Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

Laguna Division Conservation Area

Project Overview & Update

January 28, 2015

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Bureau of Reclamation
Boulder City, NV

U.S. FISH & WILDLIFE SERVICE

CALIFORNIA DEPARTMENT OF FISH & WILDLIFE

U.S. DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

Lower Colorado River Multi-Species Conservation Program

U.S. DEPARTMENT OF THE INTERIOR BUREAU OF RECLAMATION

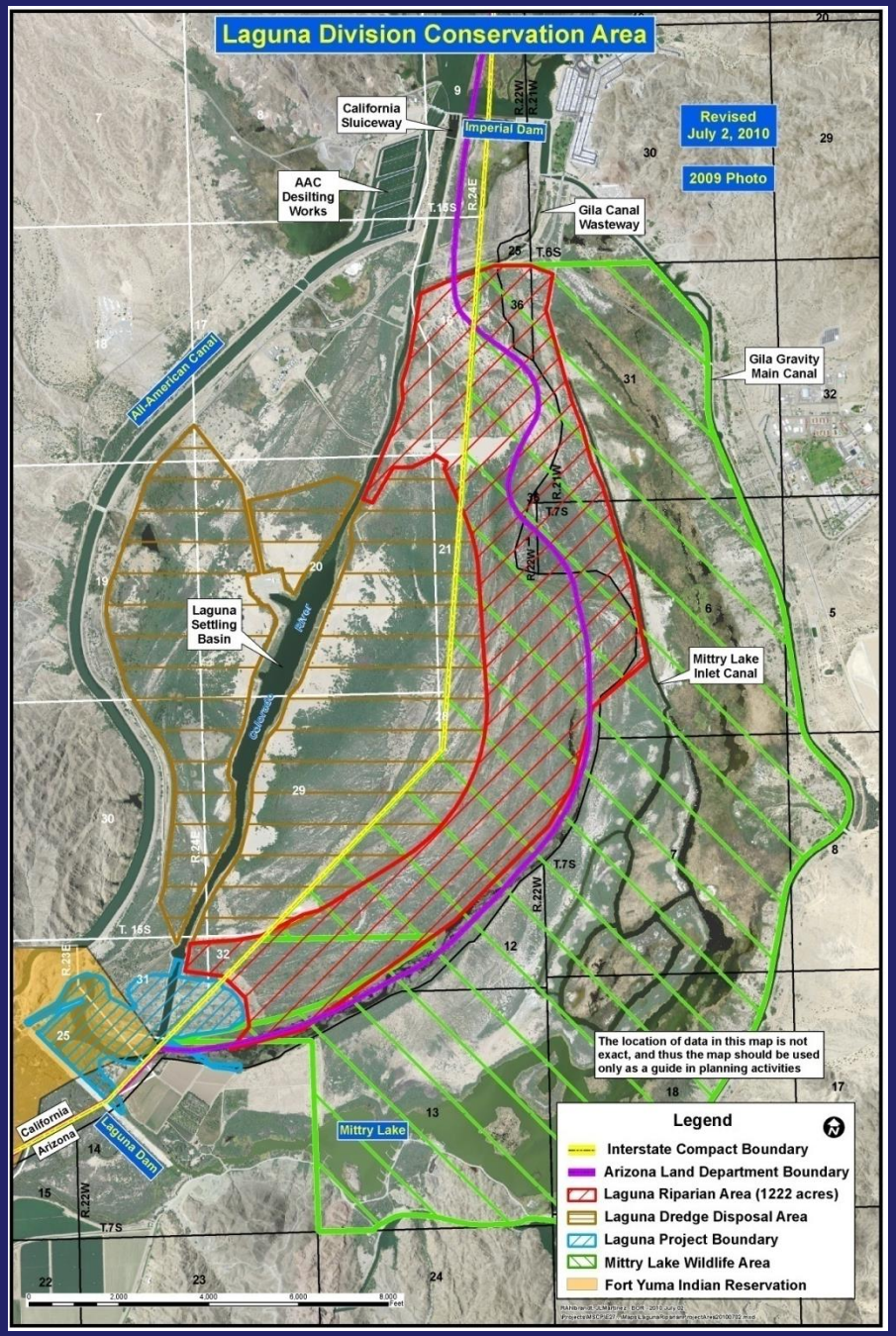
ADWR ARIZONA DEPARTMENT OF WATER RESOURCES

ARIZONA GAME & FISH

DISTRICT WATER POWER IID A century of service.

Project Site Map

- Project Area – 1100+ acres
- Reach Length – 4.3 miles
- Existing Conditions
  - Reach 1 & 2 cleared
  - All planting complete except Reach 2 riparian & mesquite



The Laguna Project Team

Balancing Resource Use and Conservation

- **Provo Area Office**
  - Earthwork, Construction, Planting, Design Support
- **Yuma Area Office**
  - Modeling, Earthwork/Design Support
- **Denver TSC**
  - Engineering and Design Support
- **Bureau of Land Management**
  - Access control, law enforcement

Project Design Considerations

Balancing Resource Use and Conservation

- Up to 100 cfs available for project use
- Habitat Targets:
  - Open Water/Marsh: 50 – 100 ac
  - Cottonwood/Willow: >200 ac
  - Upland(mesquite): <500 ac
  - Include specific habitat for T&E species
- Provide hydrology to support habitats for 50 years or more
- No detrimental effect on existing Mittry Lake or Old River Channel Habitats
- Minimize impacts to existing operations (sluicing, dredge disposal, water delivery, etc.)
- Minimize both initial construction and long-term operating costs

