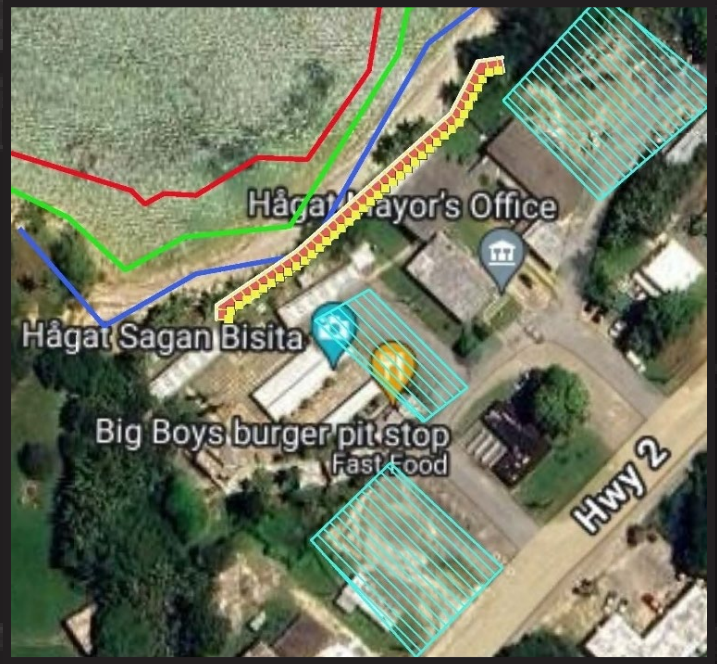
AGAT SECTION 14 SHORELINE PROTECTION FEASIBILITY STUDY

Public Meeting

October 16, 2024

Mayor Kevin Susuico
Vince Arriola, DPW Director
Matthew Santos, BSP Deputy Director
Mike Terlaje, USACE Project Manager



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THE BUREAU OF STATISTICS AND PLANS
Government of Guam

AGENDA: PUBLIC MEETING

1. Study Overview and Background
2. Existing and Future-Without-Project Conditions
3. Alternatives Analysis
4. Description of the Tentatively Selected Plan
5. How to Participate

STUDY OVERVIEW

Authority: Section 14 of the 1946 Flood Control Act, as amended (33 U.S.C 701r).

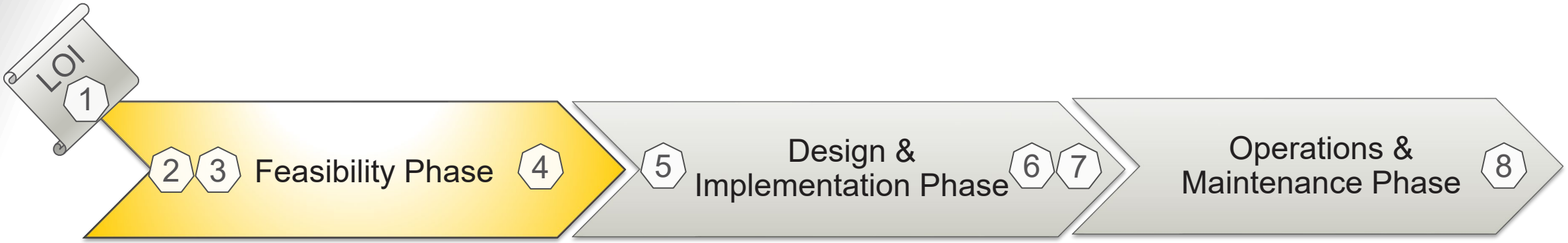
Non-Federal Sponsor: Government of Guam, represented by Department of Public Works

Section 14 Federal Participation Limit: $10,000,000

Plan Selection (EP 1105-2-58, Para. 10.d.):

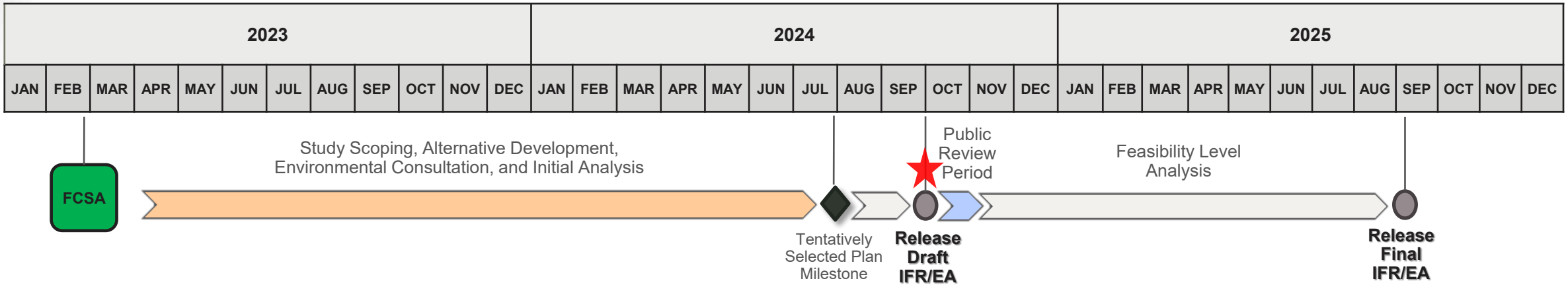
"Formulation and Justification. Following a finding of eligibility, and given the narrow geographic focus, low cost of these projects, and the imminent threat to the facilities, the formulation and evaluation will focus on the least-cost alternative solution. The least-cost alternative plan is considered to be justified if the total cost of the proposed alternative is less than the costs to relocate the threatened facility."

