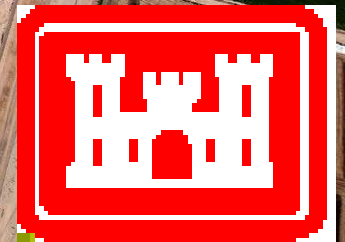






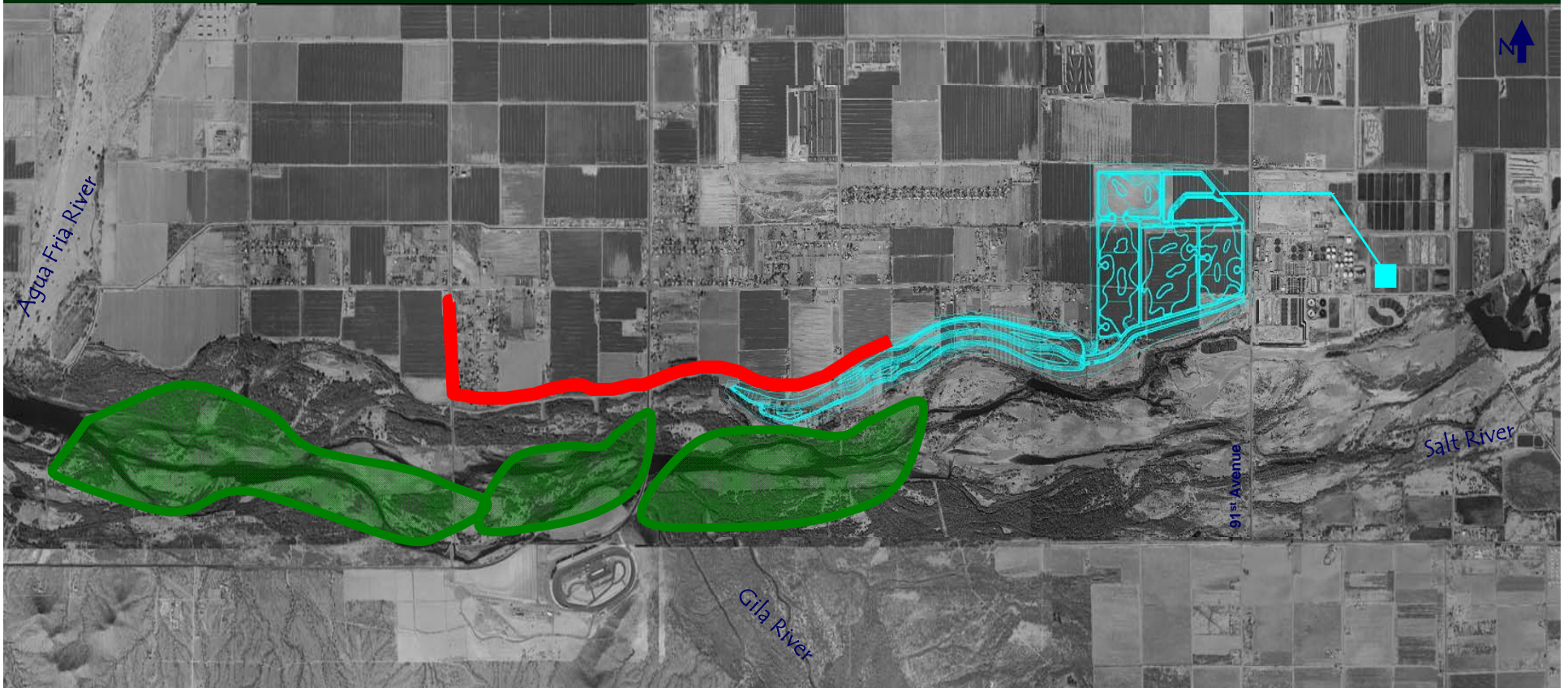


# *Tres Rios Environmental Restoration Project*





# *Tres Rios Environmental*



## *Restoration Project*

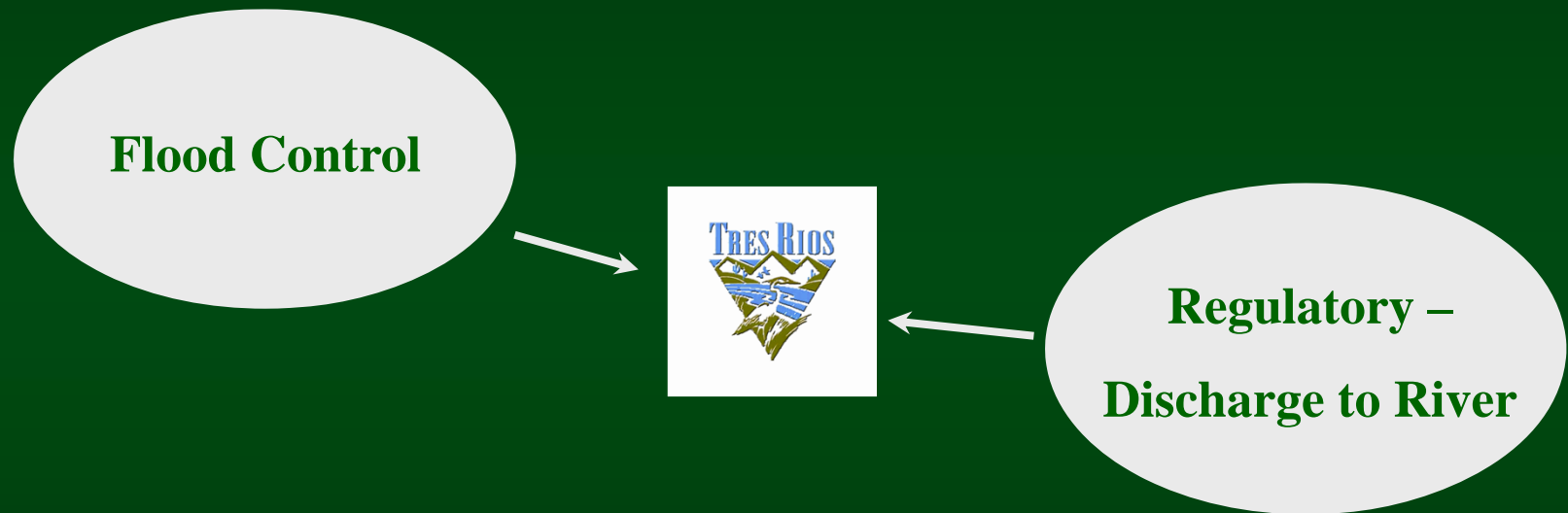
# *Three Converging Issues (20 years ago)*

**Flood Control**

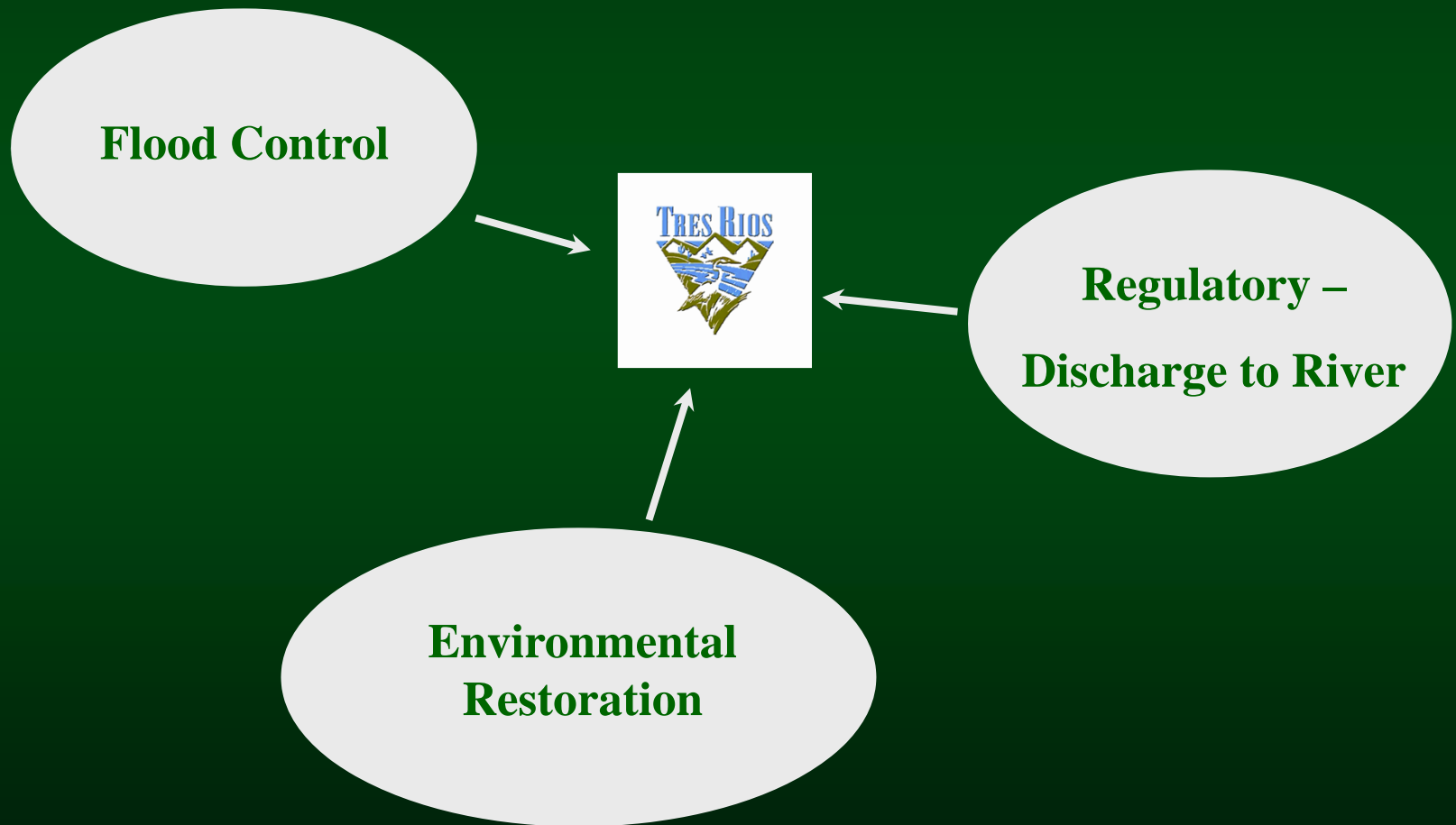




# *Three Converging Issues Early 1990's*



# *Three Converging Issues Early 1990's*





# ***Agencies Involved***

- **Bureau of Reclamation (Demonstration Site)**
- **US Army Corps of Engineers (Full Scale)**
- **EPA**
- **ADEQ**
- **FCDMC**
- **SROG (Tempe, Mesa, Scottsdale and Glendale)**
- **AZ Game & Fish**
- **US Fish & Wildlife Services**
- **Gila River Indian Community**
- **City of Avondale**
- **SRP**
- **St. John's Irrigation District**
- **City of Phoenix Parks & Recreations Department**
- **City of Phoenix Water Services Department**

