MAYOR PRO TEM

DAVE MARTIN

Welcome to Mayor Pro Tem Martin's Farewell Town Hall Series

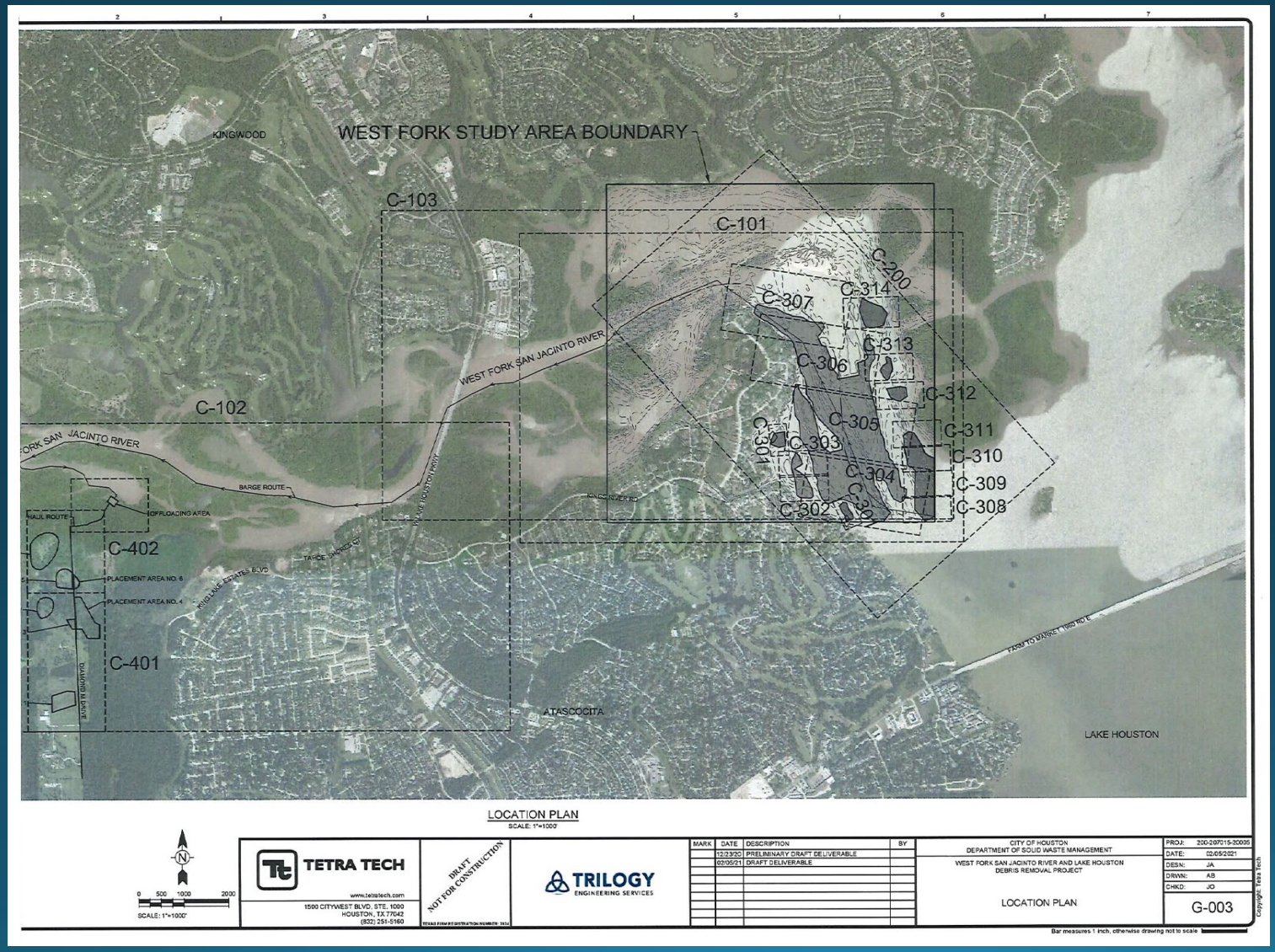
Housekeeping Note: All presentations will be completed first followed by questions at the end of the program.

