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GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

M. KALEO MANUEL
DEPUTY DIRECTOR - WATER

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HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAI'I | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES

P.O. BOX 621
HONOLULU, HAWAII 96809

December 16, 2022

Director
Environmental Review Program
Office of Planning and Sustainable Development
235 S. Beretania Street, Room 702
Honolulu, Hawai'i 96813

SUBJECT: Environmental Impact Statement Preparation Notice for the Proposed Ho'ala Honokowai Project Located at Honokowai, Lahaina, Maui Tax Map Keys: (2) 4-4-001:097, 098, and 100 (seaward)

Dear Director:

The Department of Land and Natural Resources, has determined that an Environmental Impact Statement (EIS) is required for the above-referenced project. The determination was made in accordance with Hawai'i Revised Statutes §343-5(e) and Hawai'i Administrative Rules (HAR) §11-200.1-14(d)(2) which state that an approving agency may authorize an applicant to prepare an EIS rather than an Environmental Assessment if, through its judgement and experience, it determines that an EIS is likely to be required. We hereby transmit this determination that an EIS is required for the West Maui Resort Partners, L.P.'s Ho'ala Honokowai Project. The required publication forms and files, including an electronic copy of the EISPN in pdf format, have been provided via the OEQC online submission platform. Concurrently with the electronic filing, and as required by HAR §11-200.1-5(e)(4)(B), paper copies of the EISPN shall be submitted to the Lahaina Public Library and the Hawai'i Documents Center.

The Department also respectfully request that the EISPN be published in the next edition of *'The Environmental Notice.'*

If there are any questions, please contact Cal Miyahara at (808) 798-6147 or email at calen.miyahara@hawaii.gov.

Sincerely,

Suzanne D. Case, Chairperson

Cc: Sea Engineering, Inc. (Attn.: Andy Bohlander)

From: webmaster@hawaii.gov
Sent: Friday, December 16, 2022 3:54 PM
To: DBEDT OPSD Environmental Review Program
Subject: New online submission for The Environmental Notice

Action Name
Hoʻāla Honokōwai
Type of Document/Determination
Environmental impact statement preparation notice (EISPN)
HRS §343-5(a) Trigger(s)
• (1) Propose the use of state or county lands or the use of state or county funds • (2) Propose any use within any land classified as a conservation district • (3) Propose any use within a shoreline area
Judicial district
Lahaina, Maui
Tax Map Key(s) (TMK(s))
(2) 4-4-001:097; (2) 4-4-001:098; (2) 4-4-001:100
Action type
Applicant
Other required permits and approvals
Numerous
Discretionary consent required
Conservation District Use Permit; Easement (if required); Special Management Area Use Permit; Shoreline Setback Variance (if required)
Approving agency
State of Hawaii, Department of Land and Natural Resources, Office of Conservation and Coastal Lands
Agency contact name
Michael Cain
Agency contact email (for info about the action)
michael.cain@hawaii.gov
Email address or URL for receiving comments
michael.cain@hawaii.gov
Agency contact phone
(808) 587-0377
Agency address
1151 Punchbowl Street #131 Honolulu, HI 96813 United States Map It
Public Scoping Meeting information
January 17, 2023 (5:00pm -7:00pm) Lahaina Civic Center Social Hall, 1840 Honoapi'ilani Hwy, Lahaina, Maui, HI 96761

Accepting authority

State of Hawaii, Department of Land and Natural Resources, Office of Conservation and Coastal Lands

Applicant

West Maui Resort Partners, L.P.

Applicant contact name

Michael Elliott

Applicant contact email

Michael.Elliott@hgv.com

Applicant contact phone

(407) 613-3348

Applicant address

5323 Millenia Lakes Boulevard
Orlando, FL 32839
United States
Map It

Was this submittal prepared by a consultant?

Yes

Consultant

Sea Engineering, Inc.

Consultant contact name

Andy Bohlander

Consultant contact email

honokowai@seaengineering.com

Consultant contact phone

(808) 259-7966

Consultant address

41-305 Kalaniana‘ole Hwy
Waimanalo, HI 96795
United States
Map It

Action summary

The Proposed Action is to restore and preserve Honokōwai Beach in Honokōwai, Maui. Restoration of Honokōwai Beach could be accomplished by one of three methods - beach nourishment, beach maintenance, or beach nourishment with stabilizing structures. The preferred method will be selected after completing studies for the DEIS and receiving public comments. The project title “Hoʻāla Honokōwai” reflects the project’s primary objective of restoring this important natural and cultural resource for the West Maui community. Additional objectives are to preserve and enhance cultural and shoreline access, increase resilience to coastal hazards, and enable planning for long-term adaptation to sea level rise. Honokōwai Beach is a dynamic shoreline that was almost entirely eroded by an episodic erosion event in 2016. That event caused a loss of approximately 5,600 sq.ft. of land, structural damage, and degraded water quality and shoreline access. Honokōwai Beach also experiences chronic erosion, wh

Attached documents (signed agency letter & EA/EIS)

- Ho-ala-Honokowai-EISPN-to-ERP-part-1-signed.pdf
- Hoala-Honokowai-EISPN-002.pdf

