

Public Information Meeting
Hawaii Department of Transportation

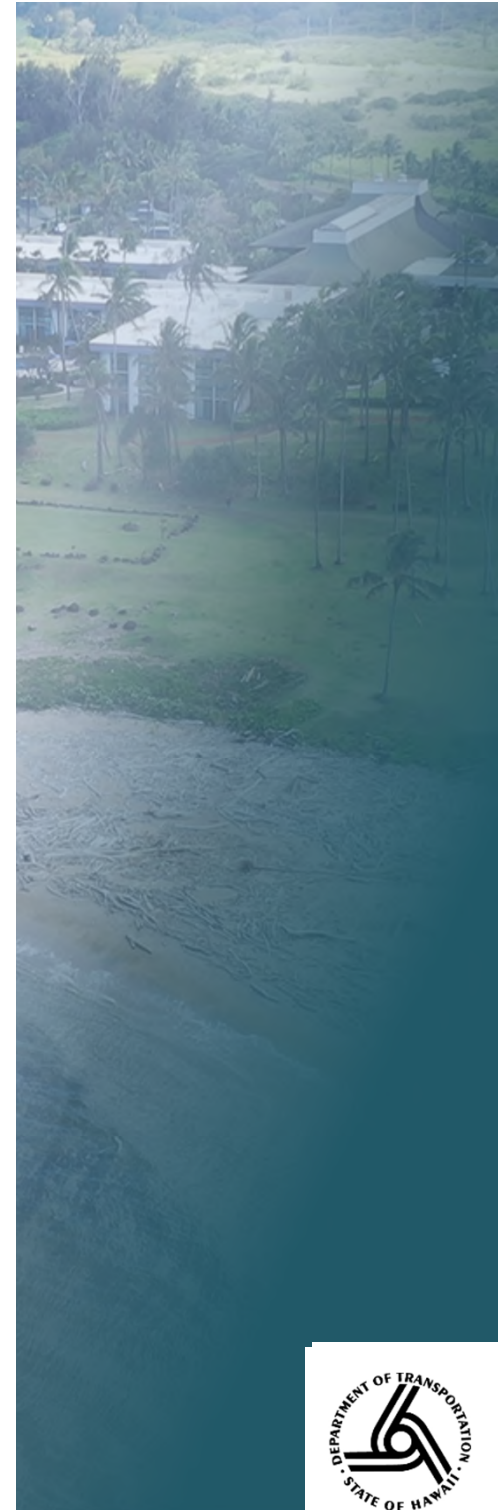
November 21, 2024

**Kuhio Highway Emergency Shoreline Mitigation, Vicinity of
Wailua Beach**

Wailua, Island of Kauai, State of Hawaii

FEDERAL-AID Project No. ER-24(004)

**Hawaii State Department of Transportation
in Cooperation with the University of Hawaii at Manoa
(School of Ocean and Earth Science and Technology
Department of Ocean and Resources Engineering)**



AGENDA

- Project - Purpose & Need
- Wailua Beach Historic Shoreline Changes
- Project – Plans and Scope of Work
 - Rock Revetment
 - Dune Restoration
 - Sandsaver
- Sandsaver Pilot Project
 - What is Sandsaver Technology?
- Biological Opinion
- Anticipated Permits and Clearances
- Question-and-Answer Session



PROJECT – PURPOSE & NEED

- Project's purpose is to protect Kuhio Highway
- Wailua Beach is a dynamic environment:
 - Tradewinds and storms can influence beach shape and volume
- This erosion can cause a host of issues:
 - Reduces recreational spaces
 - Increased risk of damaging Kuhio Highway
 - Loss of beach can increase risk of flooding



