

# RIO PUERTO NUEVO

## FLOOD RISK MANAGEMENT PROJECT



Jose Bilbao, P.E.  
Senior Project Manager  
Antilles Integrated Project Office  
Jacksonville District, USACE

May 05, 2022



US Army Corps  
of Engineers®







# AGENDA

## BRIEFING TO UNIVERSIDAD DE PUERTO RICO

- Introductions
- Project Overview
- Contract Status
- Concepts for placement of material







# RIO PUERTO NUEVO PROJECT OVERVIEW

3



## CONTRACT IMPLEMENTATION, FEATURES, AND PROJECT MAP (ALL LOCATIONS ARE APPROXIMATE)

### COMPLETED

CONTRACTS 1, 1A, 2A/AR, 2AA, 2C1

STATUS: 2C1, last completed, was August 2020

AMOUNT: \$450M

#### CONSTRUCTION:

- First 1.3 miles of channel improvements
- Kennedy Bridge seismic retrofit, 36-inch water line
- Quebrada Margarita channel excavation and confluence wall; lower Puerto Nuevo channel dredging
- Bechara Channel secant pile wall box culvert; 90-inch sewer line modification; open channel work
- De Diego Expressway Bridge abutments; east and west pier drill shaft reinforcement

### ONGOING

CONTRACT 2D: RÍO PUERTO NUEVO CHANNEL WALLS

STATUS: March 2022 anticipated completion

AMOUNT: \$21.5M

CONTRACT AWARD: February 2017

#### CONSTRUCTION:

- 350-foot left channel wall
- 750-foot right channel wall

### REMAINING

SUPPLEMENTAL CONTRACT 1 | CONSTRUCTION

- Sewer line relocation
- Construction of .63 miles of channel improvements at Upper Quebrada Margarita

SUPPLEMENTAL CONTRACT 2 | CONSTRUCTION

- Roosevelt Avenue Bridge replacement

SUPPLEMENTAL CONTRACT 3 | CONSTRUCTION

- Channel walls
- 1.1 miles of Main Channel improvements

SUPPLEMENTAL CONTRACT 4 | CONSTRUCTION

- Stilling Basin and Bridge Replacements
  - ▶ 4A-1: Las Americas Expressway Bridge
  - ▶ 4A-2: Piñero Avenue Bridge East
  - ▶ 4A-3: Northeast Access Ramp Bridge
  - ▶ 4A-4: Southeast Access Ramp Bridge

SUPPLEMENTAL CONTRACT 5 | CONSTRUCTION

- 5A: Notre Dame Bridge replacement
- 5B: Piñero Avenue Bridge West replacement; Quebrada Josefina gap downstream to Río Piedras

SUPPLEMENTAL CONTRACT 6 | CONSTRUCTION

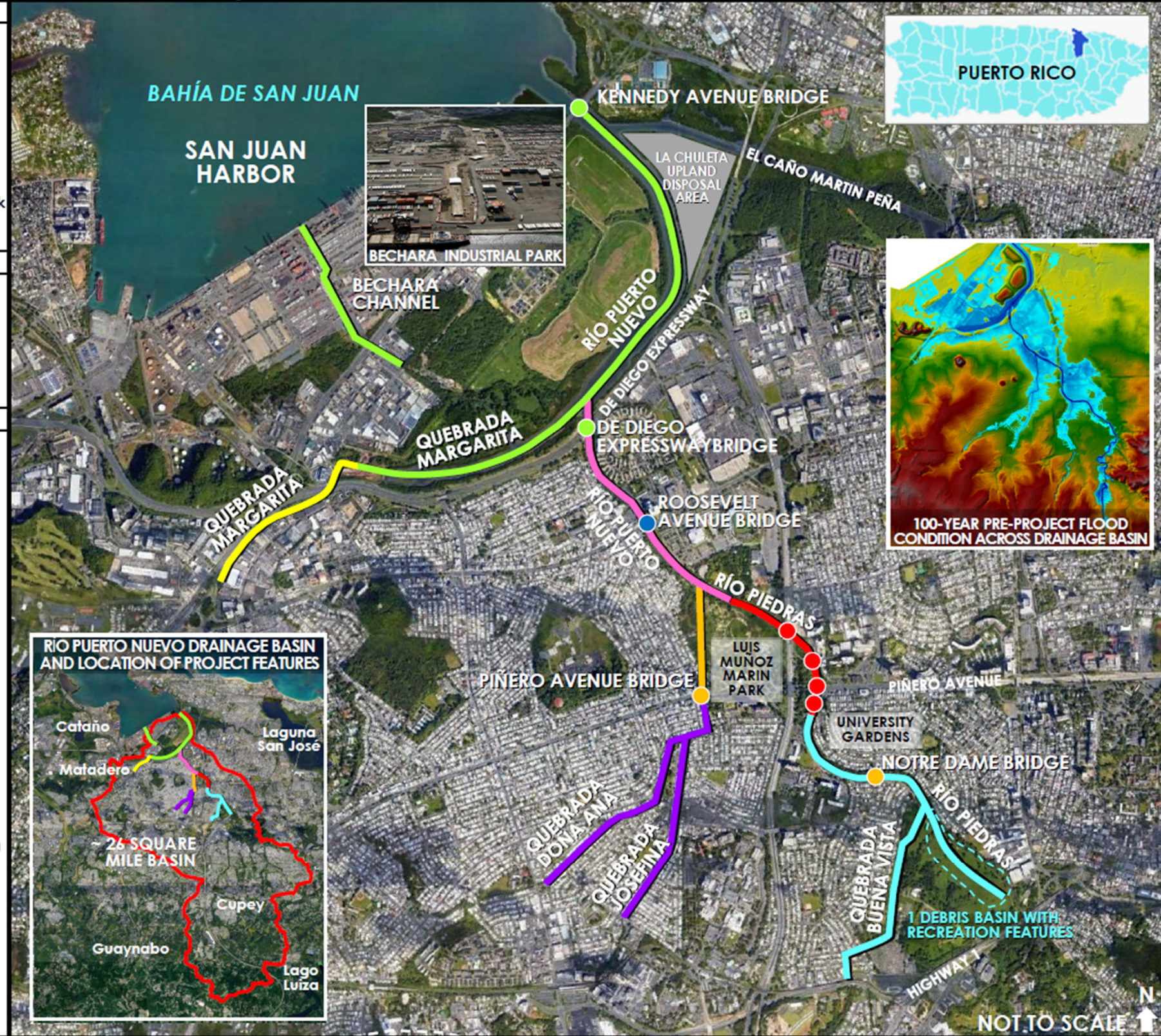
- 1.75 miles of Río Piedras channel improvements
- 4 bridges (2 new; 2 replacements)
- .80 miles channel diversion at Quebrada Buena Vista
- Construction of 1 debris basin

SUPPLEMENTAL CONTRACT 7 | CONSTRUCTION

- 10 bridge replacements
- 5000 linear feet of Quebrada Josefina Channel improvements
- 4400 linear feet of Quebrada Doña Ana Channel improvements

SUPPLEMENTAL CONTRACT LA CHULETA

- Upland Disposal Area (future capacity of ~500,000 cubic yards of material)