LAKE HOUSTON

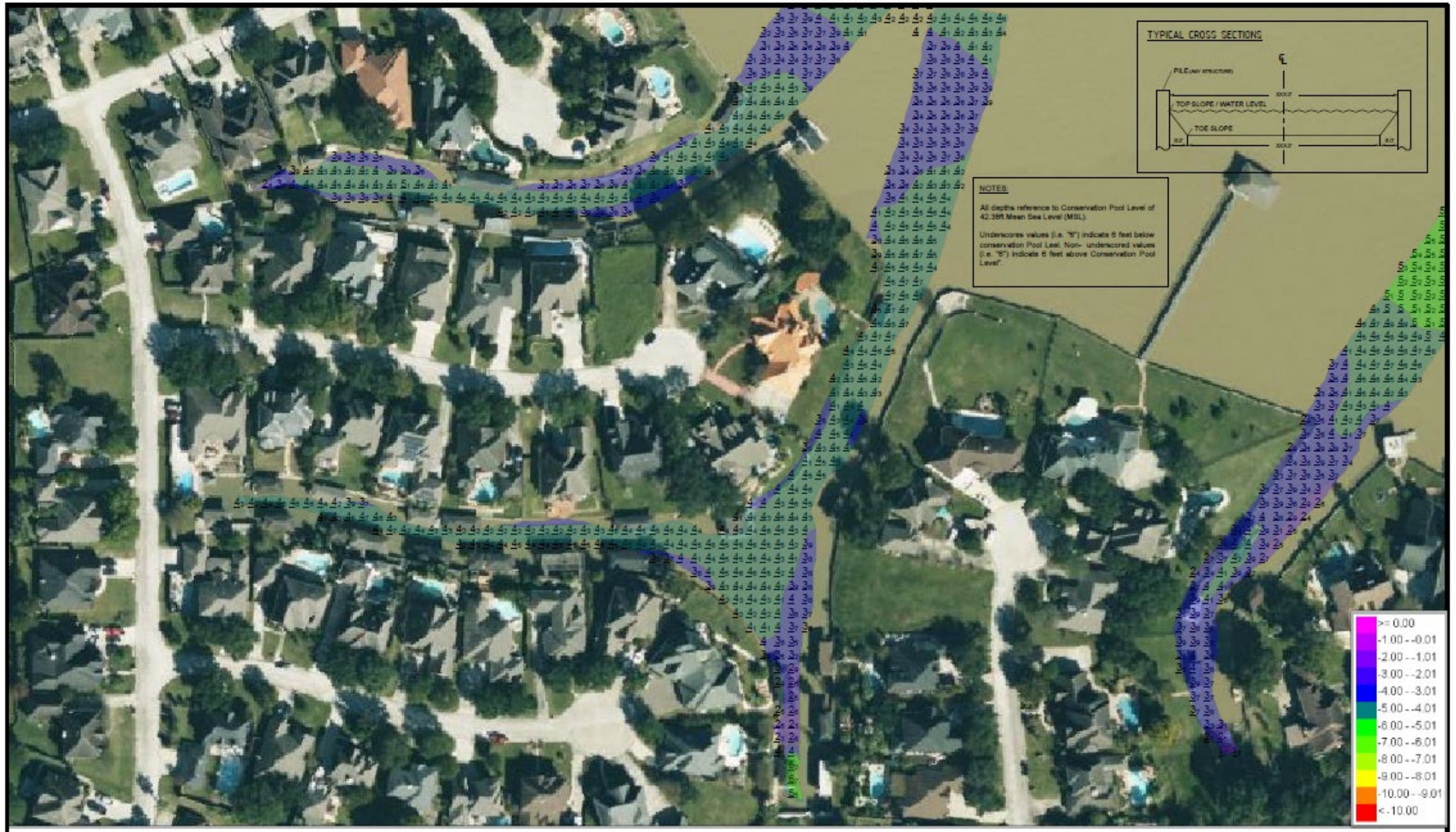
DREDGING OPERATIONS, DAM IMPROVEMENT , LONG TERM MASTER PLAN and SAND TRAPS

DREDGING OPERATIONS
FEMA- USACE HARVEY PROJECT;
OFFICE OF THE GOVERNOR'S GRANT;
TWDB-HARRIS COUNTY GRANT

WEST FORK – FEMA HARVEY PROJECT



Lake Houston Canal Dredging



GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

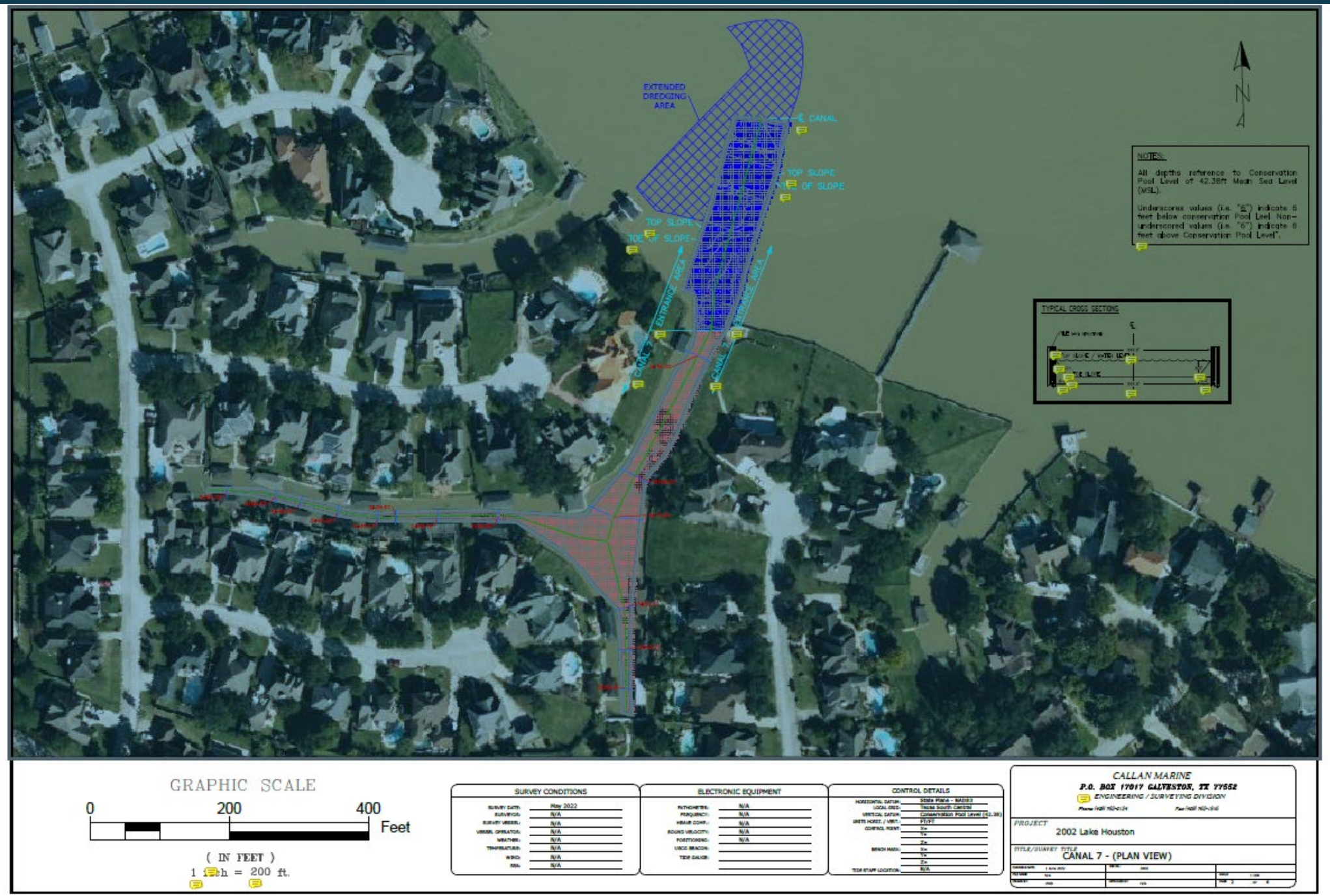
SURVEY CONDITIONS	
SURVEY DATE:	May 2022
SURVEYOR:	N/A
SURVEY VESSEL:	N/A
VESSEL OPERATOR:	N/A
WEATHER:	N/A
TEMPERATURE:	N/A
WIND:	N/A
SEA:	N/A

CONTROL DETAILS	
HORIZONTAL DATUM:	State Plane - NAD83
LOCAL ZONE:	Texas South Central
VERTICAL DATUM:	Conservation Pool Level (42.38ft)
UNITS: HORIZ. / VERT.:	FT/FT
CONTROL POINT:	2a=
	7a=
	2a=
BENCH MARK:	2a=
	7a=
	2a=
TIDE STAFF LOCATION:	N/A

CALLAN MARINE
P.O. BOX 17017 GALVESTON, TX 77552
ENGINEERING / SURVEYING DIVISION

PROJECT
2002 Lake Houston

TITLE/SURVEY TITLE
Canal 7


EXTENDED DREDGING AREA
℄ CANAL
TOP SLOPE
TOE OF SLOPE
TOP SLOPE
TOE OF SLOPE
CANAL 7 ENTRANCE AREA
CANAL 7 ENTRANCE AREA
NOTES:
All depths reference to Conservation Pool Level of 42.38ft Mean Sea Level (MSL).
Underscore values (i.e. "6") indicate 6 feet below conservation Pool Level. Non-underscored values (i.e. "6") indicate 6 feet above Conservation Pool Level".
TYPICAL CROSS SECTION
GRAPHIC SCALE
0
200
400
Feet
(IN FEET)
1 inch = 200 ft.
SURVEY CONDITIONS
SURVEY DATE: May 2022
SURVEYOR: N/A
SURVEY VESSEL: N/A
VESSEL OPERATOR: N/A
WEATHER: N/A
TEMPERATURE: N/A
WIND: N/A
SEA: N/A
ELECTRONIC EQUIPMENT
PATCHMETER: N/A
FREQUENCY: N/A
BEAM COMP.: N/A
SOUND VELOCITY: N/A
POSITIONING: N/A
DGPS BEACON:
TIDE GAUGE:
CONTROL DETAILS
HORIZONTAL DATUM: State Plane - NAD83
LOCAL GRID: Texas South Central
VERTICAL DATUM: Conservation Pool Level (42.38)
UNITS HORIZ. / VERT.: FT/FT
CONTROL POINT:
BENCH MARK:
TIDE STAFF LOCATION: N/A
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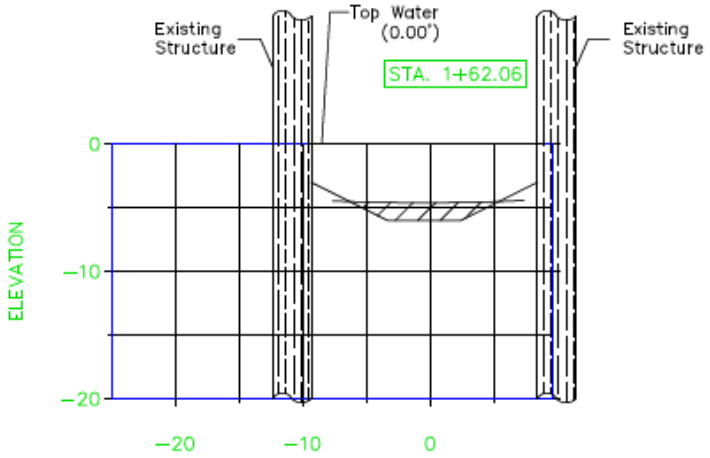
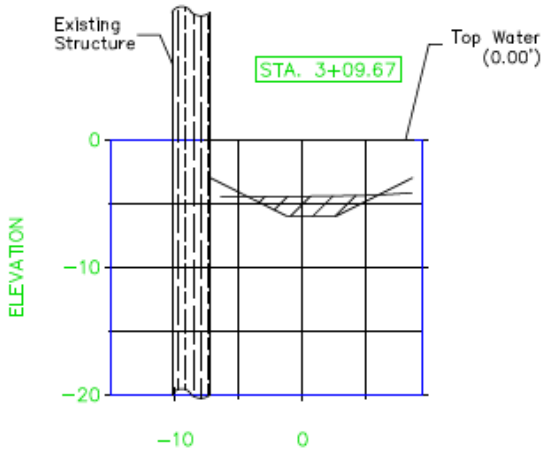
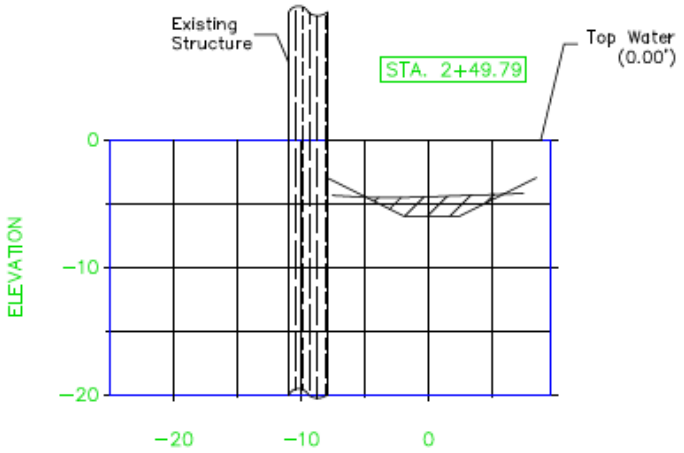
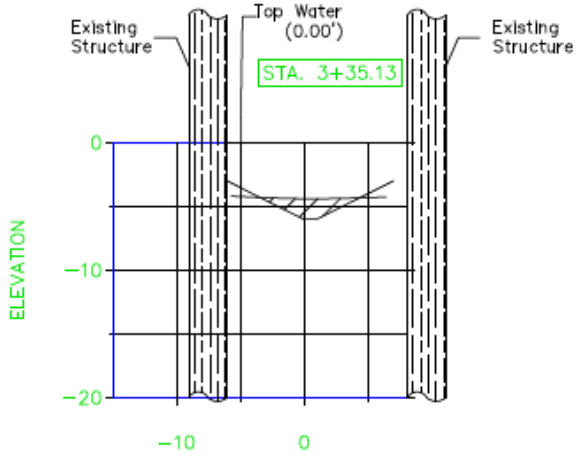
2002 Lake Houston
TITLE/SURVEY TITLE
CANAL 7 - (PLAN VIEW)