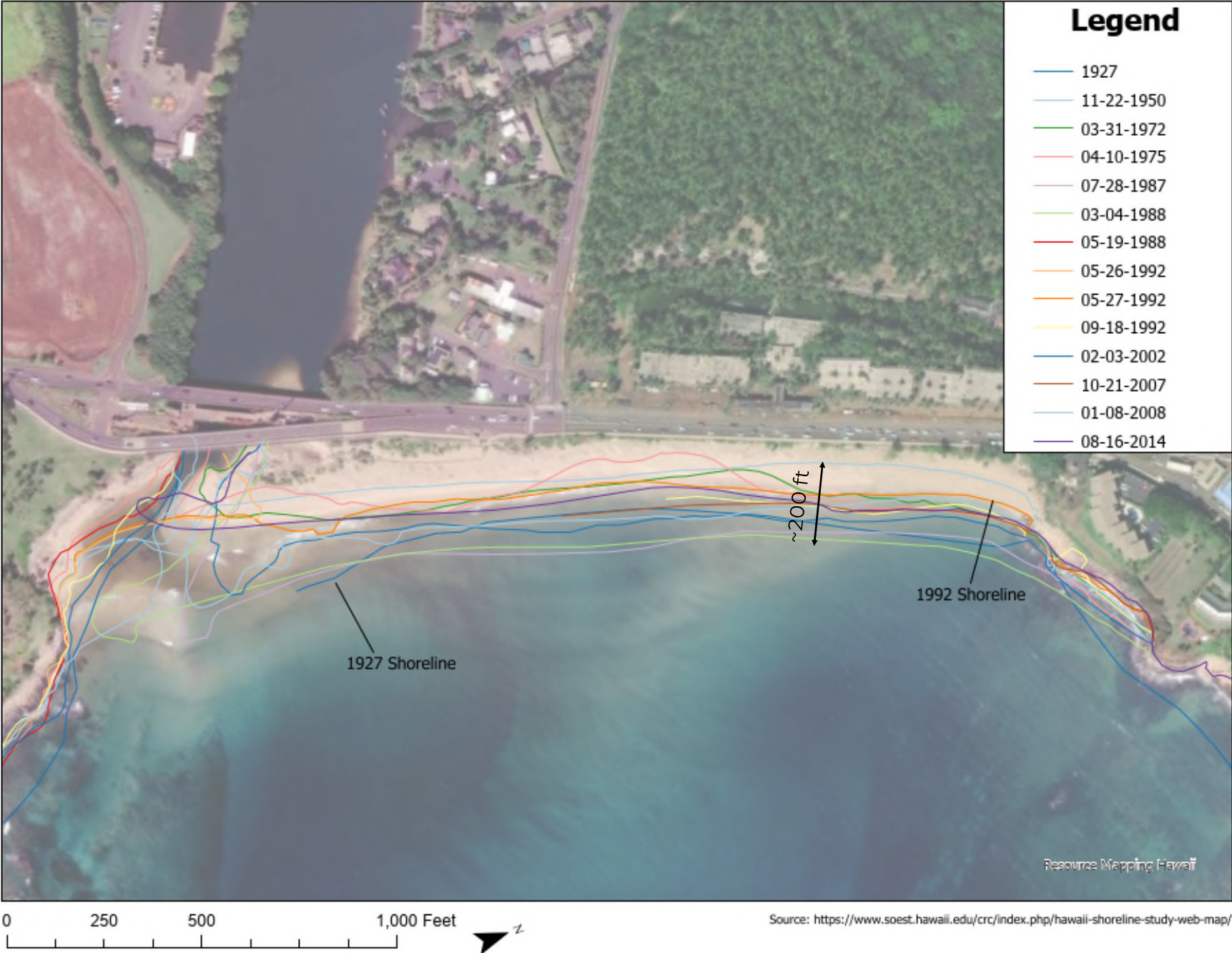
PROJECT - PURPOSE AND NEED

- In March 2021, a major storm event resulted in large loss of beach dune area and the highway was threatened
- HDOT proposes measures to prevent such events from threatening infrastructure