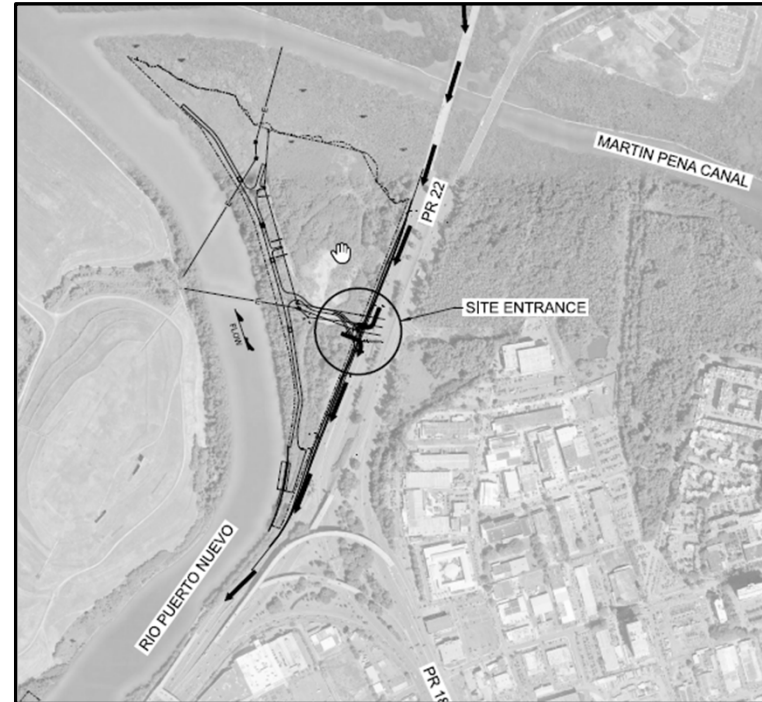
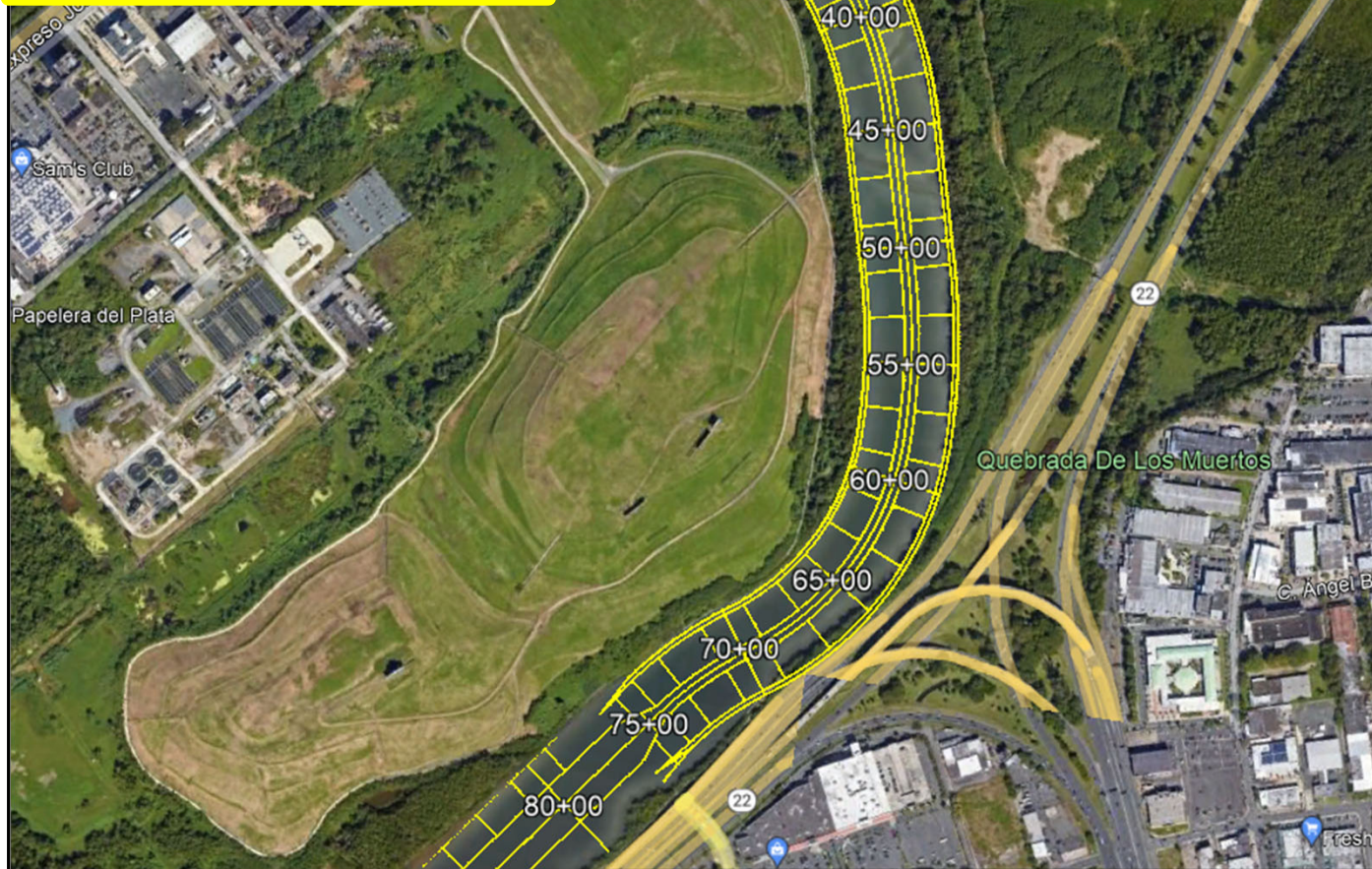
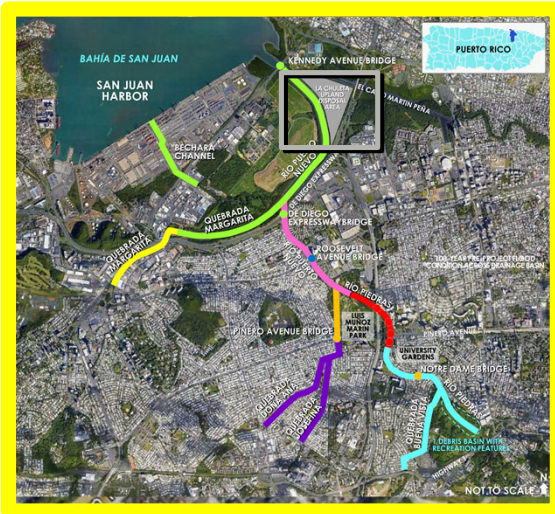




# CONTRACT LA CHULETA

## DISPOSAL SITE FOR EXCAVATED MATERIALS

4



### STATUS

- Design complete
- Project has been advertised.