CAP PLANNING AND IMPLEMENTATION TIMELINE



1. Letter of interest (LOI) from non-federal sponsor
2. Federal Interest Determination
3. Feasibility Cost Share Agreement (FCSA)
4. Prepare Feasibility Report with NEPA document
5. Project Partnership Agreement (PPA)
6. Design
7. Construction
8. Operations & Maintenance (O&M)

FEASIBILITY STUDY PROCESS



- The Draft Integrated Feasibility Report and Environmental Assessment (IFR/EA) was released for public and agency review on September 30, 2024. The public review and comment period begins on October 1 and ends on November 1, 2024.

- Comments from the public will be considered as we move into the last phase of the feasibility study where we will refine our analyses and prepare a final report.

AGAT, GUAM

- Guam: U.S. Territory located roughly 3,800 miles southwest of Hawaii
- Population (2020 Census):
  - Guam: 153,836
  - Hågat: 4,515
- All U.S. Territories, including Guam, are considered economically disadvantaged communities (IG for Section 160 of WRDA 2020)

STUDY AREA: AGAT MAYOR'S COMPLEX

FACILITIES & FUNCTIONS

Sagan Bisita & Community Center

Government Events: Agency Meetings, DPHSS Outreaches, GDOE School Functions, Head Start Program

Community Events: Neighborhood Watch Program, Town Hall Meetings, Knights of Columbus Meetings, Christian Mother's Meetings, Zumba Classes, Tribe Guam Classes

Private Events: Various Private Parties, Carwashes, Fundraiser Events

Learning Center

- Afterschool Programs
- Tutoring Program
- Computer Lab
- Community Library

PROBLEMS IDENTIFIED IN STUDY AREA

- Big wave events and storm surge are eroding the shoreline along the Agat Mayor's Complex
- The existing seawall is vulnerable to undermining due to erosion of the beach, leaving structures and infrastructure within the Agat Mayor's Complex exposed to damage from erosion and wave attack.
- Critical damage to the Agat Mayor's Complex threatens the provision of municipality services in Agat as well as community activity, impacting social connectedness.
    - The residents of Agat consistently lose electricity during natural disasters and some also experience water loss. In 2023, Typhoon Mawar caused thousands of residents to lose cellphone service when it disrupted the island's communication capabilities. Thus, the emergency services provided by the mayor's office connecting community members to resources of electricity, water, communication, and shelters is critical.

STUDY OBJECTIVES & CONSTRAINTS

Objective:

- The primary objective of this project is to identify a solution that reduces the risk of failure due to erosion at the Agat Mayor's Complex over the 50-year period of analysis

Constraint:

- Ga'an Point is a national historic site protected as part of the War in the Pacific National Historical Park. The National Park Service (NPS) boundary transects a portion of the Sagan Bisita, constraining the footprint of implementable measures in the study area.

FUTURE WITHOUT PROJECT CONDITIONS

- The threat of wave attack and storm damage will become more frequent and severe over time
- Long-term sea level rise will increase damage to Agat Mayor's Complex
- Existing seawall will continue to sustain significant damage (overtopping and/or undermining), leading to damage and eventual collapse of Complex structures
- Loss of sandy beach is expected due to climate change impacts
- Climate change stressors to coral reefs:
  - Enhanced reef sedimentation due to increased coastal erosion from wave action
  - Warmer sea temperatures may lead to more frequent and intense coral bleaching events
  - More frequent and intense tropical storms can damage coral and alter nutrient delivery processes to affect viability

