

# Santa Cruz River Management Plan

05-22-19

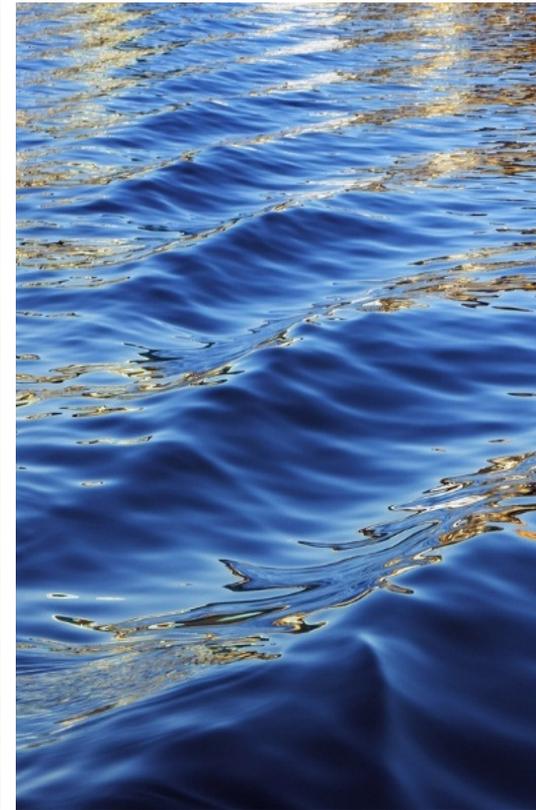
Evan Canfield – Pima County Regional Flood  
Control District  
Scott Altherr – CMG Drainage Engineering, Inc.



**CMG DRAINAGE  
ENGINEERING, INC.**



**JE FULLER**



# Santa Cruz River Mgt Plan – Grant to Trico

- ***Introduction***
- ***Purpose of this Meeting***
- ***Progress on the Existing Conditions Assessment Phase***
  - Flood Hazard Mapping
  - Infrastructure Assessment
- ***Introduction to the Alternatives Development Phase***
  - Three Management Reaches
  - Need for Stakeholder Input
- ***Developing Alternatives Workgroups for the Three Reaches***

## Santa Cruz River Mgt Plan – Grant to Trico

- ***The purpose of this project*** is to develop a management strategy to balance flood risk management, drainage infrastructure protection, water recharge, recreation opportunities and riparian habitat preservation for the Santa Cruz River from Grant to Trico.

# Goals of this Meeting

- Update
- Look Ahead
- Get Stakeholder involvement

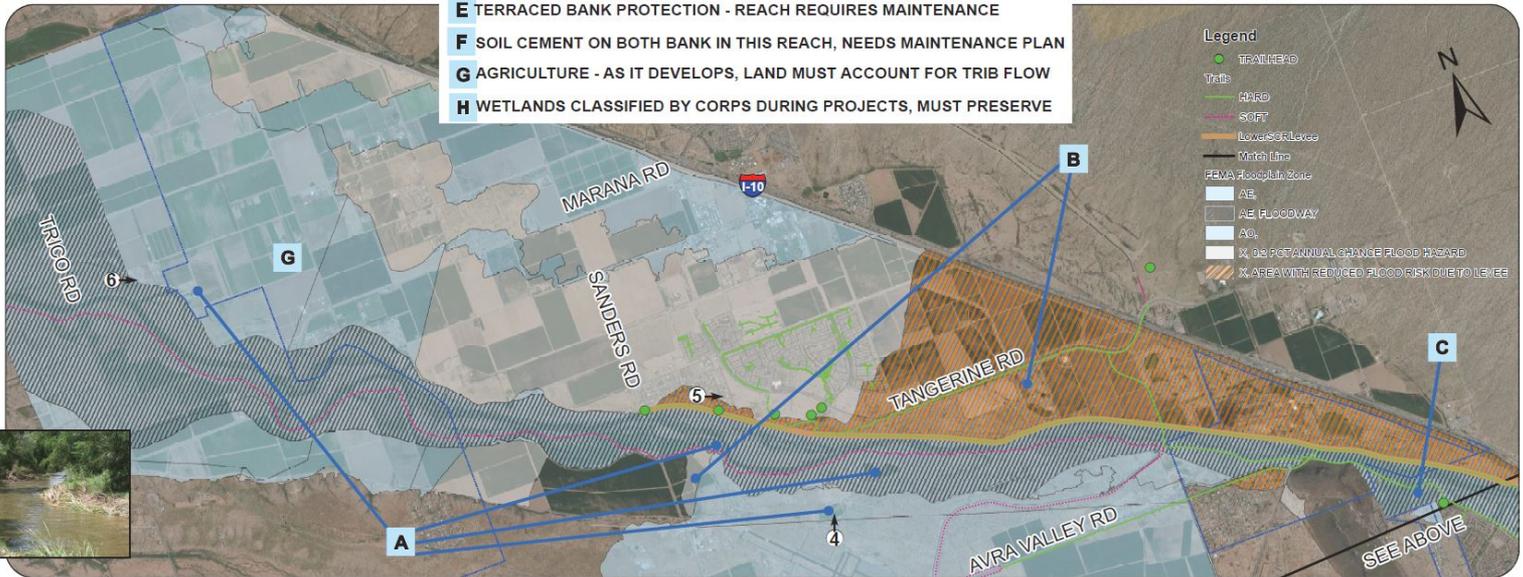
# Current Phase: Update

Statement of Qualifications for  
**SANTA CRUZ RIVER  
 MANAGEMENT PLAN**

Grant Road  
 to Trico Road



- A** CONSTRUCTED RECHARGE FACILITIES, MUST BE PROTECTED
- B** EXISTING AND CLOSED LANDFILLS, MUST BE PROTECTED
- C** EL RIO PRESERVE SHOULD BE INCORPORATED INTO THE CORRIDOR PLAN
- D** CORTARO MESQUITE BOSQUE, EXAMPLE OF RESTORATION



- E** TERRACED BANK PROTECTION - REACH REQUIRES MAINTENANCE
- F** SOIL CEMENT ON BOTH BANK IN THIS REACH, NEEDS MAINTENANCE PLAN
- G** AGRICULTURE - AS IT DEVELOPS, LAND MUST ACCOUNT FOR TRIB FLOW
- H** WETLANDS CLASSIFIED BY CORPS DURING PROJECTS, MUST PRESERVE

- Legend**
- TRAILHEAD
  - ▬ ROAD
  - ▬ SOFT
  - ▬ Lower SER Levee
  - ▬ Metch Line
  - ▬ FEMA Floodplain Zone
  - AE
  - AE FLOODWAY
  - AO
  - X, DE POTENTIAL CHANGE FLOOD HEAD
  - X, AREA WITH REDUCED FLOOD RISK DUE TO LEVEE



SOLICITATION NO. 272080  
 OCTOBER 17, 2017

**ISSUES MAP**

## Current Phase Deliverables

- Technical Data Notebook for Floodplain mapping
- Infrastructure Assessment
- Existing Conditions Report