Action location map

- SHP-KMZ.zip

Authorized individual

Andy Bohlander

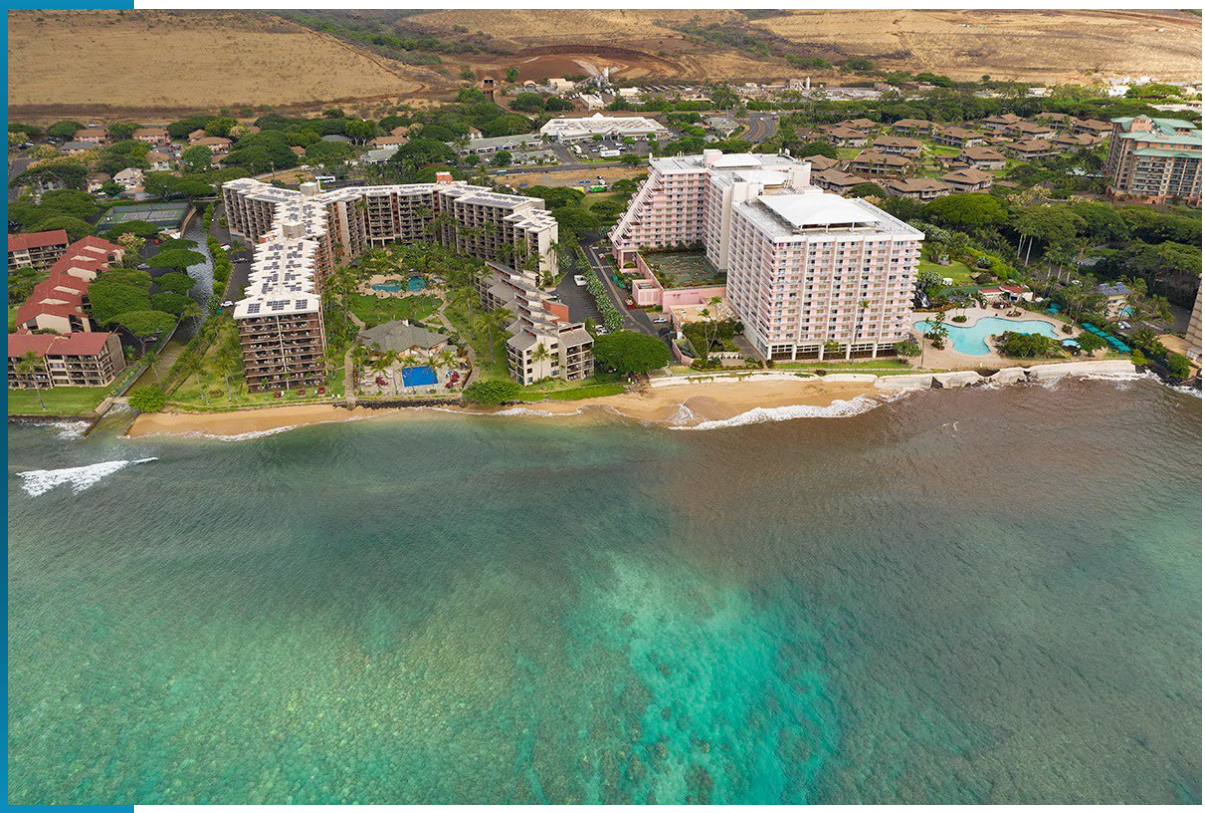
Authorization

- The above named authorized individual hereby certifies that he/she has the authority to make this submission.

ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE (EISPN)

HOʻĀLA HONOKŌWAI

Honokōwai, Maui, Hawaiʻi



Prepared for:
West Maui Resort Partners, L.P.
5323 Millenia Lakes Boulevard
Orlando, FL 32839

Prepared by:
Sea Engineering, Inc.
Makai Research Pier
41-305 Kalanianaʻole Hwy
Waimānalo, HI 96795

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LIST OF FIGURES

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ACRONYMS AND ABBREVIATIONS USED IN THIS EISPN

ADA	American with Disabilities Act
cf	Cubic feet
CFR	Code of Federal Regulations
CGG	Coastal Geology Group (University of Hawaiʻi)
CIA	Cultural Impact Assessment
cm	Centimeters
cy	Cubic yards
DBEDT	Department of Business, Economic Development, and Tourism (State of Hawaiʻi)
deg	Degrees
DEIS	Draft Environmental Impact Statement
DLNR	Department of Land and Natural Resources (State of Hawaiʻi)
DOH	Department of Health (State of Hawaiʻi)
DOBOR	Division of Boating and Ocean Recreation
EIS	Environmental Impact Statement
EISPN	Environmental Impact Statement Preparation Notice
EPA	United States Environmental Protection Agency
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
ft	Feet
ft/yr	Feet Per Year
HAR	Hawaiʻi Administrative Rules
HRS	Hawaiʻi Revised Statutes
HSBPA	Hawaiʻi Shore and Beach Preservation Association
HST	Hawaiʻi Standard Time
in	Inches
lf	Linear feet
m	Meters
IPCC	Intergovernmental Panel on Climate Change
MHHW	Mean Higher High Water
MLLW	Mean Lower Low Water
mi	Miles
mm	Millimeters
mph	Miles Per Hour
MSL	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NFIP	National Flood Insurance Program
NO_2	Nitrogen Dioxide
NOAA	National Oceanic and Atmospheric Administration
NMFS	National Marine Fisheries Service
OCCL	Office of Conservation and Coastal Lands
PacIOOS	Pacific Islands Ocean Observing System
PM	Particulate Matter
SLR	Sea Level Rise
SLR-XA	Sea Level Rise Exposure Area
SMA	Special Management Area

SO_2	Sulfur Dioxide
SOEST	School of Ocean Earth Science and Technology
TMK	Tax Map Key
UH	University of Hawaiʻi
USACE	United States Army Corps of Engineers
USC	United States Code
US	United States
WMRP	West Maui Resort Partners, L.P.
yr	Years

CONTENT CHECKLIST

The Environmental Impact Statement Preparation Notice (EISPN), at a minimum, shall contain the following information required in Hawai‘i Administrative Rules (HAR) § 11-200.1-23.