### SCHEDULE

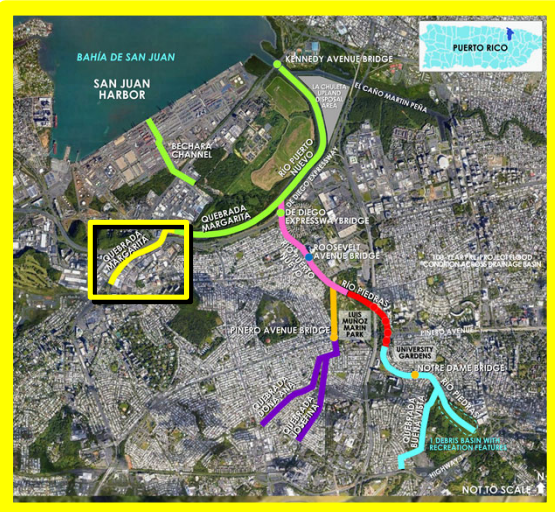
- |                           |           |
|---------------------------|-----------|
| ▪ Design Complete:        | Apr. 2022 |
| ▪ Receipt of Real Estate: | Feb. 2022 |
| ▪ Advertisement:          | Apr. 2022 |
| ▪ Award:                  | Jun. 2022 |
| ▪ Construction Start:     | Aug. 2022 |

RÍO PUERTO NUEVO FLOOD RISK MANAGEMENT PROJECT





# CONTRACT 1 – UPPER MARGARITA CHANNEL MATADERO SECTOR



## STATUS

- Design nearly complete
- Re-design of electrical
- Reviewing comments from PRASA on Sewer Siphon

## SCHEDULE

- |                           |           |
|---------------------------|-----------|
| ▪ Design Complete:        | Dec. 2022 |
| ▪ Receipt of Real Estate: | Dec. 2022 |
| ▪ Advertisement:          | Dec. 2022 |
| ▪ Award:                  | Jun. 2023 |
| ▪ Construction Start:     | Aug. 2023 |

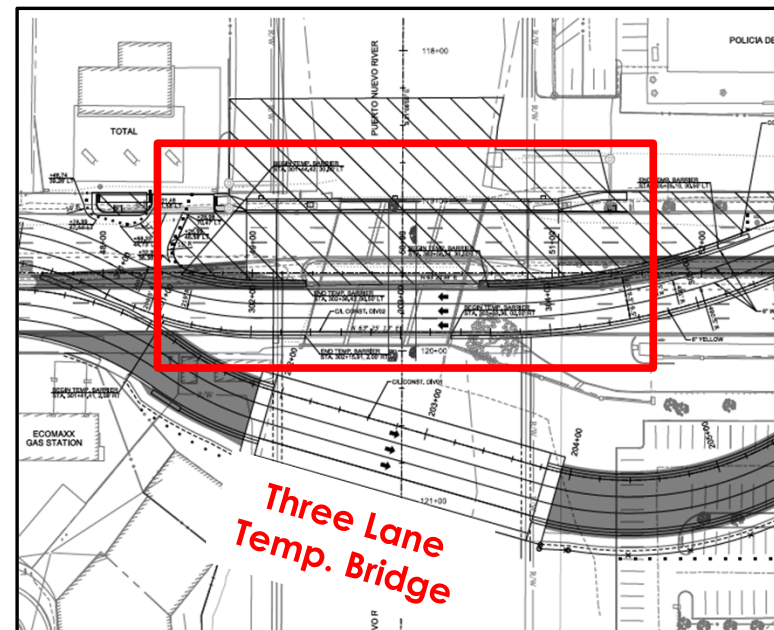




# CONTRACT 2 – ROOSEVELT BRIDGE REPLACEMENT



6



## STATUS

- Design complete,
- Currently awaiting endorsement in OGPE
- In process with Land Acquisition of required lands

## SCHEDULE

- |                           |           |
|---------------------------|-----------|
| ▪ Design Complete:        | Nov. 2022 |
| ▪ Receipt of Real Estate: | Nov. 2022 |
| ▪ Advertisement:          | Nov. 2022 |
| ▪ Award:                  | May 2023  |
| ▪ Construction Start:     | Jul. 2023 |

**RÍO PUERTO NUEVO FLOOD RISK MANAGEMENT PROJECT**



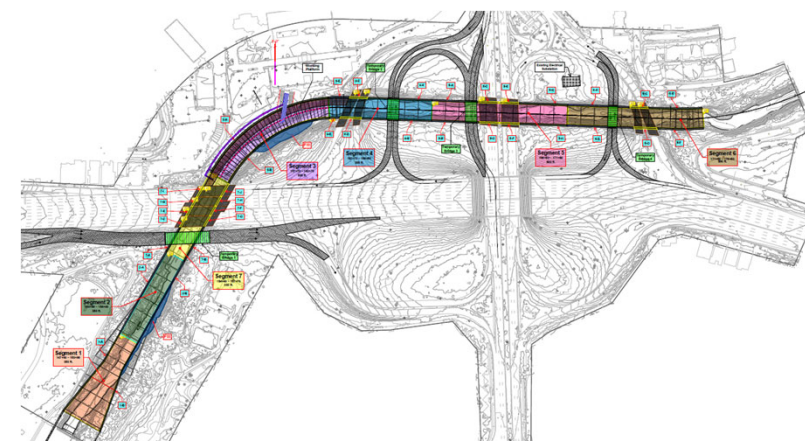






# CONTRACT 4 – LAS AMERICAS EXPRESSWAY BRIDGES

8



## STATUS

- Preliminary Design complete
- Additional Survey of Electrical lines pending

## SCHEDULE

- Design Complete: Jun. 2025
- Receipt of Real Estate: Jun. 2025
- Advertisement: Jul 2025
- Award: Dec. 2025
- Construction Start: Feb. 2026

**RÍO PUERTO NUEVO FLOOD RISK MANAGEMENT PROJECT**





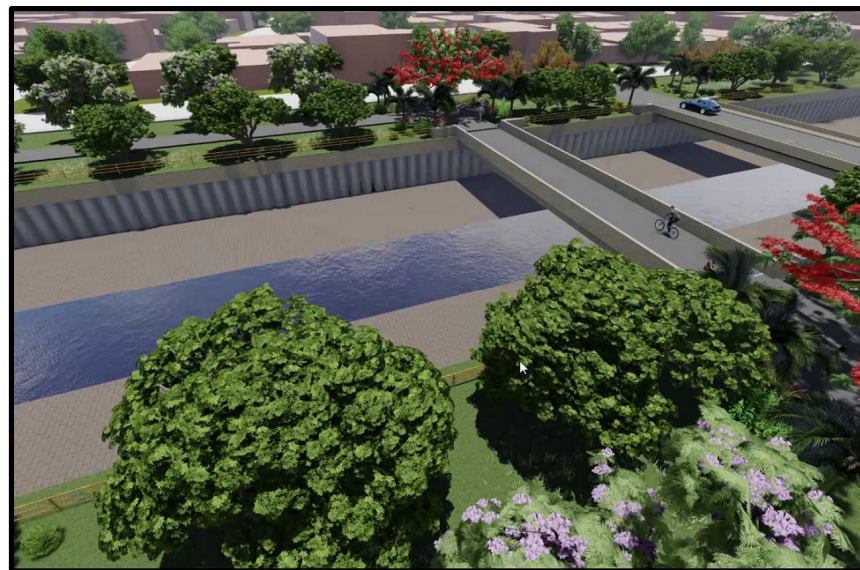
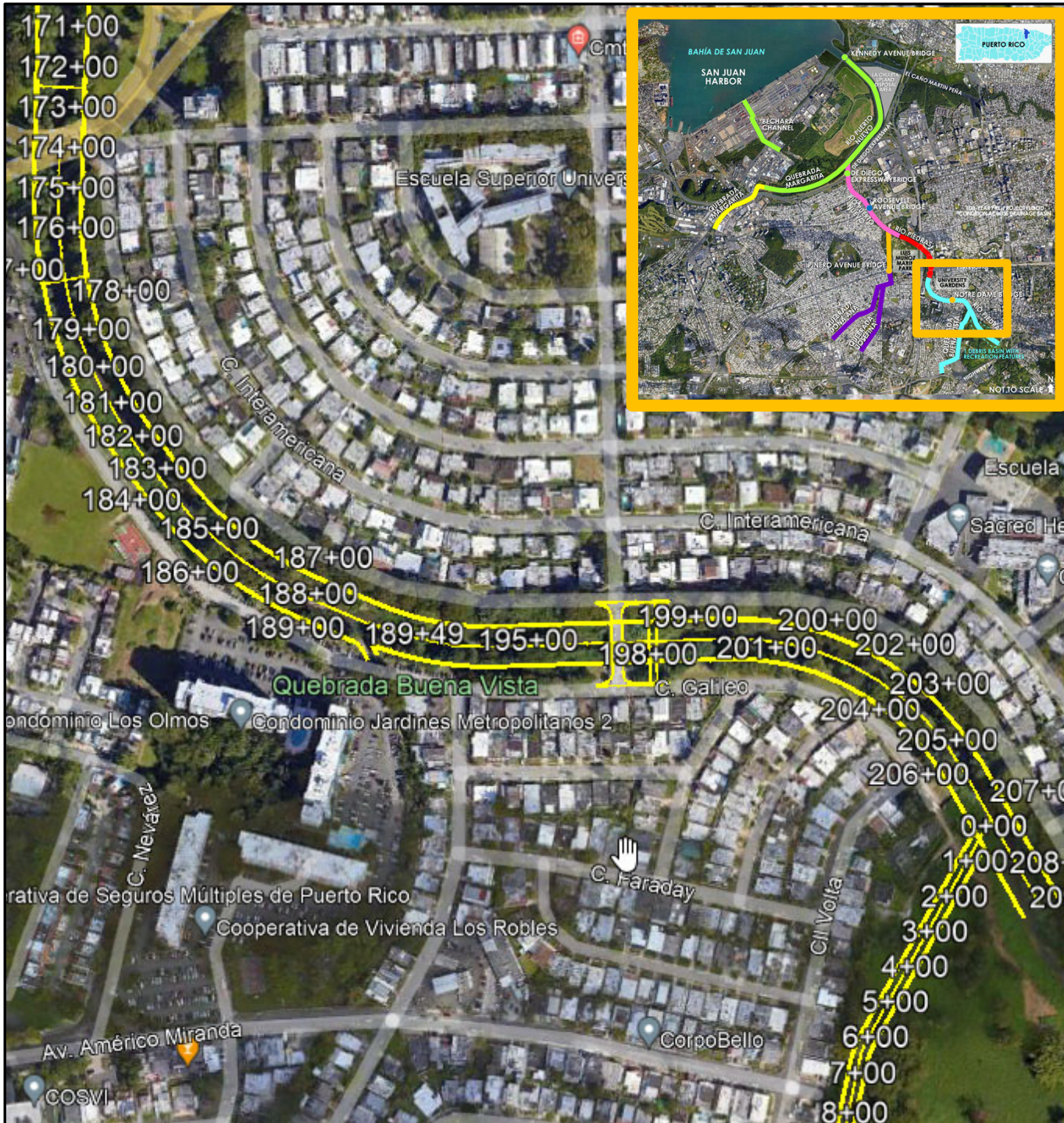
# CONTRACT 5A – NOTRE DAME BRIDGE