NOTES:

All depths reference to Conservation Pool Level of 42.38ft Mean Sea Level (MSL).

GRAPHIC SCALE

0 20 40 Feet

(IN FEET)

1 inch = 20 ft.

SURVEY CONDITIONS	
SURVEY DATE:	May 2022
SURVEYOR:	N/A
SURVEY VESSEL:	N/A
VESSEL OPERATOR:	N/A
WEATHER:	N/A
TEMPERATURE:	N/A
WIND:	N/A
SEA:	N/A

ELECTRONIC EQUIPMENT	
FATHOMETER:	N/A
FREQUENCY:	N/A
BEAM COMP.:	N/A
SOUND VELOCITY:	N/A
POSITIONING:	N/A
USCG BEACON:	
TIDE GAUGE:	

CONTROL DETAILS	
HORIZONTAL DATUM:	State Plane - NAD83
LOCAL GRID:	Texas South Central
VERTICAL DATUM:	Conservation Pool Level (42.38)
UNITS HORIZ. / VERT.:	FT/FT
CONTROL POINT:	
BENCH MARK:	
TIDE STAFF LOCATION:	N/A

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ENGINEERING / SURVEYING DIVISION

PROJECT
2002 Lake Houston

TITLE/SURVEY TITLE
CANAL 7 - (CROSS SECTIONS)

Lake Houston Dredging Operation

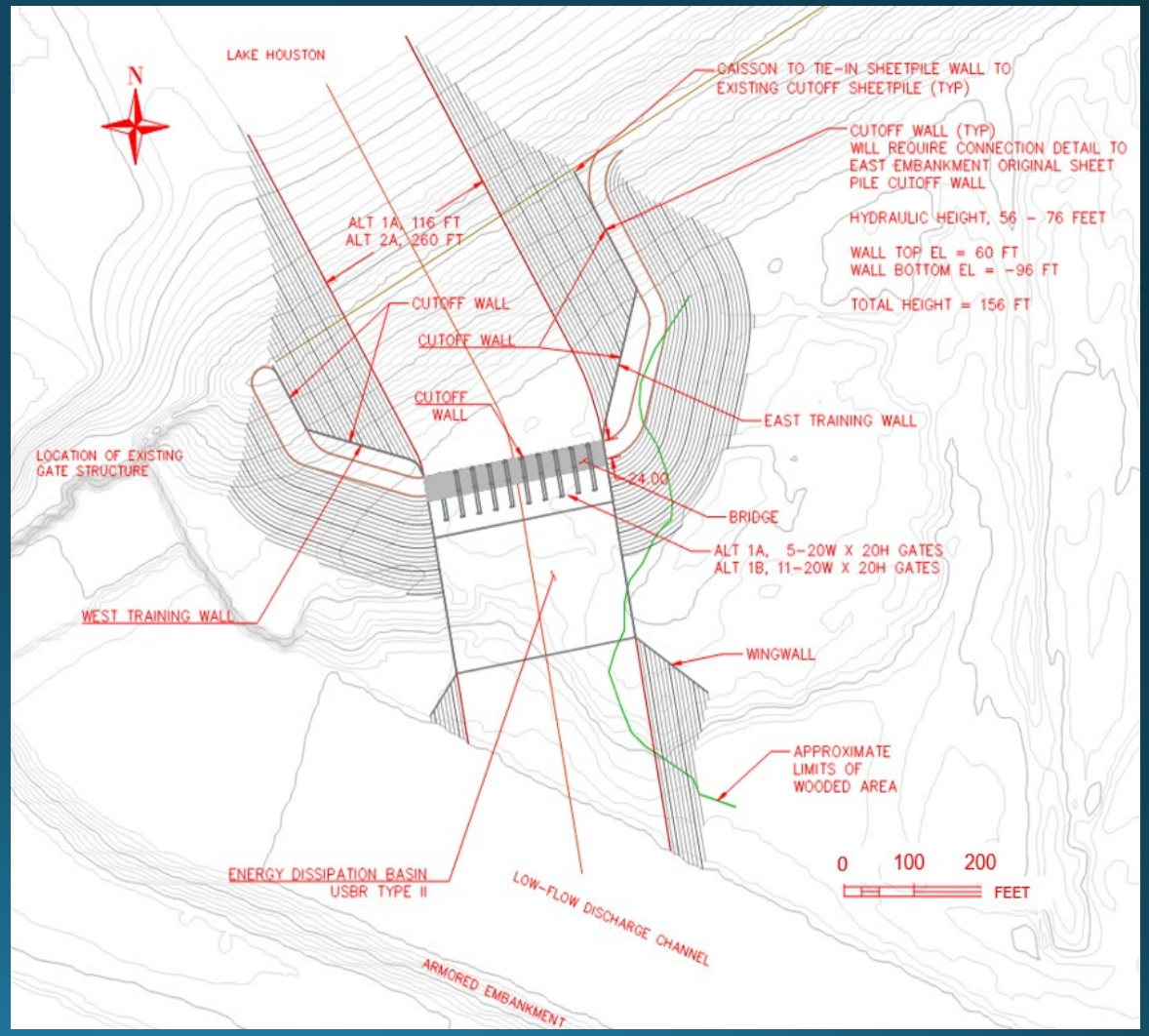
SUMMARY

Dredging Project	Agency	Funding Source	Material Dredged (CY)	Cost (in millions)	Timeline
West Fork	USACE	FEMA-PA	1,849,000	$73.7	9/2018 – 6/2019
West Fork	USACE	FEMA-PA	500,000	17.1	6/2019-1/2020
Mouth Bar	CITY OF HOUSTON	GOVERNOR GRANT/TWDB-HC GRANT	442,976	16.6	1/2020-5/2020 & 6/2020-12/2020
Mouth Bar North	CITY OF HOUSTON	TWDB- HC GRANT	175,895	6.6	12/2020-6/2021
East Fork	CITY OF HOUSTON	TWDB-HC GRANT	36,137	18	6/2021-11/2021
West Fork	CITY OF HOUSTON	FEMA-PA	876,672 (est)	34 (est)	11/2023-11/2025
Lake Houston	CITY OF HOUSTON	TWDB-COH GRANT	ongoing	20	10/2022-ongoing
TOTALS			3,880,680	$186	

