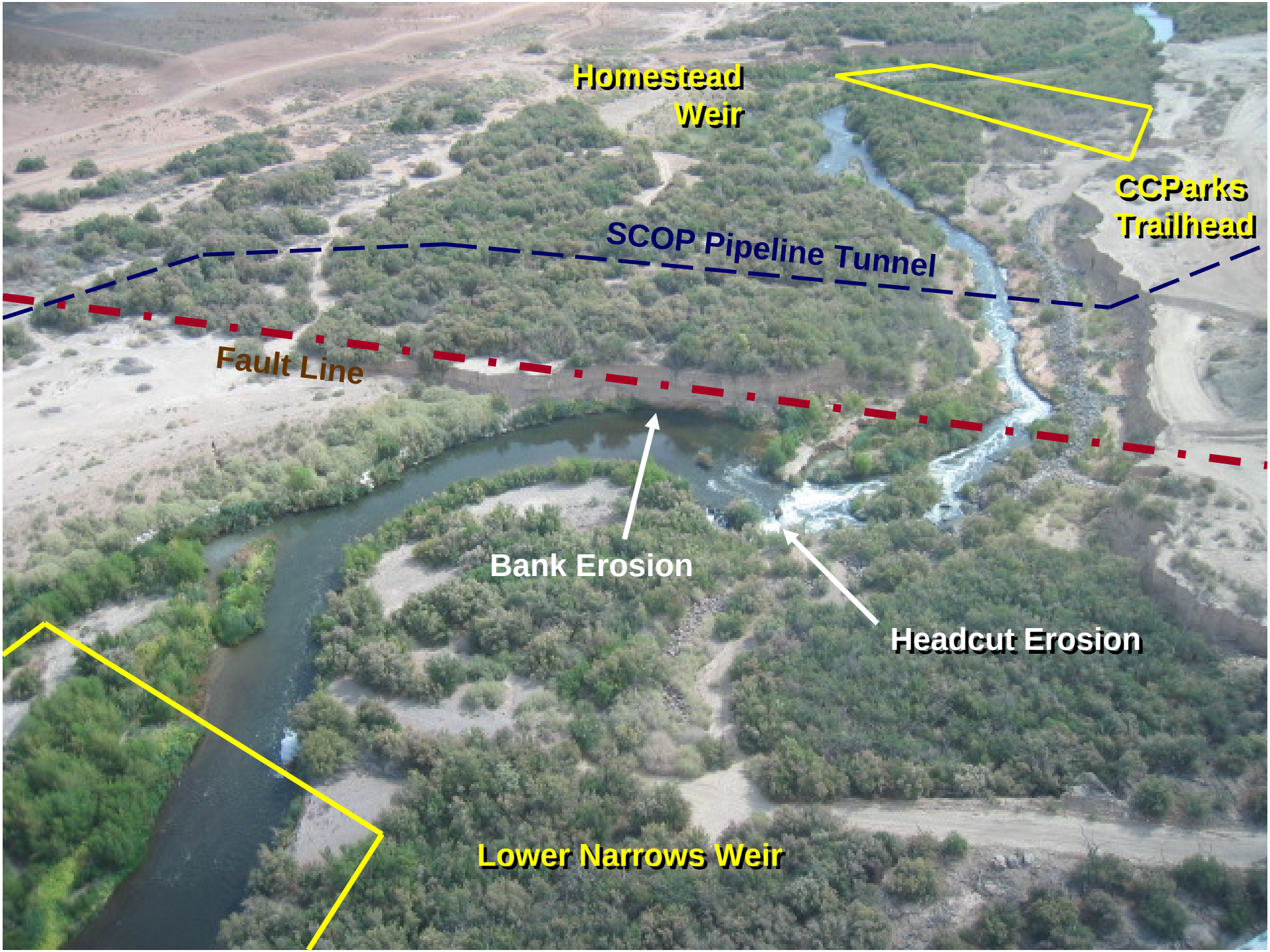
Las Vegas Wash Stabilization Program



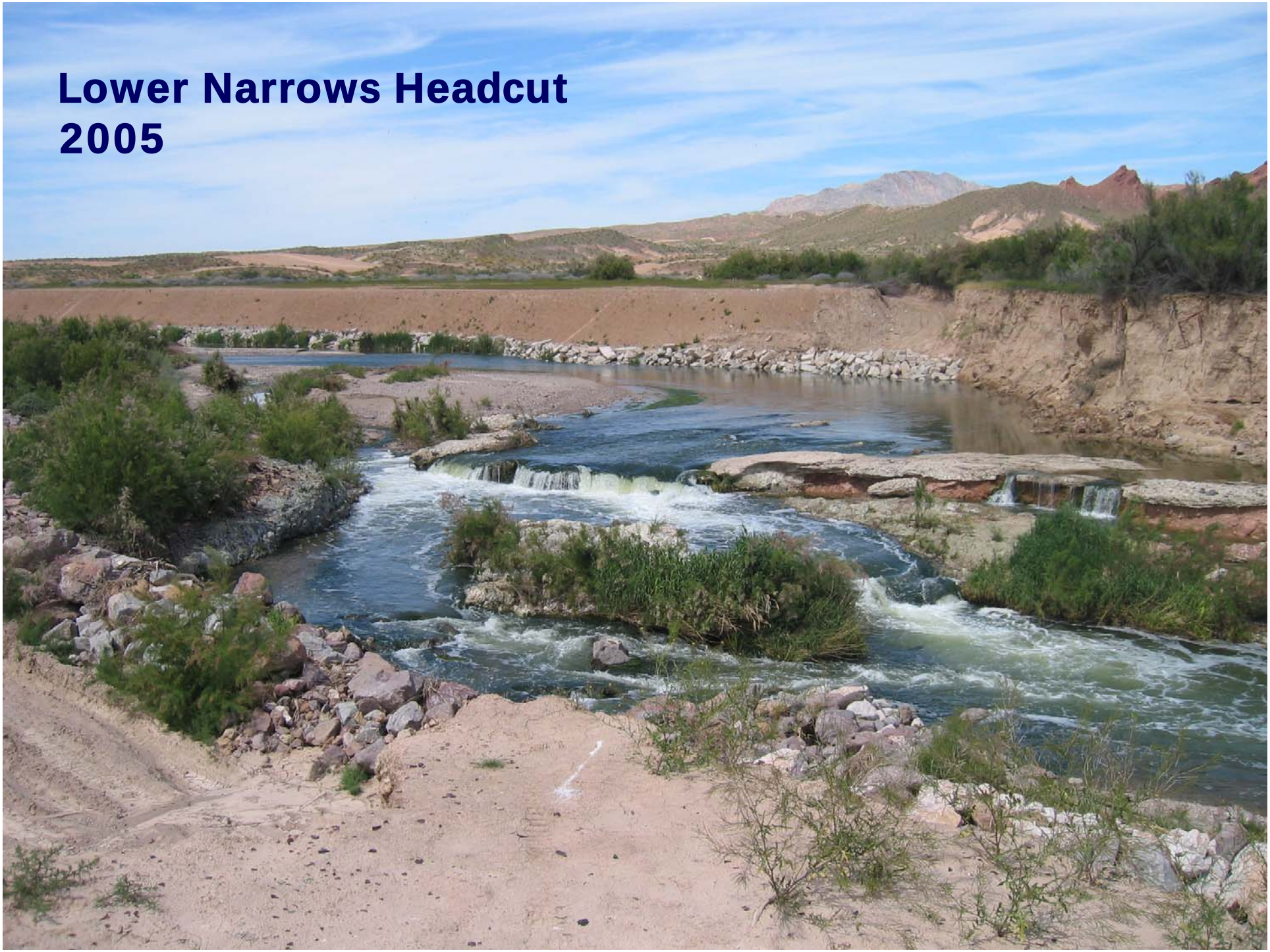
Lake Las Vegas to Pabco Road Weir

Lower Narrows, Homestead, Demonstration Replacement, Historic Lateral Weirs



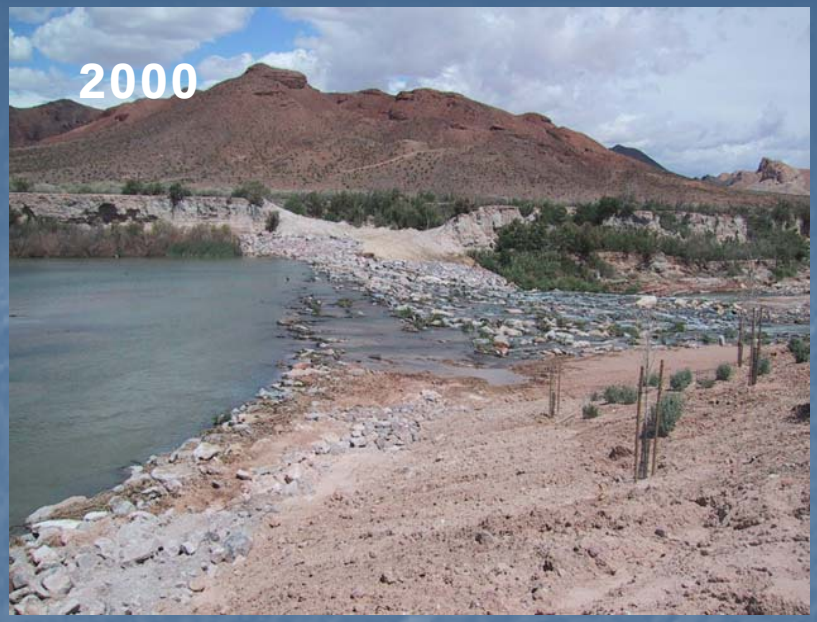