- **Tres Rios was authorized by Congress with WRDA 2000**
- **Original authorization limit was \$130 million**
- **Adjusted for inflation it is currently \$160 million**
- **Request to raise the limit to \$238 million in FY14**



## *How Does the Funding Happen?*

- Corps Presidential Budget
  - Tres Rios does not make the cut line thru OMB
- City assisted by Federal Lobbyists
- House Budget
  - Ear-mark
- Senate Budget
  - No ear-marks
- Comprise
  - usually 50/50 split

# *Federal Funding - 65%*

<u>Fed. FY</u>	<u>Stimulus \$</u>	<u>Appropriation \$</u>
2003		\$1,000,000
2004		\$5,000,000
2005		\$3,500,000
2006		\$4,500,000
2007		\$8,000,000
2008		\$10,800,000
2009	\$15,000,000	\$9,570,000
2010	\$26,500,000	\$15,000,000
2011		\$5,700,000
2012		\$0
2013		\$0
<b>2014</b>		<b>\$15,000,000</b>



# ***City's 35% Cost Share***

## **LERRDS**

**(Lands, Easements, Rights-of-way,  
Relocation, Disposal Areas )**

- **\$65,000,000 in Land Acquisition**
  - **\$10,000,000 in Utility Relocation**
- 
- **\$5,300,000 in Cash Payments part of the Flood Protection Portion**

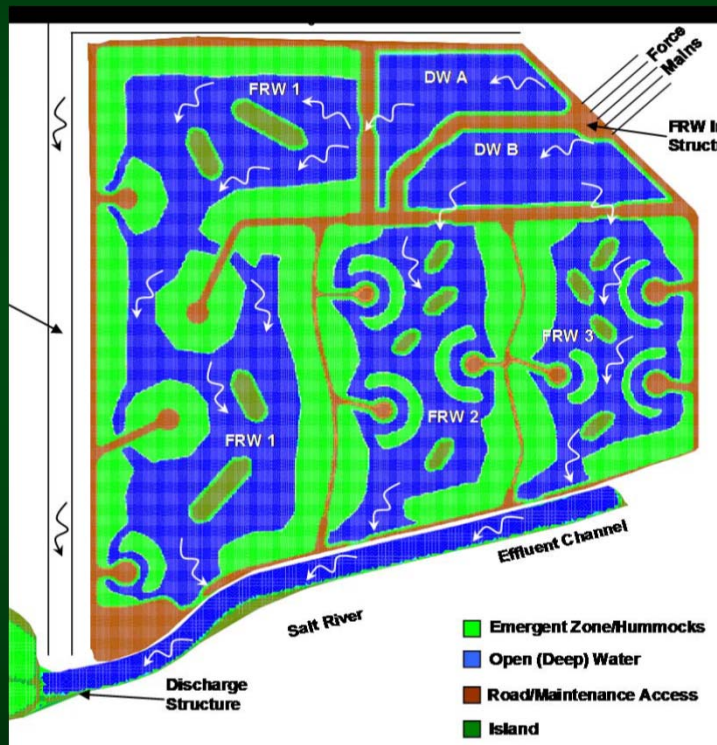
## ***Progress History***

- **Study completed - 2000**
- **Funding began - 2003**
- **Design started - 2004**
- **Levee construction began - 2006**
- **Wetlands Construction began - 2008**

## ***Construction Progress to-date:***

- **Phase 1- Levee, constructed from 105<sup>th</sup> to El Mirage Road.**
- **Phase II – FRW and OBW complete.**
- **Phase II – Pump Station complete in September 2012.**
- **Phase III A&B – Completed in June 2012.**
- **Recreational Plan – In Design, planned to be under construction soon and open by July 2014.**

# Flow Regulating Wetlands - Treatment



## Enhanced Reductions

- Ammonia
- Tot-N

## Chemical Savings

- Low residual Cl<sub>2</sub>
- Little or no de-chlorination chemicals involved

## Compliance

- pH
- D.O.
- Whole Effluent Toxicity



# *September 2010 Aerial Photo*





# *December 2010 Aerial Photo*





# *FRW 1 – Mid-Sampling Point*





# *End of Effluent Channel to OBW*





# *Over-Bank Wetlands*



September 2010

December 2010



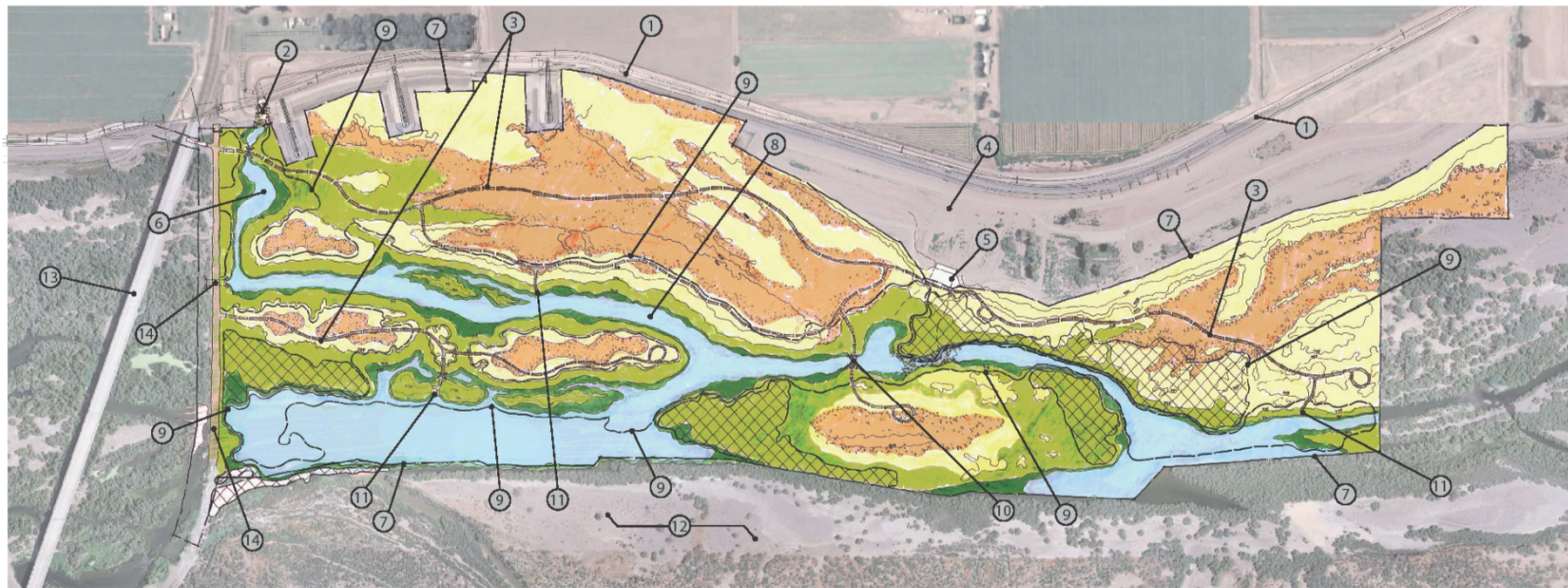


# ***Outlet of Over-Bank Wetlands***





# Future: Phase III-A



## KEY NOTES

1. EXISTING FCDMC LEVEE
2. EXISTING ST. JOHNS IRRIGATION OUTFALL
3. PROPOSED O + M ROADS = 6 ACRES
4. EXISTING OVERBANK WETLANDS AREA
5. EXISTING OVERBANK WETLANDS OUTFALL
6. REGRADE ST. JOHNS OUTFALL CHANNEL TO RIVER
7. PROJECT BOUNDARY
8. ADJUST GRADING TO FOLLOW HISTORIC BRAIDS OF RIVER
9. LIMITS OF EXCAVATION
10. LOW WATER CROSSING FOR O + M ACCESS TO ISLAND
11. RIVER ACCESS
12. GILA RIVER INDIAN COMMUNITY
13. NEW 115TH AVENUE BRIDGE
14. OLD 115TH AVENUE (AVONDALE BLVD.) LOW WATER CROSSING

## VEGETATION HABITATS KEY MAP

	OPEN WATER = 34 ACRES
	WETLAND / MARSH = 13 ACRES
	RIPARIAN / COTTONWOOD / WILLOW = 31 ACRES
	MESQUITE BOSQUE = 54 ACRES
	QUAIL BUSH / SALT BUSH / COBBLE = 46 ACRES
	EXISTING T&E HABITAT = 20 ACRES