Target Habitats

Open Water/Marsh: 50 – 100 ac

Cottonwood/Willow: >200 ac

Upland (Mesquite): <500 ac

Target Species

California Black Rail

Yuma Clapper Rail

Southwestern Willow Flycatcher

Yellow Billed Cuckoo

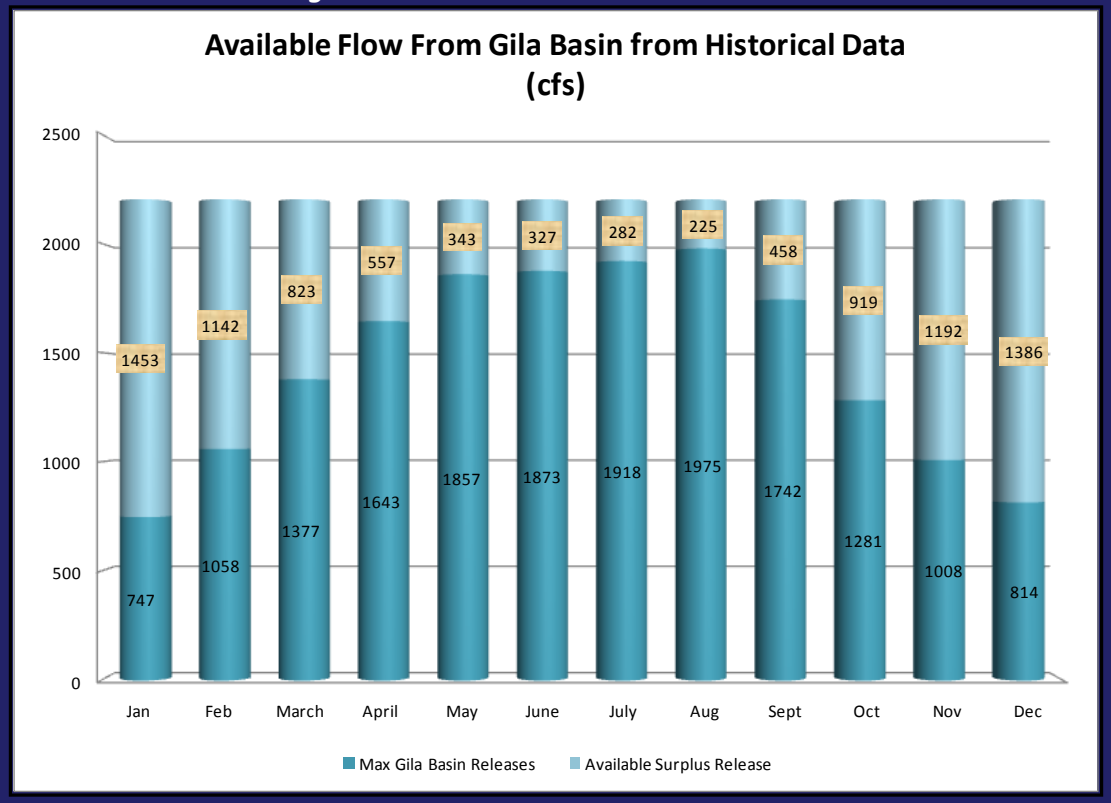
Yuma Hispid Cotton Rat

Western Least Bittern

Water Accounting

100 cfs continuous flow is available from the Gila Settling Basin

- Looking at historical (1943 – 2009) monthly flow data of gauging station, USGS 0952250 Gila Gravity Main Canal at Imperial Dam, collected in the Main Canal.
- In the event of a water shortage to the Gila Main Canal, the Laguna Division Conservation Area has lower priority than downstream users and water supply to the Area may be limited.



http://waterdata.usgs.gov/az/nwis/monthly/?referred_module=sw&site_no=09522500&por_09522500_2=19986,00060,2,1943-08,2010-03&format=html_table&date_format=YYYY-MM-DD&rdb_compression=file&submitted_form=parameter_selection_list

Project Timeline

Balancing Resource Use and Conservation

2007

- Laguna Division Planning Group Formed

2009

- Steering Committee Approves Design

2011

- NEPA & 404 permitting completed
- Site prep & earthwork begins

Project Timeline

Balancing Resource Use and Conservation

2012

- Water Delivery System and Control Structures construction
- Plant procurement

2013

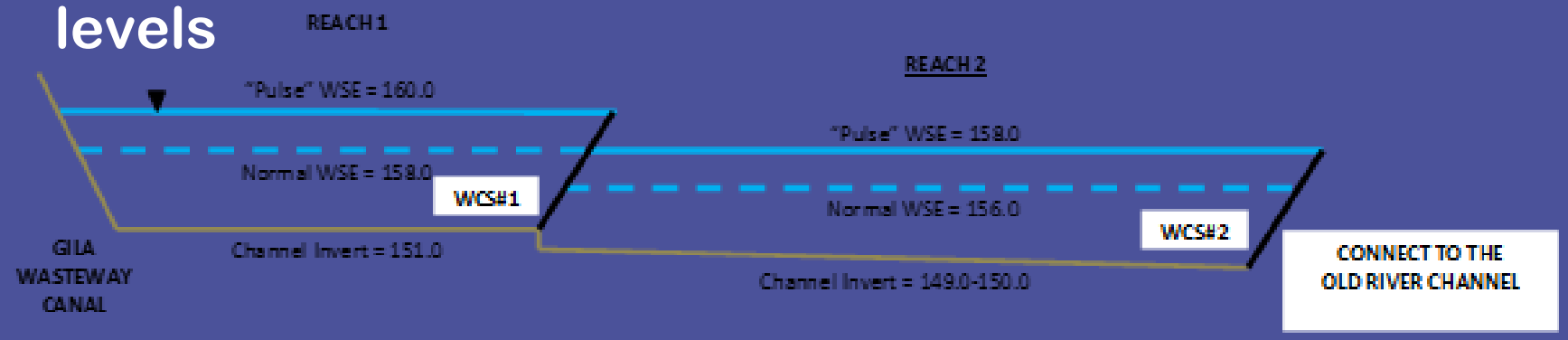
- Begin Planting
- Water control structures completed
- Continued earthwork