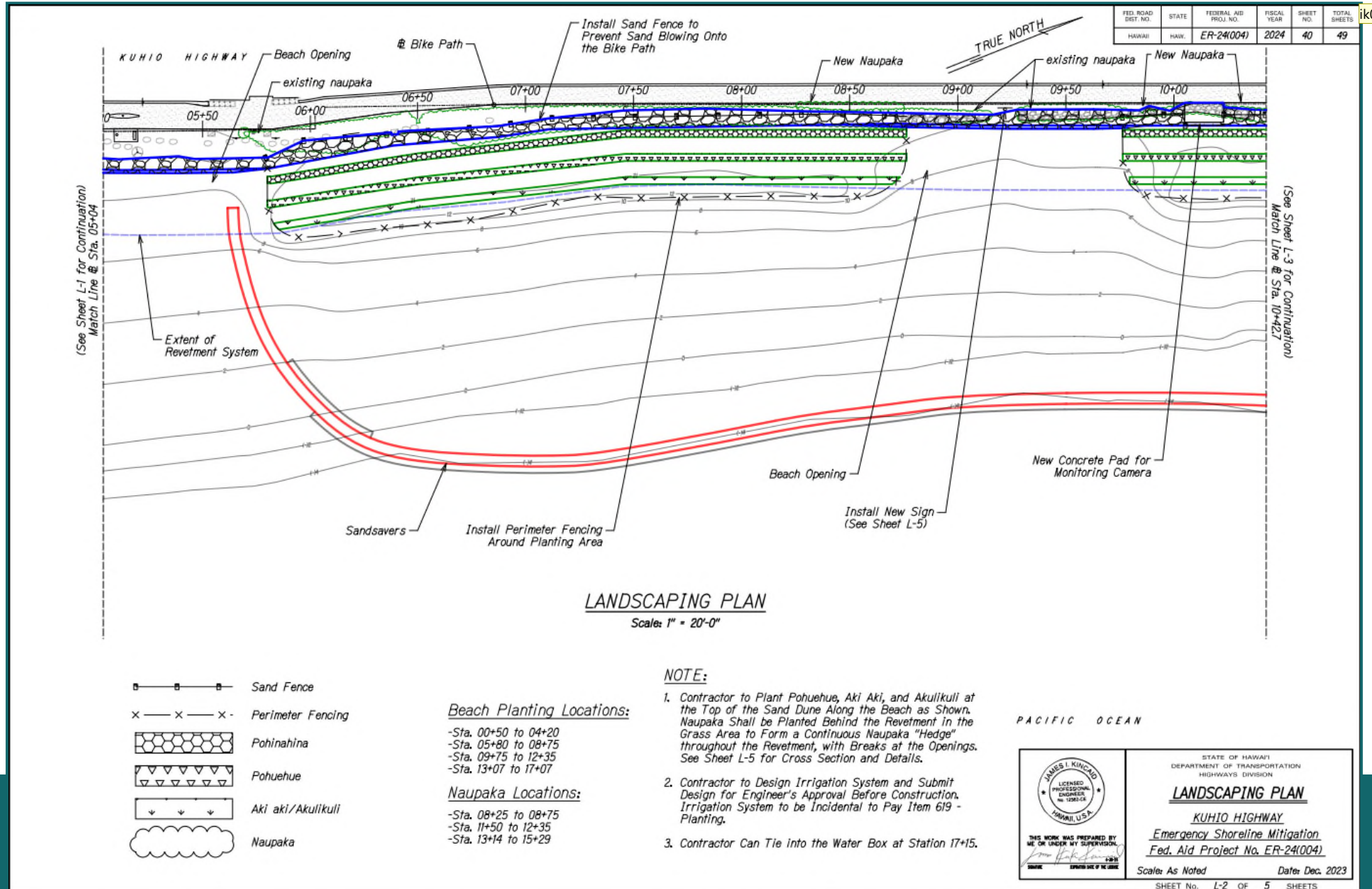
**WAILUA BEACH AND KUHIO HIGHWAY ARE
THREATENED BY EROSION EVENTS**

Wailua Beach Historic Shoreline



PROJECT PLANS

- The proposed project consists of:
 - Removing damaged items
 - Replacing and installing a new revetment
 - Installing an arc of sand savers
 - Restore sand dune
 - Planting native plants