Lake Houston Dam Structure Considered Flow Release Alternatives


Portion of Ambursen Spillway Modification
Obermeyer Crest Gates

Alternative 1B* – Additional 11 Tainter Gates in Spillway




Industrial Water
Industrial Water
San Jacinto River
Google Earth

Project Timeline

Milestone		Anticipated Completion Date
Phase 1 Grant Deliverables (as per Sub-Grant Award Letter dated August 8, 2019)		
1	Revised Scope of Work (SOW) and Work Schedule for Phase II Construction	September 2023
2	Revised Budget Estimate	September 2023
3	Benefit Cost Analysis (BCA) Zip File Based on the Hydraulic and Hydrologic (H&H) Study with Support Documents	September 2023
4	Revised H&H Study with Calculations	September 2023
5	Environmental Assessment (EA)	March 2024
6	State Historic Preservation Office (THD/SHPO) Response for Phase II Scope of Work	March 2024
7	United States Army Corps of Engineers Permit	March 2024
8	Principles, Requirements, and Guidelines (PR&G) analysis	December 2024
9	Complete set of Signed and Sealed Construction Plans (100%)	December 2024

Milestone		Anticipated Completion Date
Phase 2 Grant Deliverables*		
1	Approval of Phase II/Execution of Subrecipient Agreement	January 2025
2	Phase II Construction Procurement/Bidding Services	February 2025
3	Award Construction Contract/Execute Construction Contract	June 2025
4	Phase II Construction	May 2026

*Note: Phase II deliverables are dependent upon approval of Phase II and execution of Sub-recipient Agreement. Milestones represent an estimated timeline to meet the current Harvey deadline of 2026. All Phase II Milestones are dependent on the Phase I deliverables schedule and completion dates.

PROJECT FUNDING

INITIAL GRANT FUNDING

	Total Cost	Federal Share	Local Share
Lake Houston Dam Spillway Improvement	$46,857,786	$35,143,339	$11,714,446
Phase I: Design	$7,117,787	$5,338,340	$1,779,447
Phase II: Construction	$39,739,999	$29,804,999	$9,934,999

ESTIMATED CONSTRUCTION COST: $150-200M

Current Available Funding

FEMA	$29.8M
Harris County	20M
City of Houston	20M
State of Texas – TWDB 2021	30M
State of Texas – TWDB 2023	50M

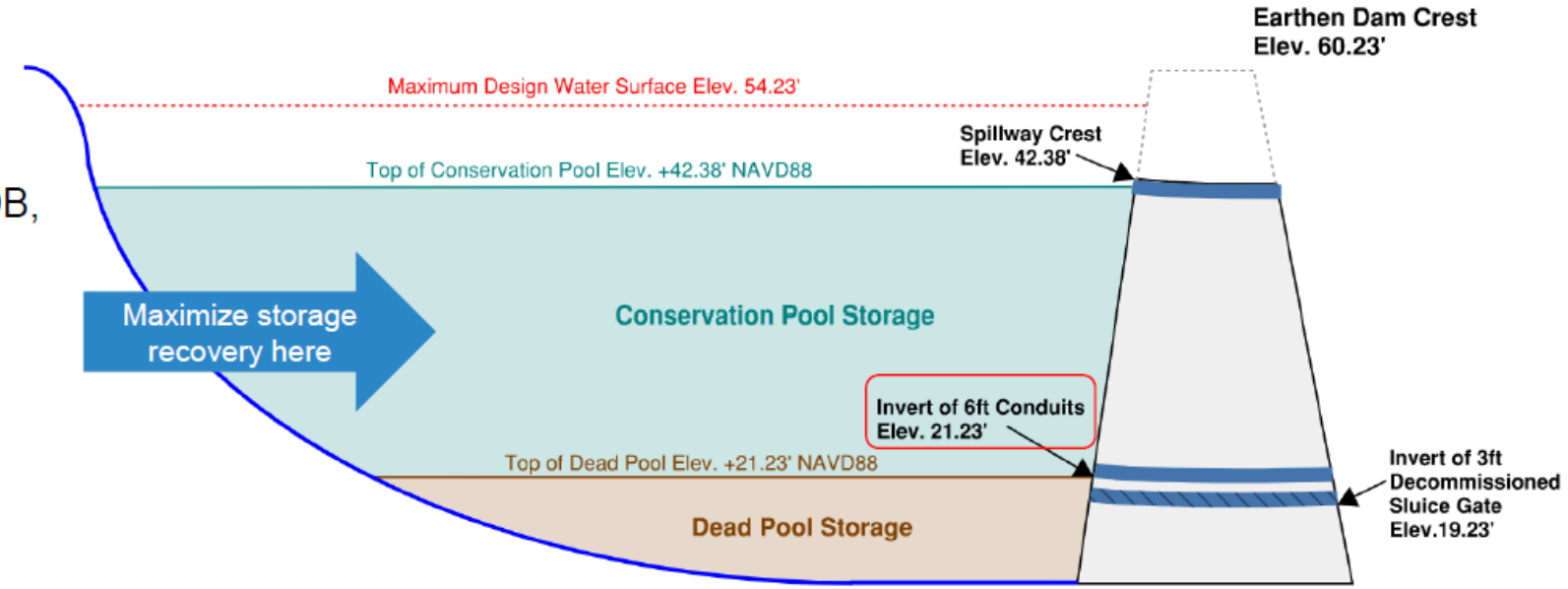
Storage Allocation Assumptions

Storage Allocations:

- Conservation Pool: +42.38' NAVD88
- Dead Pool: Assumed +21.23' per TWDB, 2018:
  - "Sluice Gate, 36-inch diameter (decommissioned in 2019)".