2015

- Complete Planting
- Begin monitoring and maintenance phase

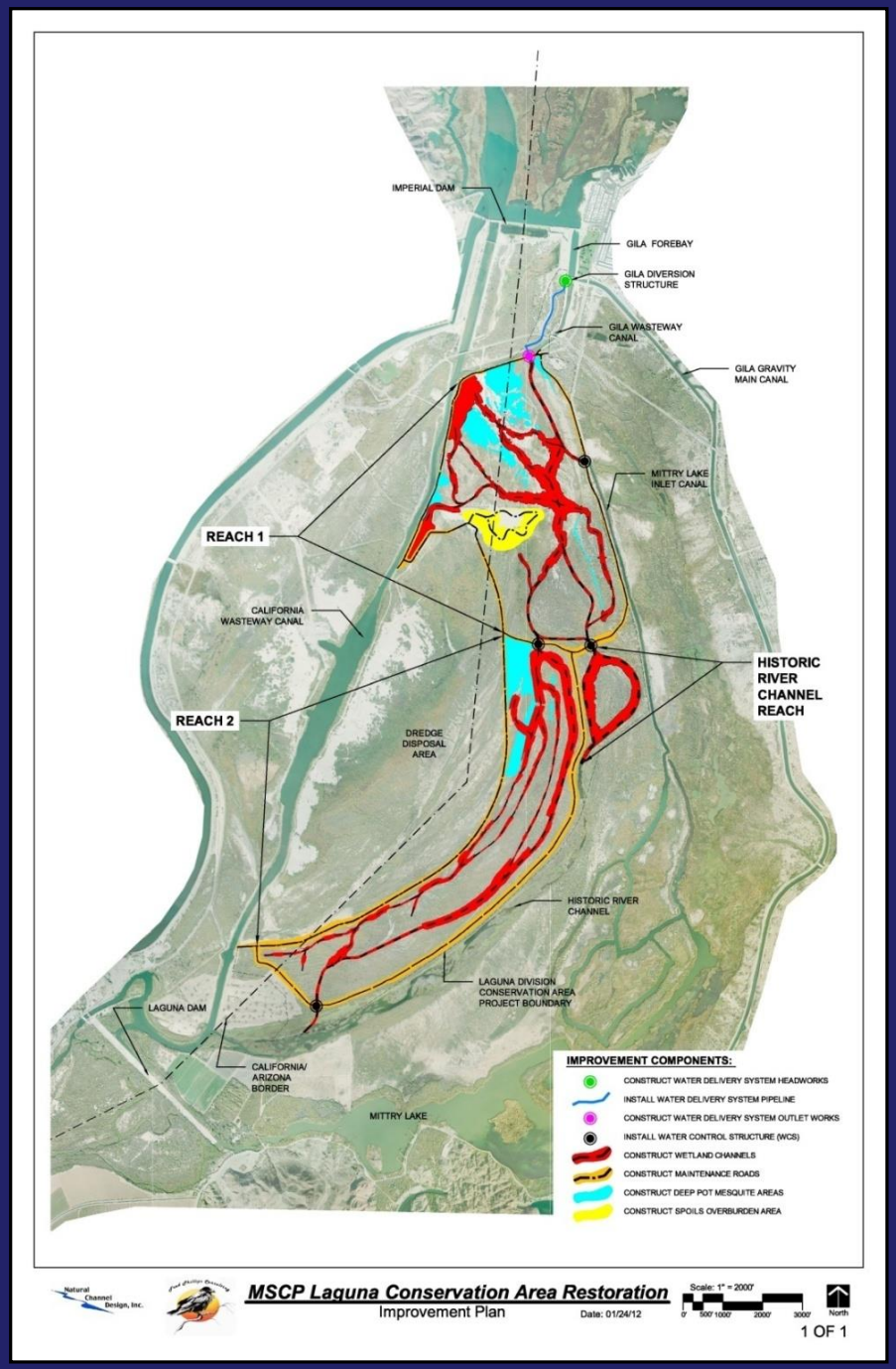
Construction Plan: Overview

- Operate as a managed, riverine system to maximize limited water resource
- Use existing overflow channels through project area to minimize excavation
- Use "pulse flows" to provide irrigation to woody species
- Requires water control structures to manage water levels