Homestead
Weir
CCParks
Trailhead
SCOP Pipeline Tunnel
Fault Line
Bank Erosion
Headcut Erosion
Lower Narrows Weir

Active Headcutting


Lower Narrows Headcut
2005

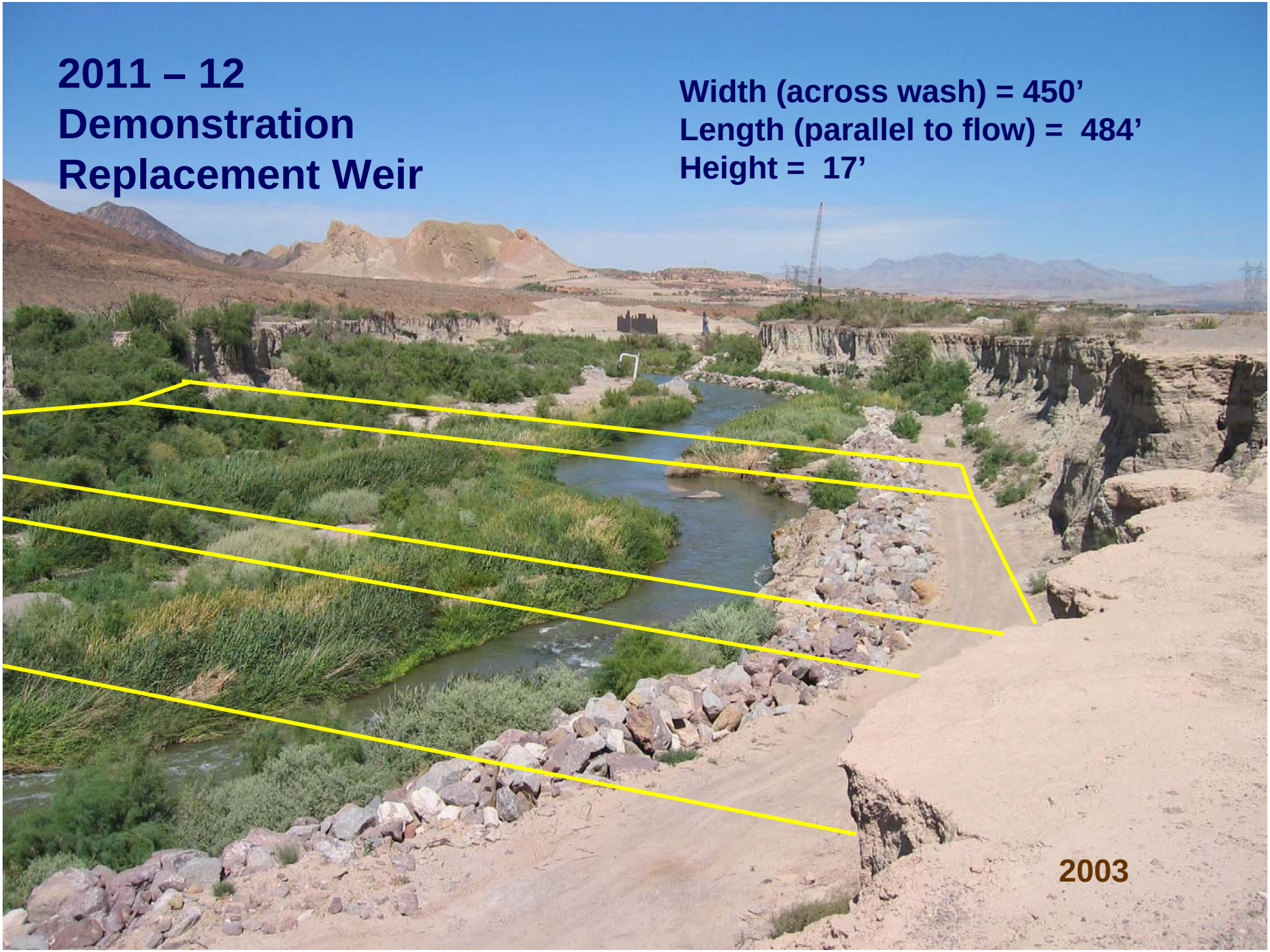
Calico Ridge Weir
Apron Toe 2006
Headcut Erosion