Goal of Dredging Study

- Maximize storage recovery within conservation pool



Assumed Storage Allocation Elevations Schematic

MOTT MACDONALD

Storage Allocation Capacity & Losses

Summary

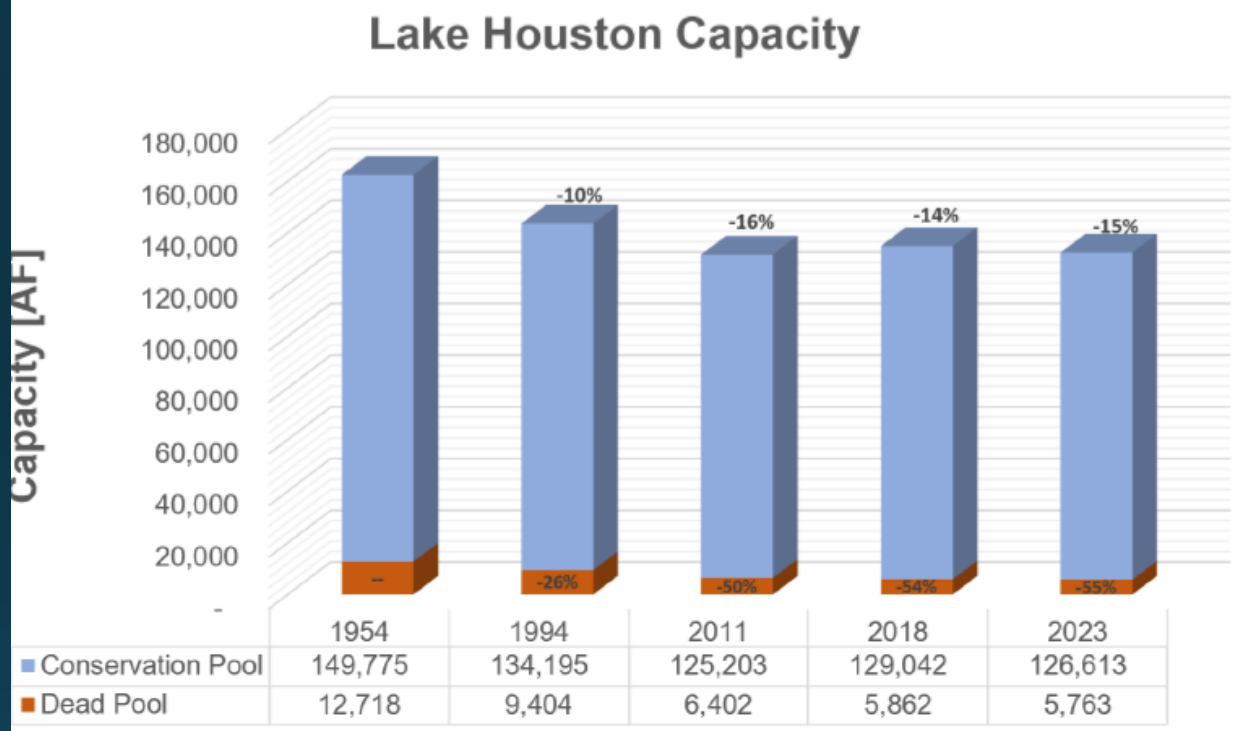


Table 3-3: Projected future yearly capacity loss range for all storage allocations.

Allocation	Estimated Annual Future Capacity Loss [AF/YR]
Conservation Pool	310-400
Dead Pool	50-150
Total	360-460

Notes and References

[1] Storage capacity loss projections based on high and low estimates from MM sedimentation analysis summarized within this Section

[2] TWDB, 2019 estimated 361 AF/YR of total storage loss. This falls within the estimated bounds calculated by MM. The TWDB, 2019 estimated is likely within the lower end of the bounds due to inclusion of the Ambursen, 1966, 1965 capacity results in the linear regression curve fit.

Historical Capacity Loss

Total: 25–30K AF (40-48M CY) (-18%)
Conservation: 19-23K AF (30-37M CY) (-15%)

Projected Future Yearly Losses

Total: 360-460 AF (580-740K CY)
Conservation: 310-400 AF (500K-650K)

MOTT MACDONALD

Identifying Potential Dredge Areas (1)

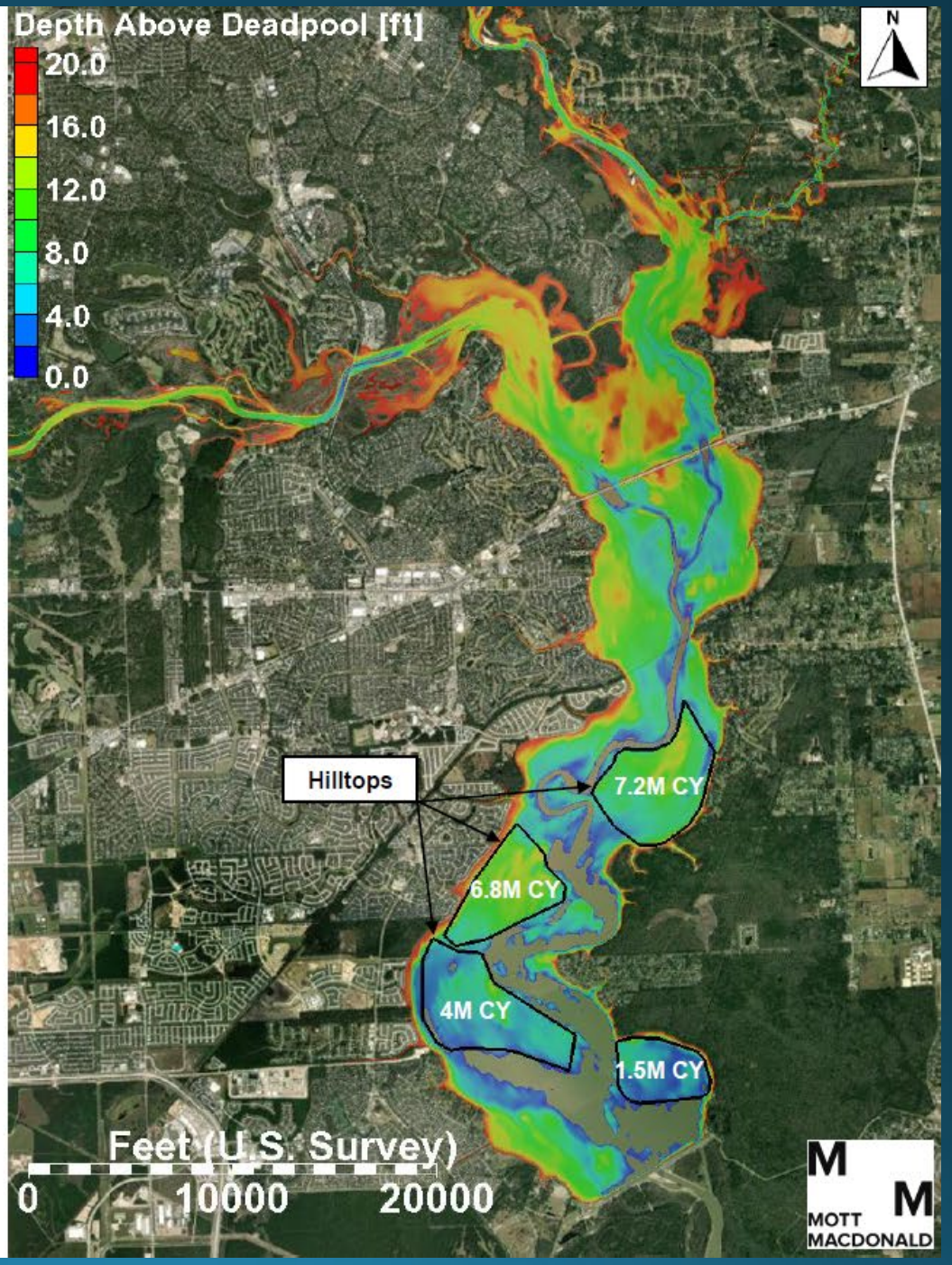
Hilltop Dredging

1. Dredge areas above Deadpool (+21.23' NAVD88).

2. Target areas with potential sand for aggregate processing, beneficial reuse.

3. Summary of potential estimated max volumes below:

Total Volume (Max): 19.5M CY, 12,000 AF



Identifying Potential Dredge Areas (2)