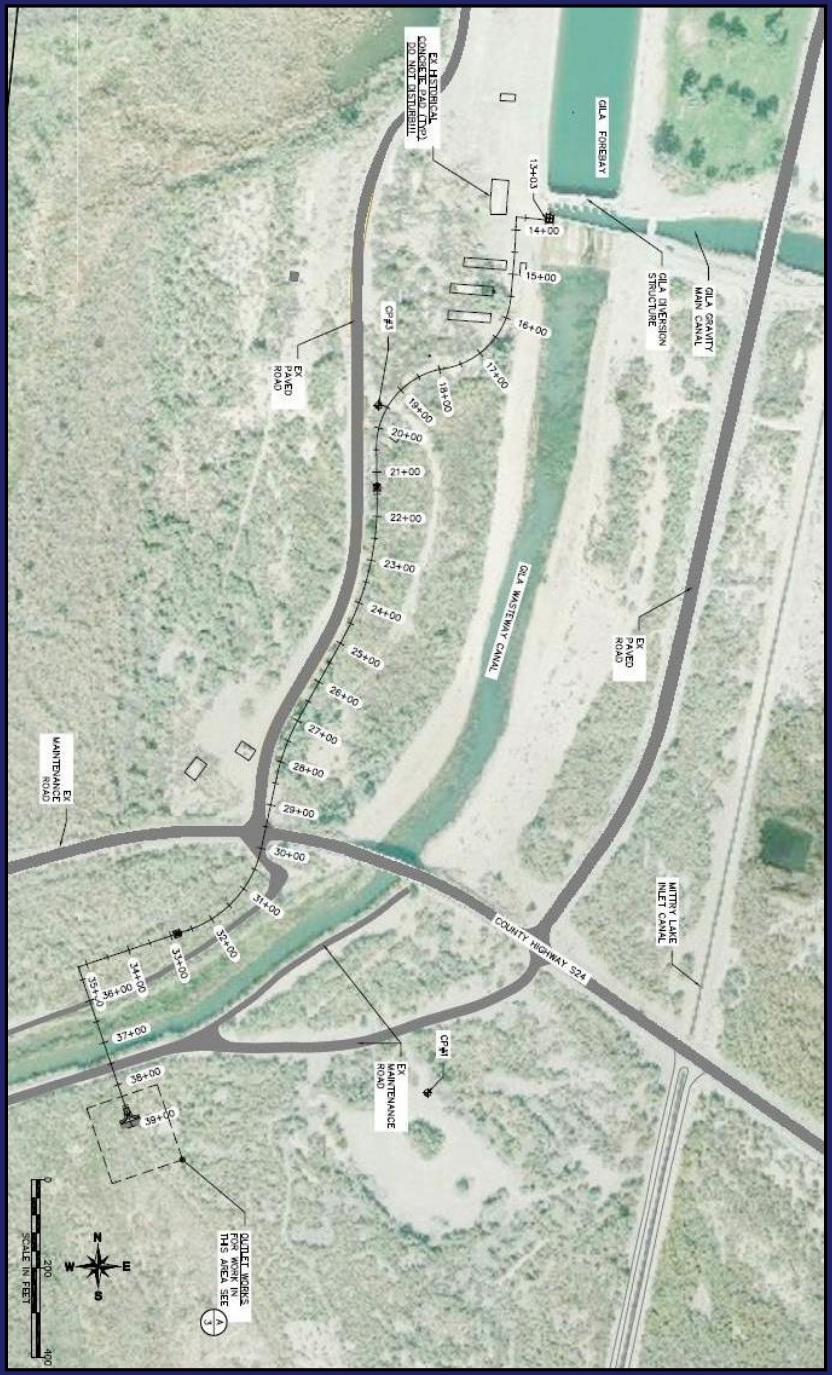
Construction Components

- Water Delivery System from Gila Forebay
  - Headworks & Pipeline
- Site Preparation for Earthwork
  - Clearing/Grubbing of Salt Cedar
- Earthwork
  - Channels support water conveyance and vegetation/habitat
  - Minimize cut/fill and maximize pulse flow irrigated area
  - Reach 1 & 2 primary and secondary channels
  - Roads for access and firebreaks
- Water Control Structures
  - Manage water levels in Reaches 1 & 2, and historic river channel
  - Additional Mittry Lake turnout structure



Water Delivery System Overview

- Gravity system delivering high quality water from the Gila Forebay to the wetland restoration area
- Pipeline headworks at the Gila Forebay
- 3,000-FT, 48-IN. diameter pipeline
- Cross underneath the Gila Wasteway Canal with an inverted siphon



Water Delivery System: Pipeline

Balancing Resource Use and Conservation

- 48-inch diameter, 4,000 Foot pipeline
  - Inverted siphon to cross underneath the Gila Wasteway Canal
  - Construction Completed in Spring 2012

Water Delivery System: Headworks

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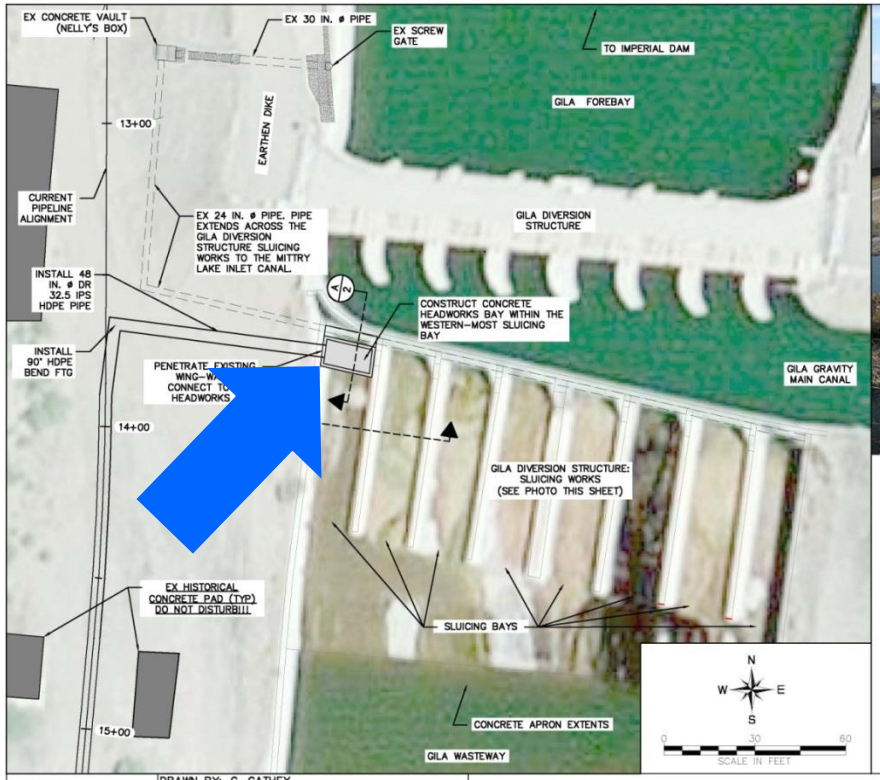

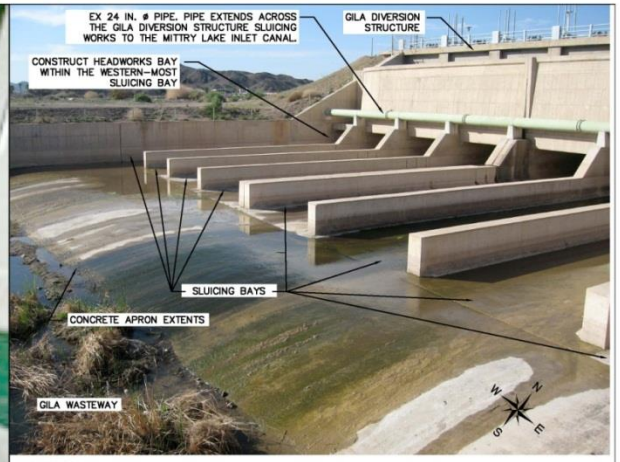

CONCEPT DESCRIPTION

- CONSTRUCT A CONCRETE HEADWORKS BAY, AS PART OF THE LAGUNA WATER DELIVERY SYSTEM, WITHIN THE WESTERN-MOST SLUICING BAY OF THE GILA DIVERSION STRUCTURE SLUICING WORKS. THE HEADWORKS WOULD BE DIRECTLY INTEGRATED WITH AND WOULD ACT AS AN EXTENSION OF THE EXISTING SLUICE GATE PORT.
- THE EXISTING SLUICE GATE WOULD BE OPENED TO ALLOW WATER TO ENTER THE HEADWORKS BAY, WHERE THE WATER WOULD THEN PASS INTO THE INLET OF THE WATER DELIVERY SYSTEM PIPELINE.
- WHEN SLUICING IS REQUIRED, THE NEW SLUICE GATE TO THE WATER DELIVERY PIPELINE WOULD BE CLOSED AND SLUICING EVENTS WOULD BE ROUTED THROUGH THE HEADWORKS BAY VIA TWO, NEW SLUICE GATES WITHIN THE HEADWORKS BAY.
- WHEN LONG-TERM MAINTENANCE AND/OR INSPECTION IS REQUIRED WITHIN THE HEADWORKS BAY, THE EXISTING SLUICE GATE COULD BE CLOSED.