Section	Requirement	Chapters / Sections
(1)	Identification of the proposing agency or applicant	Project Summary
(2)	Identification of the accepting authority	Project Summary Chapter 7
(3)	Lists of all required permits and approvals (state, federal, and county) and, for applicants, identification of which approval necessitates chapter 343, HRS, environmental review	Project Summary Chapter 3 Chapter 7
(4)	The determination to prepare an EIS	Chapter 7
(5)	Reasons supporting the determination to prepare an EIS	Chapter 7
(6)	A description of the Proposed Action and its location	Project Summary Executive Summary Chapter 1 Chapter 2
(7)	A description of the affected environment, including regional, location, and site maps	Chapter 1 Chapter 2
(8)	Possible alternatives to the Proposed Action	Chapter 4
(9)	The proposing agency’s or applicant’s proposed scoping process, including when and where any EIS public scoping meeting will be held	Chapter 8
(10)	The name, title, email address, physical address, and phone number of an individual representative of the proposed agency or applicant who may be contacted for further information	Project Summary Chapter 8

PROJECT SUMMARY

Project:	Hoʻāla Honokōwai
Applicant:	West Maui Resort Partners, L.P. 5323 Millenia Lakes Boulevard Orlando, FL 32839 Contact: Michael Elliott Phone: 407-613-3348 Email: Michael.Elliott@hgv.com
Point of Contact:	Hilton Grand Vacation, Inc. 711 Kapiolani Blvd., Suite 1100 Honolulu, HI 96813 Contact: Tyler Middleton Phone: 808-846-6086 Email: Tyler.Middleton@hgv.com
Approving Agency:	Office of Conservation and Coastal Lands Department of Land and Natural Resources State of Hawaiʻi 1151 Punchbowl Street, Room 131 Honolulu, HI 96813 Contact: Michael Cain, Administrator Phone: 808-587-0377 Email: michael.cain@hawaii.gov
Consultant:	Sea Engineering, Inc. 41-305 Kalanianaʻole Hwy Waimānalo, HI 96795 Contact: Andy Bohlander Phone: 808-460-3442 ext. 208 Email: honokowai@seaengineering.com
Location:	Honokōwai, Maui, Hawaiʻi
State Land Use District:	Conservation (Resource Subzone)[1]
Tax Map Keys:	(2) 4-4-001:097 (West Maui Resort Partners, L.P.) (2) 4-4-001:098 (Kāʻanapali Shores Condominium) (2) 4-4-001:100 (Maui Kai Condominium)

[1] The Project Site (Honokōwai Beach) is located in the Conservation District. The Tax Map Keys (parcels) listed on this page are adjacent to and mauka (landward) of the Project Site and are located in the Urban District.

County Zoning:	H (Hotel)
Proposed Action:	The Proposed Action is to restore and preserve Honokōwai Beach in Honokōwai, Maui. Restoration of Honokōwai Beach could be accomplished by one of three methods - beach nourishment, beach maintenance, or beach nourishment with stabilizing structures. The preferred method will be selected after completing studies for the DEIS and receiving public comments. The project title "Hoʻāla Honokōwai" reflects the project's primary objective of restoring this important natural and cultural resource for the West Maui community. Additional objectives are to preserve and enhance cultural and shoreline access, increase resilience to coastal hazards, and enable planning for long-term adaptation to sea level rise. Honokōwai Beach is a dynamic shoreline that was almost entirely eroded by an episodic erosion event in 2016. That event caused a loss of approximately 5,600 sq.ft. of land, structural damage, and degraded water quality and shoreline access. Honokōwai Beach also experiences chronic erosion, which is projected to accelerate.
Required Permits and Approvals:	Environmental Impact Statement Certified Shoreline Conservation District Use Permit Term, Non-exclusive Easement (if required) Department of the Army Permit (Section 10 and Section 404) Clean Water Act Section 401 Water Quality Certification National Pollutant Discharge Elimination System Permit Coastal Zone Management Act Consistency Determination Hawaiʻi Revised Statutes Chapter 6E Historic Preservation Review Special Management Area Use Permit Shoreline Setback Variance Grading and Grubbing Permit Building Permit
Actions Requiring Environmental Review	Work within the Conservation District Use of State Lands Work within the Shoreline Area

EXECUTIVE SUMMARY

Honokōwai Beach (the Project Site) is located north of Kāʻanapali and south of Kahana Bay on the west coast of the island of Maui. Honokōwai Beach is an important natural, cultural, and aesthetic resource that supports a wide variety of cultural, recreational, and economic uses. Honokōwai Beach provides a rare combination of perpendicular and lateral shoreline access, public parking, and public restrooms. The beach also acts as a natural buffer that absorbs wave energy and reduces exposure of the backshore land and infrastructure to erosion and flooding.

In 2016, a combination of persistent North Pacific swell and elevated water levels produced high waves, strong currents, and abnormally high tides caused significant erosion and beach loss at Honokōwai Beach. The backshore area was exposed to erosion and a vertical escarpment (steep slope) formed along the shoreline creating a risk to public health, safety, and welfare, and impeding public access to and along the shoreline. The shoreline retreated 6 to 12 ft in just a few months, and the beach was almost entirely eroded. Approximately 5,600 square feet (sf) of fast land was lost to erosion, and over 1,000 cubic yards (cy) of alluvial sediment (i.e., clay, silt, boulders) was discharged into the ocean. The eroded sediment caused turbidity plumes (i.e., brown water) to form in the nearshore waters, which negatively impacted water quality and prevented access to and use of the shoreline for cultural and recreational activities. The erosion dramatically altered the configuration, appearance, and stability of Honokōwai Beach.