# Flood Hazard Mapping

Pinal County



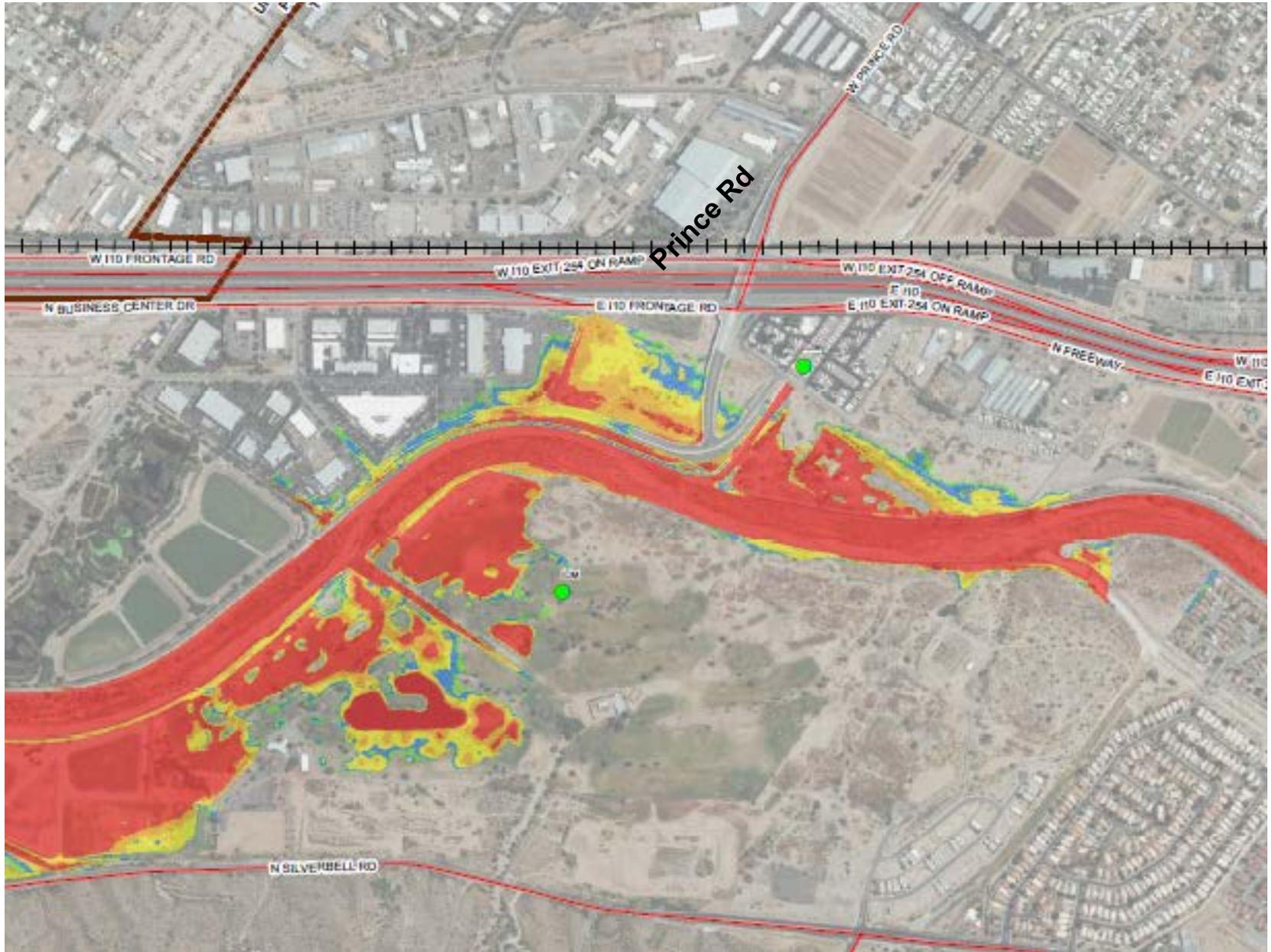
PRELIMINARY/DRAFT

# 1-D Mapping



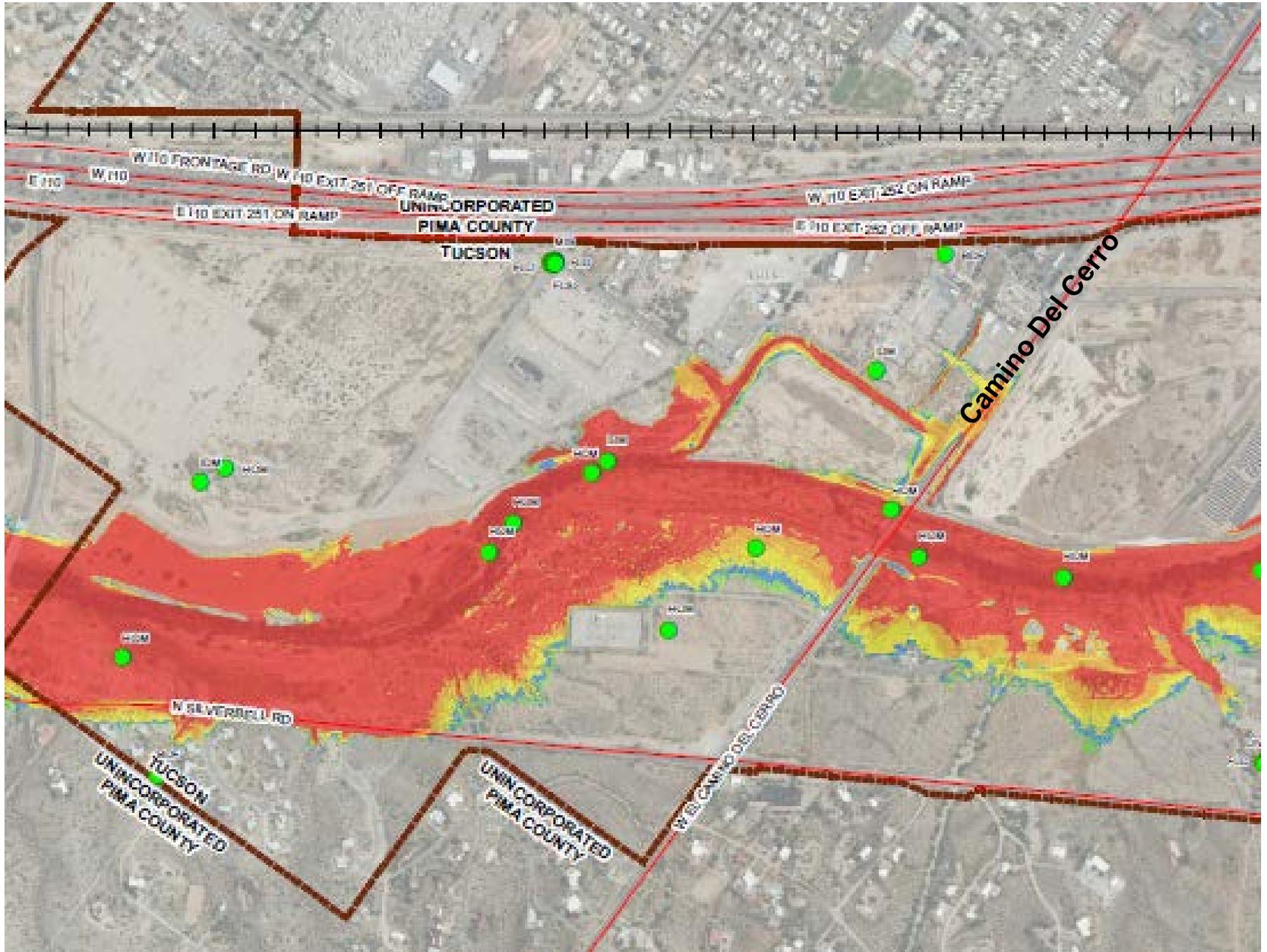
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# 1-D Mapping