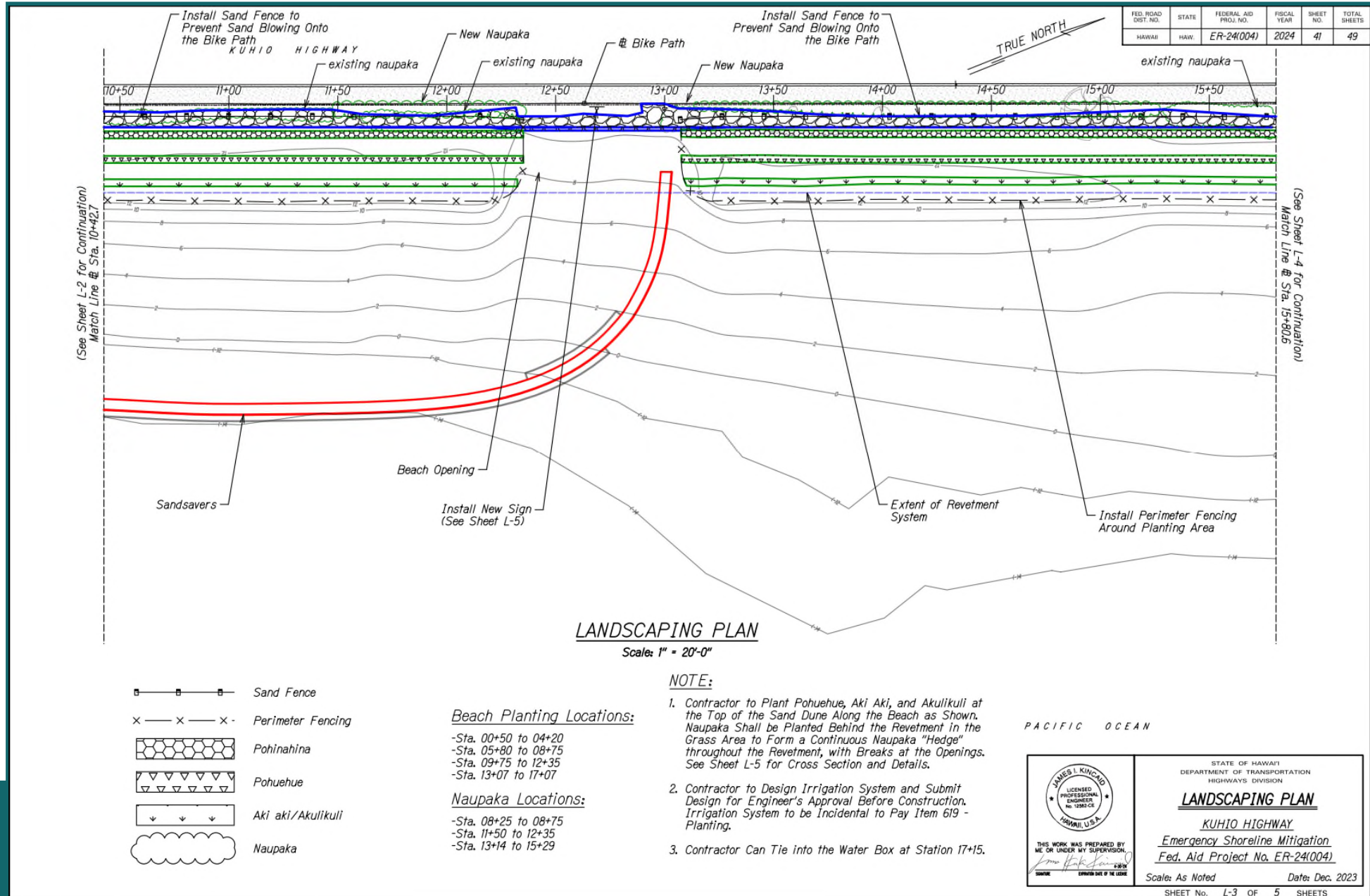


PLANS FOR A PORTION OF THE PROJECT AREA



PROJECT PLANS

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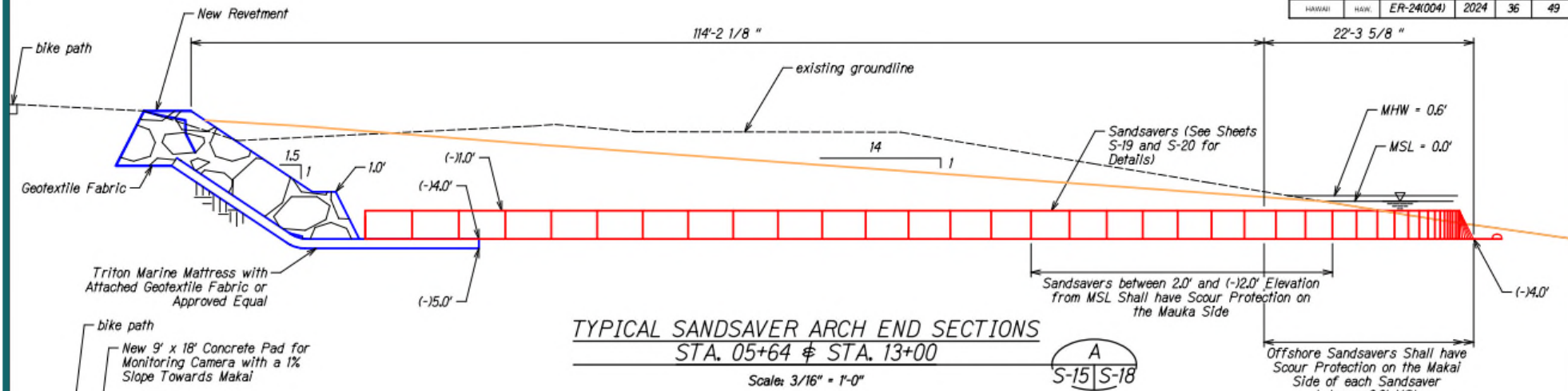


PLANS FOR A PORTION OF THE PROJECT AREA

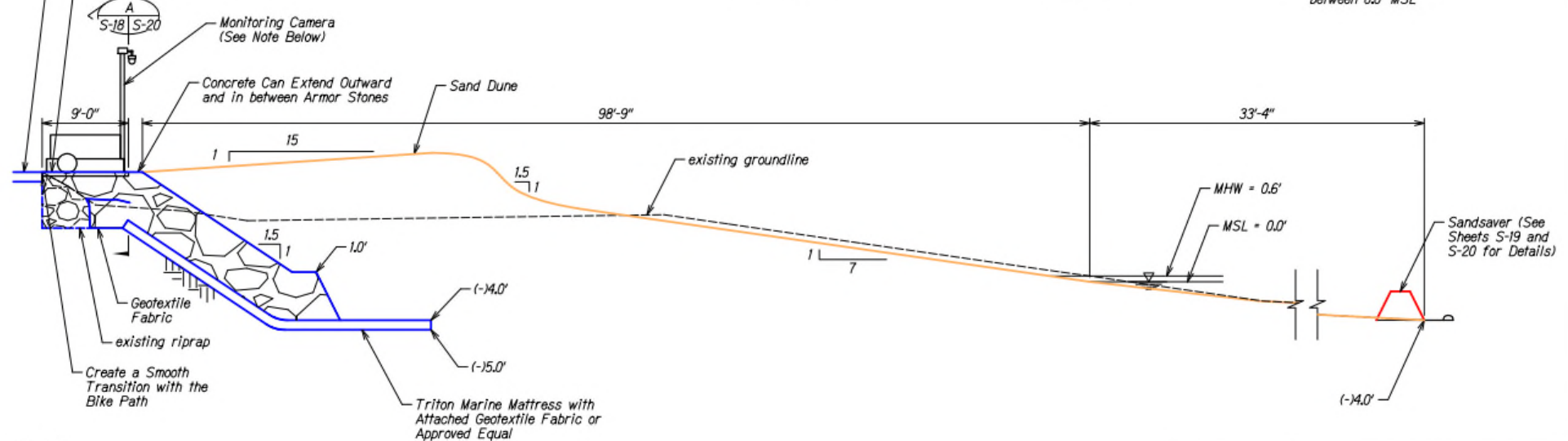


PROJECT PLANS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(004)	2024	36	49



TYPICAL SANDSAVER ARCH END SECTIONS
 STA. 05+64 & STA. 13+00
 Scale: 3/16" = 1'-0" A S-15 | S-18



TYPICAL CENTER SECTION OF SANDSAVER ARCH AND MONITORING CAMERA LOCATION STA. 10+15
 Scale: 3/16" = 1'-0" B S-15 | S-18

- NOTES:**
1. Due to the Continual Shifting of the Beach, SandSavers Shall be Field Fit at (-)4.0' Elevation from the MSL at the time of Installation, with Approval of the Engineer.
 2. HDOT shall Purchase the Monitoring Camera (LVT or Approved Equal) and Contractor shall Install it on the Concrete Pad as shown.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
DATE: 12/15/23

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

SANDSAVER LOCATION DETAILS

KUHIO HIGHWAY
 Emergency Shoreline Mitigation
 Fed. Aid Project No. ER-24(004)