The Proposed Action is to restore and preserve Honokōwai Beach by one of three methods - beach nourishment, beach maintenance, or beach nourishment with stabilizing structures. The preferred method will be selected after completing studies for the Draft EIS and receiving public comments. The project title "Hoʻāla Honokōwai" reflects the project's primary objective of restoring this important natural and cultural resource for the West Maui community. Additional objectives are to preserve and enhance cultural and shoreline access, increase resilience to coastal hazards, and enable planning for long-term adaptation to sea level rise.

Studies to be included in the Draft EIS shall include:

- Cultural Impact Assessment
- Archaeological Assessment
- Assessment of the Marine Environment
- Economic and Fiscal Analysis
- Recreational and Ocean Safety Study

Pursuant to Hawaiʻi Administrative Rules (HAR) Chapter 11-200.1-23(d), a public scoping meeting will be held during the EISPN 30-day public comment period. The public scoping meeting will be held January 17, 2023 from 5:00pm -7:00pm at the Lahaina Civic Center Social Hall. See Chapter 8 for more information.

1. DESCRIPTION

1.1 Project Site Description

The Project Site, Honokōwai Beach, is located north of Kāʻanapali and south of Kahana Bay on the west coast of the island of Maui (Figure 1-1 and Figure 1-4). The beach supports a wide range of cultural and recreational uses and is a popular destination for beach goers, shoreline fisherman, spear fishers, divers, snorkelers, swimmers, surfers, and paddlers.

Honokōwai Beach is located at the southern end of the Honokōwai littoral cell[2], which extends from Honokōwai Point north to Kahana Bay and spans approximately 6,200 linear feet (lf) (1.15 miles (mi)) of shoreline (Figure 1-2). Within the Honokōwai littoral cell, there are only two unarmored properties: Kāʻanapali Beach Club (adjacent to the Project Site) and Honokōwai Beach Park (0.5 mi north of the Project Site). The Project Site is located where the shoreline transitions from predominantly sandy beaches, dunes, and unarmored shoreline (south of Honokōwai Point) to predominantly rocky or armored shoreline (north of Honokōwai Point) (Figure 1-3) and consists of 1,000 lf of shoreline that is fronted by a sandy beach, locally referred to as Honokōwai Beach (Figure 1-4). Shoreline armoring begins approximately 800 ft south of the Project Site and extends north to Kahana Bay. The shoreline surrounding the Project Site is characterized by engineered structures including seawalls, revetment, hybrid seawall-revetments, and drainage headwalls (Figure 1-5).

Honokōwai Beach provides a unique combination of perpendicular and lateral shoreline access and public amenities that is rare along the West Maui coastline (Figure 1-6). Perpendicular access to the shoreline is available via a paved road between Kāʻanapali Beach Club and Kāʻanapali Shores Condominium (adjacent property to the north). The public beach right of way features dedicated public parking stalls and a public changing station with restroom and shower facilities. Lateral shoreline access is available along the beach and via a coastal walkway that provides Americans with Disabilities Act (ADA)-compliant access along approximately 1,000 lf of shoreline from the south end of the Kāʻanapali Beach Club property to the north side of Honokōwai Stream.

The Project Site is located in the Kāʻanapali District and the Honokōwai Ahupuaʻa. The area between Honoapiʻilani Highway and the shoreline is located in the Special Management Area (SMA) and Urban Land Use District. The area makai (seaward) of the shoreline consists of submerged lands that are located in the Resource Subzone of the Conservation District. The area mauka (landward) of the shoreline is densely developed with resort infrastructure. There are three (3) privately-owned parcels near the Project Site, all of which are zoned (H) Hotel.

[2] "Littoral Cell" is a coastal compartment that contains a complete cycle of sedimentation including sediment sources, transport paths, and sinks.