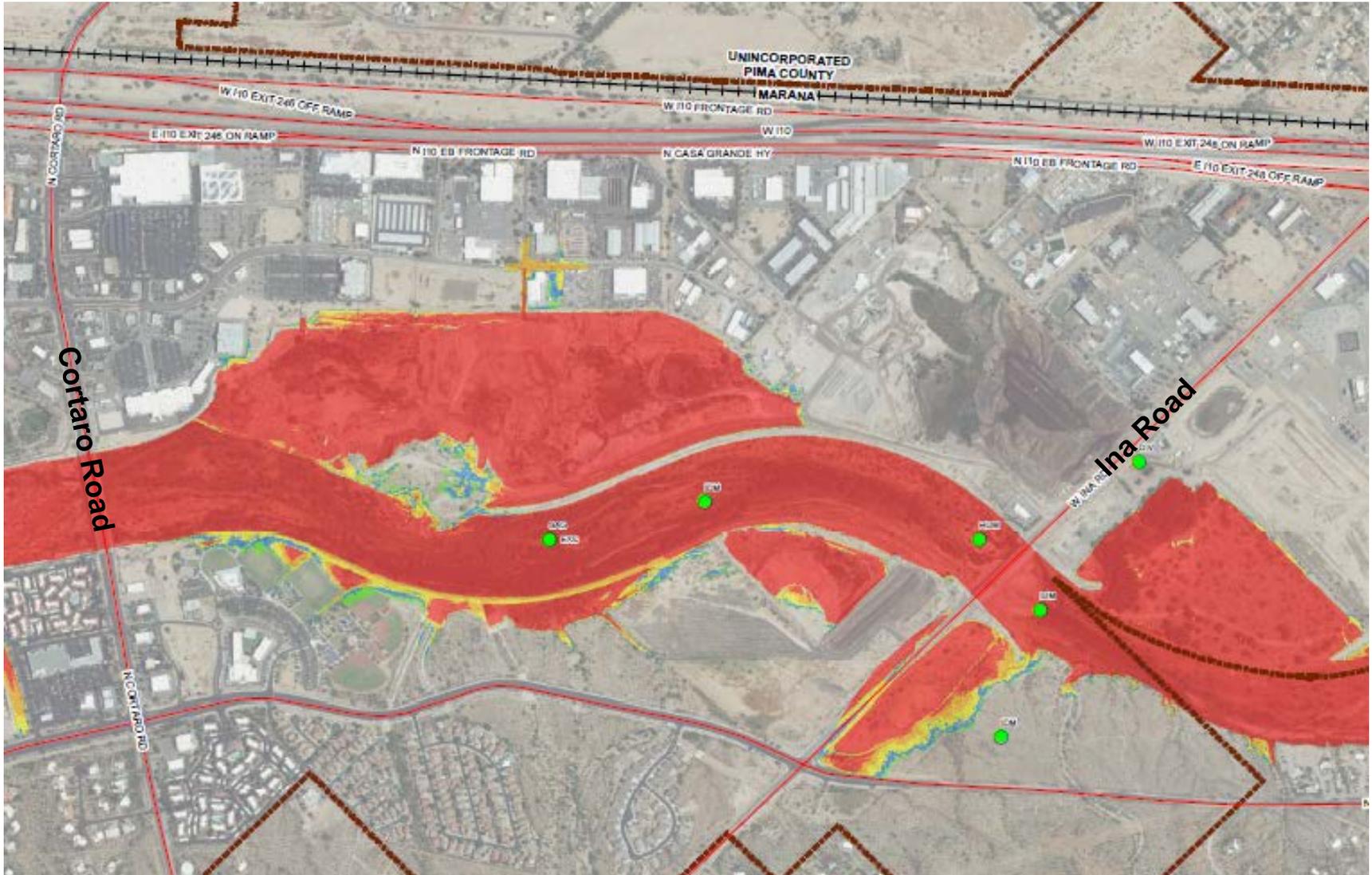
PRELIMINARY/DRAFT

# 1-D Mapping



PRELIMINARY/DRAFT

# 1-D Mapping



PRELIMINARY/DRAFT

# 2D Mapping and Videos



# 100-Year Flood Model Simulation



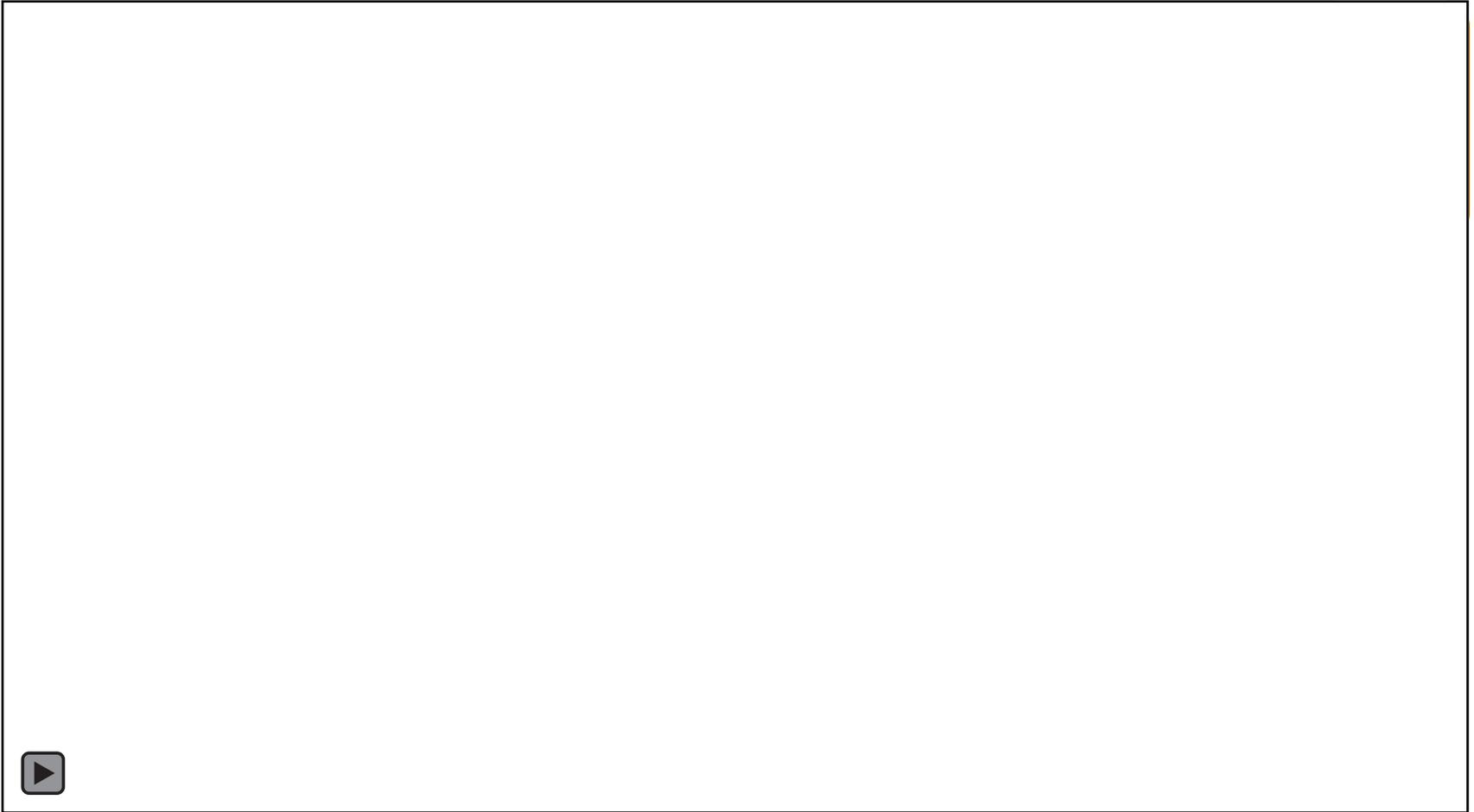
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# Location: Upstream Of Sanders Road Bridge