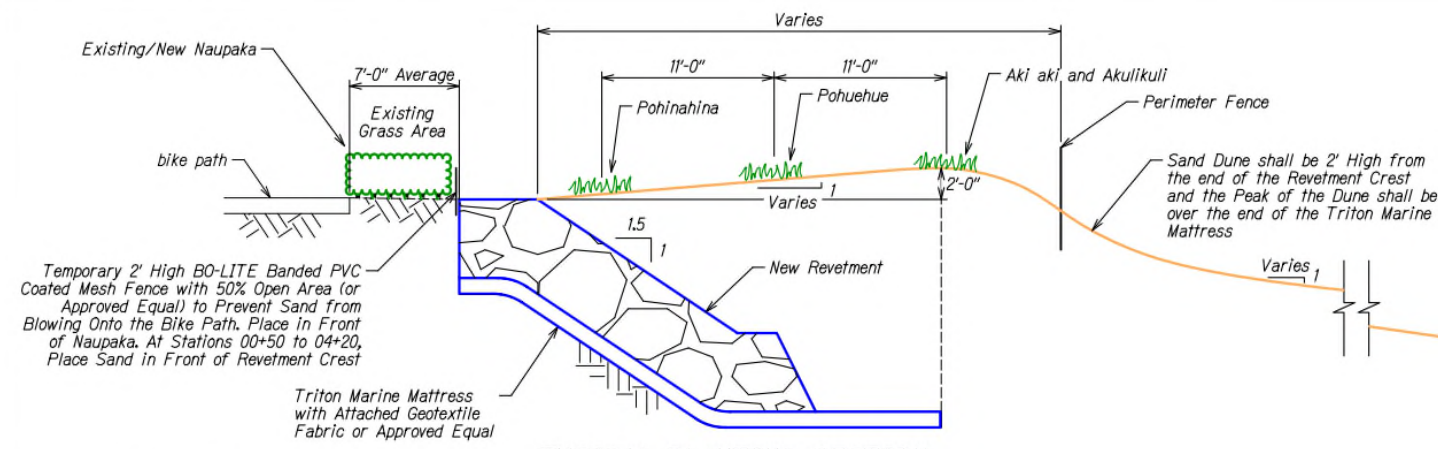
Scale: As Noted Date: Dec. 2023

SHEET No. S-18 OF 20 SHEETS

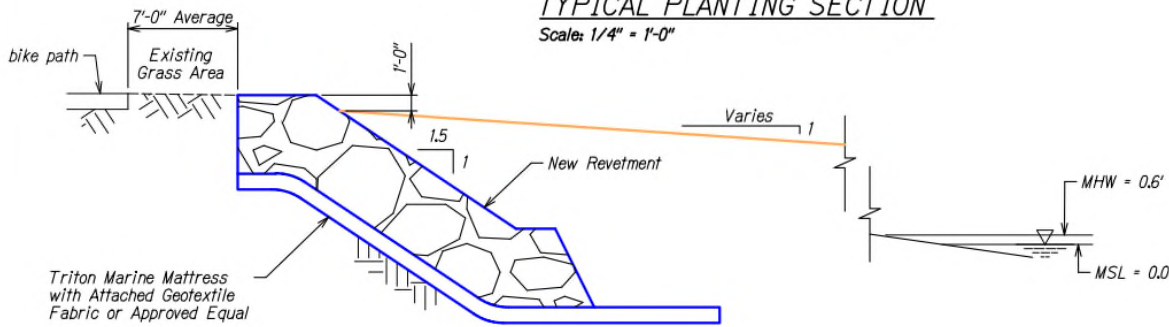


PROJECT PLANS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(004)	2024	43	49



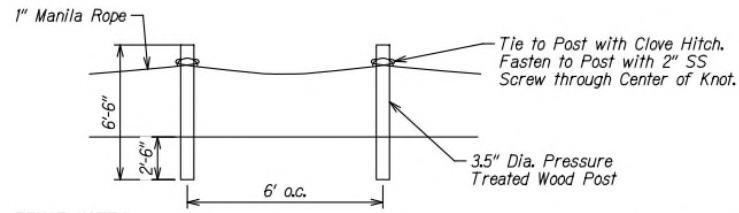
TYPICAL PLANTING SECTION
Scale: 1/4" = 1'-0"



TYPICAL OPENING SECTION
Scale: 1/4" = 1'-0"



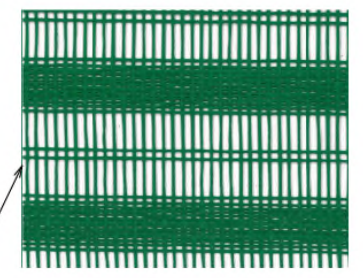
ENTRANCE AREA SIGN
Not to Scale



- FENCE NOTES:**
1. Can use 1" Post and Smaller Gauge Rope Where Appropriate.
 2. Explore Opportunities for Biomimicry Trial using Stick Arrangements.

PERIMETER FENCE DETAIL
Not to Scale

B0-LITE Mesh Fabric by B0-TEX or Approved Equal. Submit Manufacturer's certificate of compliance and Product Documentation Prior to Installing for Approval.



TEMPORARY NET/FENCE
Not to Scale

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
James I. Kincaid
DATE: 12/2023
EXPIRES DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL SECTION & DETAILS

KUHIO HIGHWAY
Emergency Shoreline Mitigation
Fed. Aid Project No. ER-24(004)