## STATUS

- Revised intermediate Design in May 2022
- Utility Design will be incorporated in to next design submittal.

## SCHEDULE

- |                           |           |
|---------------------------|-----------|
| ▪ Design Complete:        | Feb. 2024 |
| ▪ Receipt of Real Estate: | Feb. 2024 |
| ▪ Advertisement:          | Feb. 2024 |
| ▪ Award:                  | Aug. 2024 |
| ▪ Construction Start:     | Oct. 2024 |







# RIO PUERTO NUEVO CONTRACT 5B, 6 & 7

10



## CONTRACT IMPLEMENTATION, FEATURES, AND PROJECT MAP (ALL LOCATIONS ARE APPROXIMATE)

### COMPLETED

CONTRACTS 1, 1A, 2A/AR, 2AA, 2C1

STATUS: 2C1, last completed, was August 2020

AMOUNT: \$450M

#### CONSTRUCTION:

- First 1.3 miles of channel improvements
- Kennedy Bridge seismic retrofit, 36-inch water line
- Quebrada Margarita channel excavation and confluence wall; lower Puerto Nuevo channel dredging
- Bechara Channel secant pile wall box culvert; 90-inch sewer line modification; open channel work
- De Diego Expressway Bridge abutments; east and west pier drill shaft reinforcement

### ONGOING

CONTRACT 2D: RÍO PUERTO NUEVO CHANNEL WALLS

STATUS: March 2022 anticipated completion

AMOUNT: \$21.5M

CONTRACT AWARD: February 2017

#### CONSTRUCTION:

- 350-foot left channel wall
- 750-foot right channel wall

### REMAINING

SUPPLEMENTAL CONTRACT 1 | CONSTRUCTION

- Sewer line relocation
- Construction of .63 miles of channel improvements at Upper Quebrada Margarita

SUPPLEMENTAL CONTRACT 2 | CONSTRUCTION

- Roosevelt Avenue Bridge replacement

SUPPLEMENTAL CONTRACT 3 | CONSTRUCTION

- Channel walls
- 1.1 miles of Main Channel improvements

SUPPLEMENTAL CONTRACT 4 | CONSTRUCTION

- Stilling Basin and Bridge Replacements

- ▶ 4A-1: Las Americas Expressway Bridge

- ▶ 4A-2: Piñero Avenue Bridge East

- ▶ 4A-3: Northeast Access Ramp Bridge

- ▶ 4A-4: Southeast Access Ramp Bridge

SUPPLEMENTAL CONTRACT 5 | CONSTRUCTION

- 5A: Notre Dame Bridge replacement

- 5B: Piñero Avenue Bridge West replacement; Quebrada Josefina gap downstream to Río Piedras

SUPPLEMENTAL CONTRACT 6 | CONSTRUCTION

- 1.75 miles of Río Piedras channel improvements

- 4 bridges (2 new; 2 replacements)