## ALTERNATIVE GRADING & HABITAT CONCEPT PLAN

TRES RIOS - PHASE 3A  
ENVIRONMENTAL RESTORATION PROJECT

**DRAFT**  
FOR REVIEW ONLY  
(12-17-2010)



US Army Corps  
of Engineers®



**Kiewit**

**HNTB**

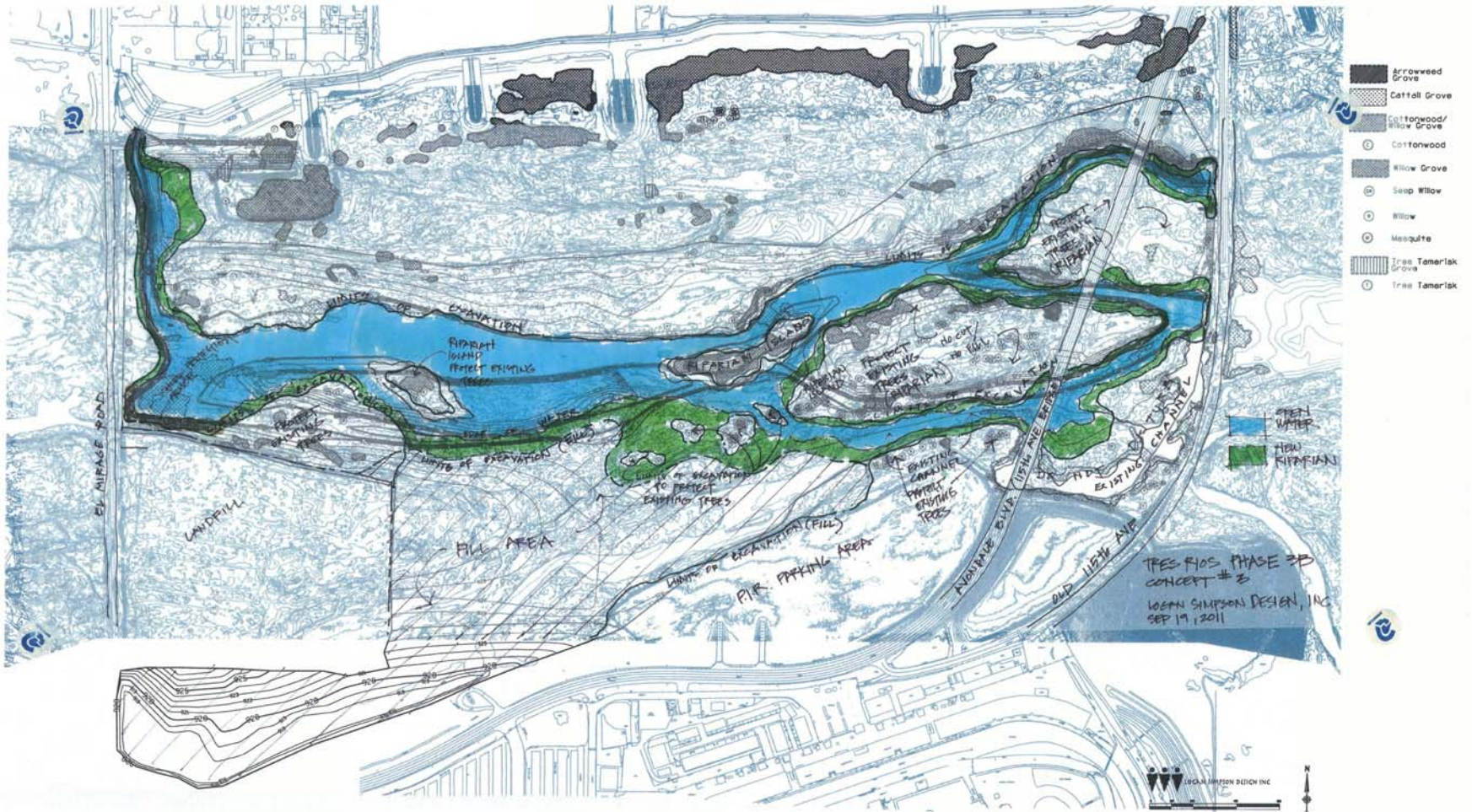


LOGAN SIMPSON  
DESIGN INC.





# Phase III-B





# ***Phase III-A March 2012***



# *Phase III-A March 2012*





# *Phase III-B March 2012*



# ***Phase III-B March 2012***



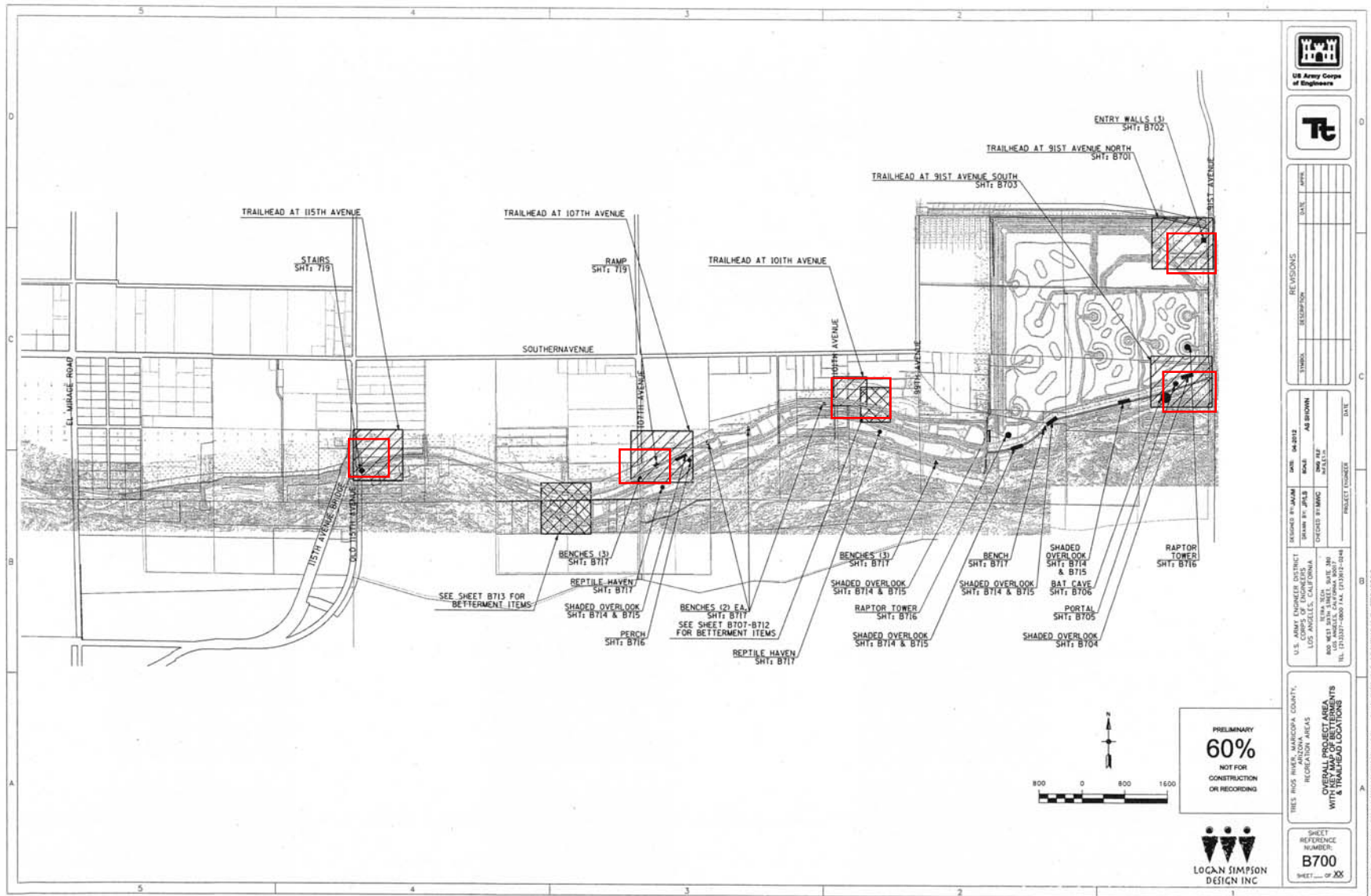


# *Phase III-B March 2012*





# Recreation Plan



NO.	DATE	DESCRIPTION

DESIGNED BY: JAWAM	DATE: 04-2012	PROJECT ENGINEER:
DRAWN BY: JPLS	SCALE: AS SHOWN	
CHECKED BY: JMC	DATE: 04-11-12	

U.S. ARMY ENGINEER DISTRICT  
 LOS ANGELES DISTRICT  
 LOS ANGELES, CALIFORNIA  
 115TH AVENUE SOUTH  
 100TH AVENUE SOUTH  
 TEL: (714) 233-7100 FAX: (714) 233-7144