Scale: As Noted Date: Dec. 2023

SHEET No. L-5 OF 5 SHEETS

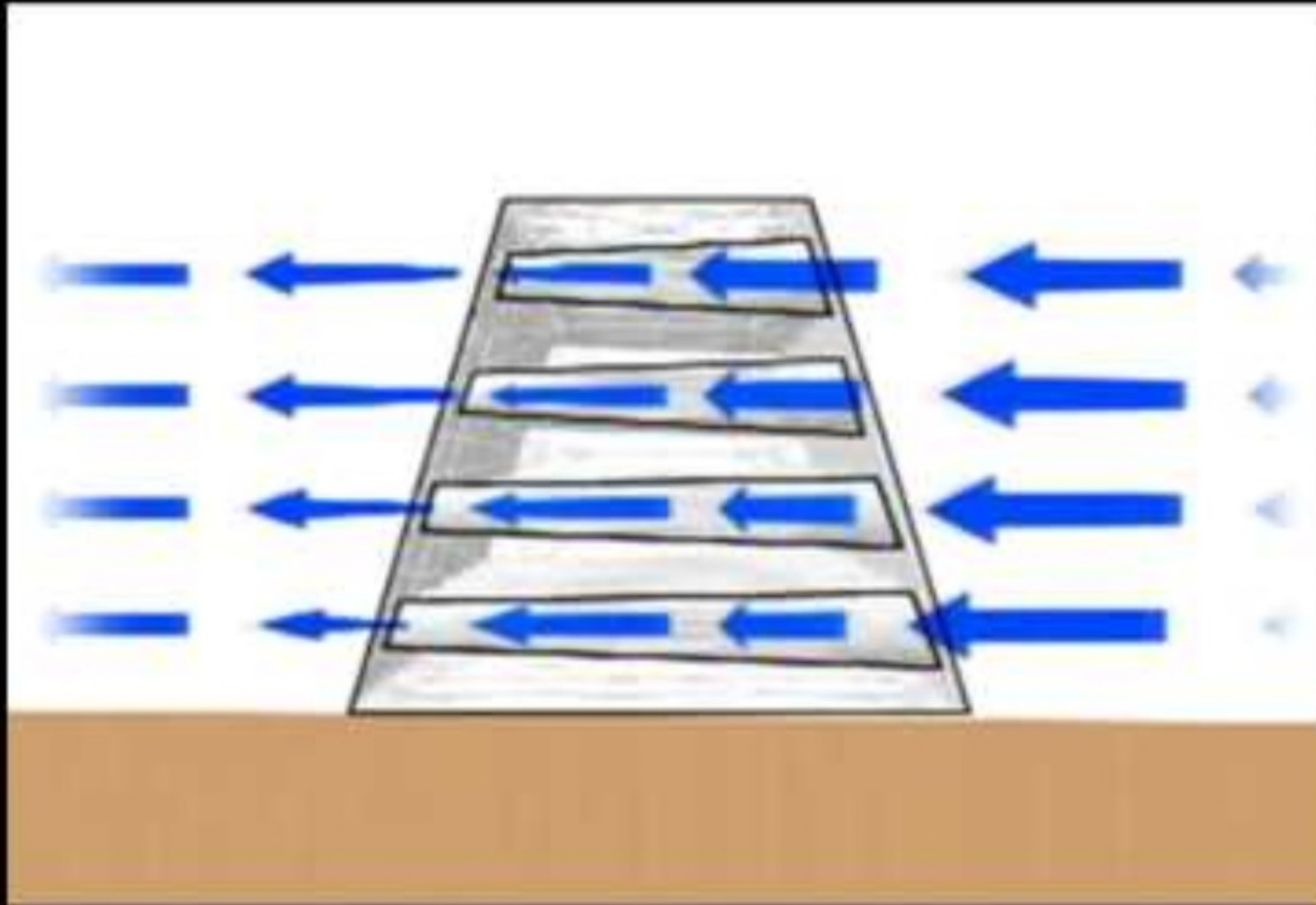


PROJECT PLANS

- Revetments will be placed along Kuhio Highway to prevent erosion damage to the highway
- Placement of Sandsavers is intended to address flanking erosion.
 - UH is being consulted to help evaluate effectiveness and provided guidance on where to place the arc

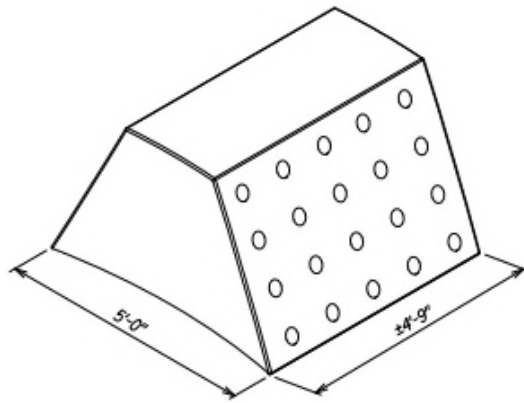


WHAT IS SANDSAVER TECHNOLOGY?



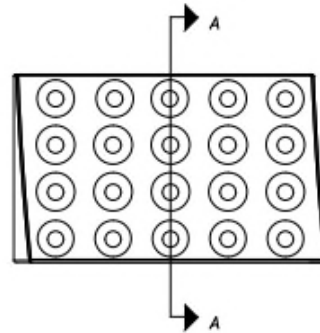
SANSAVER PLANS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(004)	2024	37	49



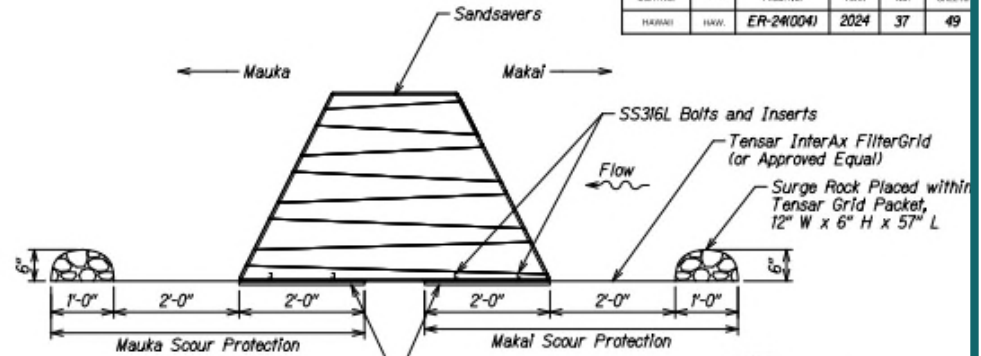
TYPICAL SANSAVER

Scale: NTS



SANSAVER - BACK VIEW

Scale: 1" = 1'-0"