ALTERNATIVES: INITIAL ARRAY

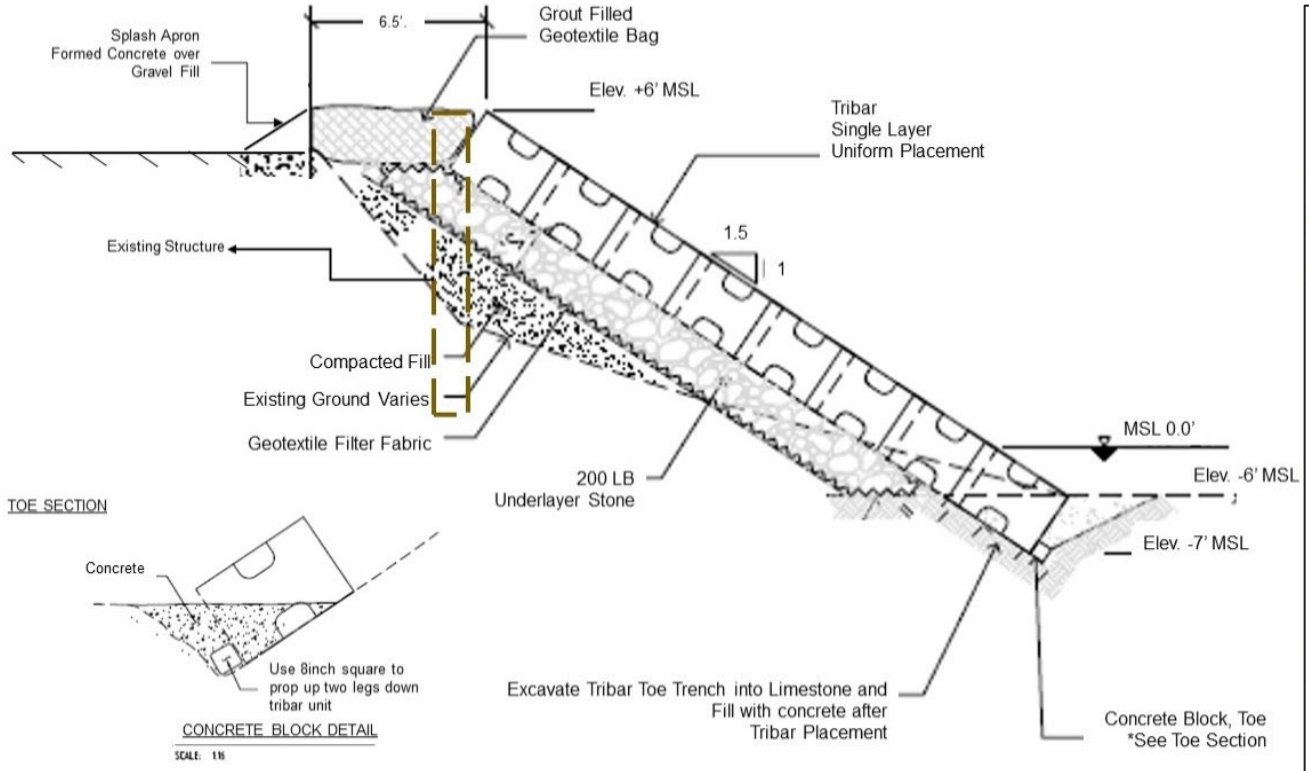
Alternative	Carried Forward to Final Array?
No Action	Yes
Rock Revetment	No, required stone size unavailable on Guam or Saipan
Concrete Armor Unit Revetment	Yes
Precast Concrete Seawall	No, excavation for foundation width would require demo of nearby structure
CRM Seawall	No, excavation for foundation width would require demo of nearby structure
Open Cell Piling Seawall	Yes
Secant Pile Seawall	Yes

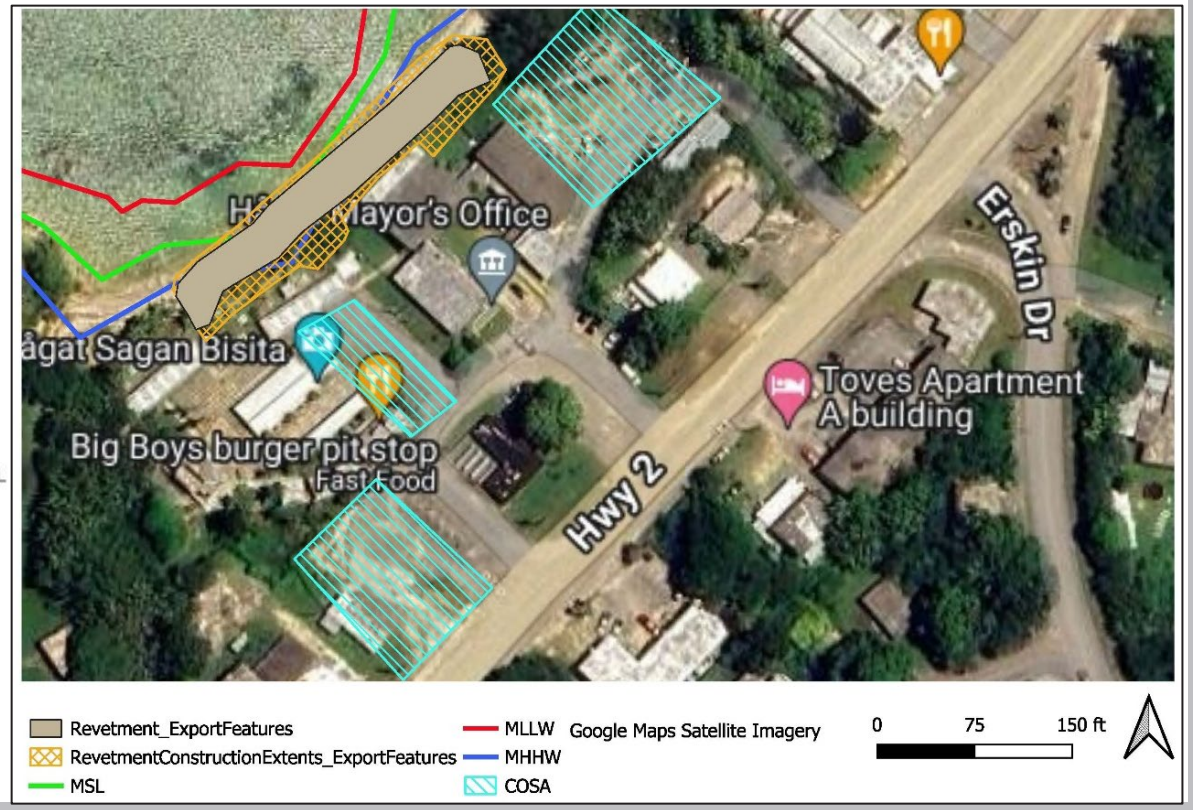
FINAL ARRAY OF ALTERNATIVES

- Alternative 1: No Action Alternative
- Alternative 2: Concrete Armor Unit Revetment
- Alternative 3: Open Cell Piling Seawall
- Alternative 4: Secant Pile Seawall