- .80 miles channel diversion at Quebrada Buena Vista

- Construction of 1 debris basin

SUPPLEMENTAL CONTRACT 7 | CONSTRUCTION

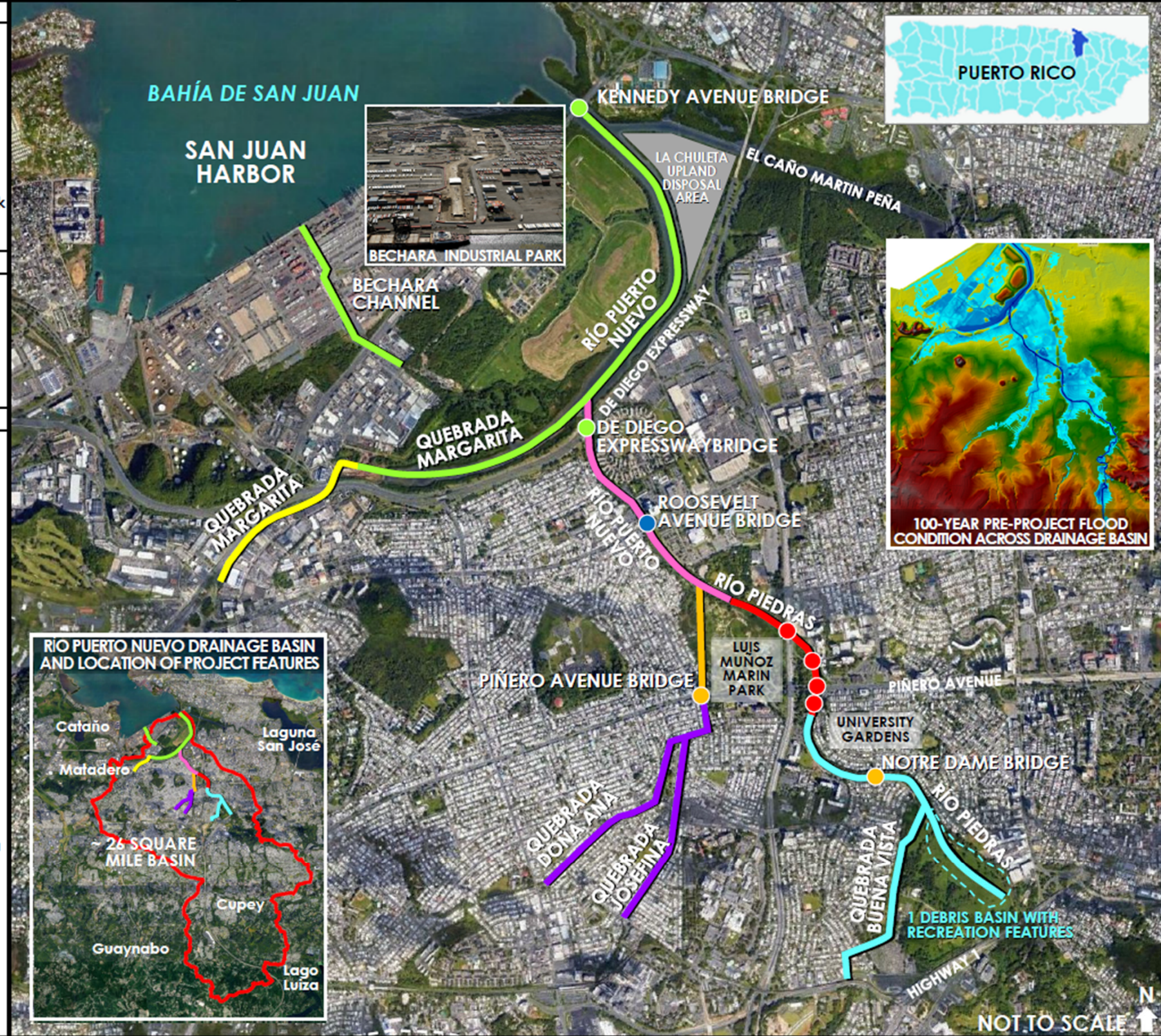
- 10 bridge replacements

- 5000 linear feet of Quebrada Josefina Channel improvements

- 4400 linear feet of Quebrada Doña Channel improvements

SUPPLEMENTAL CONTRACT LA CHULETA

- Upland Disposal Area (future capacity of ~500,000 cubic yards of material)





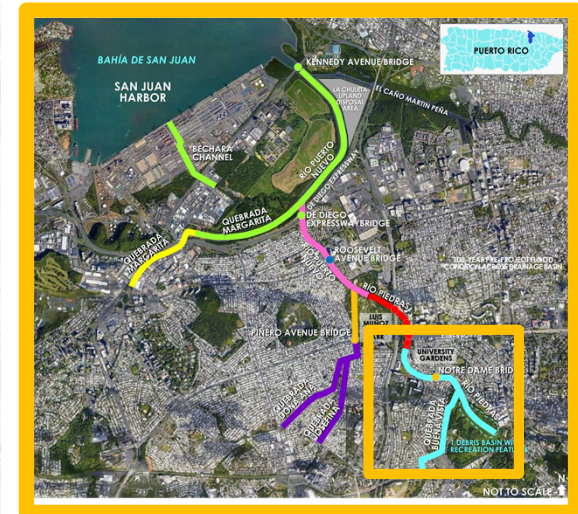
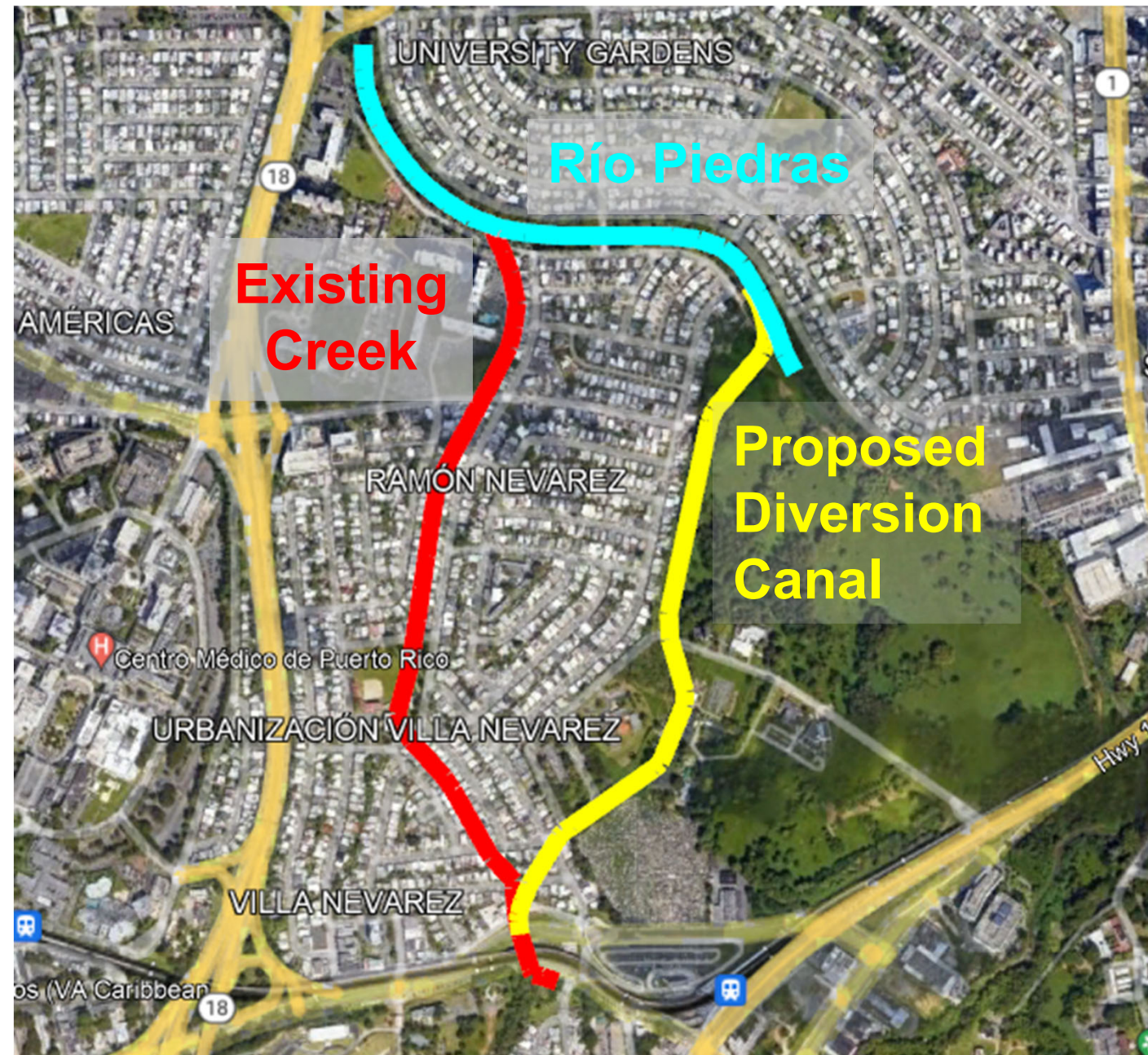


# CONTRACT 6 – BUENA VISTA DIVERSION CHANNEL

11



- Revised intermediate Design in May 2022
- Existing creek walls have failed in multiple locations and will likely continue to fail in other locations.
- Several wall sections are currently leaning
- The Río Puerto Nuevo project will divert much of the flow away from this creek, but the creek is still required for local storm drainage
- After the project is constructed, the 100-year storm will likely be near the top of the walls and may be over the walls in some areas (based on a preliminary analysis)
- The RPN project will divert approximately 70% of the Buena Vista Creek discharge from PR-21 bridge through a diversion channel.
- Buena Vista Creek will received mostly local runoff and not discharge from the Buena Vista Creek headwaters.
- Preliminary analysis shows that residual flooding may occur under large storm event (e.j. 100-year storm events ) but we don't have the data available to make a concrete assessment yet.