Demonstration Weir



2011 – 12 Demonstration Replacement Weir

Width (across wash) = 450'
Length (parallel to flow) = 484'
Height = 17'



Rainbow Gardens Weir
2004

2009 – 11
Homestead Weir Site

Homestead Weir Site

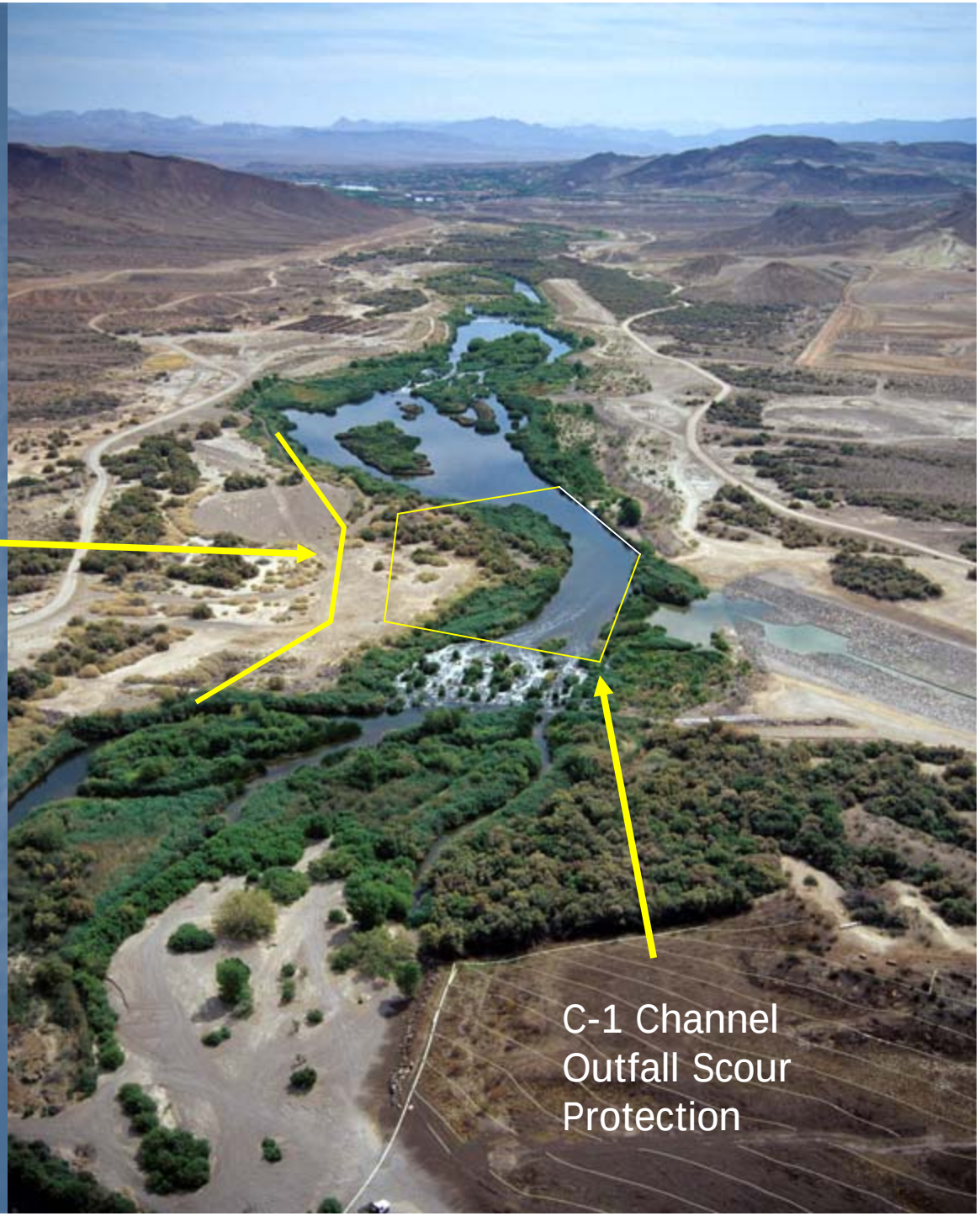
Width (across wash) = 473’
Length (parallel to flow) = 498’
Height = 18 ’