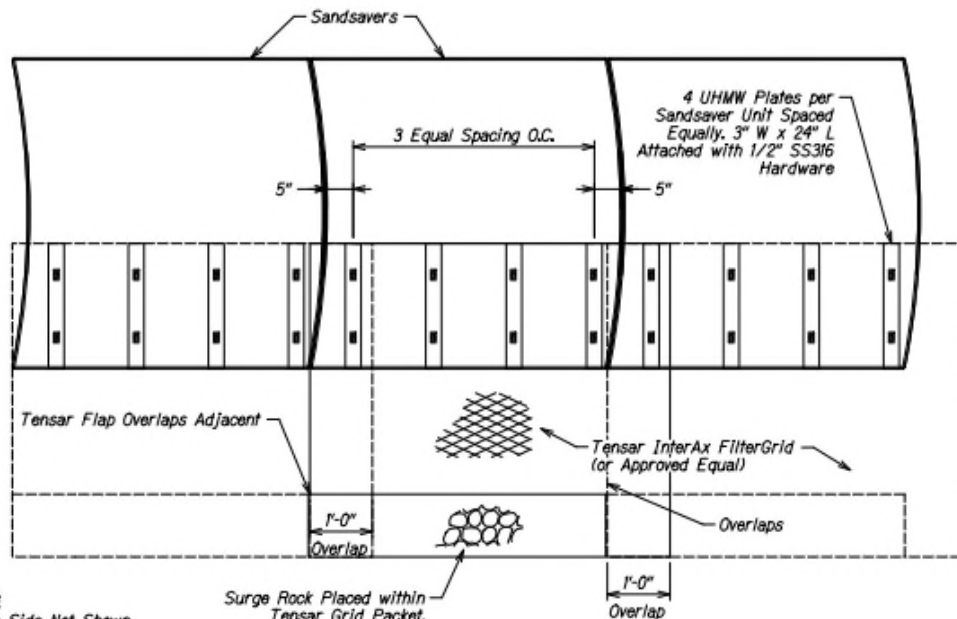


CROSS SECTION A-A

Scale: 1" = 1'-0"

Ultra High Molecular Weight (UHMW) Polyethylene Plate (Tivar Dockguard Mitsubishi Chemical Group or Approved Equal) See Details Below

NOTE:
The Tensor Grid Packet Shall be Stitched Closed as Shown on Sheet S-11.

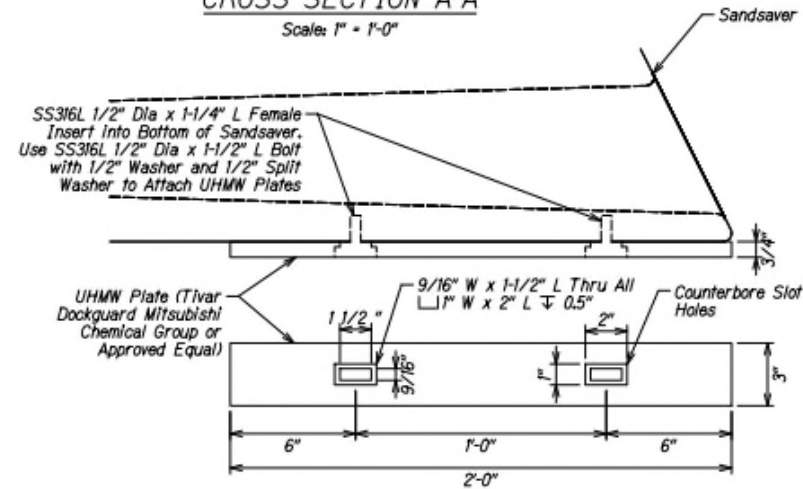


SANSAVER - UNDERSIDE VIEW

Scale: 1" = 1'-0"

NOTE:
Mauka Side Not Shown for Clarity

Surge Rock Placed within Tensor Grid Packet, 12" x 6" H x 57" L



SANSAVER ATTACHMENT DETAILS

Scale: 1/4" = 1'-0"

NOTE:
See Sheet S-20 for Sandsaver Notes



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

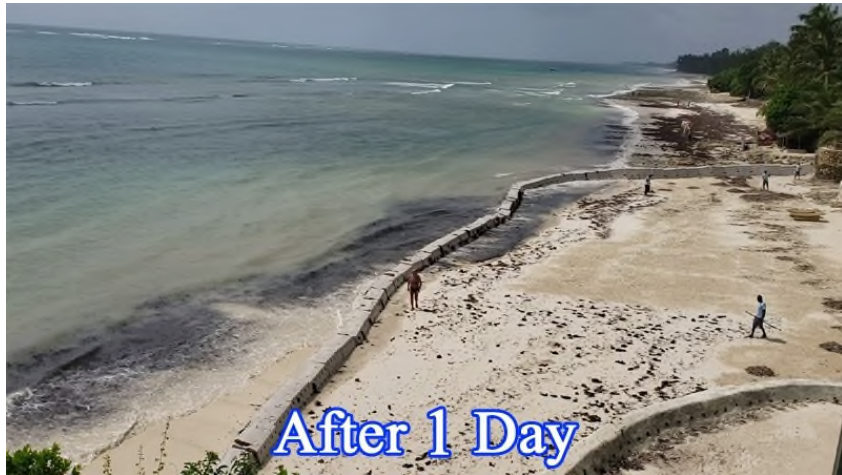
SANSAVER & ATTACHMENT DETAILS

KUHIO HIGHWAY
Emergency Shoreline Mitigation
Fed. Aid Project No. ER-24(004)