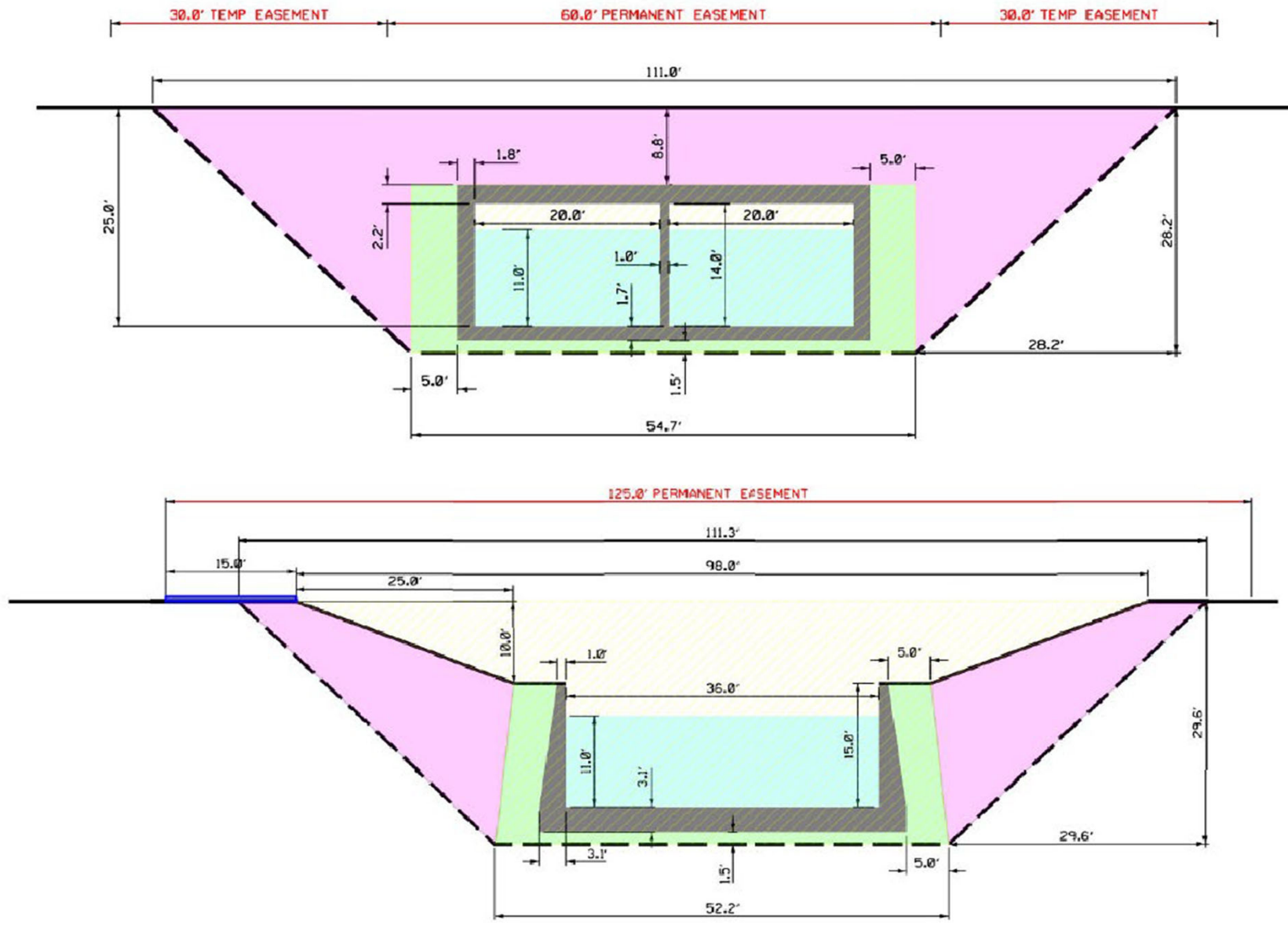
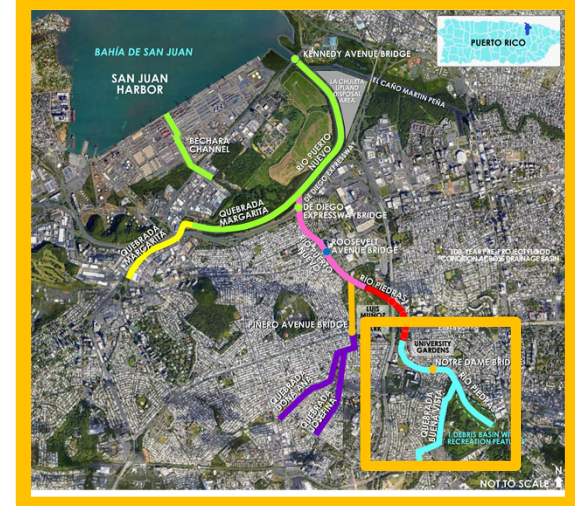
# CONTRACT 6 – BUENA VISTA DIVERSION CHANNEL