Figure 1-1 Aerial photographs of the Project Site

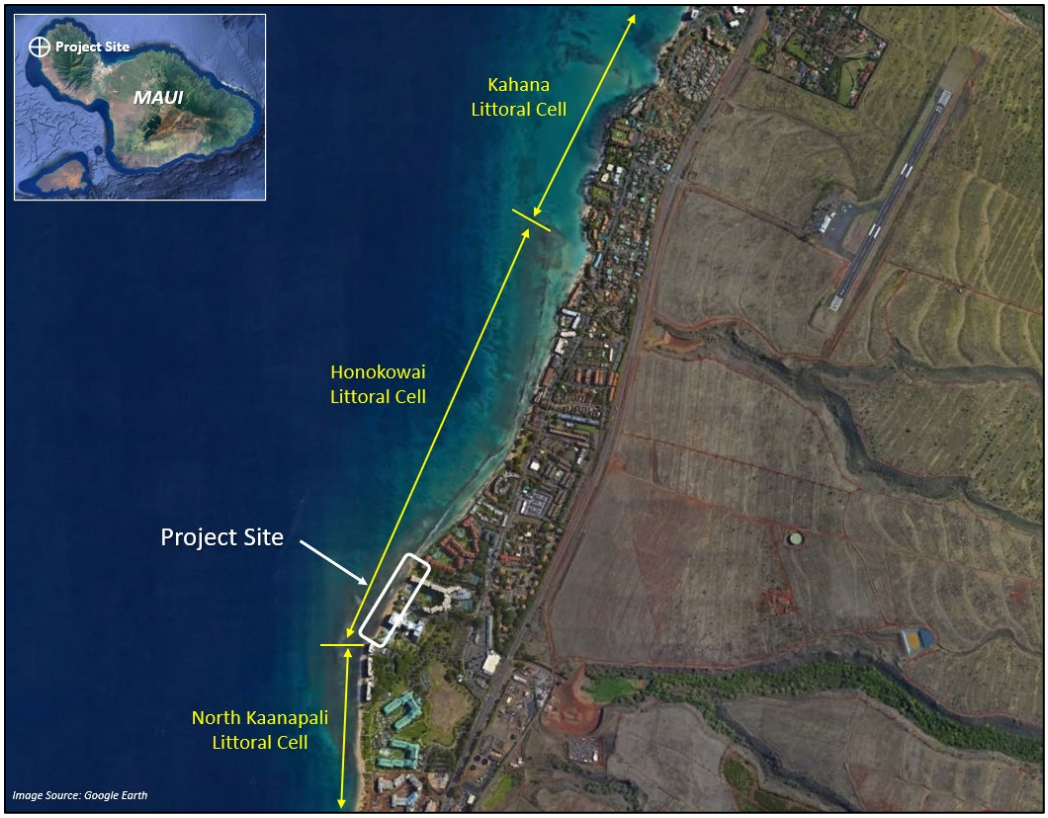

Figure 1-2 West Maui littoral cells (adapted from USACE, 2015)

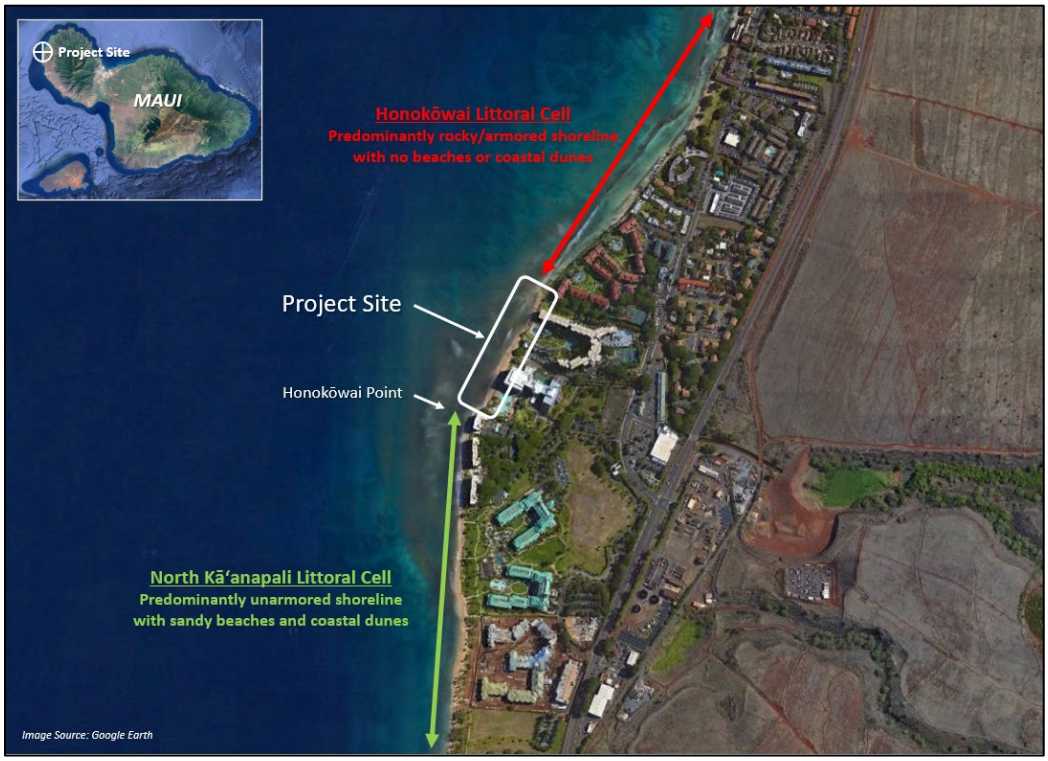

Figure 1-3 Character of coastline in the vicinity of the Project Site

Figure 1-4 Additional aerial photographs of the Project Site (11/17/2021)