ALTERNATIVE 2: CONCRETE ARMOR UNIT REVETMENT

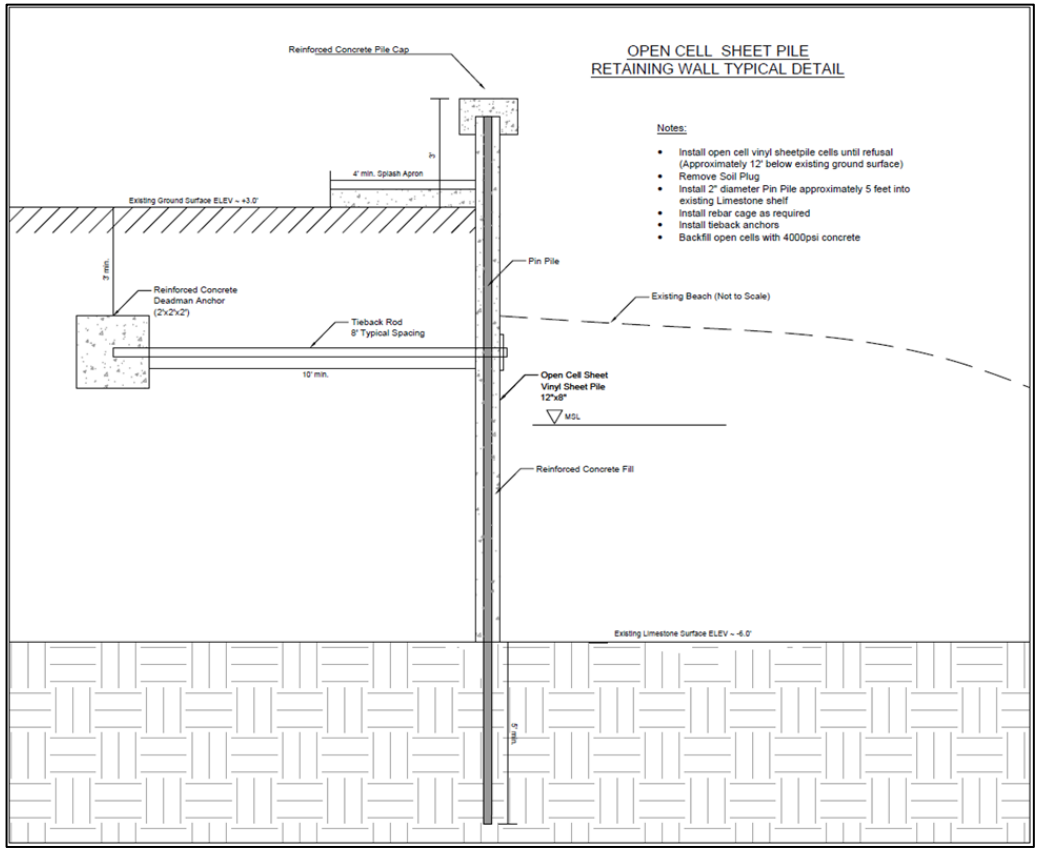
- Construction limits limited by National Park Service land and existing mayoral facilities.
- The rock revetment was not carried forward into the final array of alternatives, due to the unavailability of quality and quantity of appropriately sized rock on Guam and the cost prohibitive nature of importing sized stone.
- Tribar was selected over the other concrete armor unit designs for its compact interlocking and turning radius, and the higher likelihood of available and experienced contractors with the design. Projects on Saipan recently used tribar.