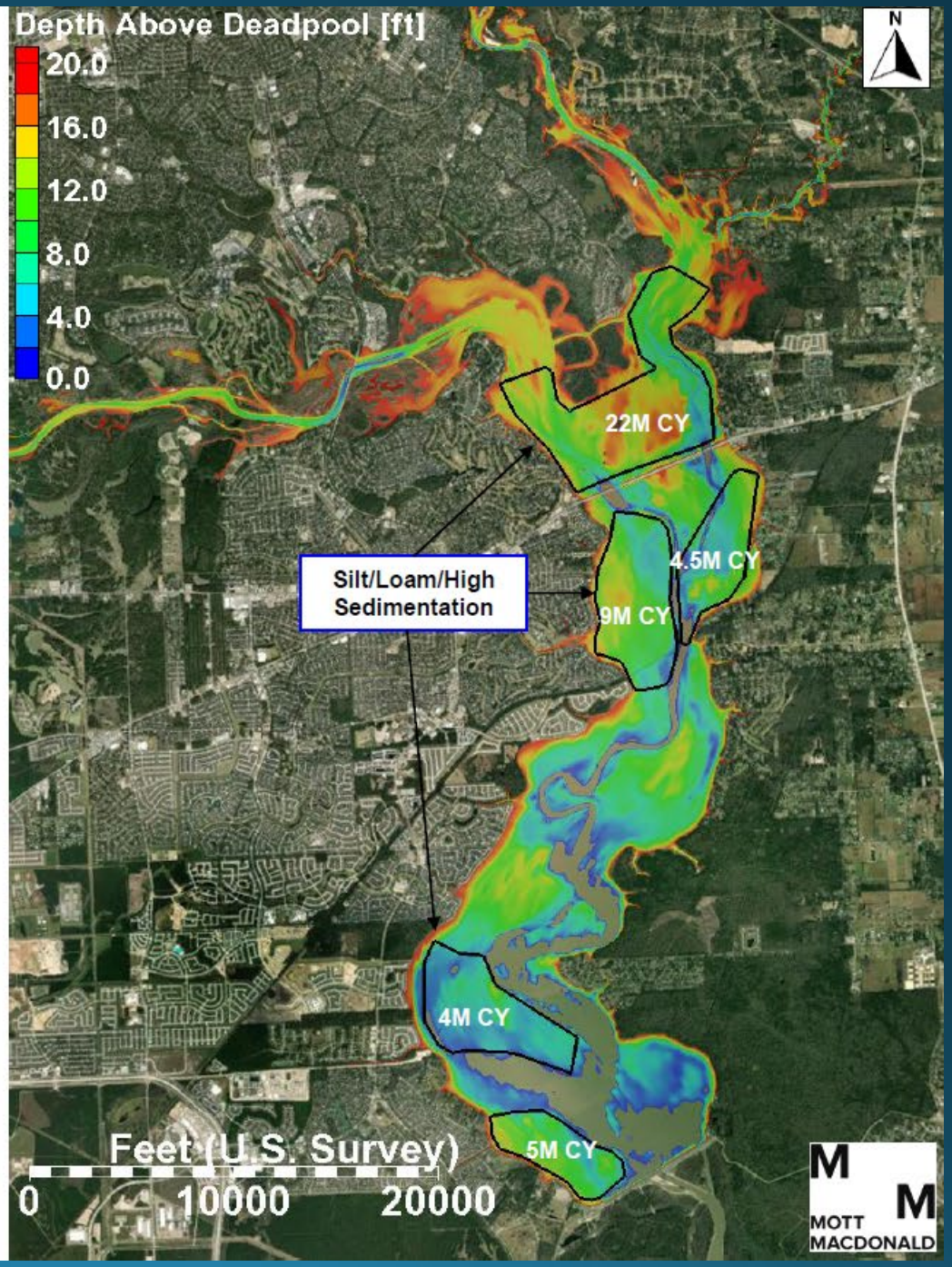
Silt/Loam

1. Target areas above Deadpool (+21.23').

2. Target areas with greatest area of sediment recovery volume, with silt/loam for farmland and/or CDF disposal.

3. Summary of potential estimated max volumes below:

Total Volume (Max): 45M CY, 28,000 AF



CONCEPTIONAL IN-CHANNEL SEDIMENT TRAP

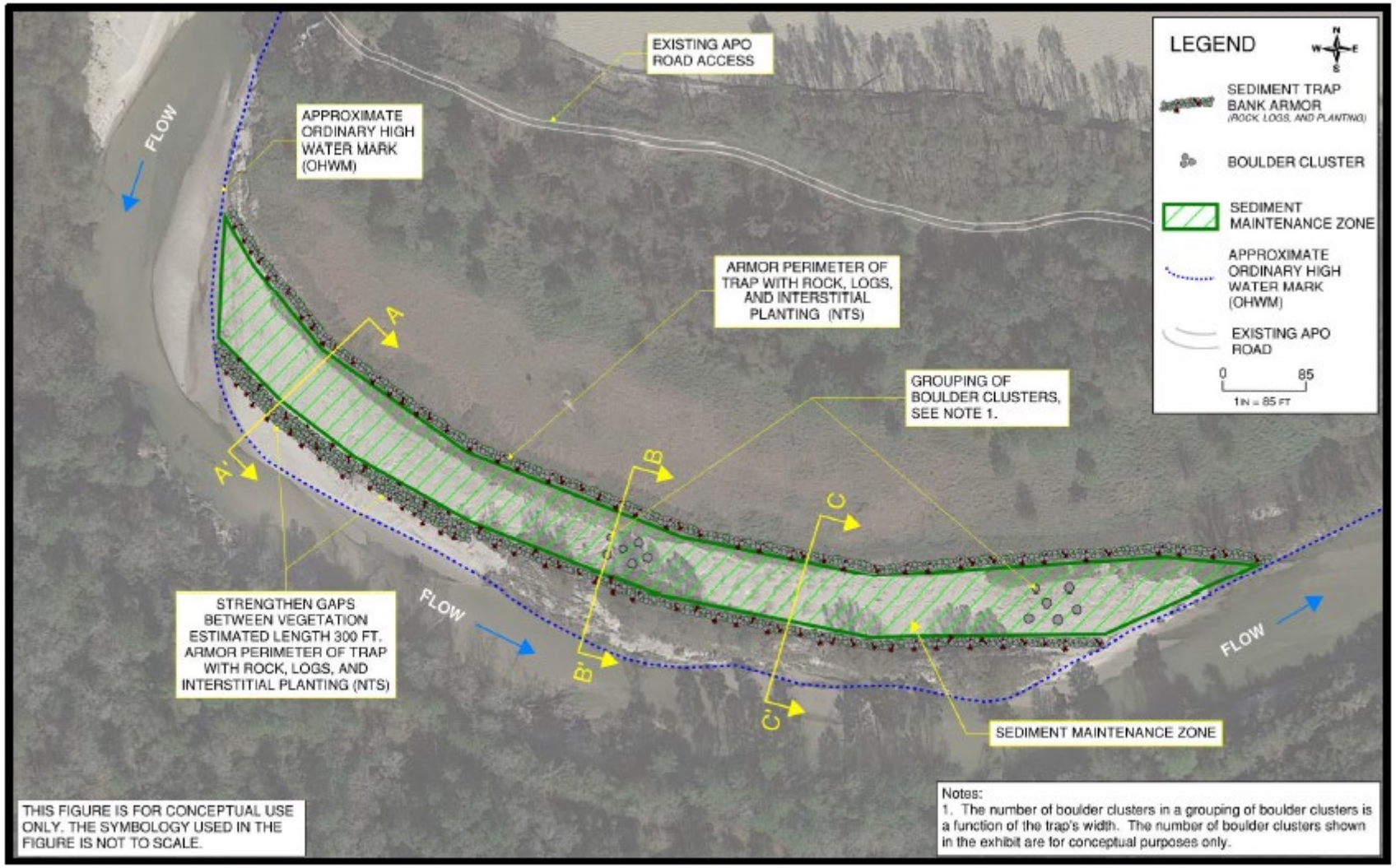


Figure 1: Plan View of Conceptual In-Channel Sediment Trap built within existing deposition bar deposits. Boulder clusters located throughout the sediment maintenance channel serve to slow flow and promote sediment deposition. A matrix of rock, logs, and vegetation armor the perimeter of the sediment maintenance channel.