PRELIMINARY  
**60%**  
 NOT FOR  
 CONSTRUCTION  
 OR RECORDING



SHEET  
 REFERENCE  
 NUMBER:  
**B700**  
 SHEET    OF   XX  

PRINTED IN THE UNITED STATES OF AMERICA



# 91<sup>st</sup> North





# 91<sup>st</sup> South





# 101<sup>st</sup> Drive



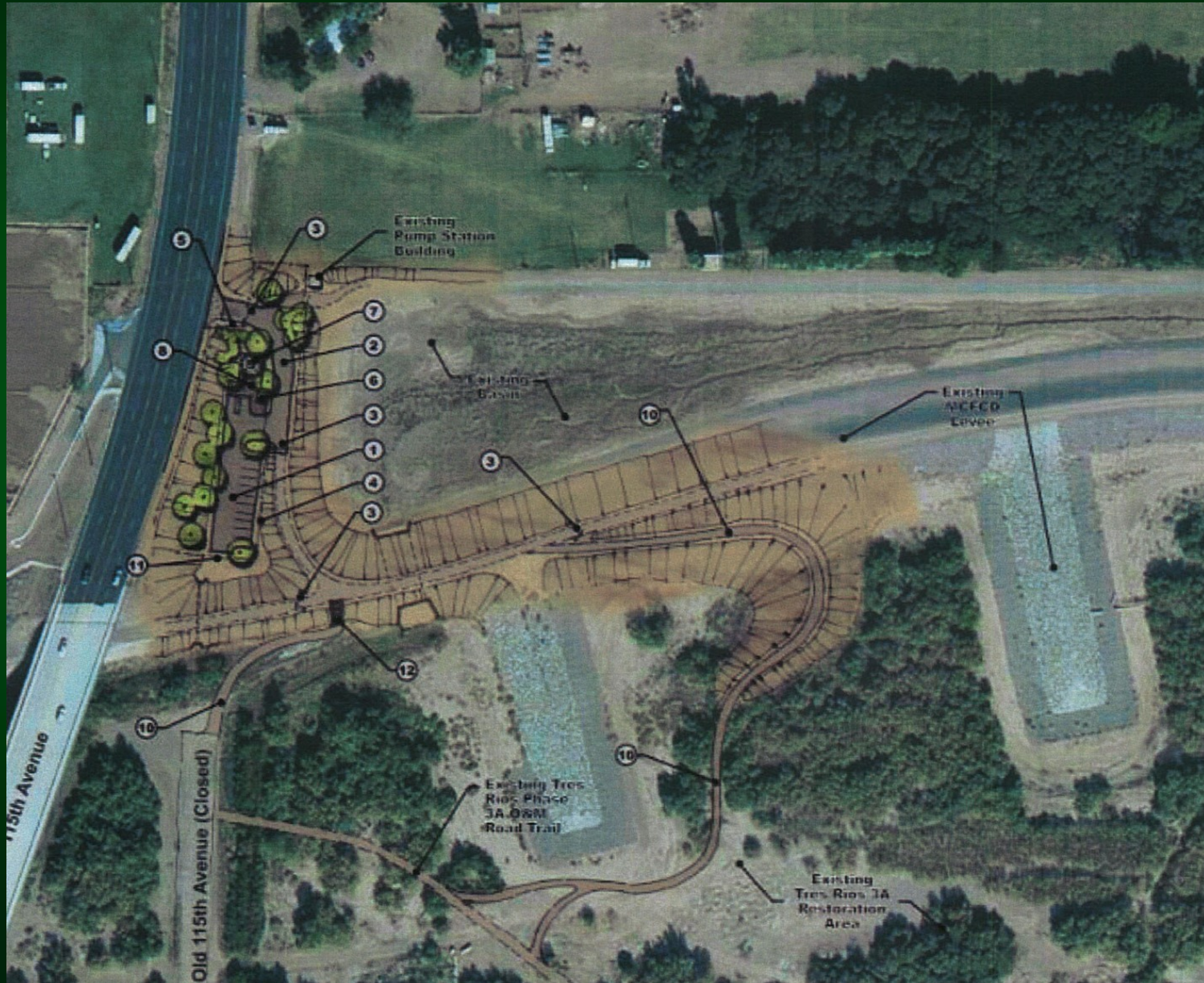


# 107<sup>th</sup> Ave.





# 115<sup>th</sup> Ave.



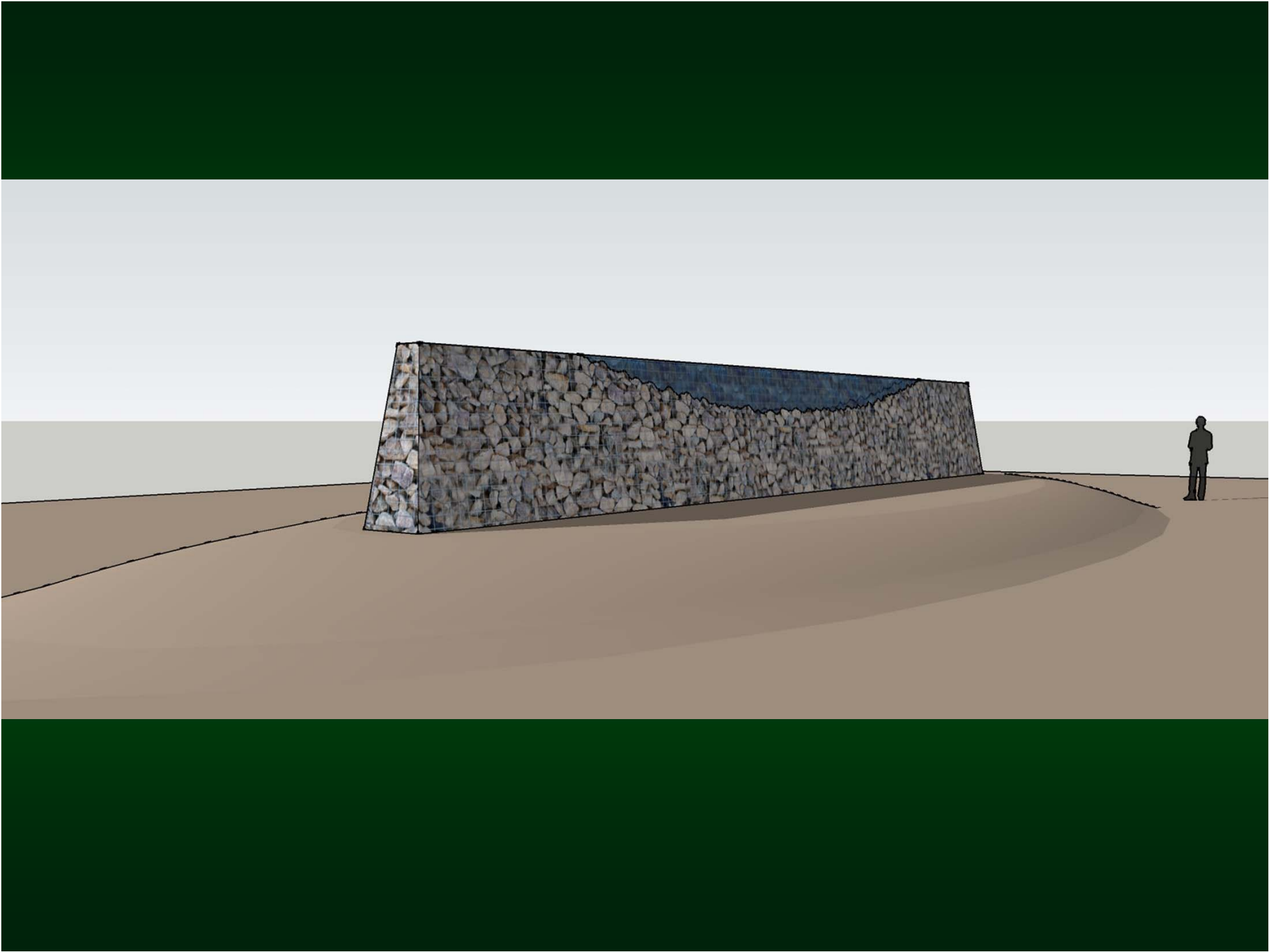


# *Office of Arts & Culture*

This overlook is closer to 91st Ave. where vegetation is lower and the road is higher relative to the channel.