ADVANTAGES OVER PREVIOUS CONCEPT

- THE HEADWORKS BAY CAN BE CONSTRUCTED COMPLETELY IN THE DRY AND CONSTRUCTION WILL NOT IMPACT OPERATIONS OF THE GILA MAIN CANAL (I.E. NO DRAW-DOWN REQUIRED)
- THE CONCEPT USES EXISTING INFRASTRUCTURE (GATES, SLUICE PORTS, ETC.) AND DOES NOT REQUIRE BREACHING THE WATER WORKS (I.E. NO CONCRETE OR DIKE BREACHING).
- REDUCES PIPE LENGTH BY 275 FEET AND ELIMINATES THE NEED FOR A MANHOLE AND FILTER DIAPHRAGM

DRAWN BY: G. CATHEY			
DESIGNED BY: G. CATHEY			
REVIEWED BY:			
REV	DATE	BY	REVISION

ALTERNATIVE HEADWORKS CONCEPT: PLAN VIEW & NARRATIVE

LAGUNA DIVISION CONSERVATION AREA WATER DELIVERY SYSTEM PROJECT: HEADWORKS & OUTLET WORKS PLAN

PRELIMINARY NOT FOR CONSTRUCTION

UNAUTHORIZED CHANGES & USES: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

DATE: 10-05-11

NCD PROJECT NO: 09-164-AZ

DRAWING NO: EX01

SHEET NO: 1 OF 2

ONE TWO WORKING DAYS BEFORE YOU DIG 256-1100 1-800-STAKE-IT (OUTSIDE MARICOPA COUNTY)

Water Delivery System: Headworks

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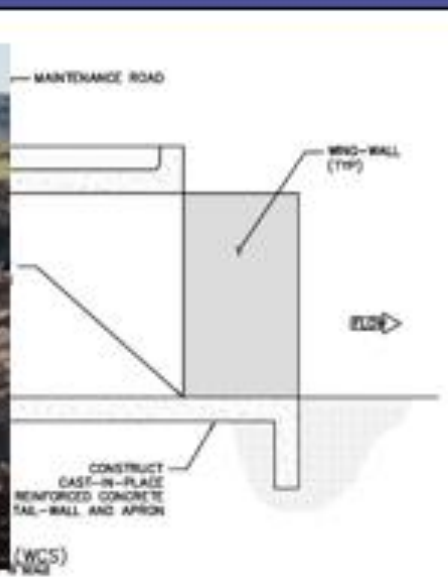
Water Control Structures

Balancing Resource Use and Conservation

- Overshot Gates set in cast-in-place concrete bays
- Constructed in concert with earthwork operations
- Fully-automated
- Additional Mittry Lake turn-out structure



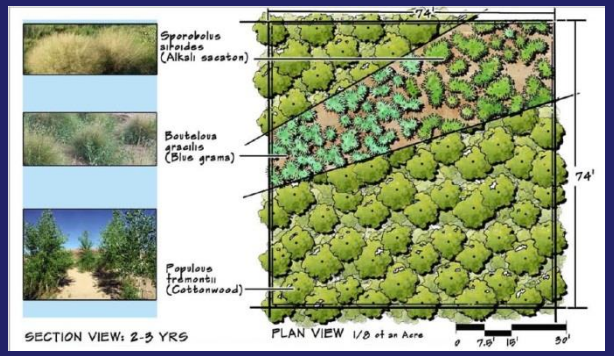
Earthwork Operations

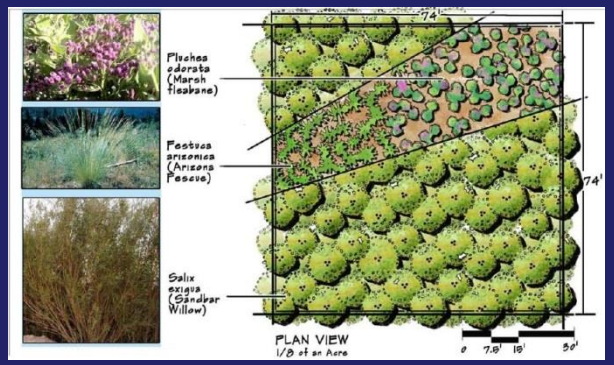
Balancing Resource Use and Conservation

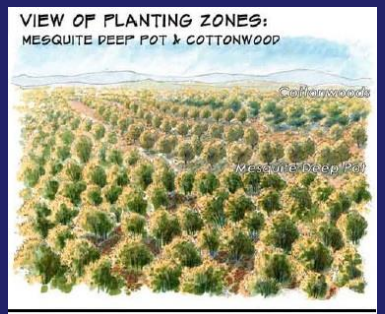
- Earthwork
  - Roughly 3 Million Cubic Yards of excavation
  - Utilize excavated spoils to form levees and maintenance roads
  - Began Fall 2011
  - Completed in Summer 2013
- Invasive weed management on-going