12



## Buena Vista Diversion Canal

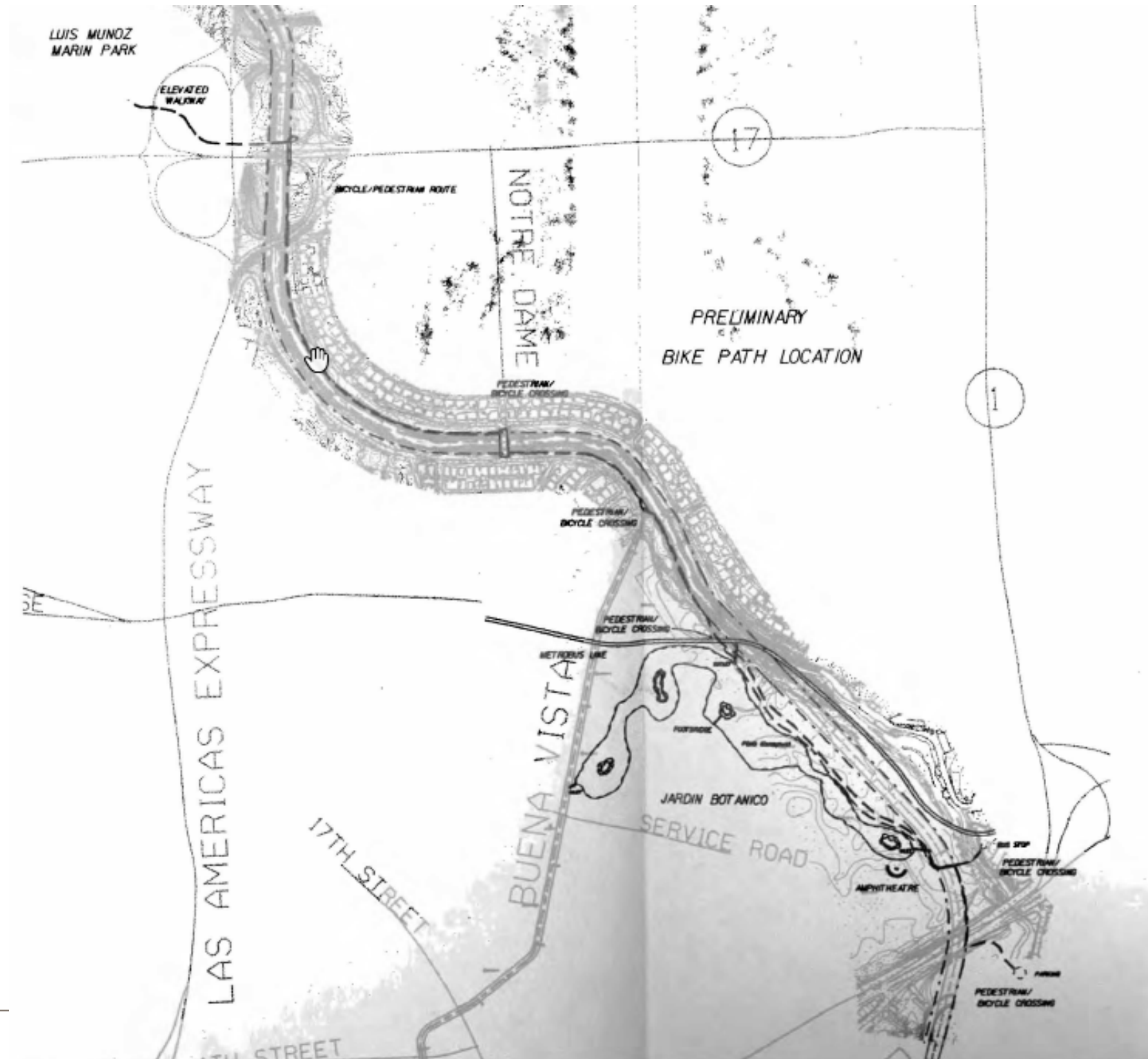
- 1,300 Ea. five-foot diameter concrete drilled shaft piles (~80 feet deep)
- 80,000 cy of concrete
- 7,000 tons of reinforcing steel
- 2,000,000 LCY of excavated material to be disposed
- 330,000 LCY of suitable fill
- 8,000 tons of steel sheet pile
- 321,000 square feet of ACB