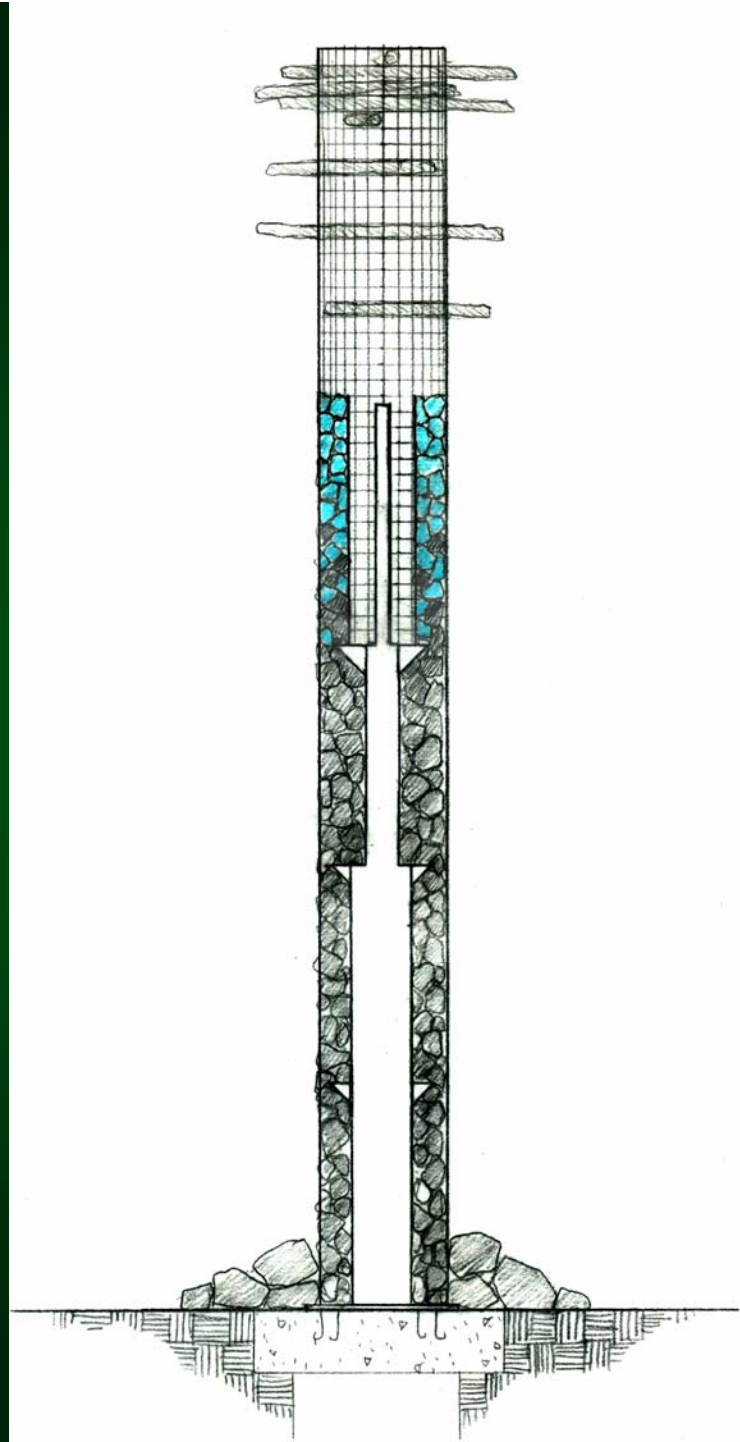








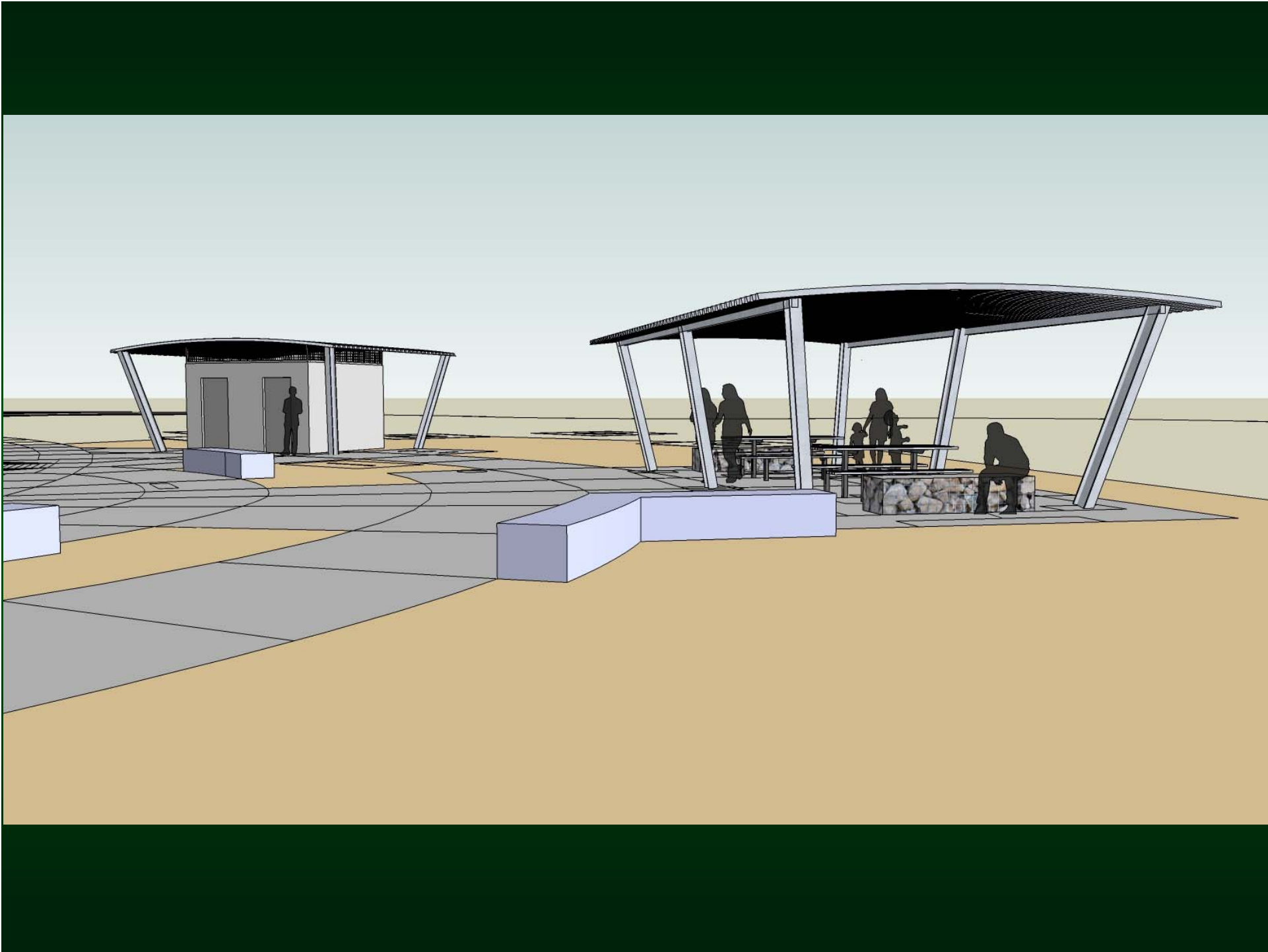


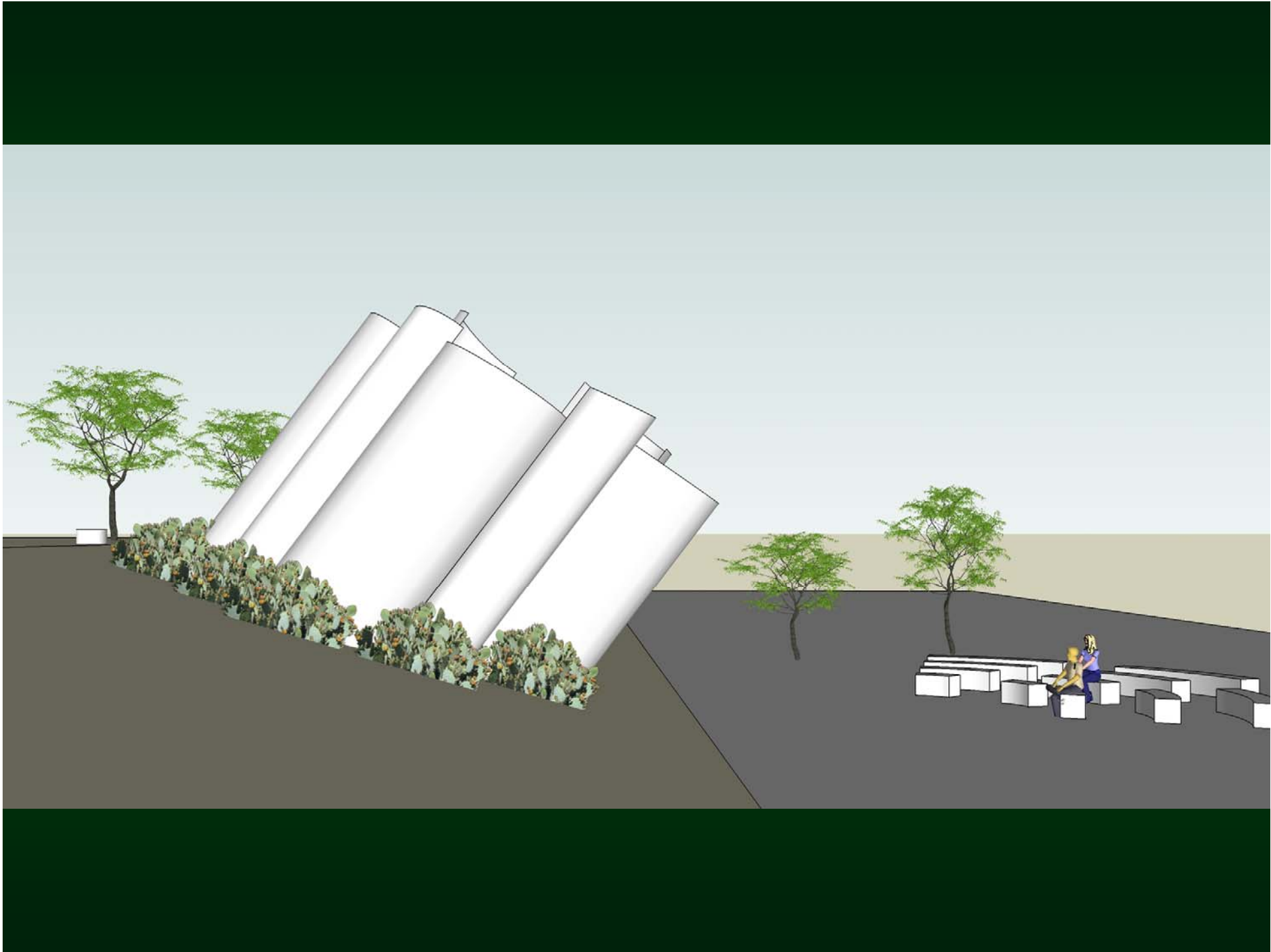


Portal at Effluent Channel

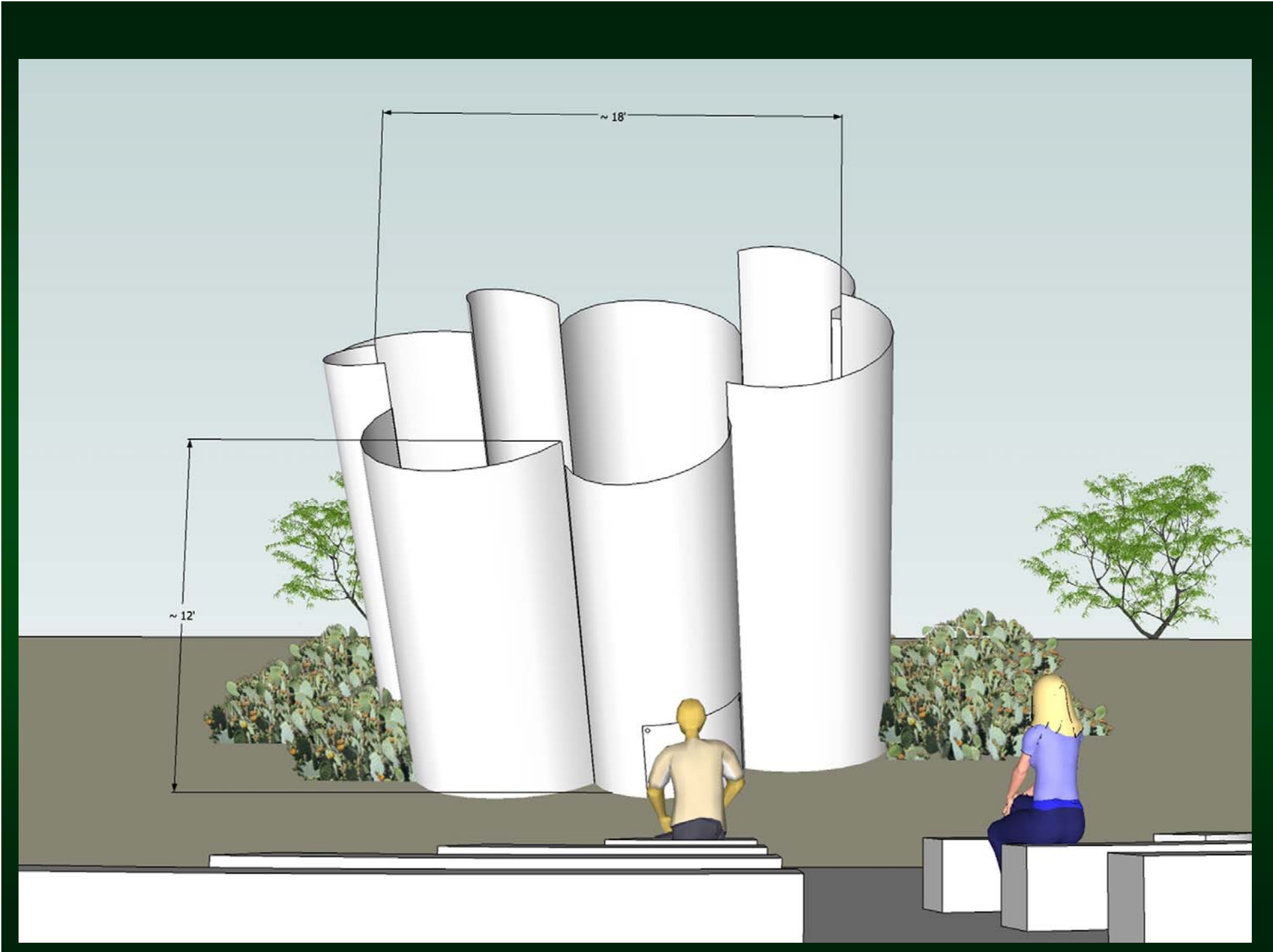