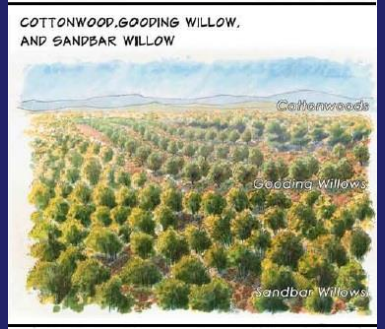
Site Preparation for Planting

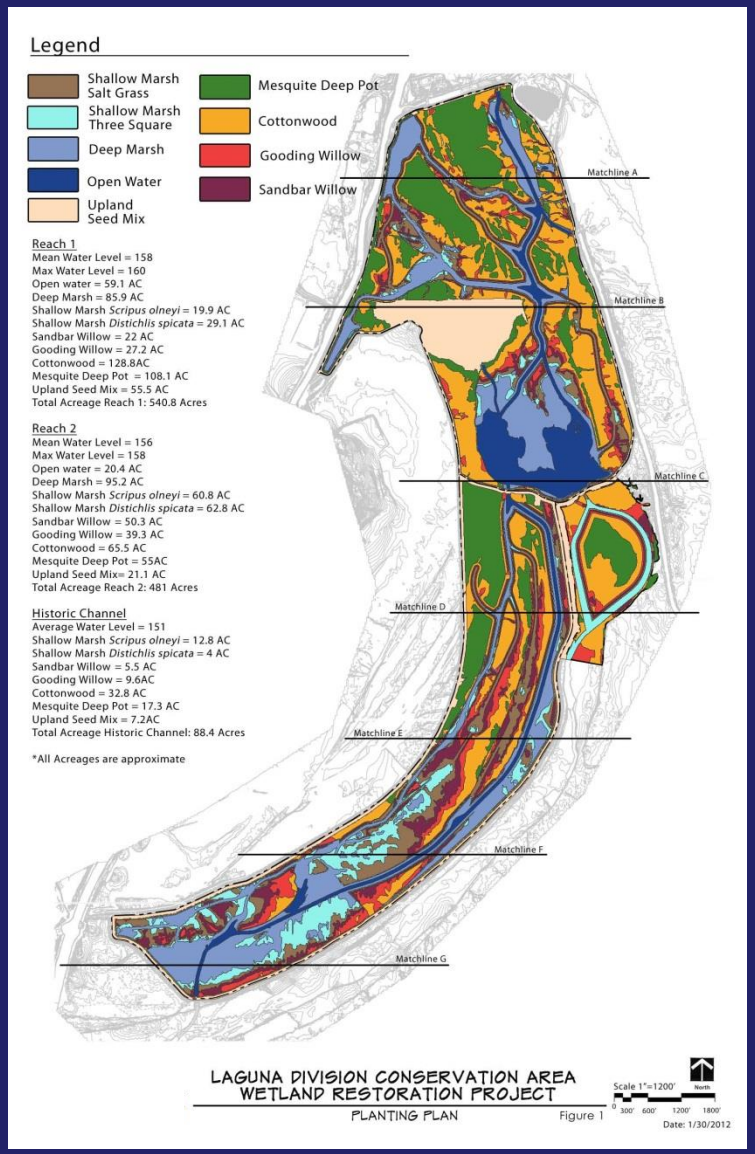
Proposed Planting Concept

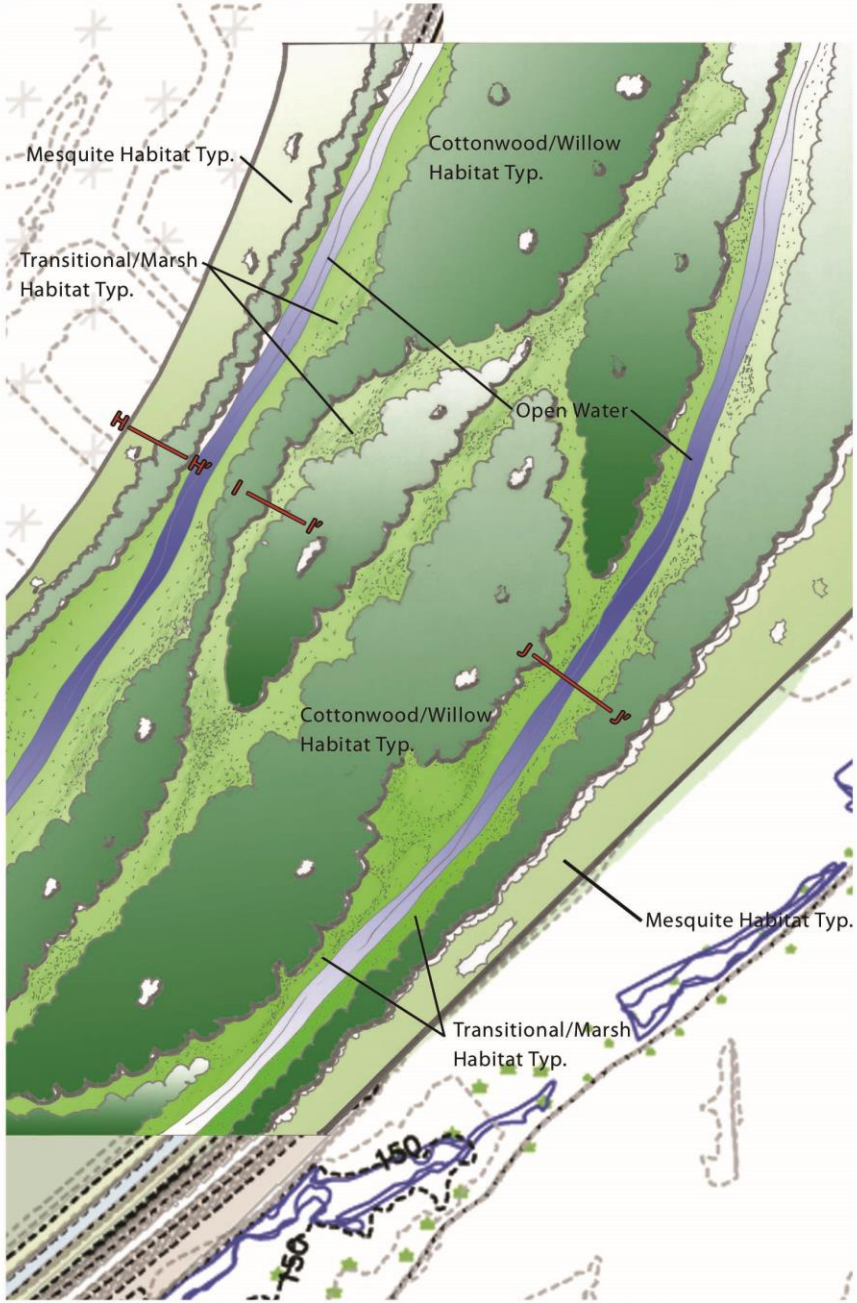








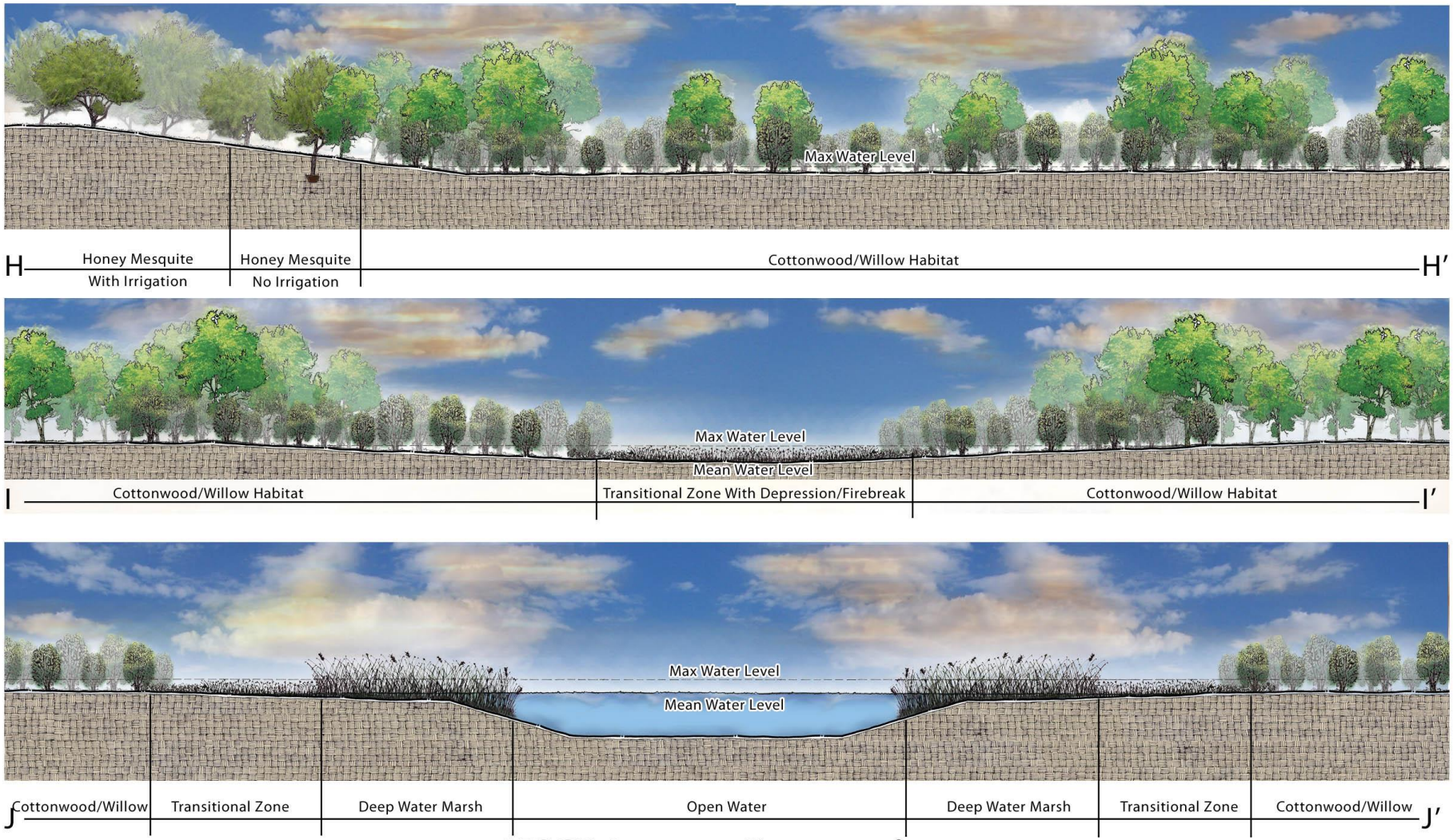




MSCP Laguna Restoration
Reach 2 Restoration

Date: 9/20/09

Scale: 1" = 240'
0' 60' 120' 240' 360'
North



MSCP Laguna Restoration

Reach 2 Cross Sections

Date: 8/25/10

Scale: 1" = 120'

0' 30' 60' 120' 180'

Plant Establishment

Balancing Resource Use and Conservation

1. **Marsh and Mesquite**