Scale: As Noted Date: Dec. 2023



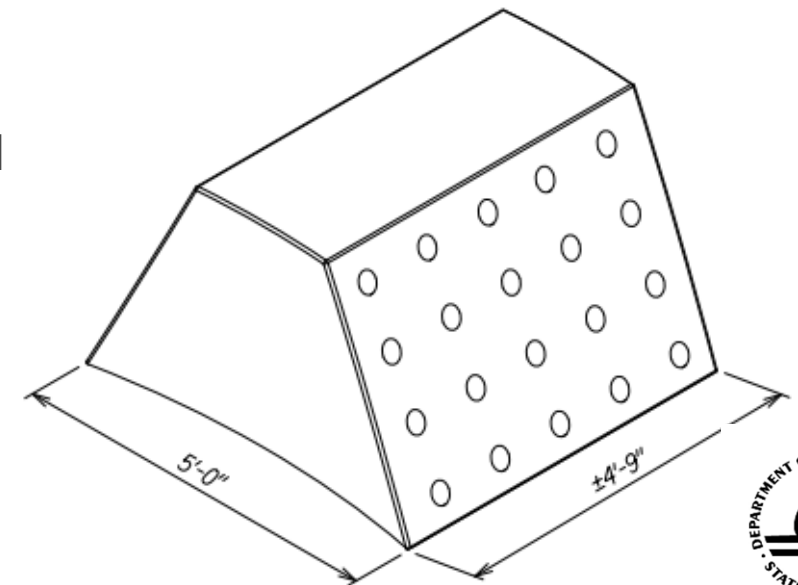
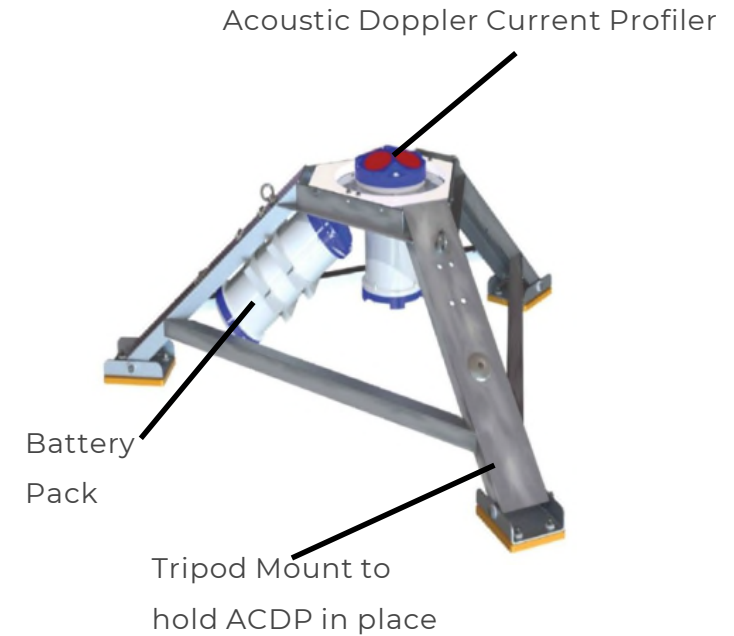
SANDSAVER RESULTS IN KENYA (TOP) AND GULF OF MEXICO (BOTTOM)



SANSAVER PILOT PROJECT

- Before installation, UH deployed six (6) Acoustic Doppler Current Profilers (ADCPs) to take measurements on the water velocity of the water column and determine the best place to install Sandsavers
- During the pilot period, we will continue to monitor and assess the effectiveness of the Sandsavers
- After the pilot period, we will assess the effectiveness of the Sandsaver and discuss next steps with community and UH consultation
- Revetment and vegetation plans are permanent

ADCP Photo Credit: HT Harvey & Associates



ANTICIPATED PERMITS AND CLEARANCES

- **Federal**

- National Environmental Policy Act (NEPA)
- Section 106 of the National Historic Preservation Act of 1966 (NHPA)
- Endangered Species Act (ESA) Section 7
- Section 4(f) of the U.S. Department of Transportation Act of 1966
- Section 404 of the USACE
- Section 401 WQC
- Coastal Zone Management (CZM)

- **State**

- Hawaii Revised Statutes (HRS) Chapter 343
- HRS Chapter 195D Conservation of Aquatic Life, Wildlife, and Land Plants
- HRS Chapter 6E-8 Historic Preservation
- Hawaii Department of Land and Natural Resources (DLNR) Office of Conservation and Coastal Lands (OCCL) Conservation District Use Permit (CDUP)

- **County**

- County of Kauai - Special Management Area (SMA)



BIOLOGICAL OPINION

- HDOT consulted with the U.S. Fish and Wildlife Service (USFWS) for the project
- USFWS issued a biological opinion for the Green Sea Turtle and Hawksbill Turtle (completed March 10, 2023)
 - Both species are rare at Wailua Beach
 - USFWS recommended the following mitigation measures:
 - Fencing staging areas
 - Identifying signs of turtles prior to construction, daily
 - Monitoring the Sandsaver area during operation to observe if turtles become entrapped
- **The USFWS determined that the project is not likely to jeopardize turtle populations**



Photo Credit: Caroline S. Rogers,
USGS



QUESTIONS?



PROJECT CONTACT INFORMATION

HDOT PROJECT MANAGER

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PLANNING & DESIGN CONSULTANT

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MAHALO!