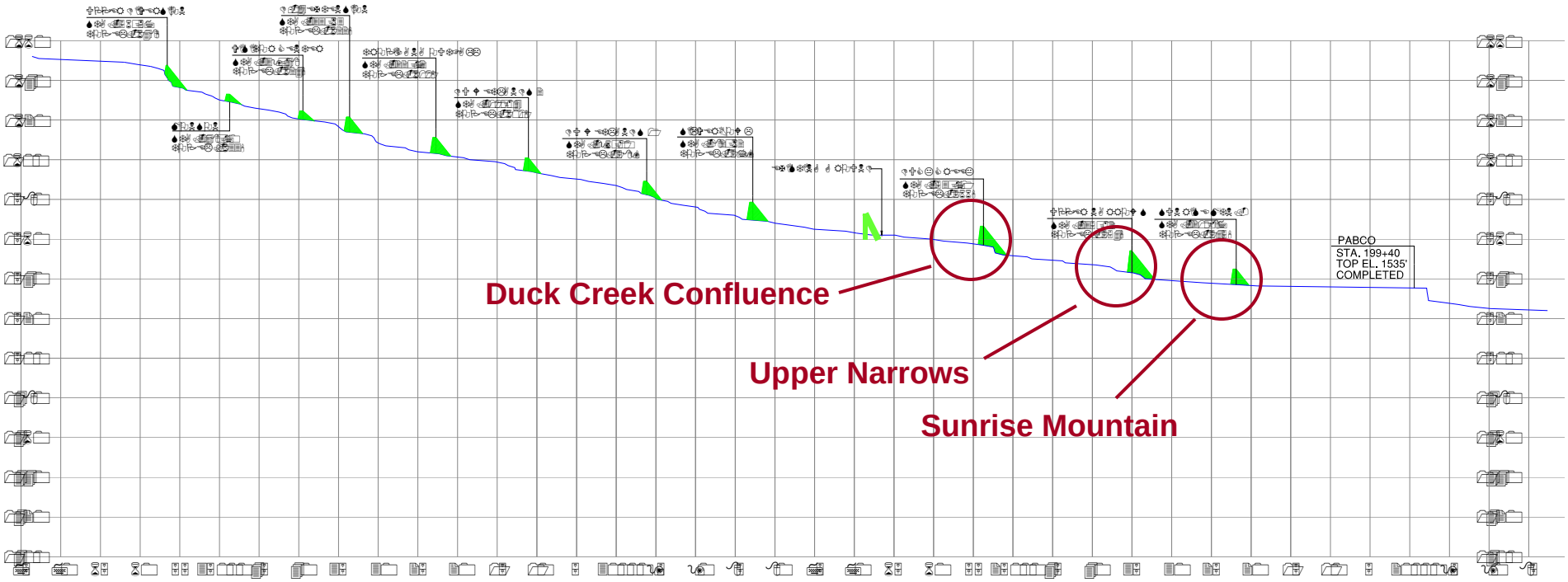
2009 – 11
Lower Narrows Weir

Lower Narrows Weir

Width (across wash) = 483’
Length (parallel to flow) = 350’
Height = 13’