   - Hand-planting of marsh plugs and mesquites
   - Marsh plants must establish before the transitional/cottonwood areas can be flooded
   - Mesquites irrigated by water trucks if needed

2. **Cottonwood and Willow**
   - Mass-planted with plugs and pole planting

3. **Water level management**
   - Frequent fluctuations the first two years during establishment
   - Once vegetation is established, maintain stable water levels

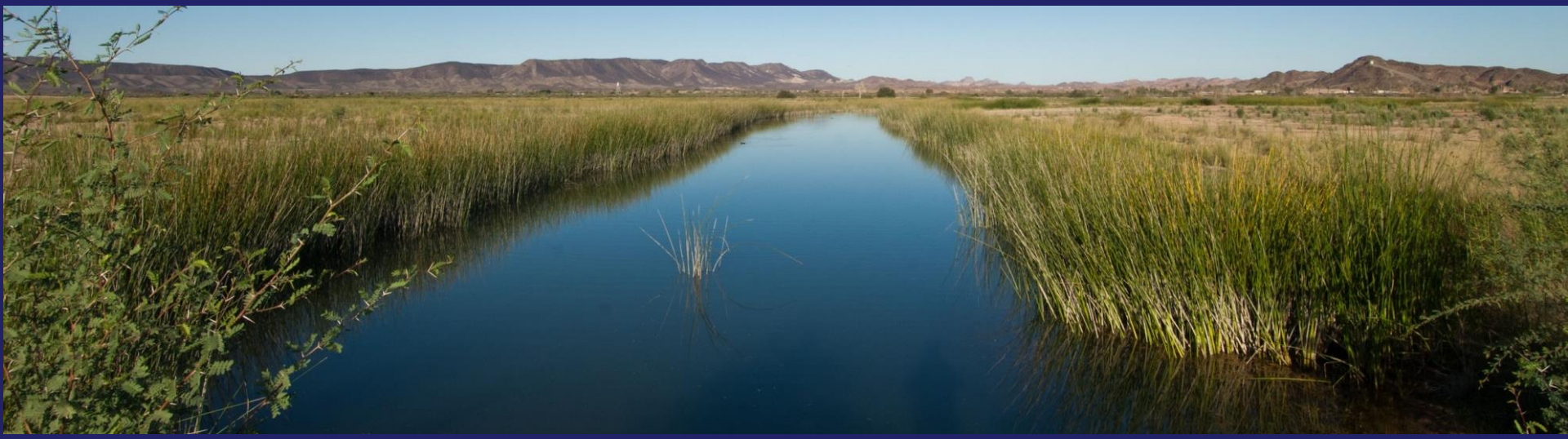
Channel Revegetation
(Tidal irrigation with water control structures)