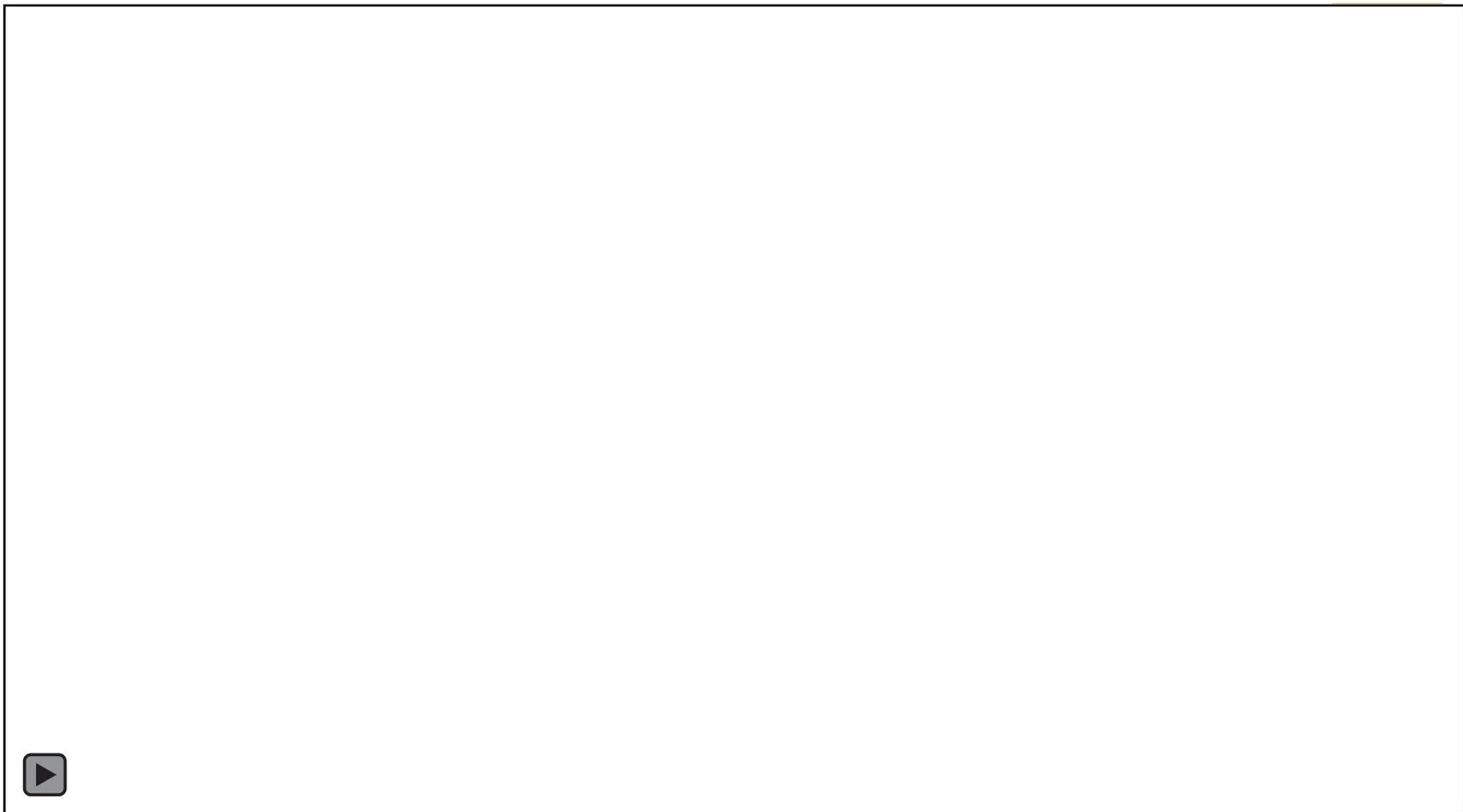
PRELIMINARY/DRAFT

Location: Between Sanders Road Bridge And Trico  
Marana Road Bridge



PRELIMINARY/DRAFT

Location: At Trico Marana Road Bridge



PRELIMINARY/DRAFT

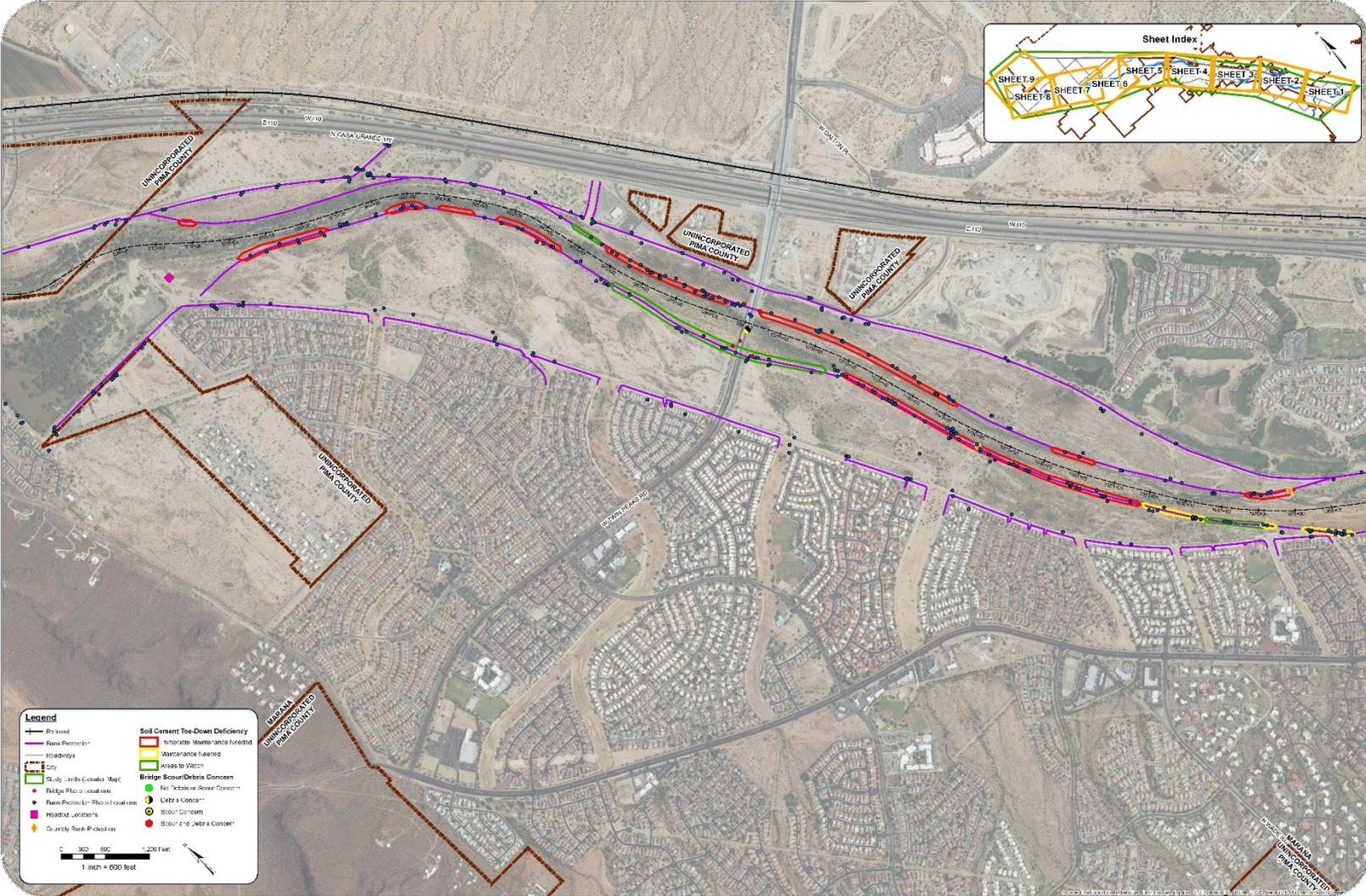


# Evaluation of Infrastructure and Maintenance Needs





# Infrastructure Assessment



Environmental Control District  
 PIMA COUNTY  
 ILLINOIS CONTRACT

JE FULLER  
 CHG DRAINAGE  
 ENGINEERING, INC.  
 2020 River Center, Suite 100, San Jose, CA 95128