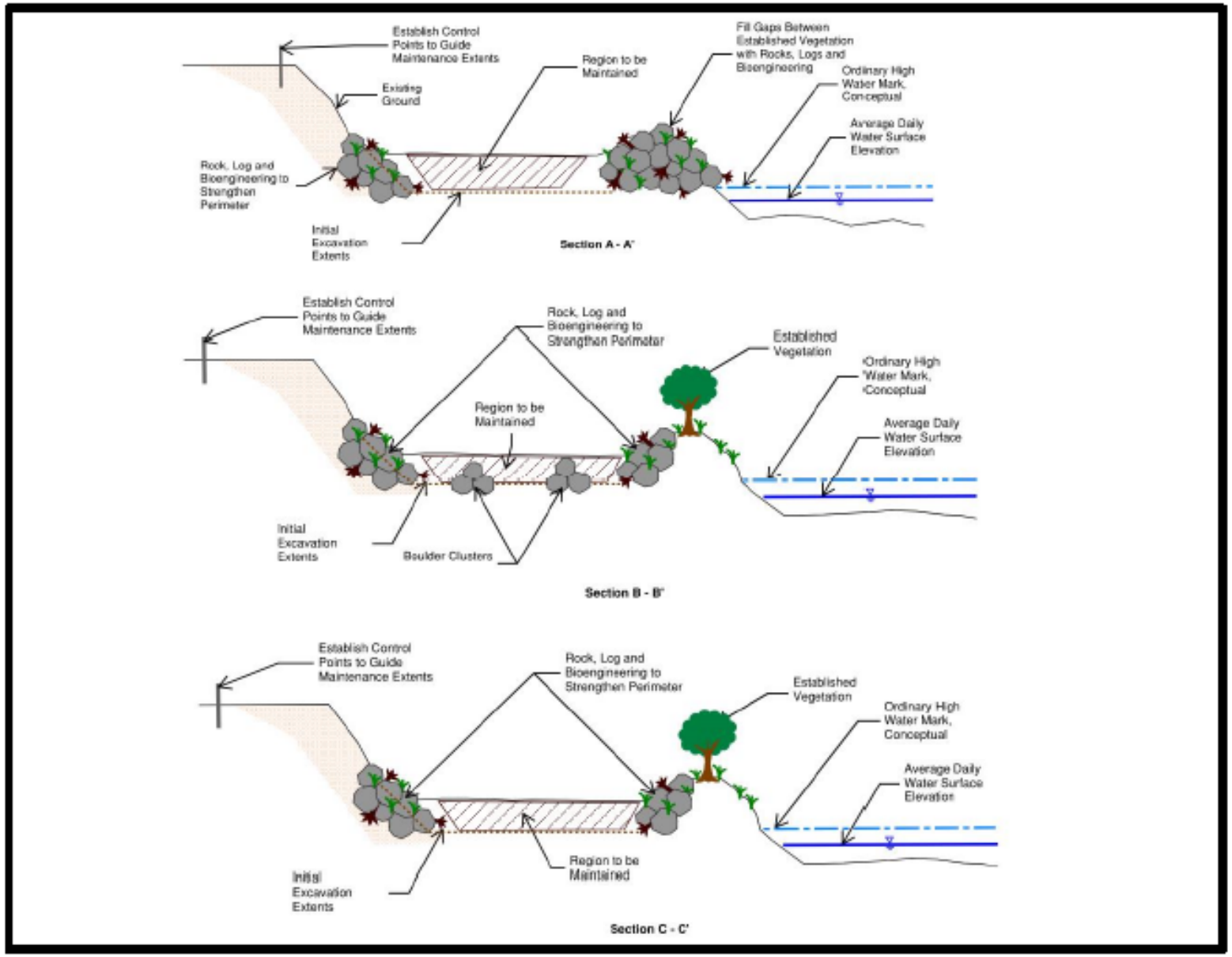


Figure 2: Conceptual sections for in-channel sediment trap illustrating the sediment maintenance zone located between the armored perimeter of the sediment trap. Section A-A' is for regions with no established vegetation and Section B-B' is for regions with established vegetation.

CONCEPTIONAL OUT-OF-CHANNEL TRAP

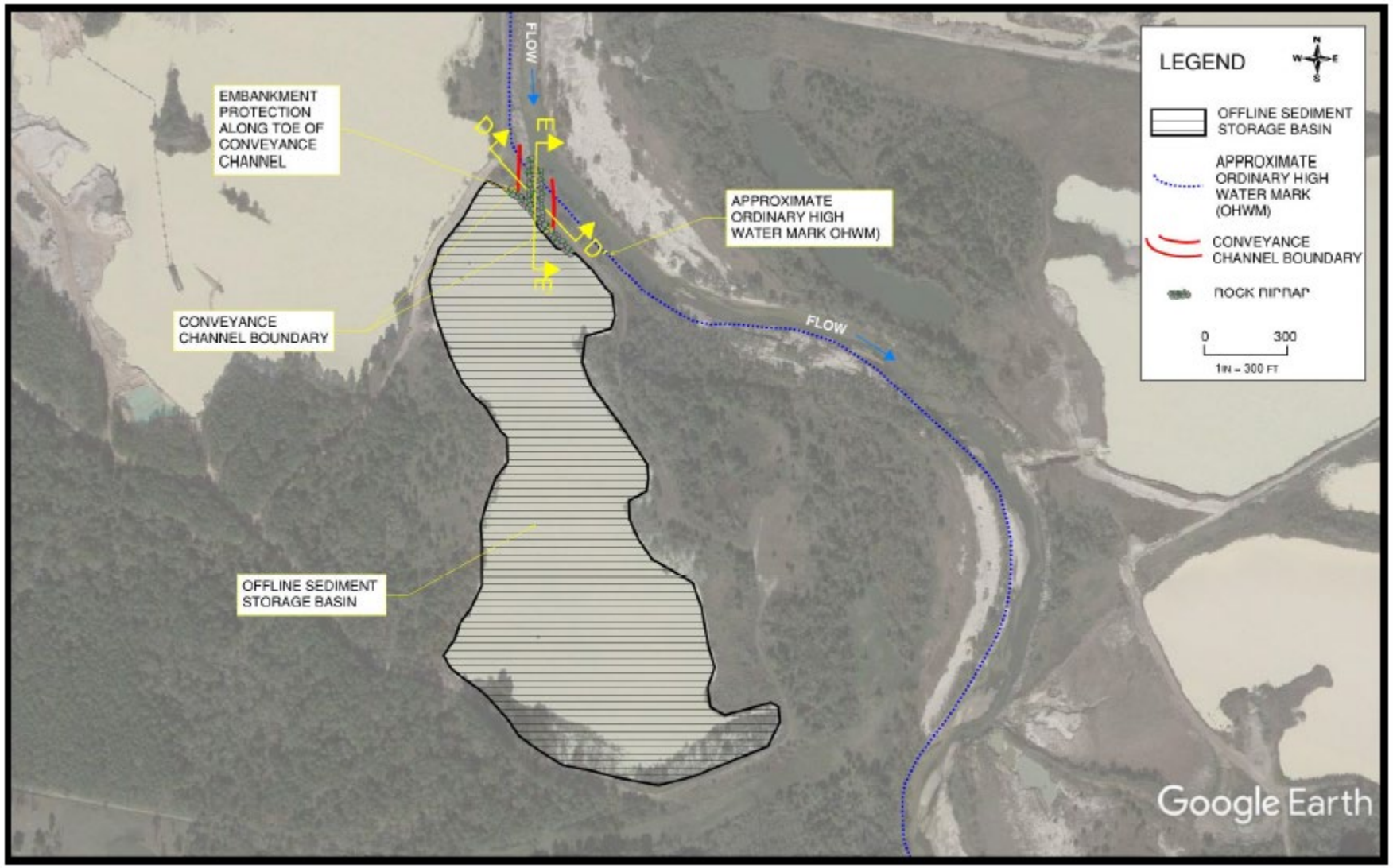


Figure 3: Conceptual plan view of an out-of-channel trap. The proposed conveyance channel serves to connect the channel to the offline sediment storage, where large flow events can access the storage basin and deposit excess sediment.