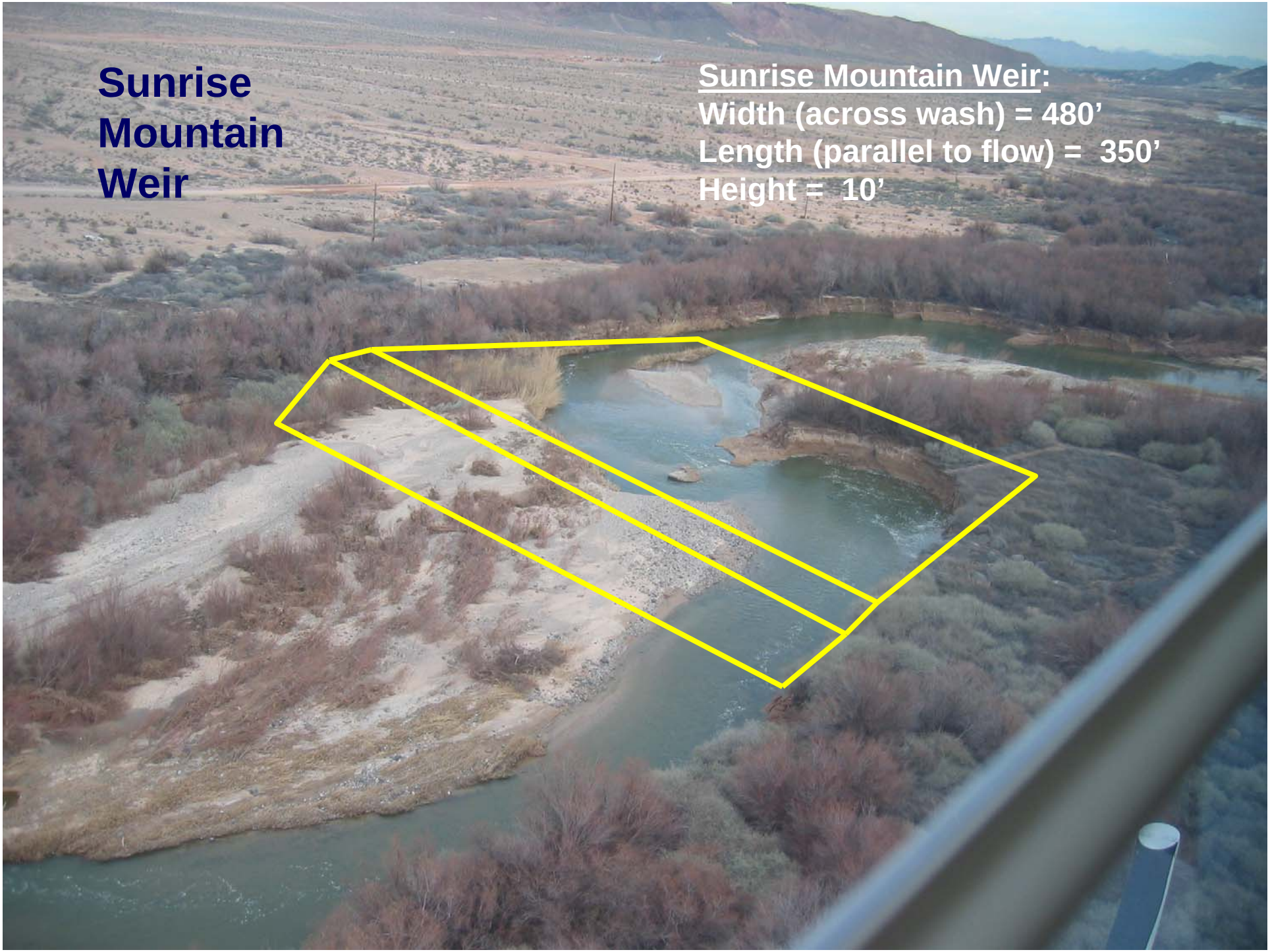
2011
Historic Lateral Weir Expansion





Pabco Road Weir to Upper Diversion Weir

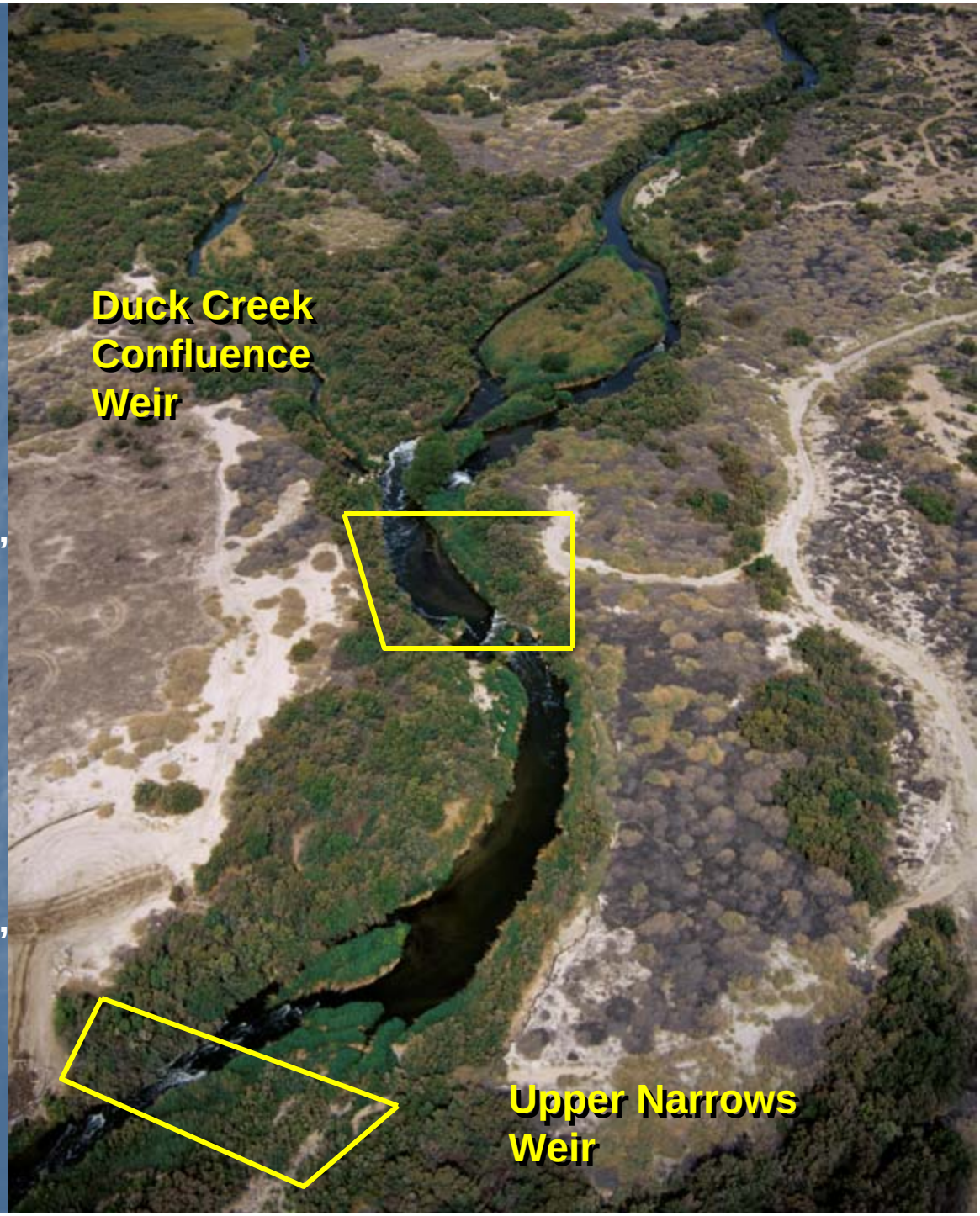
2013
Sunrise Mountain Weir
Pabco Road Weir