FIGURE 4  
 INFRASTRUCTURE ASSESSMENT  
 SANTA CRUZ RIVER MANAGEMENT PLAN  
 GRANT RD TO TRICO RD

INTEGRATED  
 ENVIRONMENTAL  
 SERVICES  
 SCSCLV  
 SHEET 4



# Current Phase Deliverable Timeline

- Existing Conditions Report – Prior to end of June, 2019.
- Infrastructure Assessment and Maintenance Report – Prior to end of June, 2019
- Technical Data Notebook (TDN) – end of August 2019

Questions?

## Alternatives Development Phase: Scope (approximately 2 years)

- Developing Recommended Alternatives By Management Reach
- Implementation Plan
- Public and Stakeholder Engagement Report
- Adoption of plan by Jurisdictions





Design Engineering  
Services for

# El Corazón

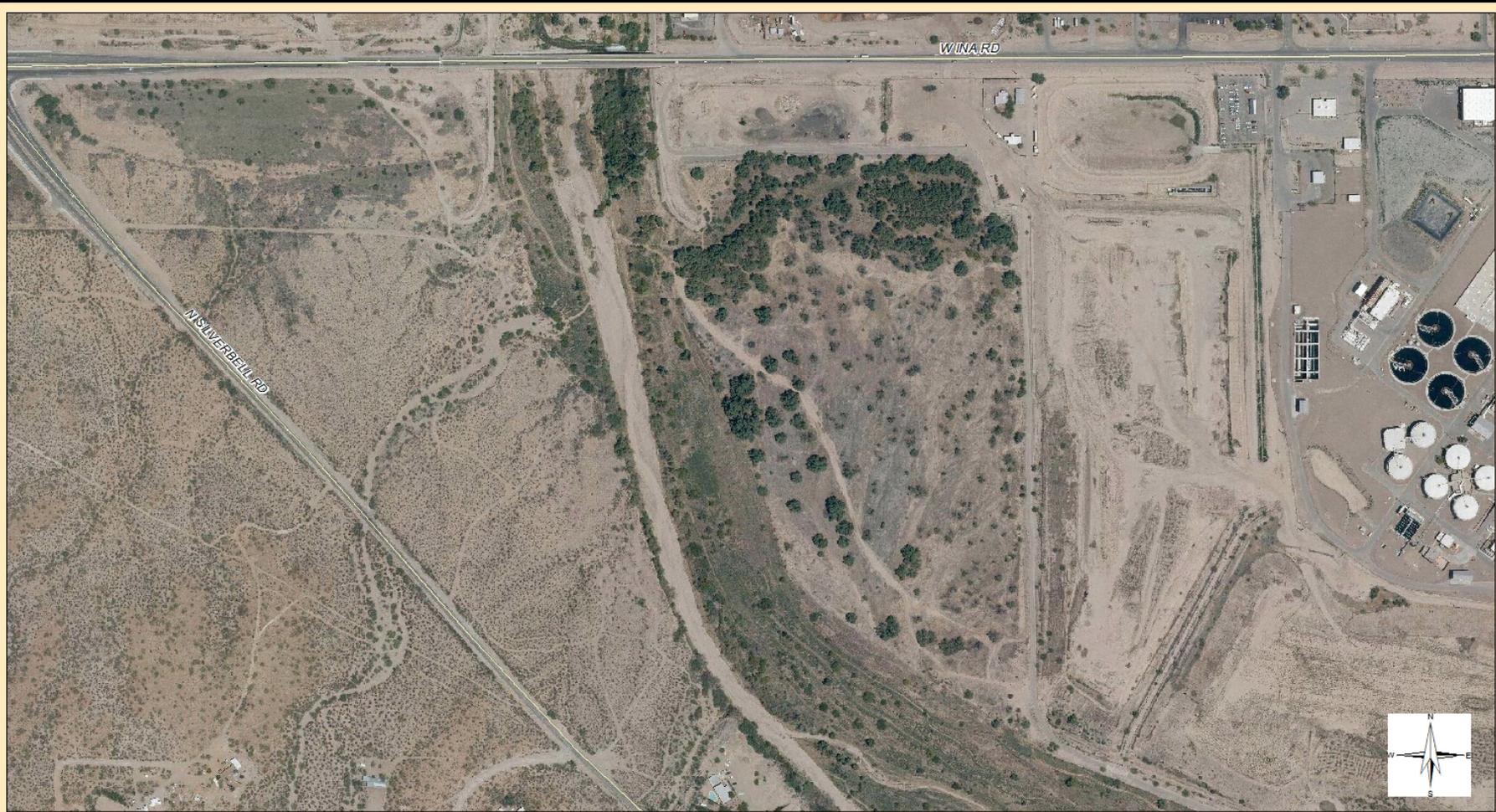
## Bank Protection and River Park Project



(5CORZN) ▲ SOLICITATION NO. 97708



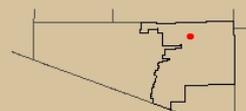
- Existing
- P Existing trailheads
- Project limits
- Psomas - adjacent project under design



Pima County Regional Flood Control District  
 97 E Congress - 3rd Floor  
 Tucson, Arizona 85701-1207  
 (520) 243-1800, FAX: (520) 243-1821  
<http://www.rfcd.pima.gov>

## Santa Cruz at Ina 2015

1 inch = 351 feet



Date:

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# River Restoration

## Santa Cruz River



Meandering River with Native Vegetation



Wildlife Diversity



Photo Credit: Michael Borgan



Ramadas



Gila Topminnow  
Photo Credit: Michael Borgan



Sonoran Mud Turtle  
Photo Credit: Dean Knuth



Bird Watching



Bicycling Along  
the Santa Cruz  
Photo Credit: Visittucson.org



Living River of Words Youth Program  
Photo Credit: PCNRP

# Three Rivers Reach Issues and Developments (A Preliminary List )

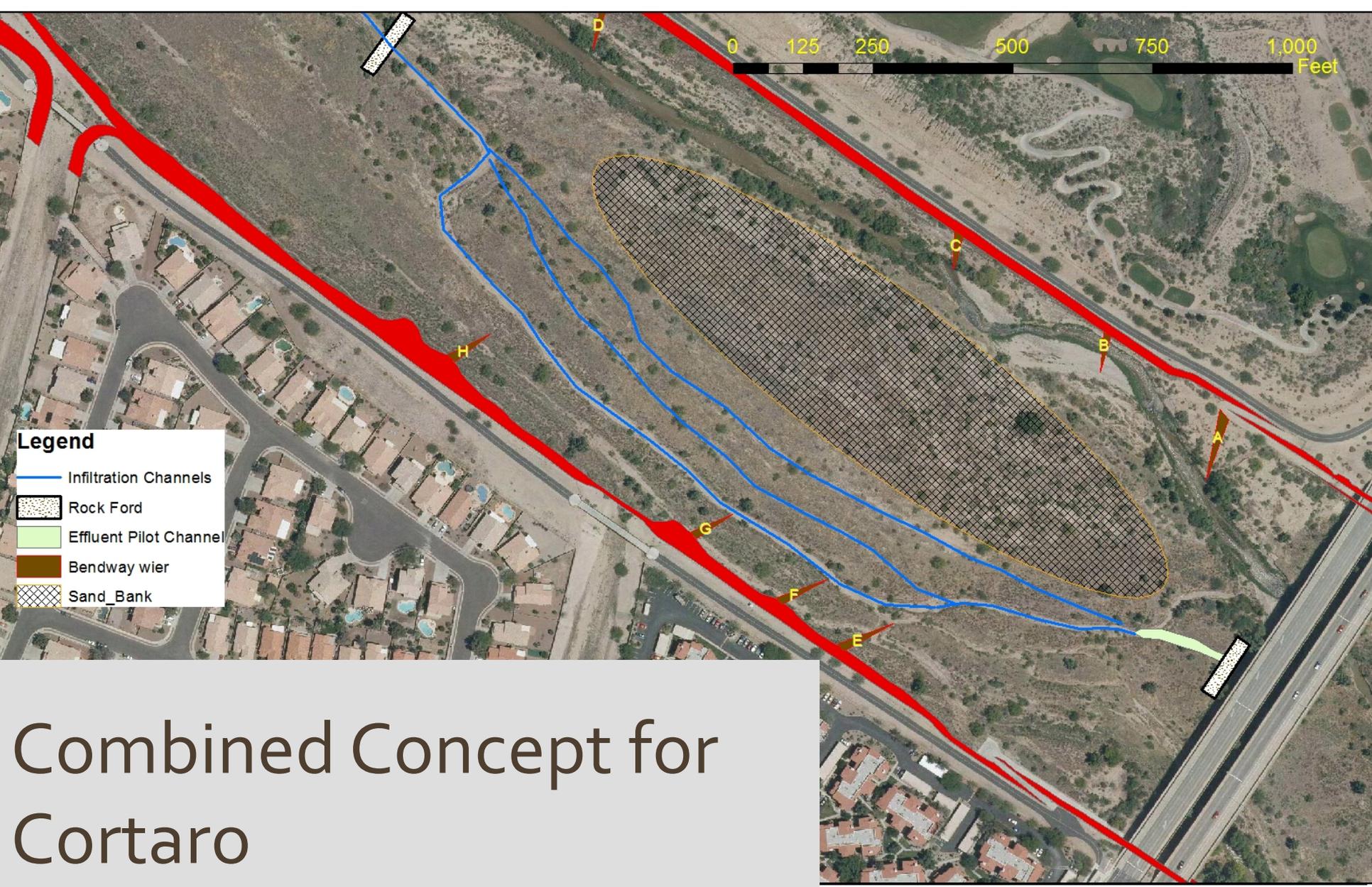
- Reduced flows out of Agua Nueva
- County Priority for Corazon del Tres Rios Del Norte Multibenefit Projects
  - Soil Cement Bank Protection of the Orange Grove Pit
- Connecting the Loop with two pedestrian bridges
  - Over the Rillito
  - Over the Canada Del Oro
- Habitat Restoration and Enhancement (endangered Gila Topminnow)
- Sunset Innovation Campus
- Trash and Illegal Dumping
- Homeless Populations



# Collapsed Low-Flow Bank Protection







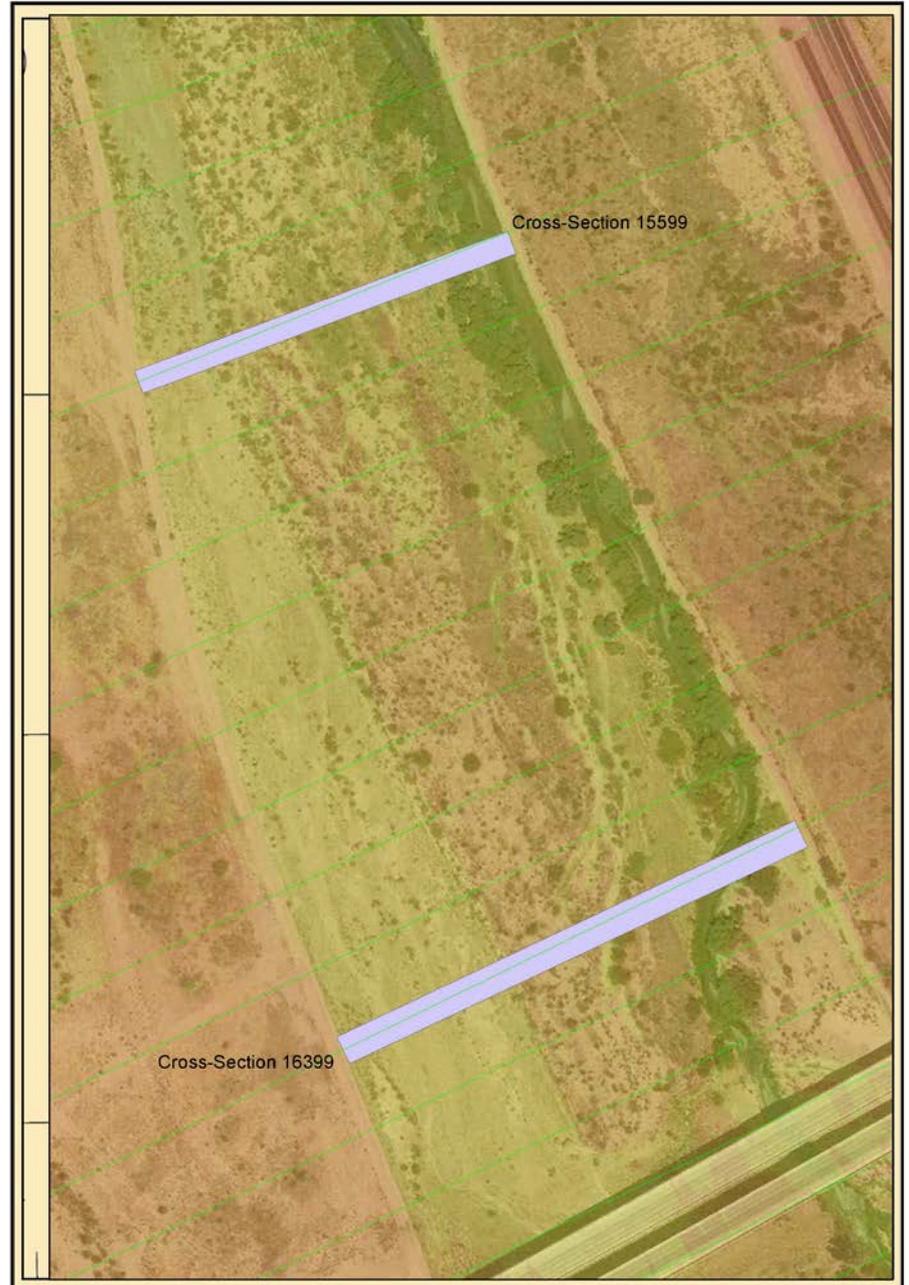
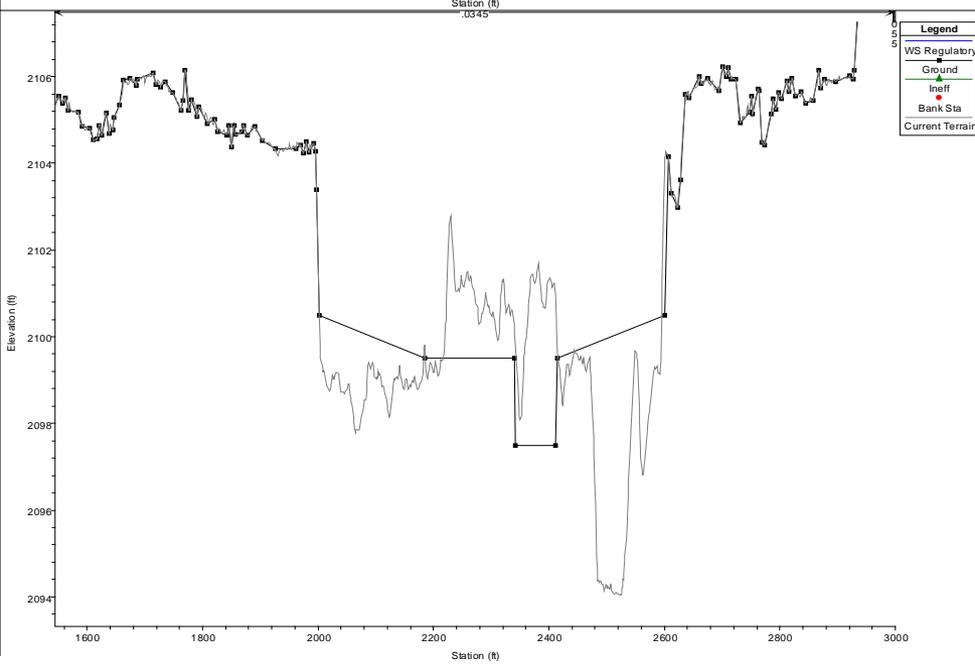
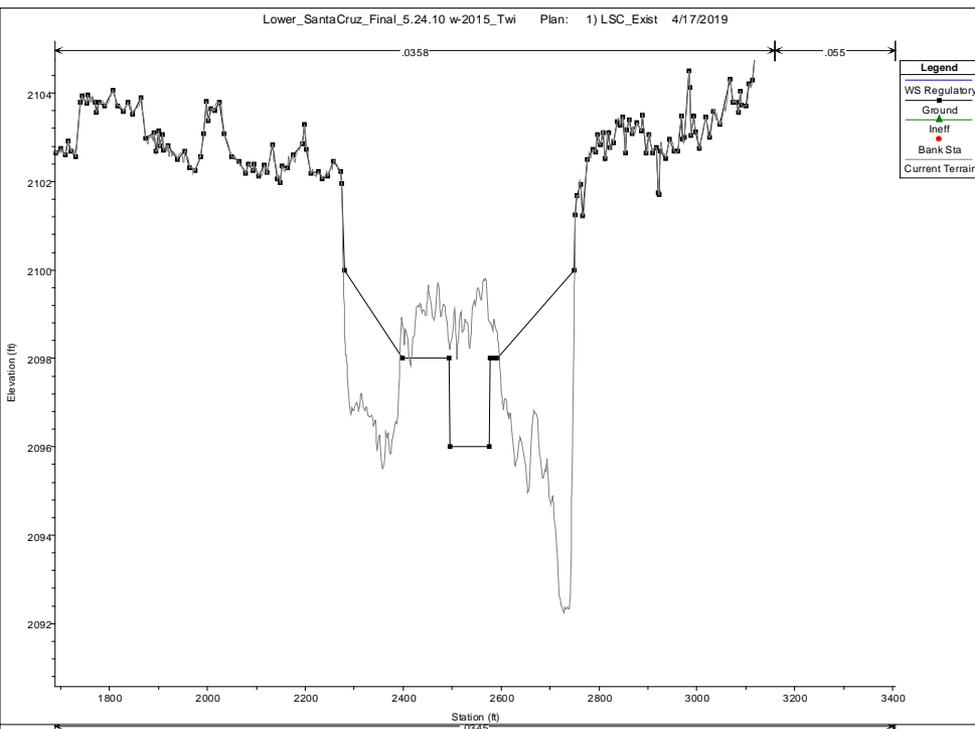
- Legend**
- Infiltration Channels
  - Rock Ford
  - Effluent Pilot Channel
  - Bendway wier
  - Sand\_Bank