San Jacinto River Authority

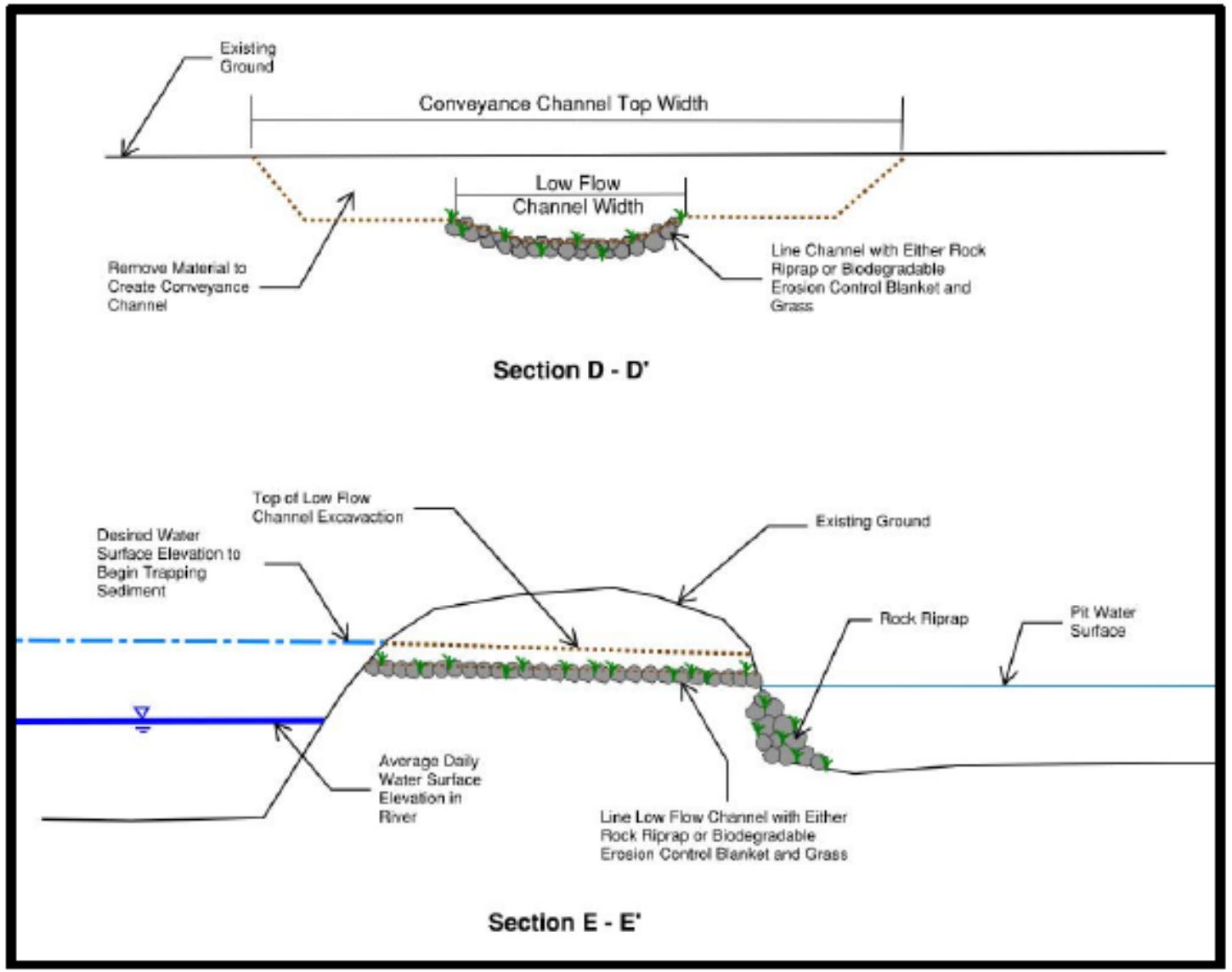


Figure 4: Conceptual section and profile for out-of-channel trap, illustrating the low flow channel connectivity to the offline sediment basin.

PROPOSED SAND TRAP PILOT PROJECT

APEX Virtual Training Simulator Demonstration

Houston Police Department – Kingwood Division
Crime Statistics Overview
Commander Adrian Rodriguez

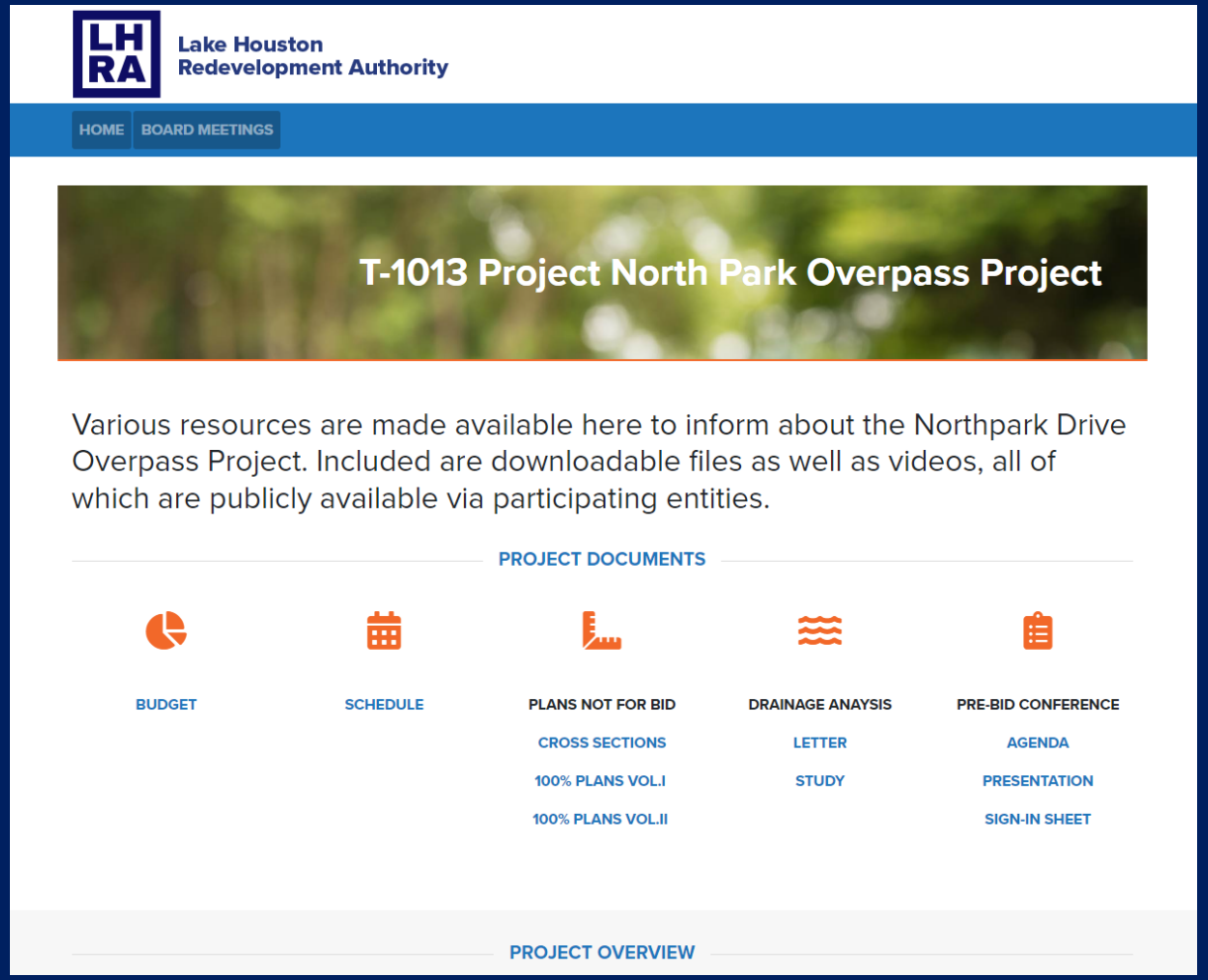
Houston Police Department – Special Operations
Lake Patrol Unit
Sergeant Epi Garza

Northpark Drive Overpass Project

COUNCIL MEMBER
CITY OF HOUSTON
TEXAS
DISTRICT E

MAYOR PRO TEM
DAVE MARTIN

Northpark Drive Overpass Project



- More information and resources can be found at lakehoustonra.com

QUESTION AND ANSWER

- Approach the floor microphone
- State your name and who your question is for
- You will have **TWO MINUTES**
- Please be respectful
- Residents are limited to one question at a time

THANK YOU FOR YOUR ATTENDANCE.
HAVE A SAFE DRIVE HOME!