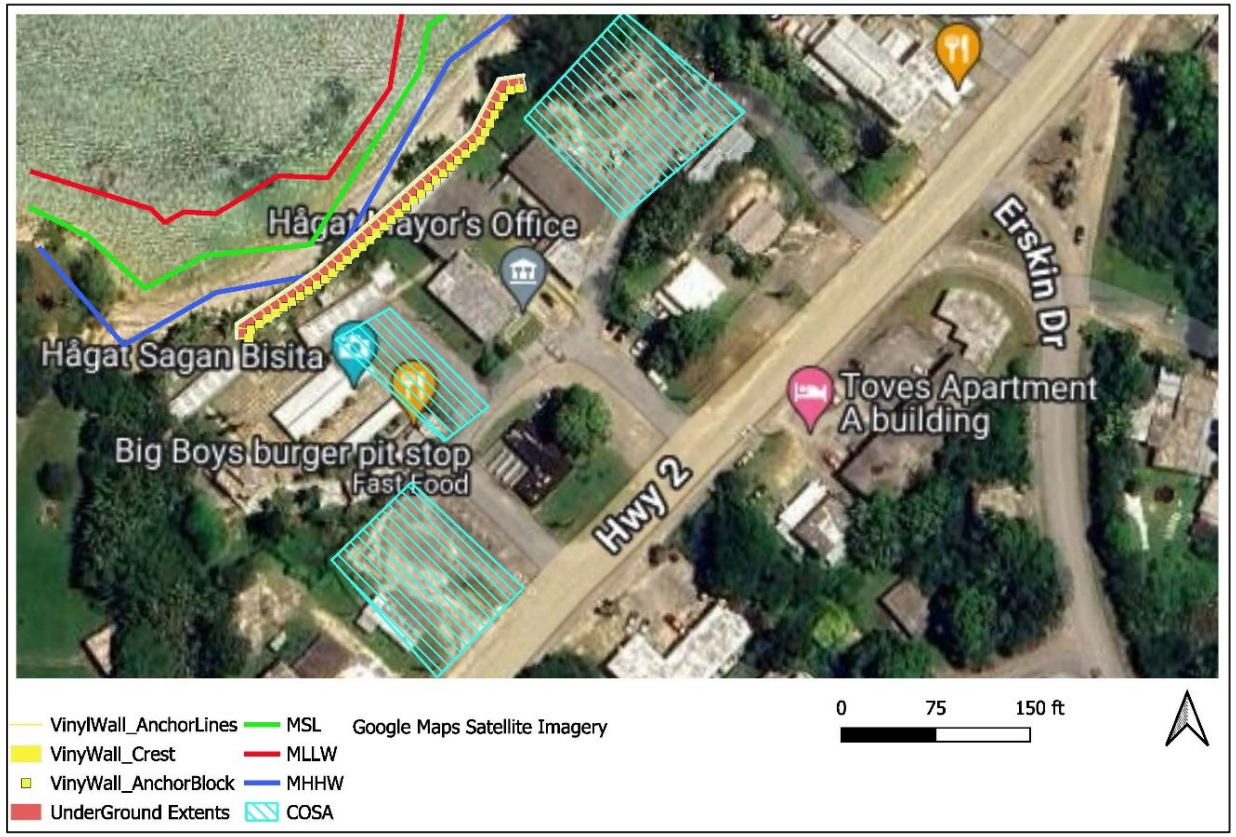




ALTERNATIVE 3: OPEN CELL PILING SEAWALL

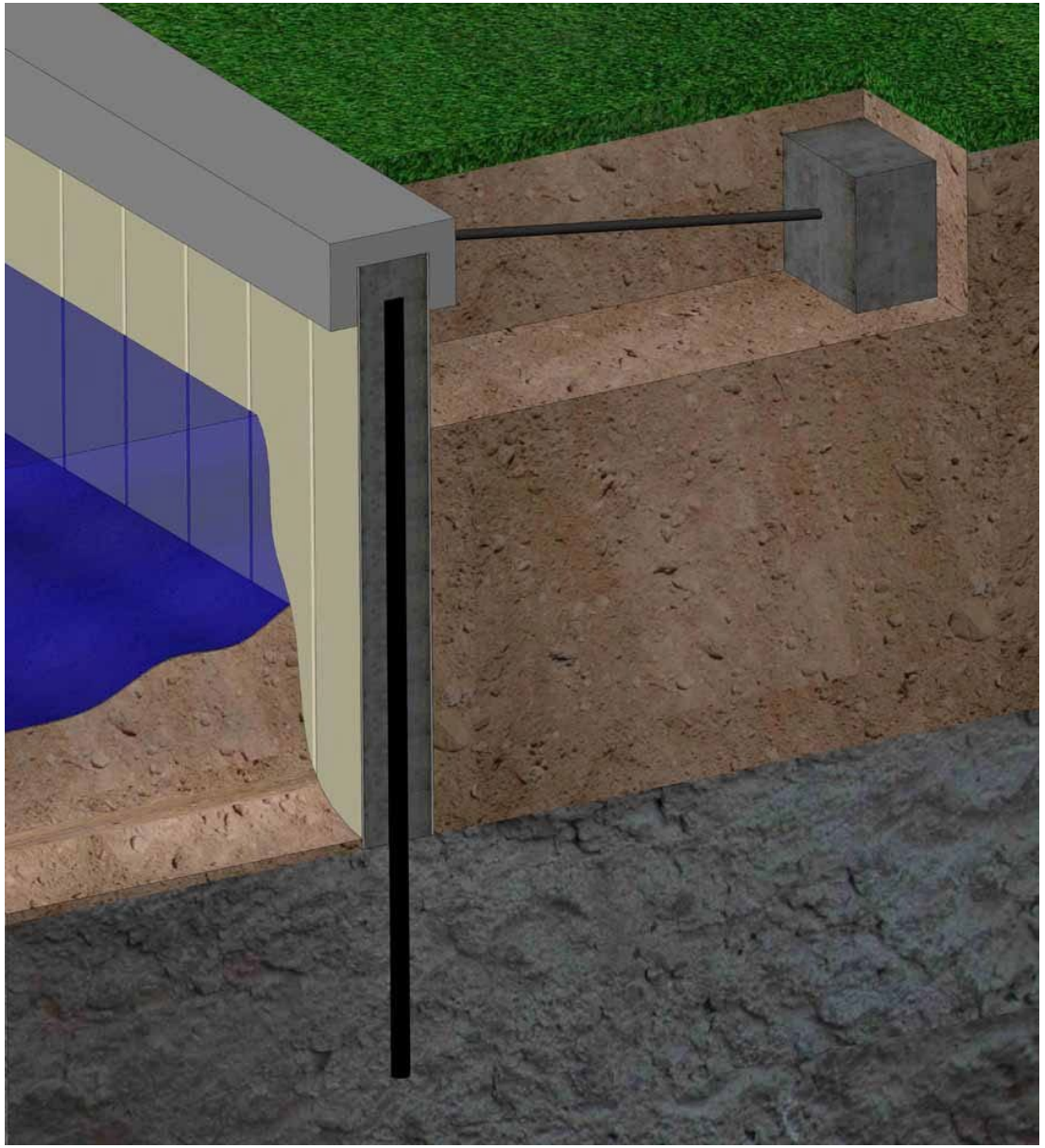
- Construction limits limited by National Park Service land and existing mayoral facilities.
- Project site is underlain with shallow soft limestone formation.
- Project constraints required open cell for installation and stability.
- Open cells will be created out of PVC and backfilled with reinforced concrete.