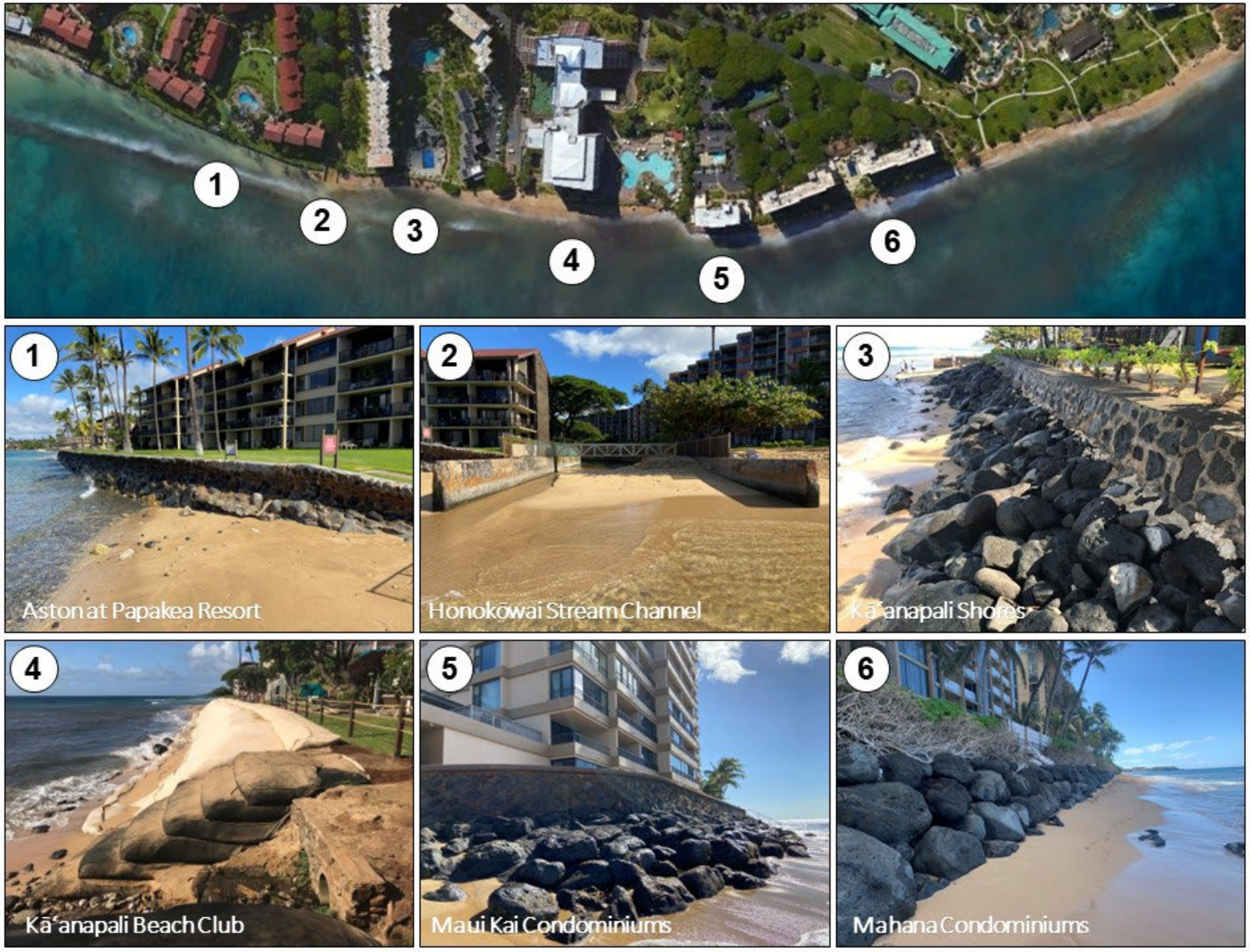

Figure 1-5 Shoreline structures in the vicinity of the Project Site

Figure 1-6 Public access and amenities at Honokōwai Beach

1.2 Purpose and Need for the Proposed Action

Honokōwai Beach is an important natural, cultural, and aesthetic resource that supports a wide variety of cultural, recreational, and economic uses. The beach also acts as a natural buffer that absorbs wave energy and reduces exposure of the backshore land and infrastructure to erosion and flooding. Honokōwai Beach also provides a rare combination of perpendicular shoreline access, public parking, public restrooms, and ADA-compliant lateral shoreline access. The channel that bisects the fringing reef at Honokōwai Beach is also unique in that it provides direct access to the offshore waters. In addition to the direct and indirect benefits of the beach itself, the adjacent properties support the local economy.

Nearshore hydrodynamics (i.e., waves, currents, and water circulation) along the Honokōwai shoreline are very complex. At Honokōwai Beach, sediment (i.e., sand) is transported in multiple directions due to a complex combination of wave exposure, bathymetry, water depths, nearshore currents, and sediment availability. As a result, beach width and sand volume at Honokōwai Beach are constantly changing due to seasonal and episodic variations. The southern portion of the beach is widest during the winter months, when the North Pacific swell dominates and pushes sand to the south, where it accumulates on the updrift side of the seawall fronting the Maui Kai Condominiums. The beach narrows during the summer months, when southerly swell dominates and pushes sand to the north. During periods of seasonal fluctuation, portions of the beach become narrower and flatter, which exposes the backshore to erosion.

In 2016, a combination of persistent North Pacific swell and elevated water levels produced high waves, strong currents, and abnormally high tides that caused significant erosion and beach loss at Honokōwai Beach (Figure 1-7). The backshore area was exposed to erosion and a vertical escarpment (steep slope) formed along the shoreline fronting the Project Site. The escarpment was 5 to 8 feet high along the southern portion of the shoreline and 3 to 5 ft high along the central and northern portions of the shoreline. The eroded embankment created a risk to public health, safety, and welfare, and impeded public access to and along the shoreline. Large sections of the embankment collapsed onto the beach including trees, root balls, boulders, and large blocks of terrigenous sediment. The erosion exposed and damaged infrastructure including a concrete walkway, shower pads, irrigation lines, electrical wiring and propane gas lines. The erosion also threatened the northern flank of the Maui Kai Condominiums. The shoreline retreated 6 to 12 ft in just a few months, compared to the historical average erosion rate of -0.55 feet/year (ft/yr).

Approximately 5,600 square feet (sf) of fast land[3] was lost to erosion, and over 1,000 cubic yards (cy) of alluvial sediment (i.e., clay, silt, boulders)) was discharged into the ocean. Unlike beach sand, fast land is generally not capable of being restored by natural physical processes (e.g., accretion), so the loss of fast land can be considered permanent.

[3] "Fast Land" refers to land located above the high-water mark.