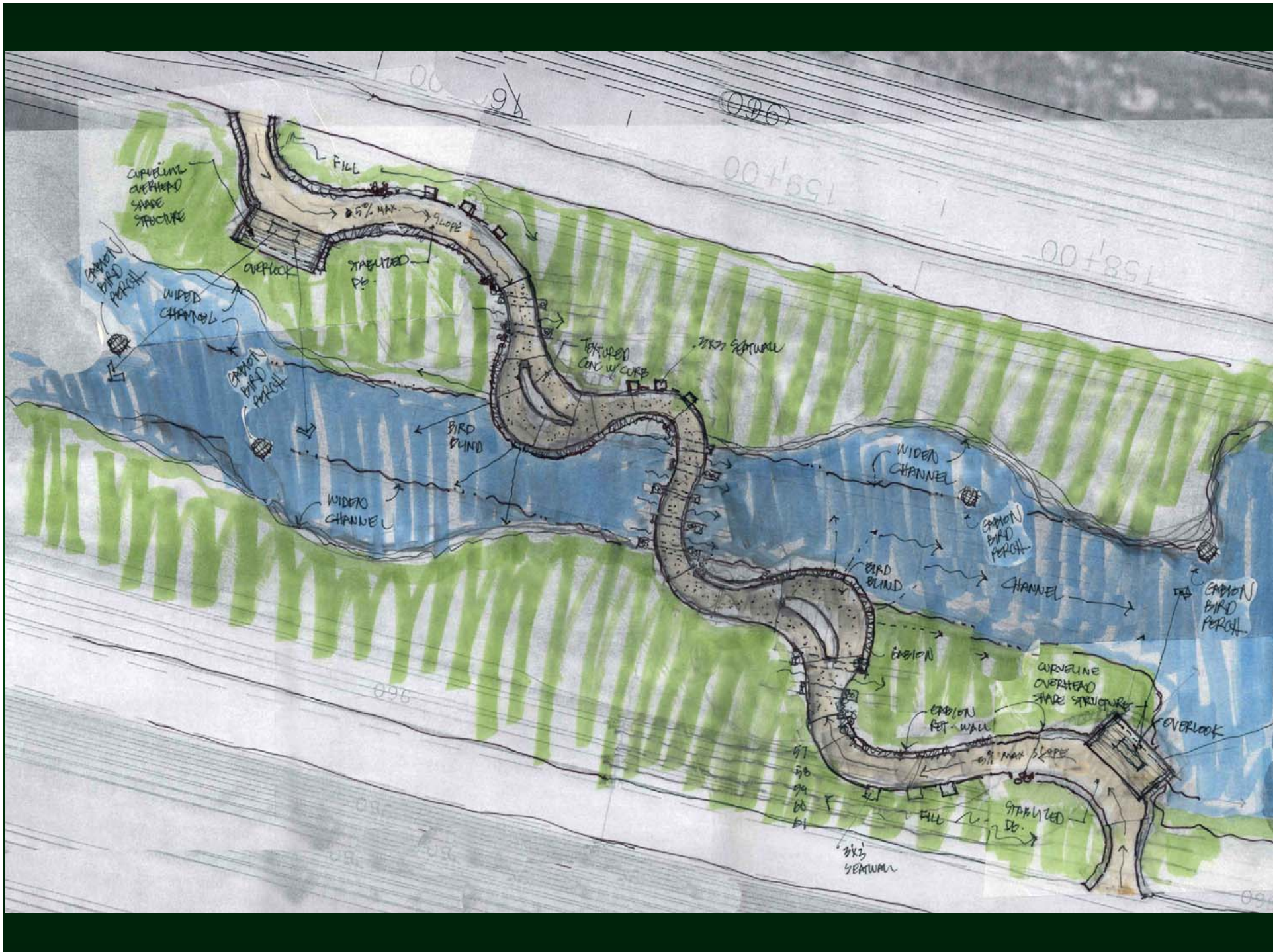




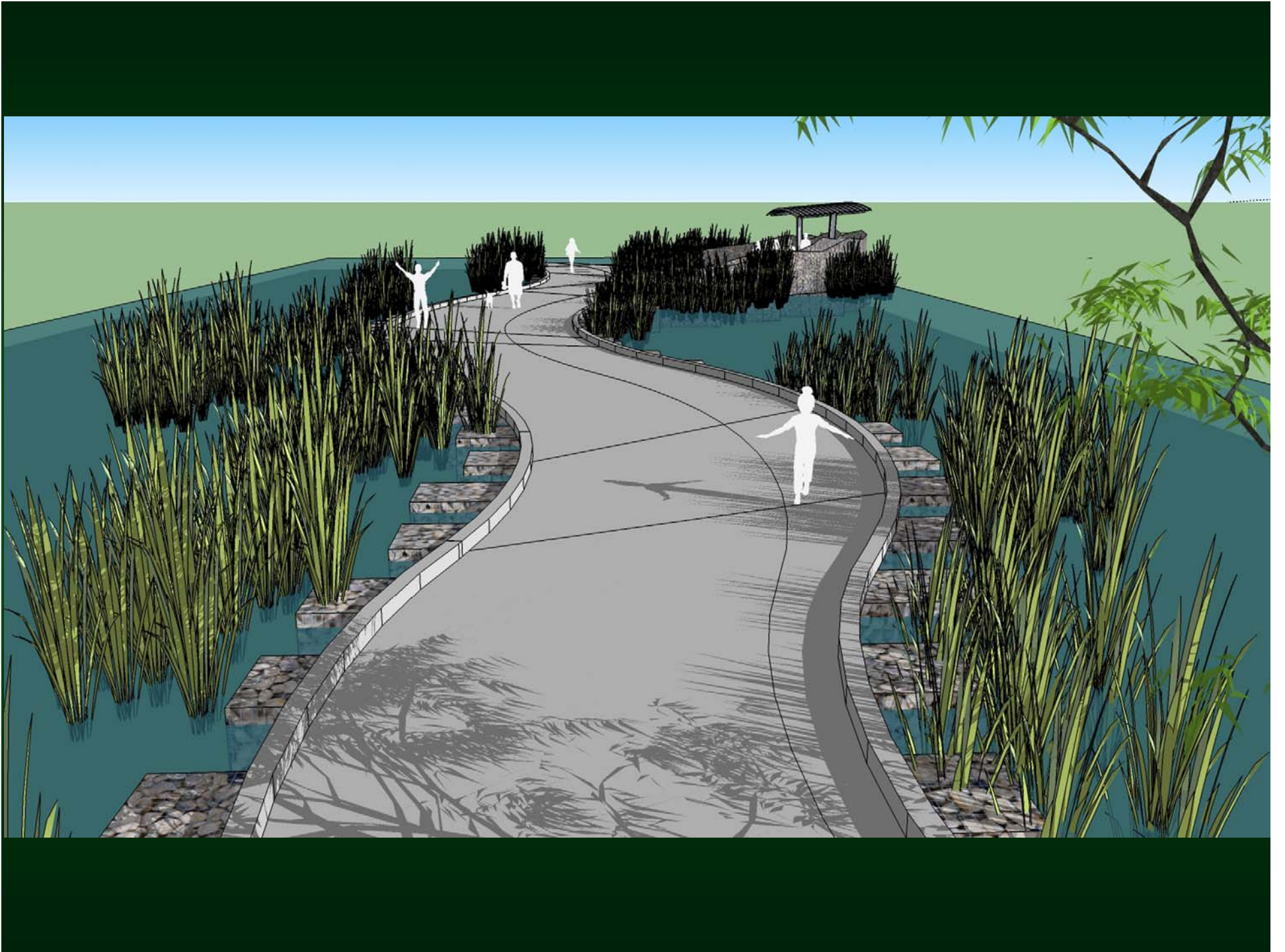














wire mesh over  
glass area

beefier mesh  
around glass?

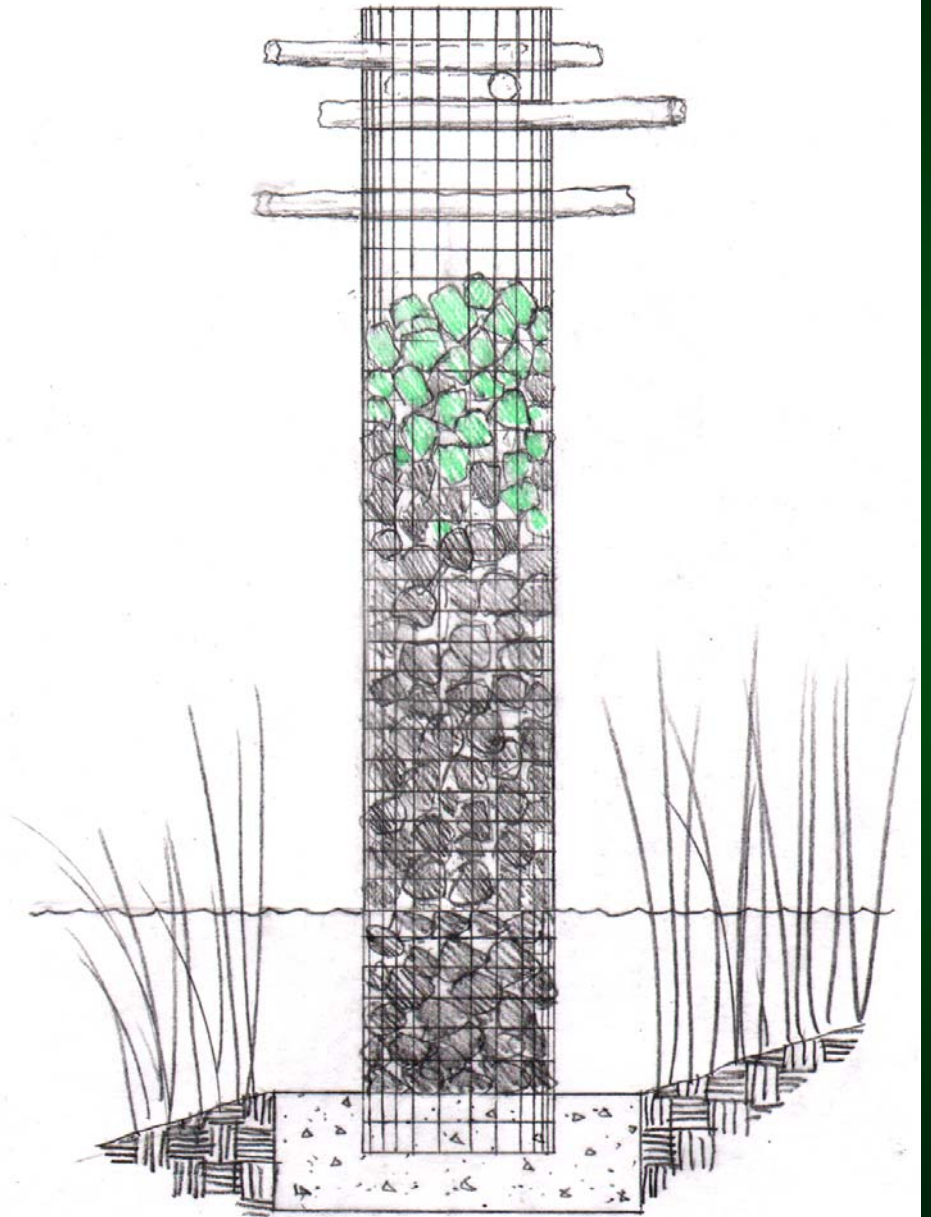
2' wide gabion wall - rocks on top mortared together