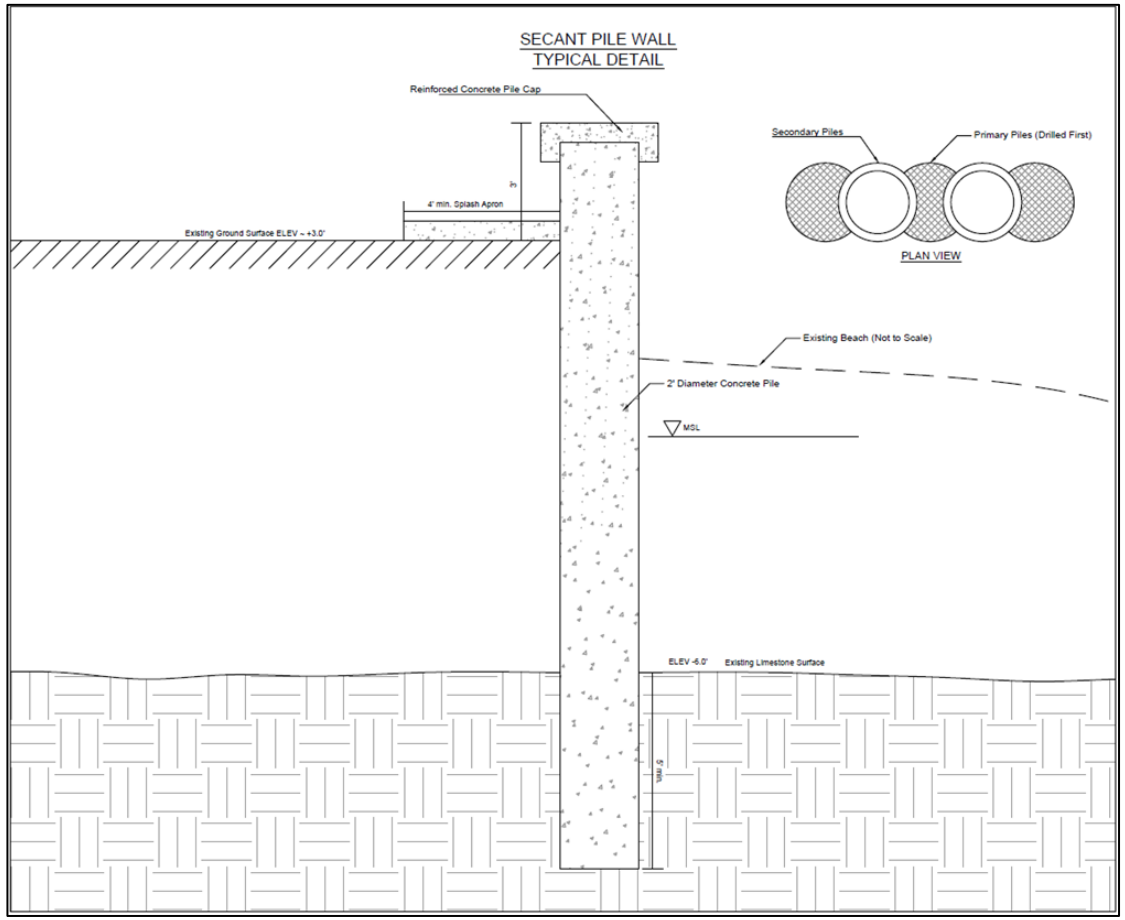
ALTERNATIVE 3: OPEN CELL PILING SEAWALL

- Doesn’t require specialized construction equipment
- Cells driven to bedrock using small vibratory hammer
- Soil removed from the cell's interior using water jetting
- Pin pile installed into bedrock
- Deadman anchor installed
- Backfilled with concrete



ALTERNATIVE 4 DESIGN: SECANT PILE SEAWALL

- Requires specialized construction equipment.
- Works within project footprint constraints.
- Concrete piles tied together with a reinforced concrete pile cap.