September 2013

October 2014

Marsh Revegetation
(Tidal irrigation with water control structures)

September 2013



October 2014

Marsh & Transitional Zone
(Tidal irrigation with water control structures)

September 2013

October 2014

Current Schedule

Balancing Resource Use and Conservation

- Finish construction & test flood (summer 2013)
- Plant Reach 1 marsh (fall 2013)
- Plant mesquites in Reach 1 (Feb – Apr 2014)
- Plant riparian in Reach 1 (Feb – Apr 2014)
- Plant marsh in Reach 2 (April 2014)
- Plant mesquites in Reach 2 (Feb – Apr 2015)
- Plant riparian in Reach 2 (Feb – Apr 2015)
- Collect & plant poles for re-vegetation (Jan 2016)

General Project Update

- Clearing completed in Summer 2013
- Construction of water control structures completed in May 2013
- First planting sequence completed in late Summer 2013; Reach 1 planted completed in Spring 2014
- Expect project completion by Summer 2015 – Final planting phase

Project Maintenance and Monitoring

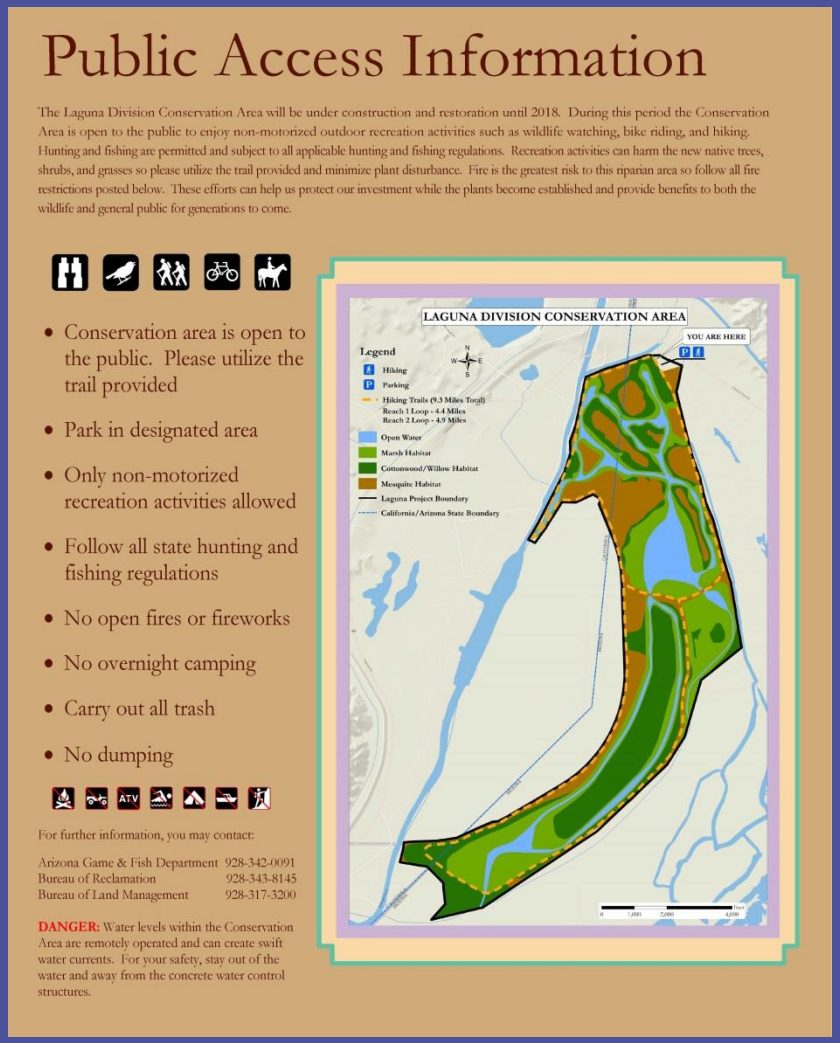
Balancing Resource Use and Conservation

- Continued weed maintenance during plant establishment period
- Maintenance and operation of water control structures, roads and project infrastructure (50 years)
- Irrigation of upland mesquite re-vegetation
- Plant and wildlife monitoring
- Long-term weed, replanting and irrigation maintenance

LDCA Access Plan

Balancing Resource Use and Conservation

- Maintenance roads on the perimeter of LDCA are closed to motorized vehicles
- Pedestrians are welcome to enjoy the area in accordance with posted regulations
- Agreement with BLM to patrol the area



Public Access Information

The Laguna Division Conservation Area will be under construction and restoration until 2018. During this period the Conservation Area is open to the public to enjoy non-motorized outdoor recreation activities such as wildlife watching, bike riding, and hiking. Hunting and fishing are permitted and subject to all applicable hunting and fishing regulations. Recreation activities can harm the new native trees, shrubs, and grasses so please utilize the trail provided and minimize plant disturbance. Fire is the greatest risk to this riparian area so follow all fire restrictions posted below. These efforts can help us protect our investment while the plants become established and provide benefits to both the wildlife and general public for generations to come.

- Conservation area is open to the public. Please utilize the trail provided
- Park in designated area
- Only non-motorized recreation activities allowed
- Follow all state hunting and fishing regulations
- No open fires or fireworks
- No overnight camping
- Carry out all trash
- No dumping

For further information, you may contact:

Arizona Game & Fish Department	928-342-0091
Bureau of Reclamation	928-343-8145
Bureau of Land Management	928-317-3200

DANGER: Water levels within the Conservation Area are remotely operated and can create swift water currents. For your safety, stay out of the water and away from the concrete water control structures.

Discussion
http://www.lcrmscp.gov/conservation/laguna.html