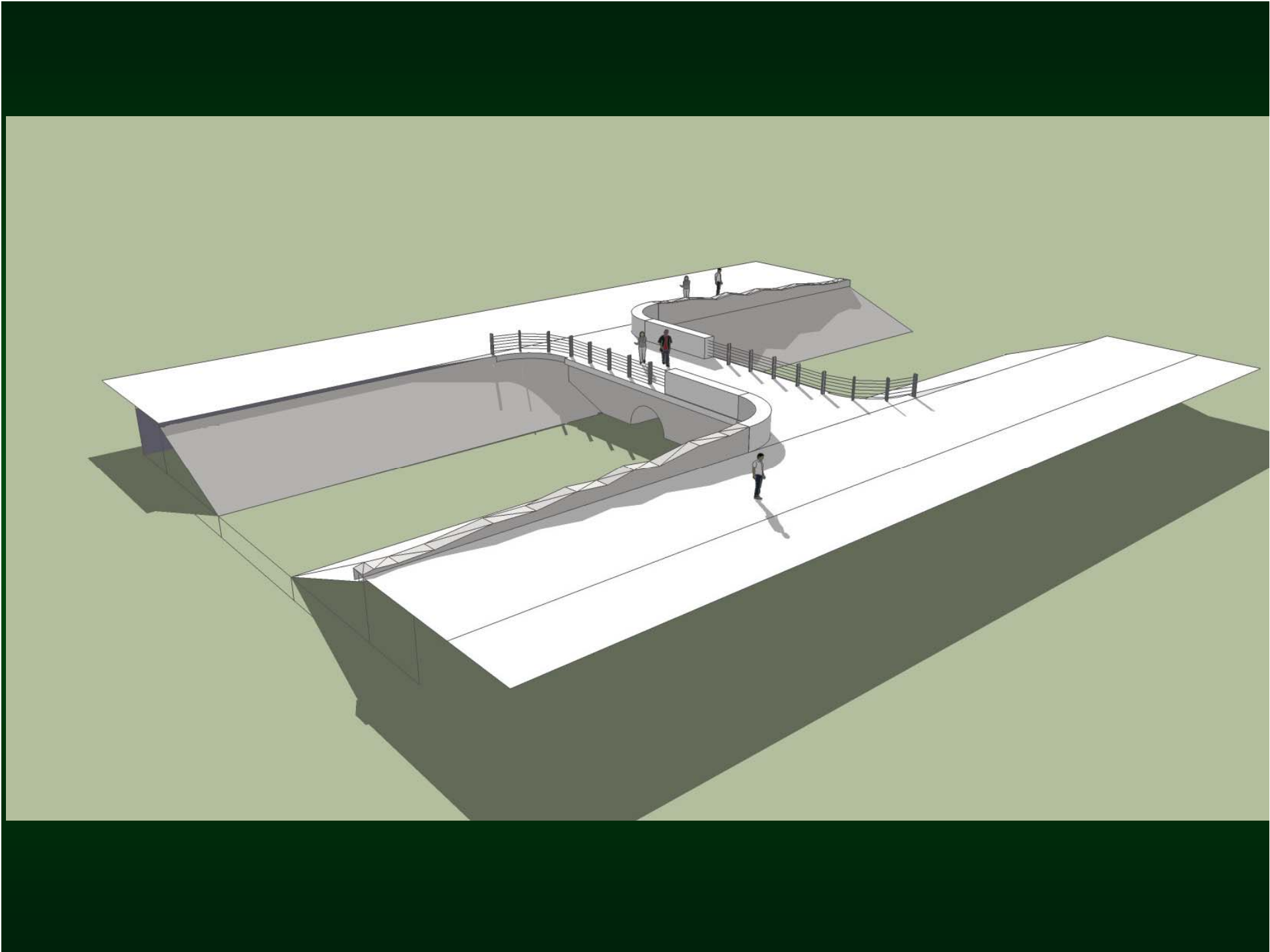
glass at end  
of wall



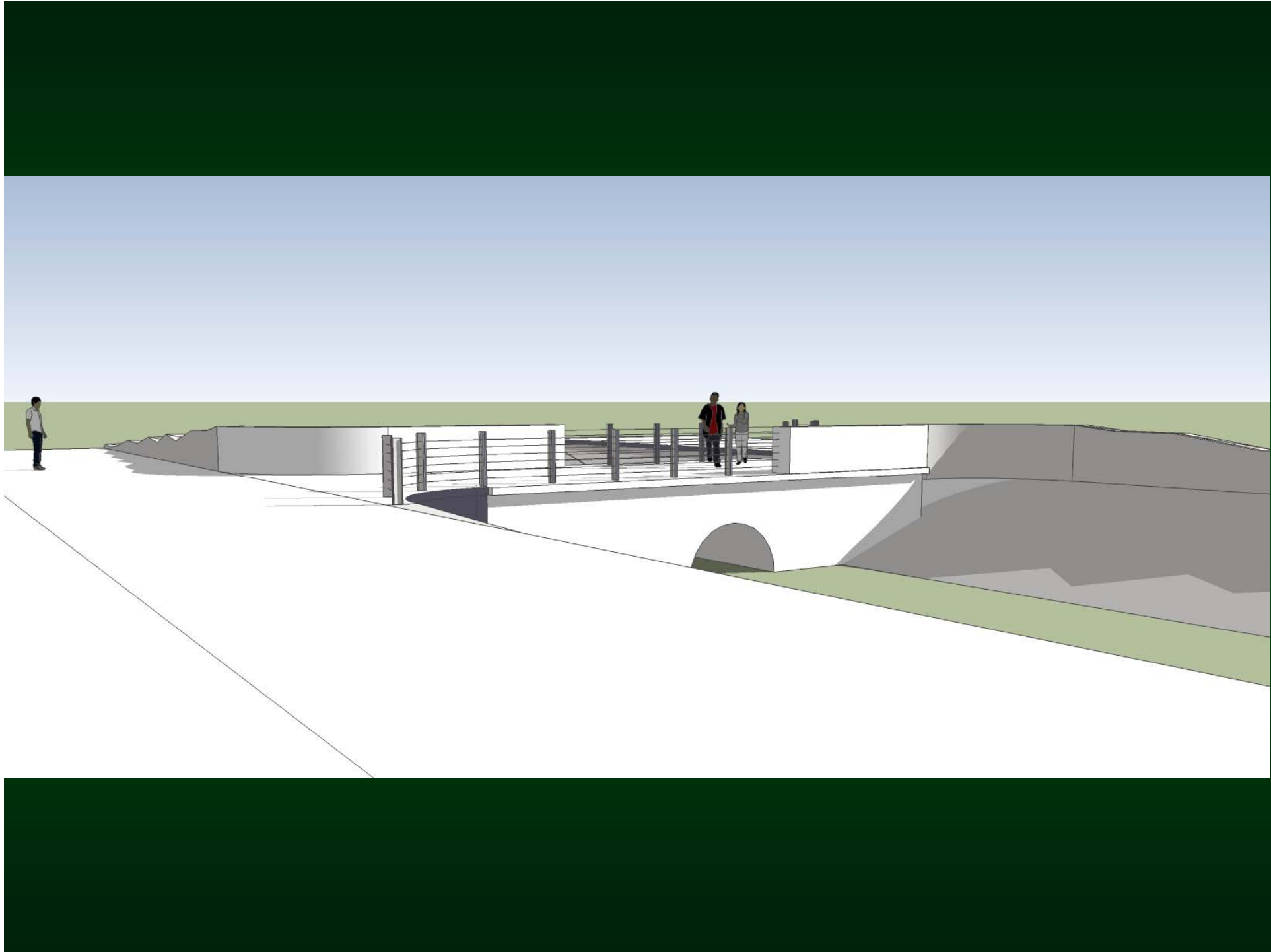


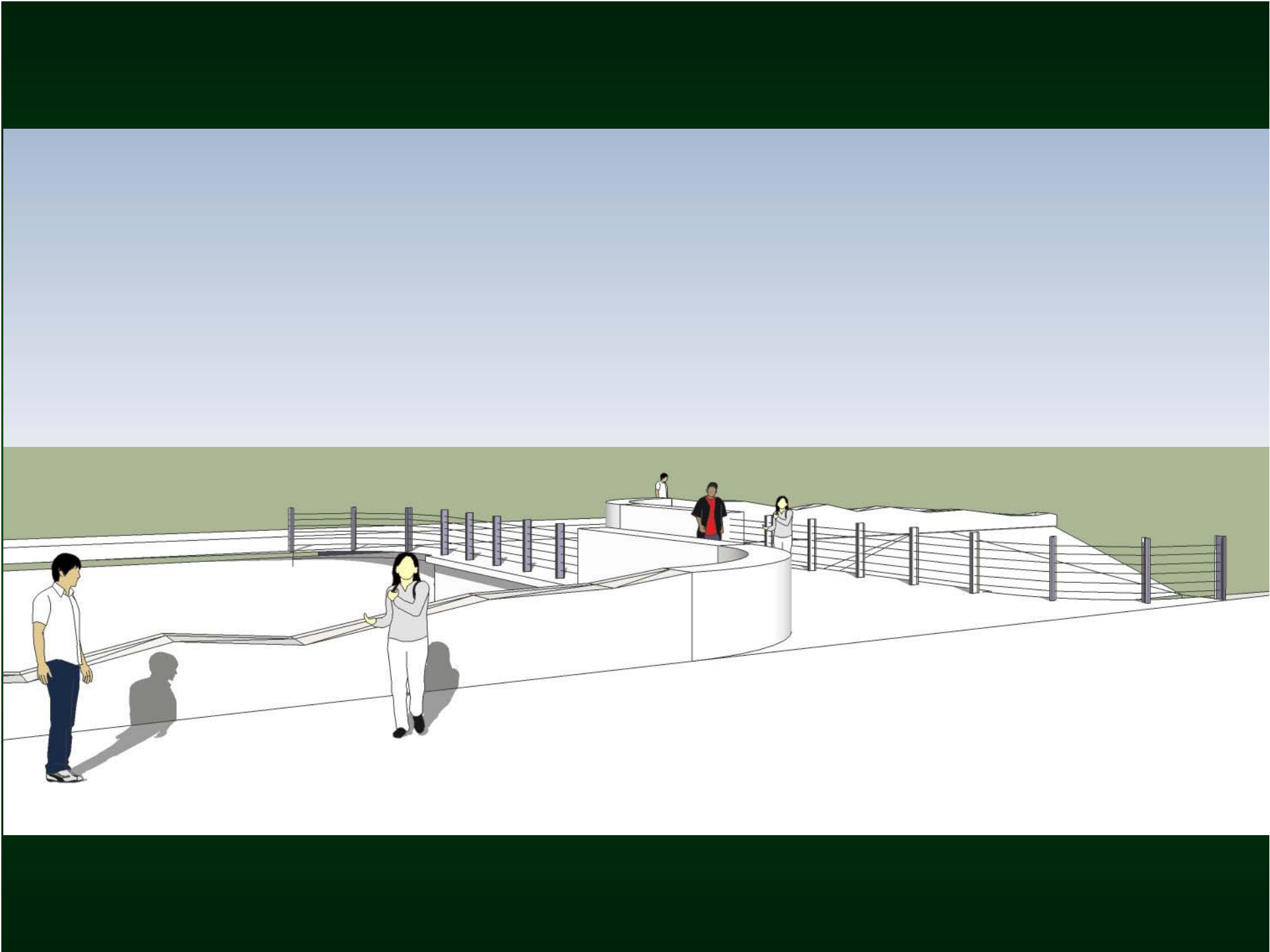










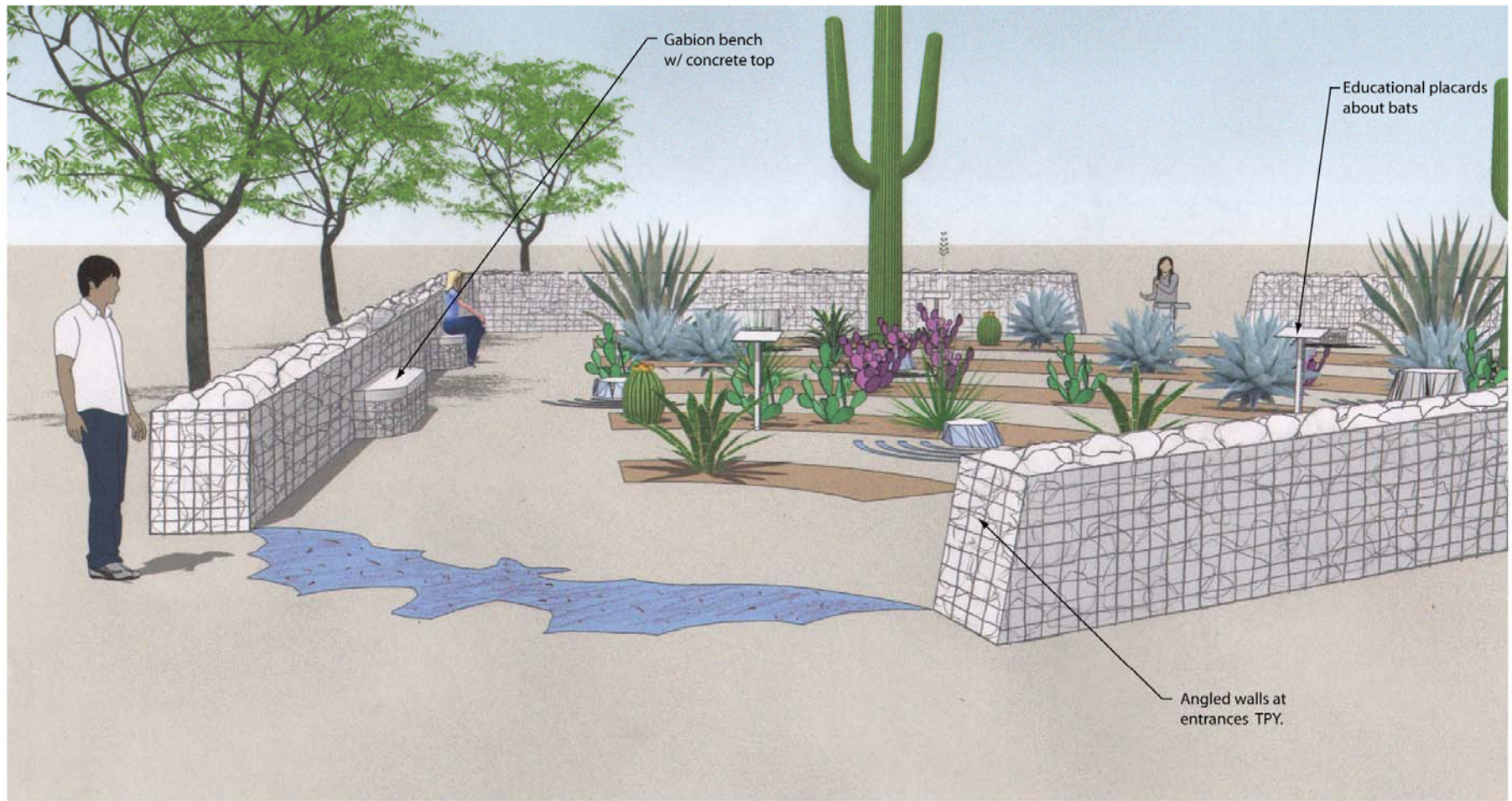






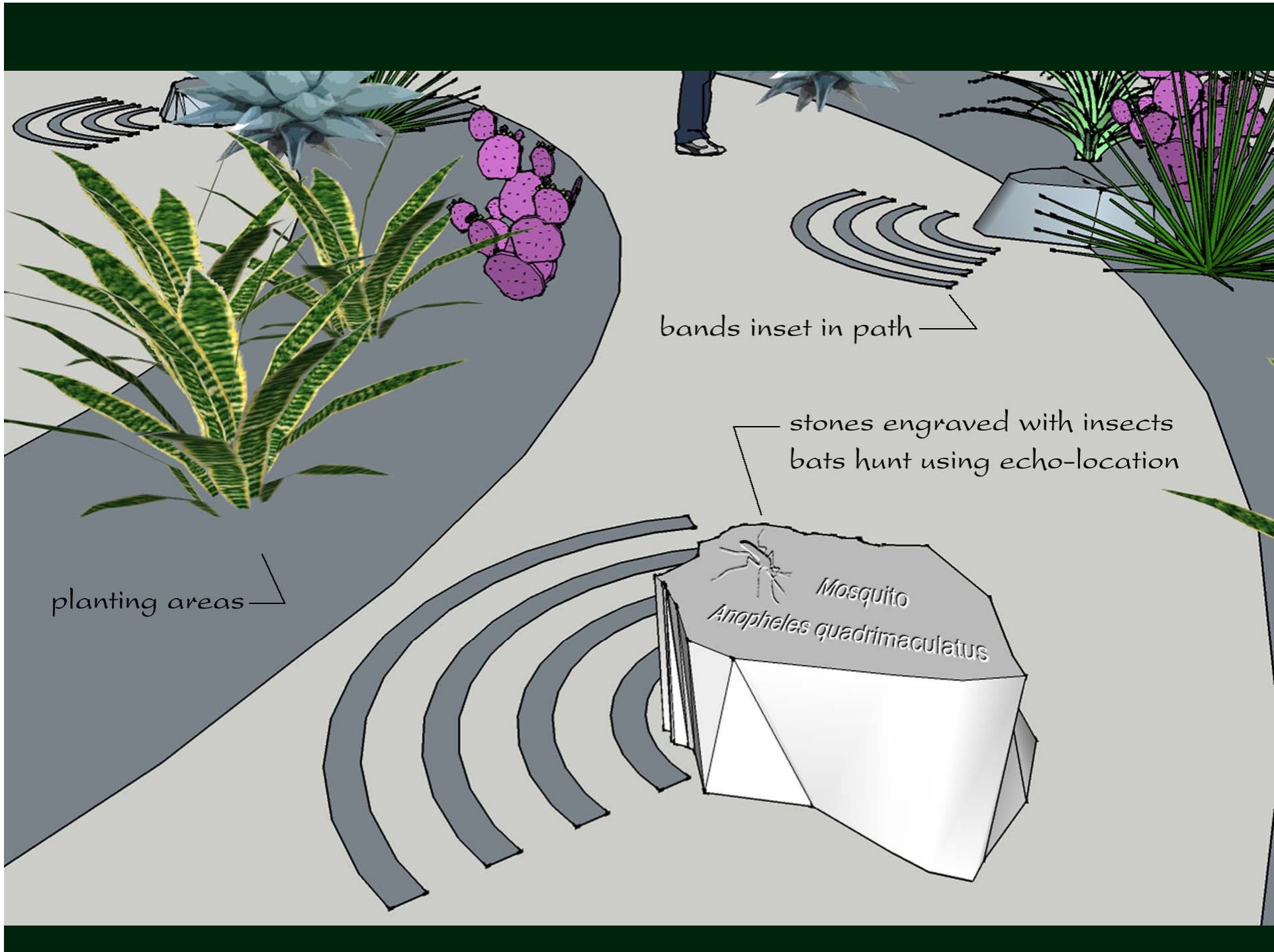












planting areas

bands inset in path

stones engraved with insects  