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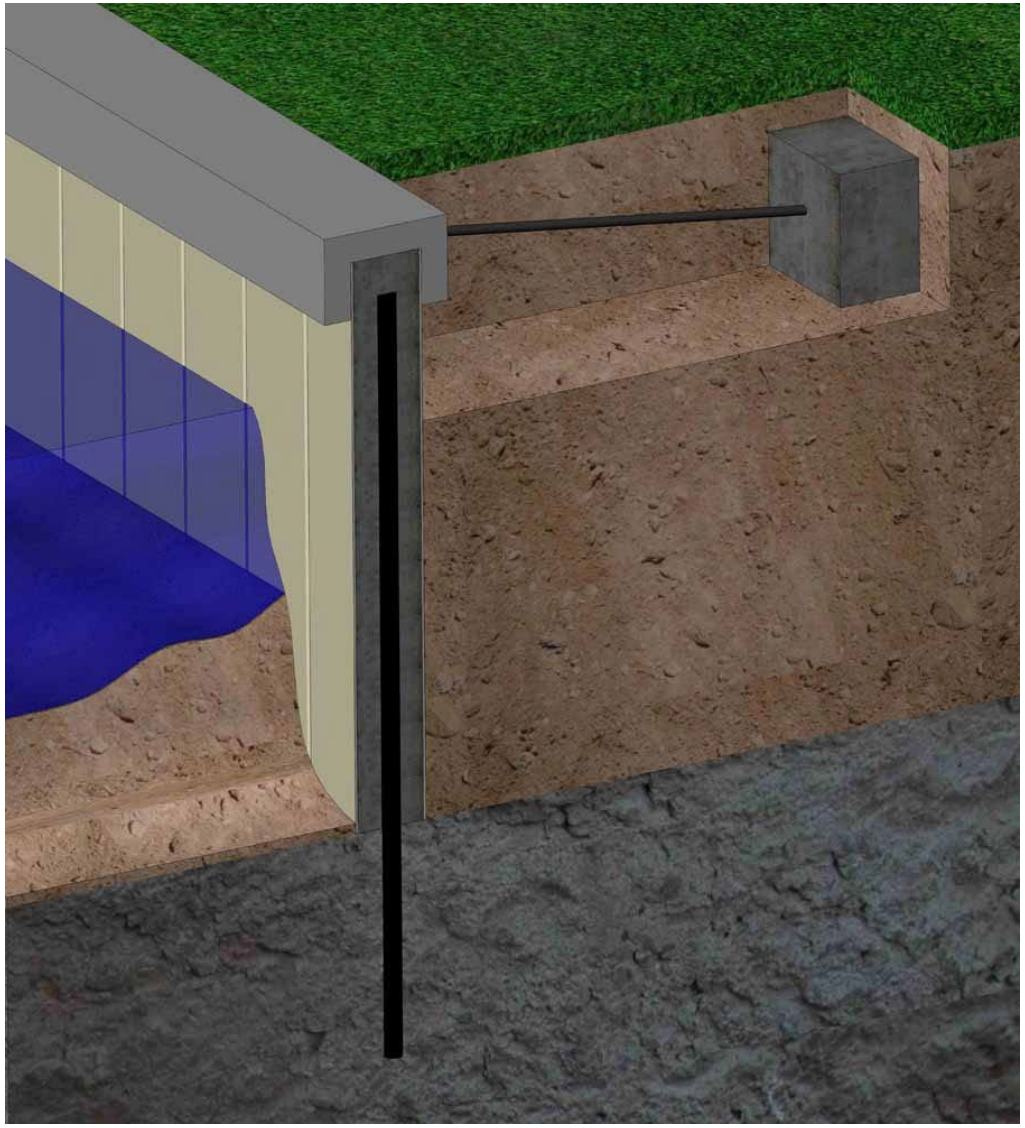
FINAL ARRAY COST COMPARISON

Alternative	D&I Total Estimate	D&I Federal Share	D&I Non- Federal Share	Meets Participation Limits*
Relocation of Mayor's Complex	$19.65M	$0	$19.65M	N/A
1. No Action	N/A	N/A	N/A	N/A
2. Concrete Armor Unit Revetment	$7.57M	$5.57M	$2.00M	Yes
3. Open Cell Piling Seawall	$6.71M	$5.01M	$1.70M	Yes
4. Secant Pile Seawall	$8.45M	$6.14M	$2.31M	Yes

**Federal feasibility study costs of $860,500 added to D&I Federal share; total must remain under $10M to meet Section 14 participation limits*

TENTATIVELY SELECTED PLAN: ALT.3 OPEN CELL PILING SEAWALL

- Least cost alternative given the project constraints.
- Robust solution that is adaptable for climate change.
- Specialized construction equipment not required.
- Open cells created out of PVC and filled with reinforced concrete.
- 2” diameter pin piles installed into soft limestone
- Concrete deadman anchors installed on 8’ centers