# Combined Concept for Cortaro

(Bendway Weirs, Infiltration Channels, Rock Fords)



# Grade Control Concept at Twin Peaks





**Santa Cruz North of Twin Peaks Rd  
Grade Controls**

1 inch = 1,304 feet



Date: 10/23/2017

10/19/17 4:16:00 PM C:\Users\james\Documents\101717\_01.dwg

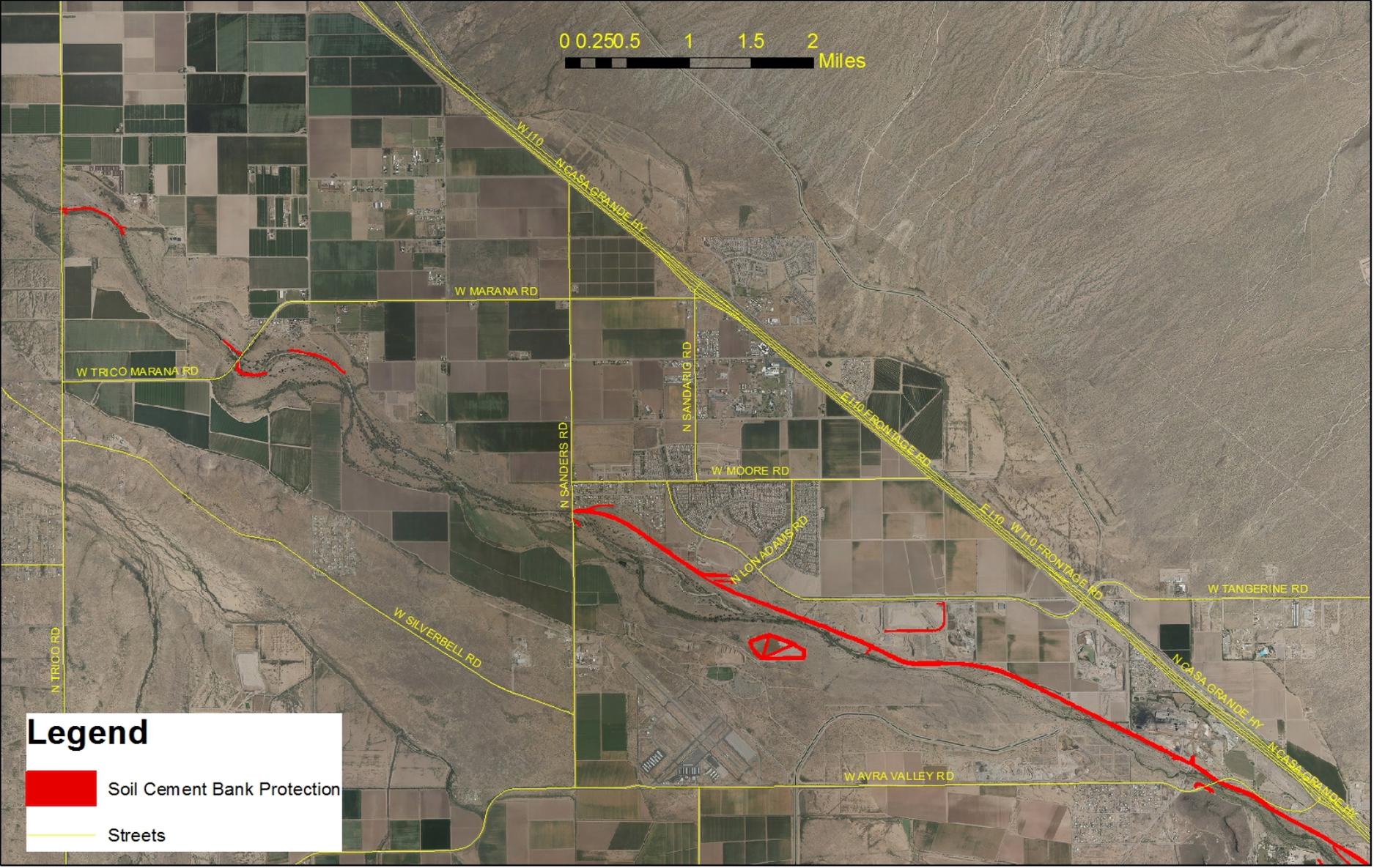
The information depicted on this plan is the result of a field inspection conducted on or about the date shown on this plan. It is not intended to represent a survey or other professional engineering or architectural work. It is not intended to be used for any purpose other than that for which it was prepared. The user of this plan shall be responsible for its accuracy and for any consequences resulting from its use.