bats hunt using echo-location

Mosquito  
*Anopheles quadrimaculatus*

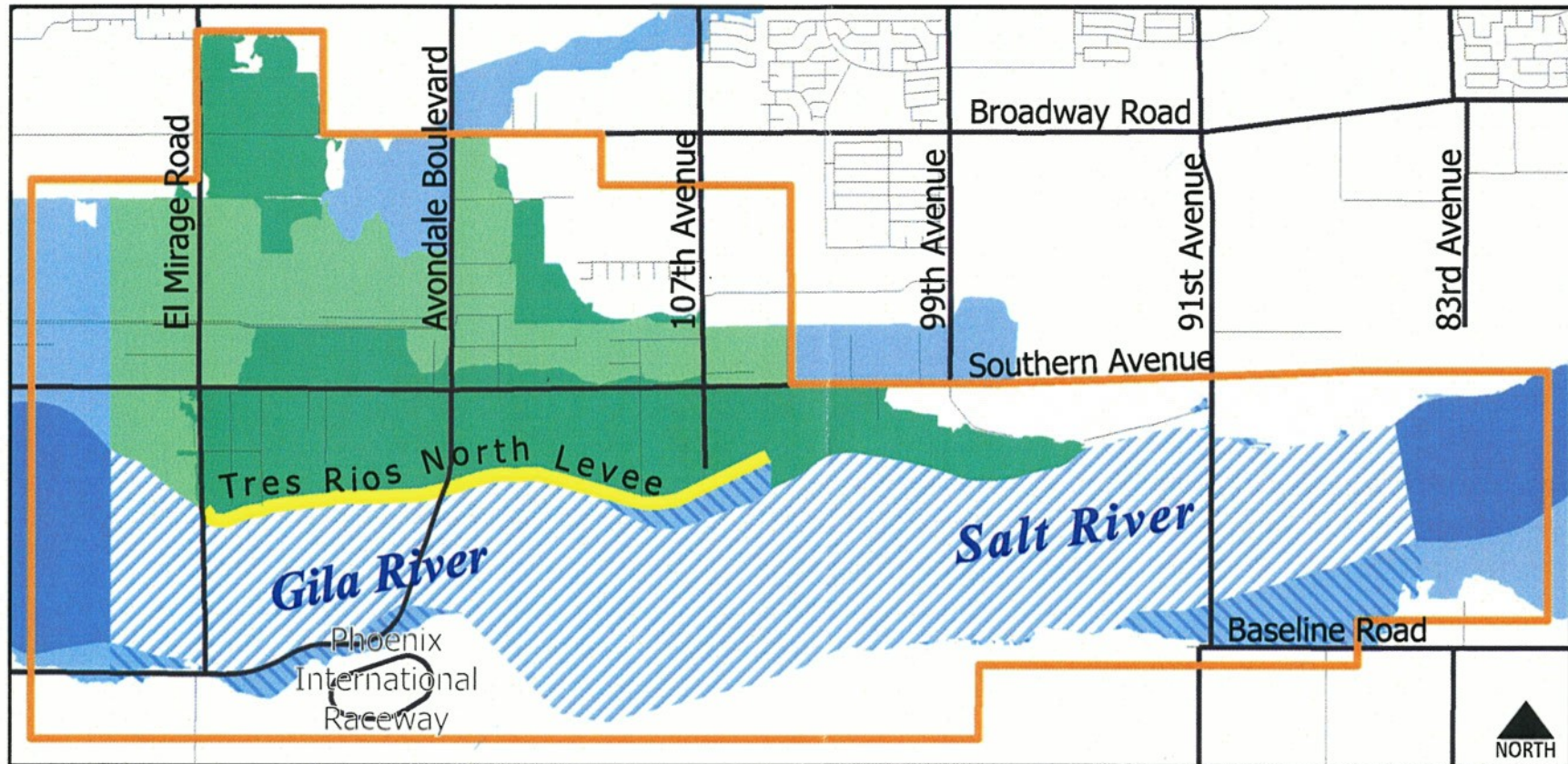








# Floodplain Map Changes



Map not to scale.

Floodplains and floodways shown in this map are subject to change based on study results and future FEMA approval.



# *Some of Our Latest Visitors to Tres Rios*