The eroded sediment caused turbidity plumes (i.e., brown water) to form in the nearshore waters extending up to 1,500 ft offshore (Figure 1-8), which negatively impacted water quality and prevented access to and use of the shoreline for cultural and recreational activities. The erosion dramatically altered the configuration and appearance of Honokōwai Beach. Photographs comparing the shoreline conditions before and after the 2016 beach loss event are shown in Figure 1-9.

In 2018, a temporary erosion control structure was installed along the shoreline fronting Kāʻanapali Beach Club. The structure was authorized by the Hawaiʻi Department of Land and Natural Resources, Office of Conservation and Coastal Lands (DLNR-OCCL) and the County of Maui, Department of Planning through the emergency permitting process. Photographs showing the condition of the shoreline before and after installation of the temporary erosion control structure are shown in Figure 1-10.

Figure 1-7 Severe erosion and structural damage caused by 2016 beach loss event

Figure 1-8 Turbidity plumes caused by 2016 beach loss event

Figure 1-9 Conditions at Honokōwai Beach before (top) and after (bottom) 2016 beach loss event

Figure 1-10 Conditions before (top) and after (bottom) installation of temporary erosion control structure

1.3 Objectives of the Proposed Action

Prior to the 2016 beach loss event, Honokōwai Beach was a stable shoreline that experienced seasonal variations. The beach profile was characterized by features that are indicative of beach stability including an active lower beach face, a wide and elevated upper beach face, and an upper beach berm with stable vegetation (Figure 1-11). Prior to the 2016 beach loss event, a sandy beach fronted the Maui Kai Condominiums, which enabled sediment exchange between the Honokōwai and North Kāʻanapali littoral cells. Stable beaches are typically less sensitive to seasonal erosional forces and more capable of recovery through natural processes.

In 2016, due to an unusual combination of persistent northerly swell, sustained elevated water levels, strong currents, and abnormally high tides, Honokōwai Beach was almost entirely lost to erosion. The connection between the Honokōwai and North Kāʻanapali littoral cells was severed by this discrete event, which has inhibited the continued exchange of sediment (i.e., sand) between the two littoral cells. As a consequence of the 2016 beach loss event, the volume of sand in the Honokōwai littoral cell was substantially reduced, thereby inhibiting beach recovery. The reduction in sand volume and disruption of natural sediment transport have caused Honokōwai Beach to become unstable (Figure 1-12), making it more sensitive to seasonal erosional forces and less capable of natural recovery.

The erosion and beach loss that occurred in 2016 caused extensive environmental damage and negatively impacted the range of beneficial uses of Honokōwai Beach. The erosion caused substantial beach loss, structural damage, and created risks to public health, safety, and welfare, and impeded access to and along the shoreline. The erosion and discharge of alluvial material (i.e., clay, dirt, and boulders) from the backshore caused the formation of large turbidity plumes that negatively impacted water quality.

WMRP is proposing beach restoration to restore and preserve Honokōwai Beach. The objectives of the Proposed Action are to:

- Restore beach width and improve beach stability;
- Preserve and enhance cultural and shoreline access;
- Increase resilience to coastal hazards and sea level rise; and
- Enable planning for long-term adaptation to sea level rise.

It is anticipated that restoring Honokōwai Beach and preventing further erosion of the backshore will have a positive net beneficial impact on the environment, including preserving the beach and improving water quality. It is also anticipated that beach restoration would help to preserve and enhance the fundamental character of Honokōwai Beach by maintaining shoreline access and supporting existing uses along the shoreline.

Figure 1-11 Stable beach conditions before 2016 beach loss event (1/15/2009)

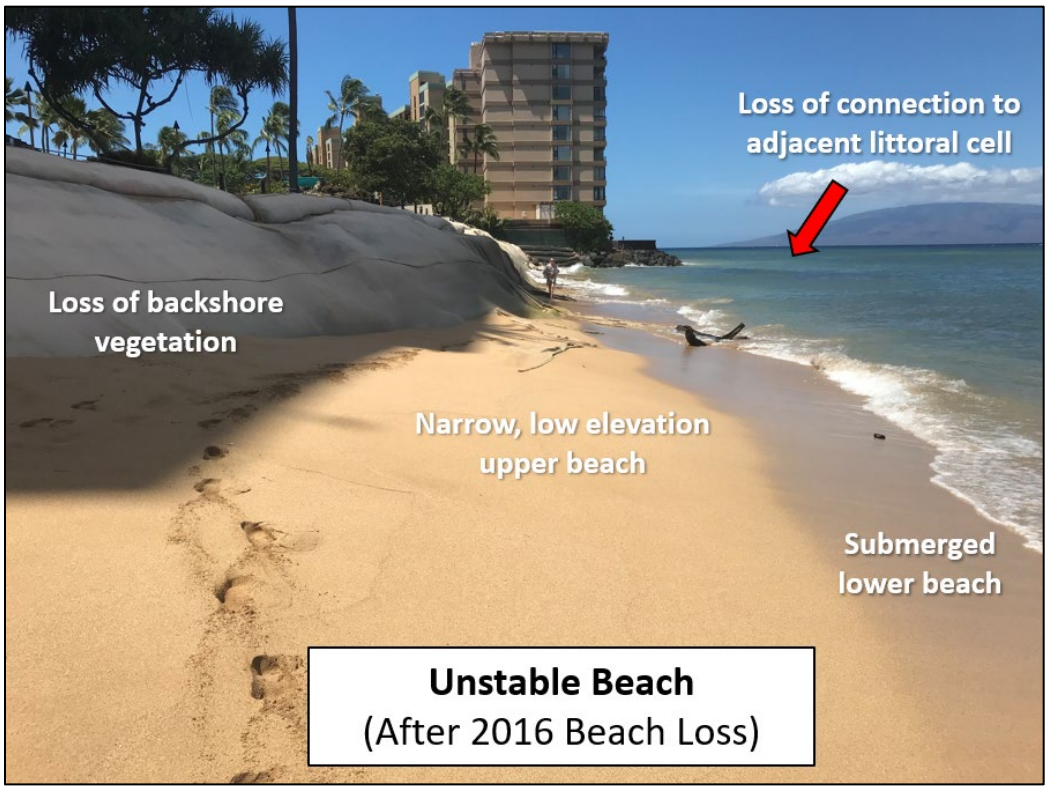

Figure 1-12 Unstable beach conditions after 2016 beach loss event (7/29/2022)