## Cortaro Narrows Issues and Developments (A Preliminary List)

- Channel Flow Against the Bank Protection
- Expanding recreational opportunities (Loop and El Rio Preserve)
- Need to improve channel conveyance in some areas
- Incising effluent channel requires repeat maintenance of low flow bank protection

# North of Avra Valley Rd

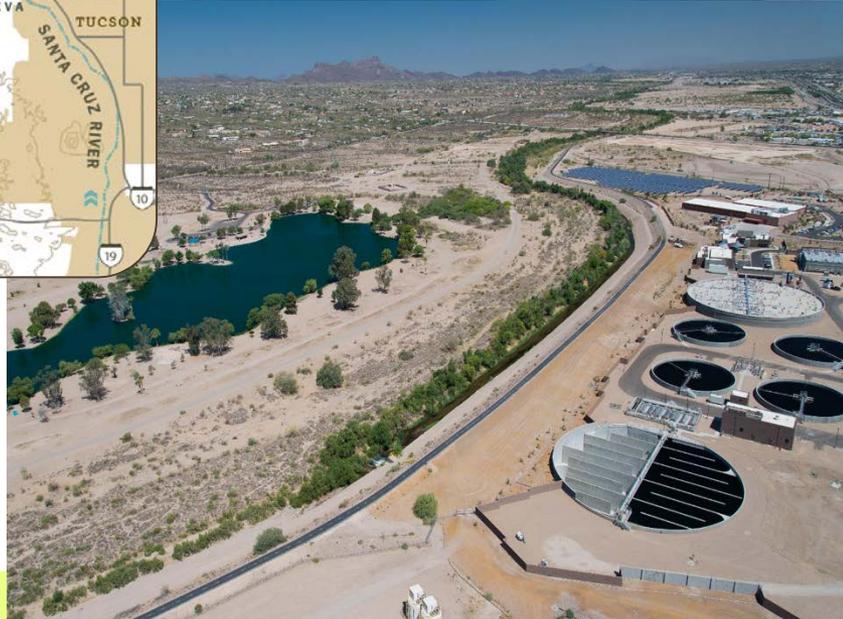
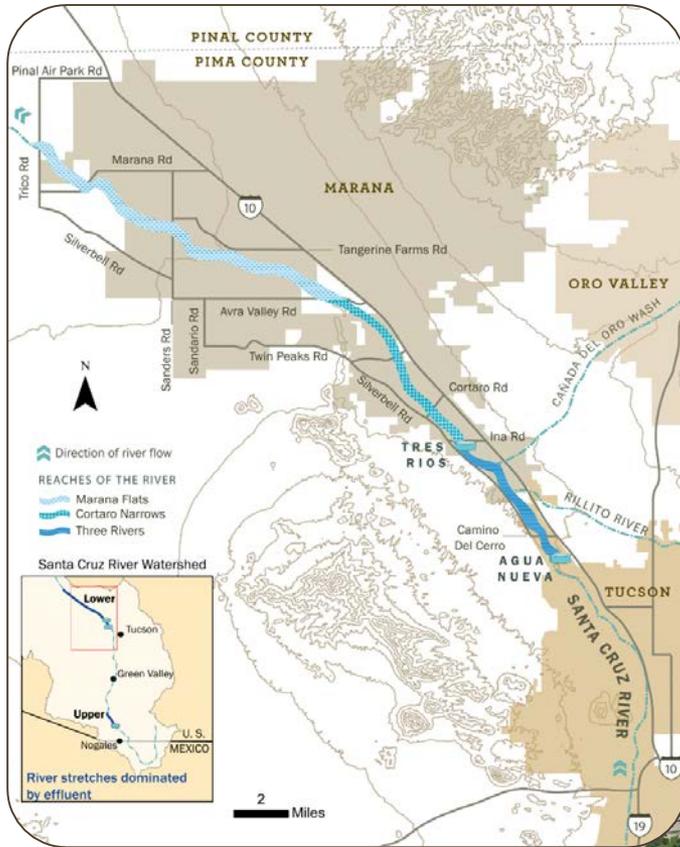
## Living River 'Marana Flats Reach'



# High Plains Recharge Basins



# Santa Cruz River Managed Recharge



## Marana Flats Issues and Developments (A Preliminary List)

- Complex wide floodplain, especially north of Sanders Rd
- Interest in Subdivision Development
- Terminus of Managed Recharge Project
- Proposed Marana Drainage Master Plan Improvements
- Older homes in high risk flood areas at Trico-Marana Rd

## Alternatives Identification Task

### - Stakeholder Working Groups By Management Reach (3 Groups)

- Purpose
  - Help develop an appropriate set of reach specific alternatives
- Size
  - Less than 10 people per workgroup
- Representation
  - Jurisdictions
  - Consultant Team
  - Water Owners
  - Community Water Coalition
- Level of Effort
  - 2-3 Hour Meetings on Quarterly Basis

# Proposed Timeline for Alternatives Selection Phase

		2019						2020						2021											
		July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June
<b>Stakeholder Alternatives Working Group</b>	<i>Separate For Three Rivers, Cortaro Narrows and Marana Flats</i>																								
	Initial Meeting			█																					
	Identify Suite of Alternatives						█																		
	Refine Alternatives									█															
	Go Back to Stakeholders with Possible Alternatives											█													
	Development of Recommended Alternatives												█												
	Development of Implementation Plan																			█					
<b>Public Process</b>	<i>Separate For Three Rivers, Cortaro Narrows and Marana Flats</i>																								
	Mail 'Living River'			█																					
	Public 'Inform' and 'Solicit'					█																			
	Possible Alternatives											█													
	Recommended Alternatives																			█					
<b>Jurisdictional Process</b>																									
	Inform about Flood Hazards and Infrastructure		█																						
	Ongoing Staff Level Participation			█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Provide Plan and Propose Adoption																					█	█		

# Stakeholder Participation Form



## Stakeholder Participation Form

5SCLIV – Santa Cruz River Management Plan: Grant Rd to Trico Rd

Name:	Organization	Email Address

Could you or someone you know serve as a stakeholder in one of the following areas?  
(Requires a quarterly commitment to meet on a Stakeholder Working Group)

### Interest Area

- Land Entitlements/Property Rights
- Habitat Preservation
- Recreation Opportunities
- Flood Risk Management
- Drainage Infrastructure Protection
- Water Resources
- Other \_\_\_\_\_

Would you like to nominate someone for a role on the Stakeholder Working Group?

Name:

Interest Area:

Organization:

Email Address:

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Which of the following river reaches has the highest interest for you or the nominee?

- Three Rivers (Grant to Ina)
- Cortaro Narrows (Ina to Avra Valley)
- Marana Flats (Avra Valley to Trico)

Questions?



Website

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