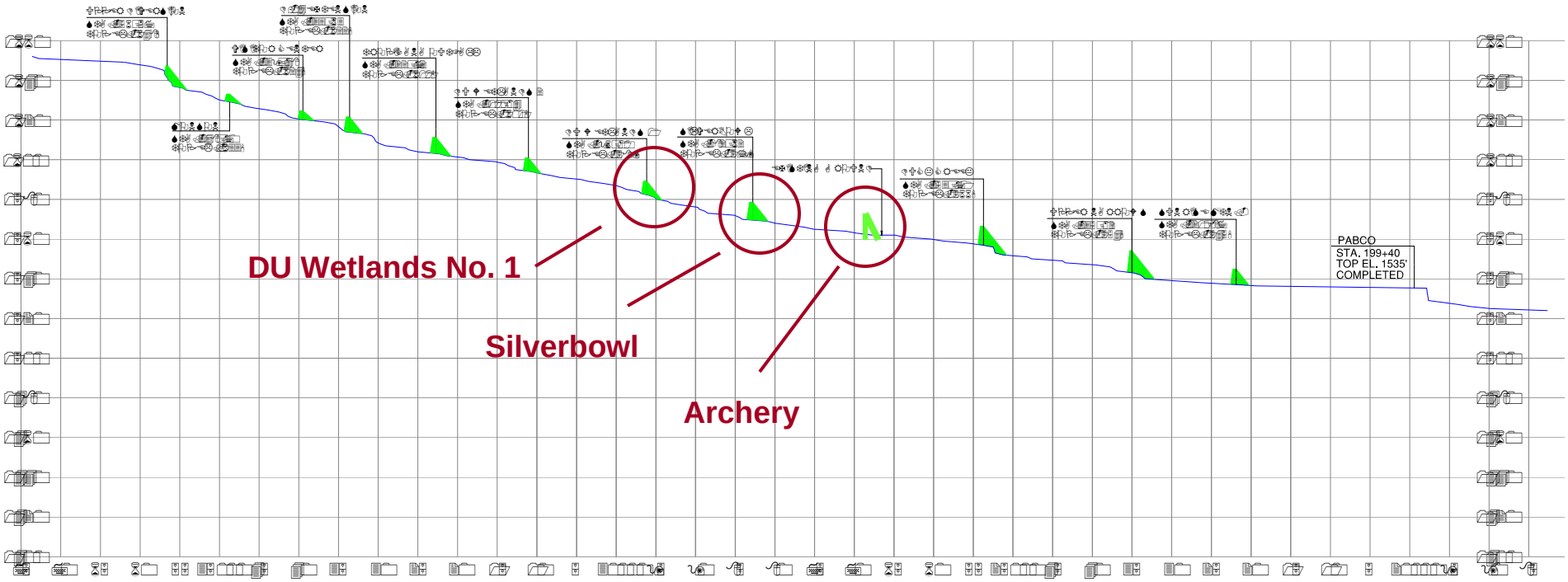

Sunrise Mountain Weir
Sunrise Mountain Weir:
Width (across wash) = 480'
Length (parallel to flow) = 350'
Height = 10'

2012 Duck Creek Confluence Weirs

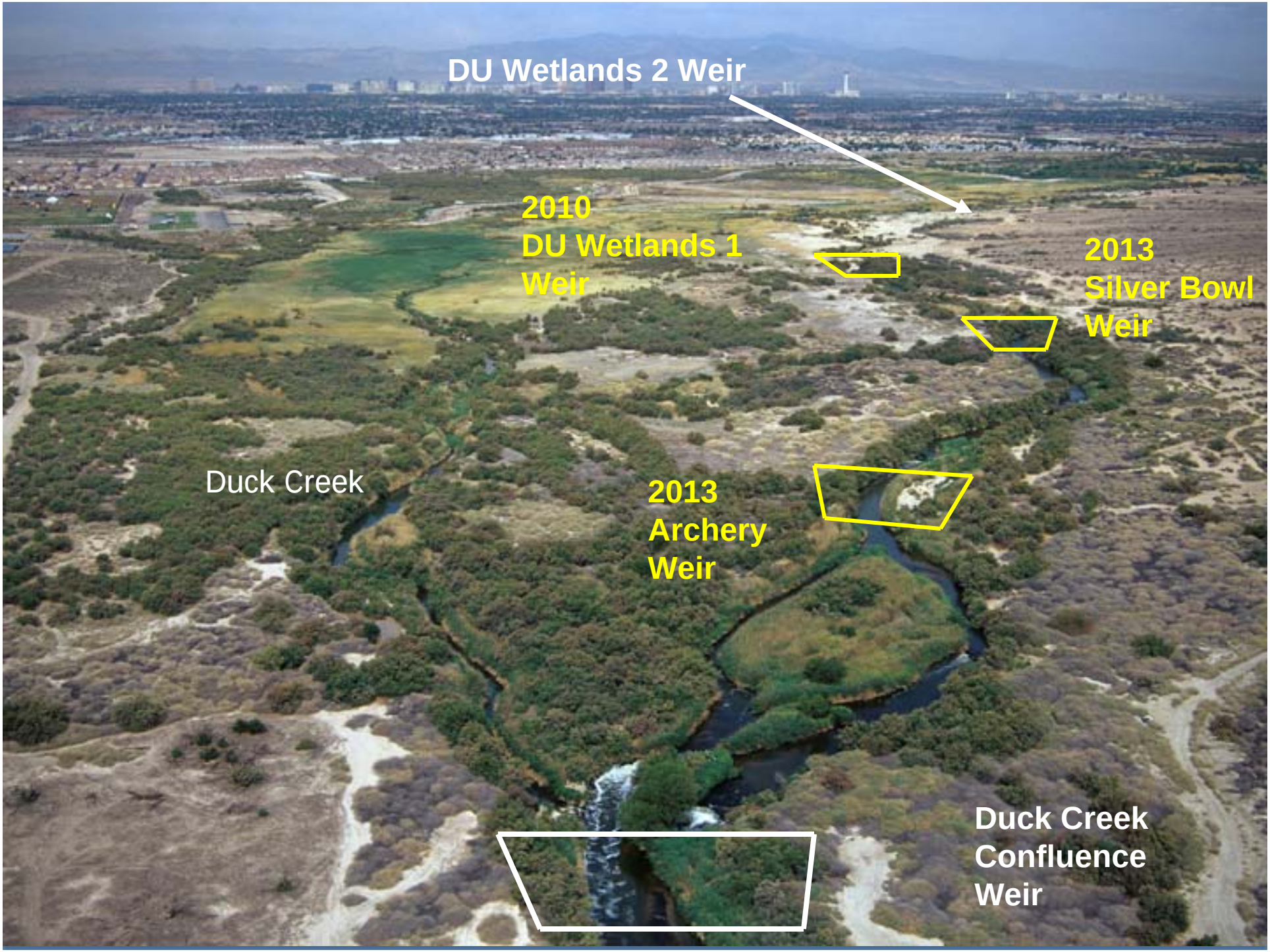
<u>Duck Cr. Confluence</u>:
Width (across wash) = 650’
Length (parallel to flow) = 305’
Height = 11’