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ENVIRONMENTAL COMPLIANCE

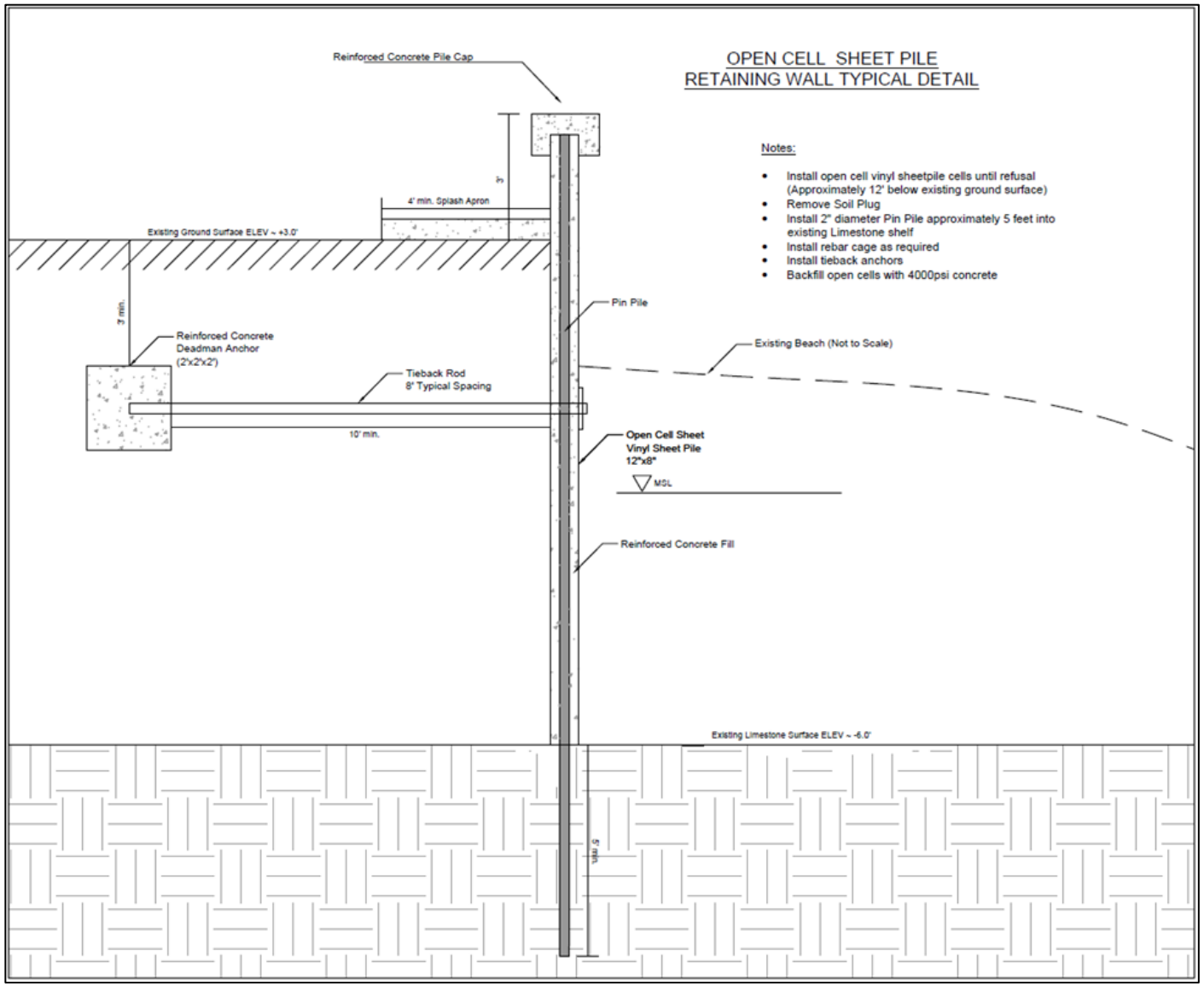
Compliance Document	Status
Coordinating Workshop	Jul. 17, 2023
ESA-USFWS Consultation Request Letter w/ Biological Assessment	In Draft
ESA-NMFS Consultation Request Letter w/ Biological Assessment	In Draft
MSA EFH Assessment	In Draft
FWCA Coordination Invitation Letter	Sent on Dec.18, 2023
FWCA Coordination Report	Final received on Apr. 29, 2024
NHPA §106 Notification Letter	Received LOC on Mar. 29, 2024
CWA §404b1	In Draft
CWA §401	Request submitted Sept. 17, 2024
CZMA	In Draft
NEPA	Public review period Oct. 1-Nov. 1, 2024

ENVIRONMENTAL

- Continued coordination w/ Federal and Territorial Agencies

- Integrated Feasibility Report and Environmental Assessment
  -with draft Finding of No Significant Impact
  -due to seawall replacement of similar size

- Environmental affects on upland side
  -apron and anchored tiebacks
  -sand backfilled to previous beach profile
  -stairs installed for beach access
  -replanting of upland area to restore to pre-construction conditions



CULTURAL RESOURCES

- Section 106 coordination with Guam SHPO concurrence of ***no adverse effect on historic properties.***
- SOI qualified archaeologist monitor required during ground disturbing activities in construction.
- Continue assessing project through construction and update section 106 as necessary.
- Anticipated risks include:
  - Discovery of previously unknown cultural resources within project APE.

HOW TO PARTICIPATE

Visit the study website at https://www.poh.usace.army.mil/Missions/Civil-Works/Civil-Works-Projects/Agat-Shoreline-Protection-Sec-14/

- Download the Draft Integrated Feasibility Report and Environmental Assessment (Draft IFR/EA)

- Provide comment by **November 1, 2024 (ChST)**:
  - Verbally: Provide **verbal comment** here at this meeting
  - Written:
    - Provide comment in the **chat** (for those online)
    - Provide written comment on **comment card** (for those attending in-person meetings)
    - **Email** your comment to CEPOH-Planning@usace.army.mil (subject line: Agat S14 Draft Report)
    - **Mail** your comment to: U.S. Army Corps of Engineers, Honolulu District
      Attn: CEPOH-PPC (Agat S14)
      230 Otake St.
      Fort Shafter, HI 96858-5440

QUESTIONS?

Mike Terlaje, Program Manager, Civil and Public Works
Honolulu District
U.S. Army Corps of Engineers

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