RÍO PUERTO NUEVO FLOOD RISK MANAGEMENT PROJECT



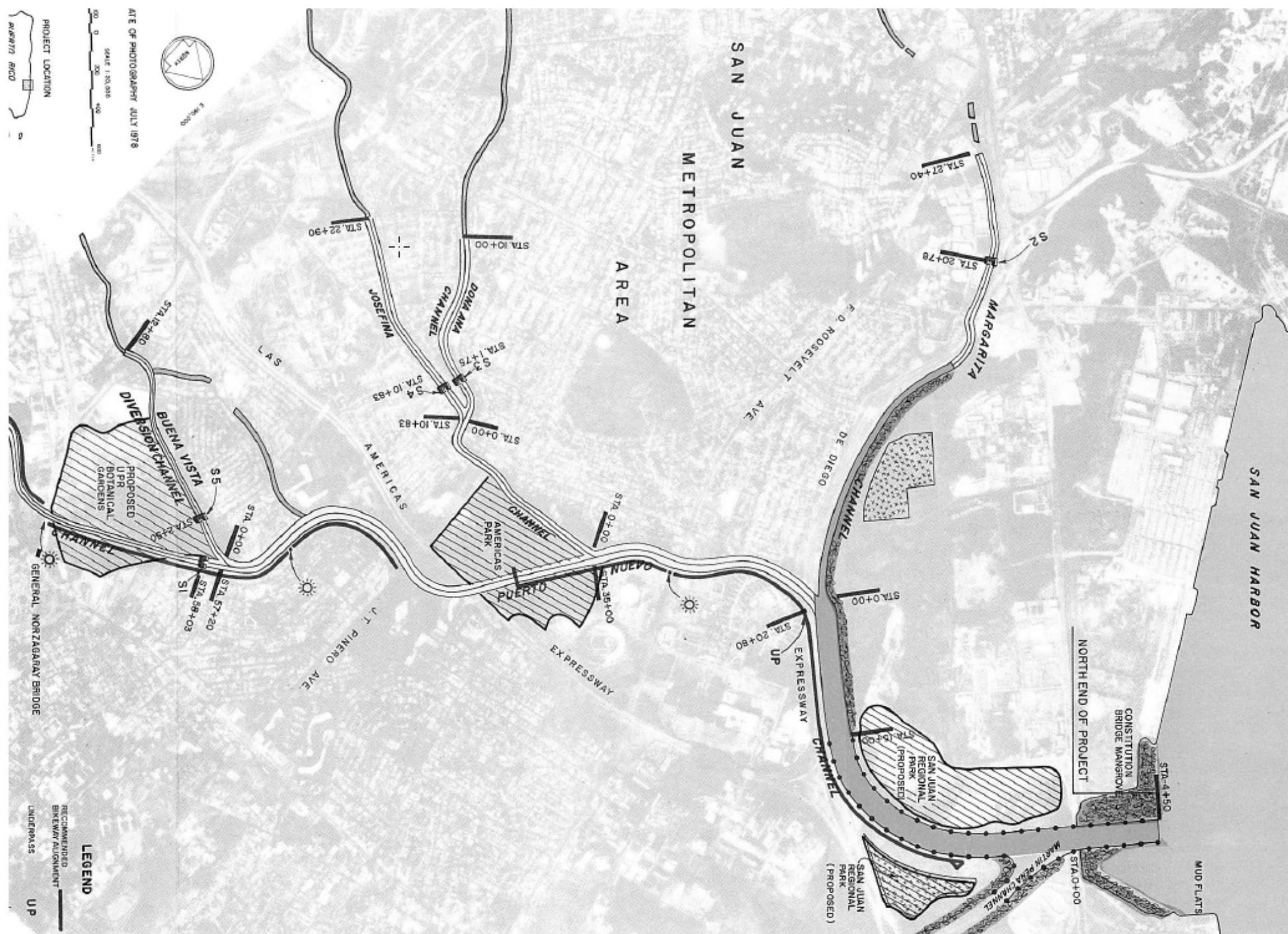
# RECREATIONAL FEATURES







## RECREATIONAL FEATURES







# CONTRACT 6 – PLACEMENT OPTIONS







# CONTRACT 6 – PLACEMENT OPTIONS

16



CROSS SECTION A-A



CROSS SECTION B-B



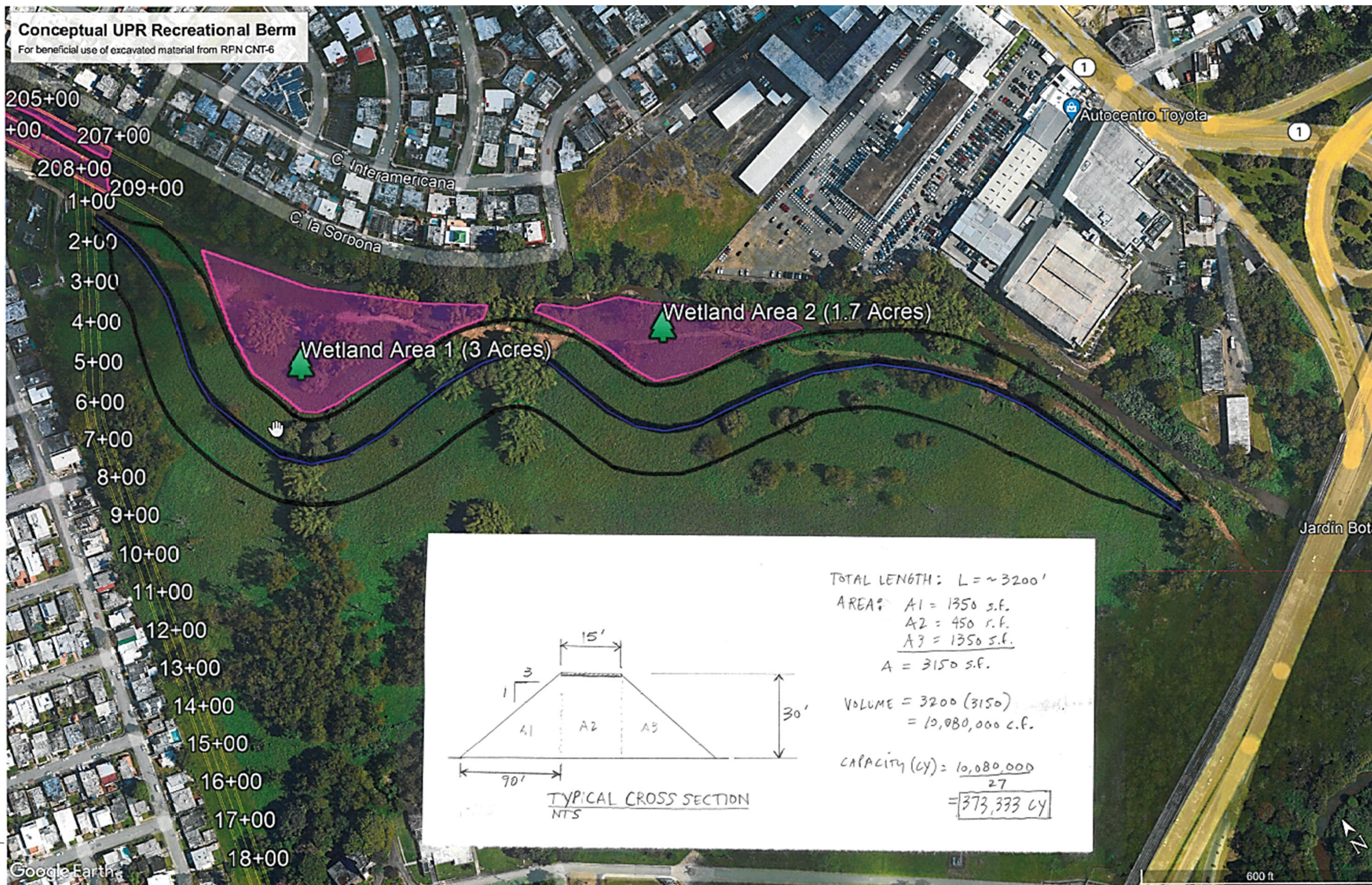
RÍO PUERTO NUEVO FLOOD RISK MANAGEMENT PROJECT





# CONTRACT 6 – PLACEMENT CONCEPT

17

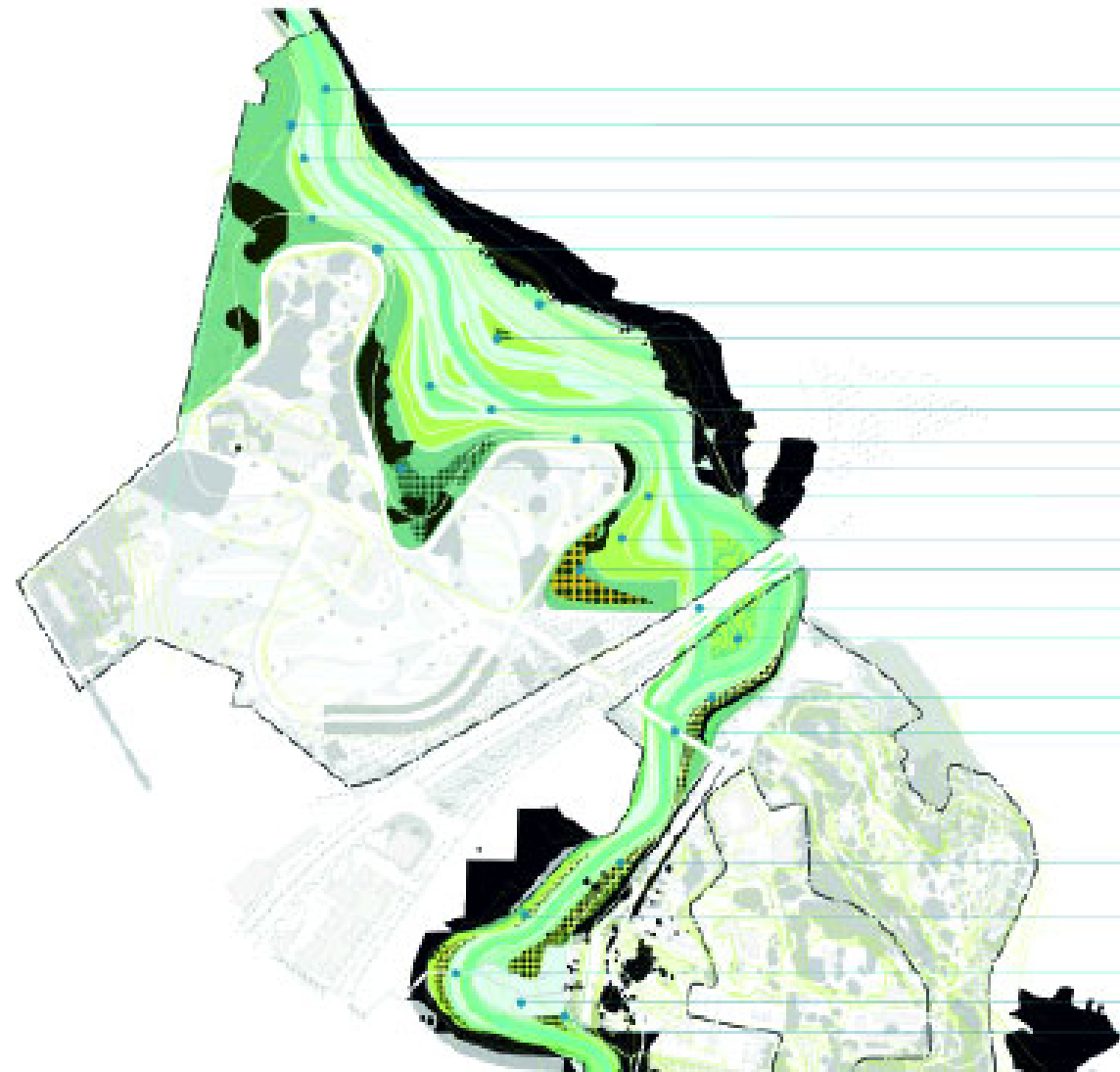






# UPR RIO PIEDRAS RESTORATION PROJECT MASTER PLAN (TAMIR)

18



- transition zone I
- buena vista channel
- river trails
- storm water collection basin
- recreation loop
- access from the Botanical Garden
- storm water collection basin
- habitat islands
- floodplain exhibits
- observation deck
- access from the Botanical Garden
- low moist woods
- education station
- research wetlands
- petrocarpus woods
- PR1 underpath
- riprap garden
- recreation terraces
- Botanical Garden entrance
- epiphyte wall garden
- river trails and ramps
- path and footbridge
- historic aqueduct
- education shed



RÍO PUERTO NUEVO FLOOD RISK MANAGEMENT PROJECT