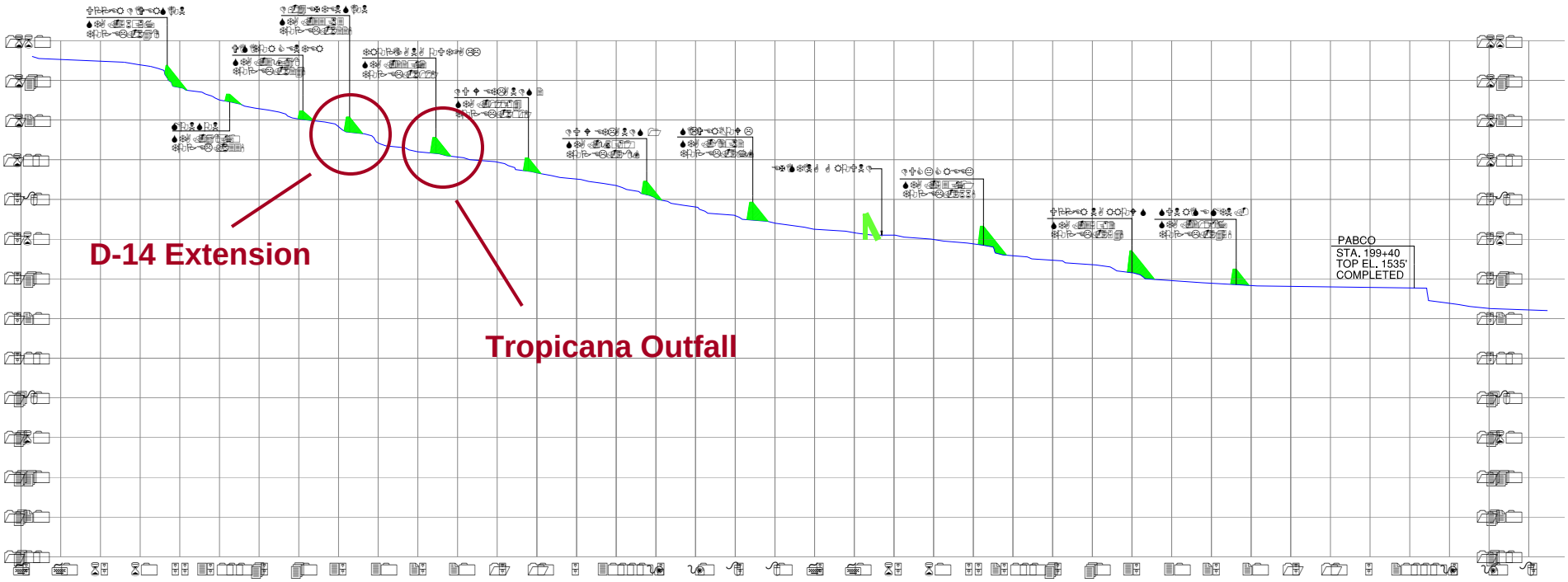
<u>Upper Narrows</u>:
Width (across wash) = 483’
Length (parallel to flow) = 350’
Height = 13’





Pabco Road Weir to Upper Diversion Weir


DU Wetlands 2 Weir
2010
DU Wetlands 1
Weir
2013
Silver Bowl
Weir
Duck Creek
2013
Archery
Weir
Duck Creek
Confluence
Weir



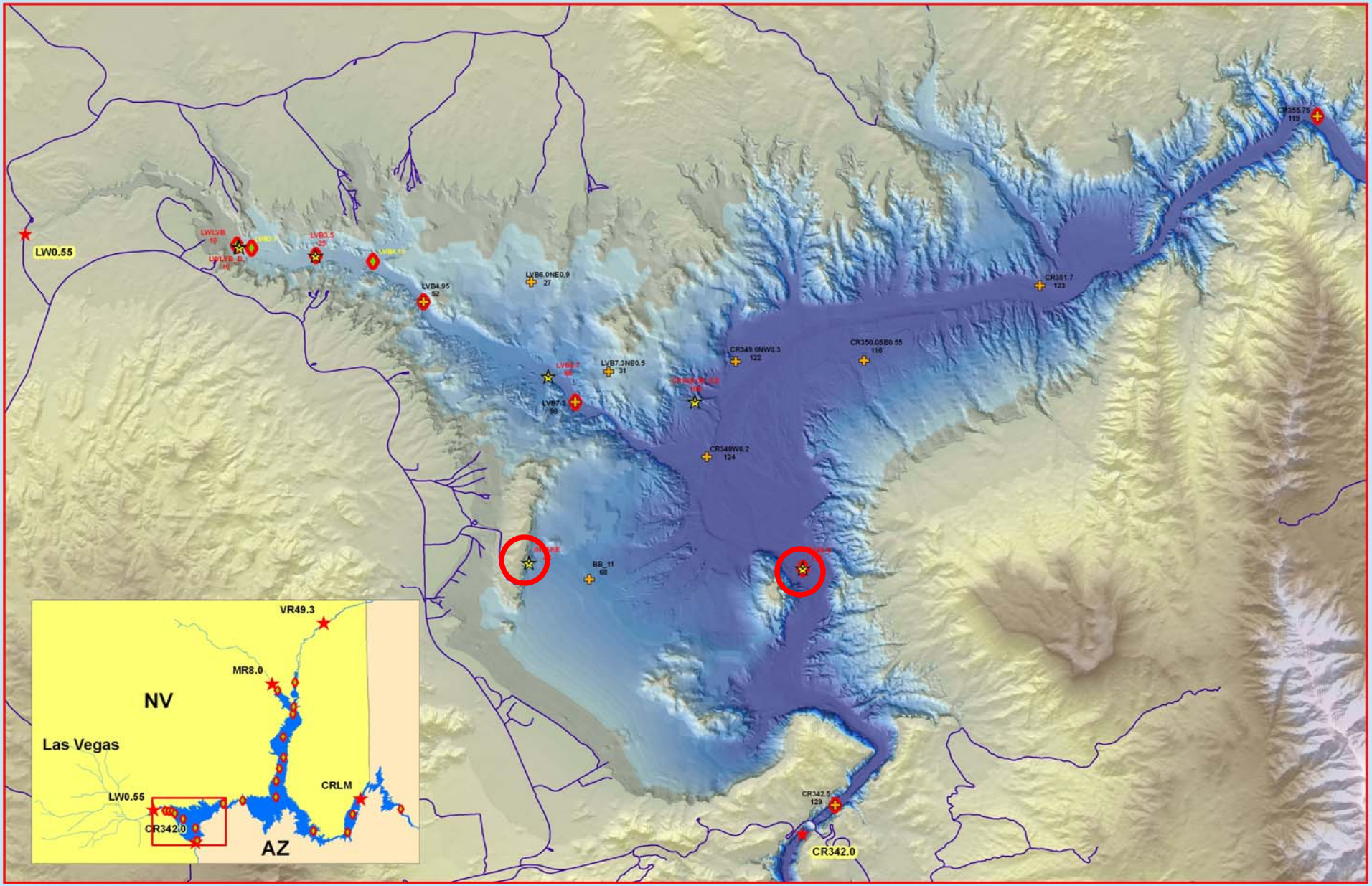
Pabco Road Weir to Upper Diversion Weir

2015
D-14 Extension Weir
2015
Tropicana
Outfall Weir
Upper Diversion
Bypass Channel
DU Wetlands No. 2 Weir

Perchlorate Monitoring

Lake Mead

- Two locations
- CR346.4
- Intake
- 6 depths – 2 hypolimnion, 2 metalimnion (one at zone of highest conductivity), epilimnion



SNWA SAMPLING SITES

- Weekly Sites
- Bi-Monthly Sites
- SNWA/BOR Sites
- Monthly Source

Lake Mead Water Quality Sampling Programs

May 2006 - Lake Elevation: 1135 feet

0 0.5 1 2 3 4 Miles

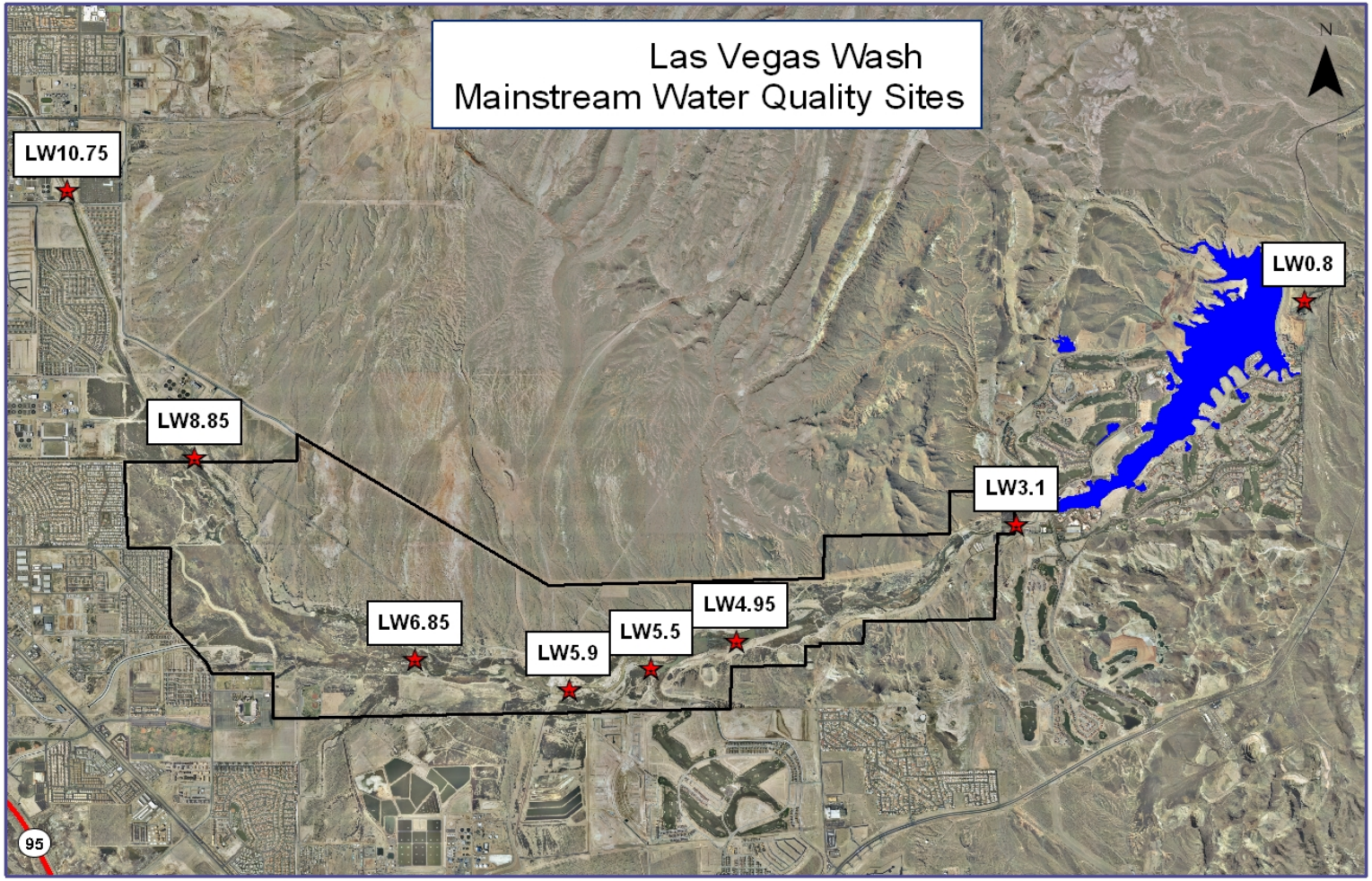
Prepared by:
Art Ehrenberg, SNWA

The information depicted on this map represents data collected from various sources by the Southern Nevada Water Authority Resources Department and is intended for Authority planning purposes only.

Las Vegas Wash

- 10 Locations
- LW0.8, LW3.1,LW3.85, LW4.1, LW4.3, LW5.3, LW5.5, LW5.7, LW6.7, LW10.75
- Monthly
- 8 locations
- LW0.8, LW3.1,LW4.95, LW5.5, LW5.9, LW6.85, LW8.85, LW10.75
- Every other month

Las Vegas Wash Sampling Locations



Prepared by SNWA/Planning Purpose Only

Proposed Mainstream Sites

Clark County Wetland Park Boundary

0 0.4 0.8 Miles

Dewatering

- Two samples a week
- Monday and Thursday
- Two day turn-around for results first month

X
X

Questions