1.4 Timeframes for Addressing Erosion, Beach Loss, and Sea Level Rise

Climate change and sea level rise are negatively impacting beaches and shorelines throughout the Hawaiian Islands. Impacts include beach narrowing and beach loss, loss of land due to erosion, negative impacts to water quality and benthic habitat, infrastructure damage due to erosion and flooding, and loss of cultural and recreational access. Anderson et al. (2015) found that, due to sea level rise, average shoreline recession in Hawaiʻi by 2050 is projected to be nearly twice the historical rates, and nearly 2.5 times the historical rates by 2100. Erosion can be chronic, seasonal, or episodic in nature. The nature of the erosion affecting a particular shoreline is a key factor in evaluating potential adaptation strategies. In addition to increased erosion, anomalous sea level events (e.g., El Niño, king tides, mesoscale eddies, storm surge) are also likely to occur more frequently. Erosion and beach loss often need to be addressed over multiple timeframes with a combination of short-term responses, mid-term solutions, and long-term adaptation strategies.

Short-Term Responses (0 to 10 years)
Short-term responses are immediate interventions and are often required to address imminent, site-specific conditions or hazards, such as in the immediate aftermath of severe erosion or flooding events. These responses are typically non-permanent solutions that are intended to provide interim protection for land and infrastructure, and mitigate imminent risks to public health, safety, and welfare. Short-term responses generally consist of non-engineered materials and/or structures that are intended to function for a period of several years, such as temporary sandbag structures or "burritos." Short-term responses create the enabling conditions to provide adequate time for more durable and robust mid-term solutions to be developed and implemented.

Mid-Term Solutions (10 to 50 years)
Mid-term solutions are intended to address existing conditions and anticipated future changes to coastal environments in the next several decades. Mid-term solutions require more sophisticated engineering analyses, and a more robust and comprehensive process for planning, environmental review and permitting, which typically requires several years to complete. Mid-term solutions may include physical improvements to landscapes, infrastructure, and buildings. The geographic scale of mid-term solutions is typically moderate. Mid-term solutions create adequate time to conduct planning and feasibility studies to enable long-term adaptation strategies.

Long-Term Adaptation (more than 50 years)
Long-term adaptation is a complex planning process that requires thoughtful planning, analysis and consideration of a wide variety of factors including, but not limited to, disaster risk reduction, social cohesion, environmental preservation, and economic security. These factors, combined with high levels of uncertainty regarding projected sea level rise and erosion, potential approaches, responsibilities, legal issues, funding, and logistics, presents a challenging planning dilemma. Long-term adaptation planning is based on anticipated, but uncertain, environmental conditions that are substantially different than present conditions. Due to the uncertainties associated with the approaches in modeling sea level rise, it is important to continue monitoring and to update the trajectories of models (Sweet et al. 2022). Some long-term adaptation strategies may involve fundamentally altering the character and appearance of the existing environment and the range of beneficial uses it currently support. Long-term adaptation planning should be a collaborative and participatory process that seeks to balance the needs, goals, and objectives of communities at broader scales.

1.5 Guidance for Sea Level Rise Planning and Adaptation

Government agencies and communities have recognized the potential impacts of climate change and sea level rise and established guidance and objectives for sea level rise planning and adaptation with an emphasis on reducing vulnerability and increasing community resilience. Guidance continues to evolve at the global, Federal, State, and County levels as the science and understanding of climate change and sea level rise improve. The design and analysis for the Proposed Action will be informed by the latest global, national, state, and local guidance on sea level rise planning and adaptation.

2. PROPOSED ACTION

The Proposed Action is the restoration and preservation of Honokōwai Beach. WMRP is considering three potential methods of implementing the Proposed Action as follows:

> ***Beach Nourishment*** – a one-time, single action involving the placement of additional sand to increase beach width and sand volume to offset the effects of erosion without modifying existing structures or installing any new structures.
>
> ***Beach Maintenance*** – a series of recurring actions over time involving the placement of additional sand, combined with sand pushing and/or sand backpassing, without modifying existing structures or installing any new structures. Beach maintenance would be conducted on a recurring, periodic basis and is therefore considered to be "programmatic" in nature.
>
> ***Beach Nourishment with Stabilizing Structures*** – a one-time, single action involving both (i) the placement of sand to increase beach width, and (ii) the modification of existing structures and/or installation of new structures (e.g., groins) to stabilize the sand (i.e., mitigate erosion and beach loss).

The objectives of the Proposed Action are to restore and preserve Honokōwai Beach, improve beach stability, preserve, and enhance cultural and shoreline access, increase resilience to coastal hazards and sea level rise, and enable planning for long-term adaptation to sea level rise.

WMRP will select and identify one of the three methods (i.e., Beach Nourishment, Beach Maintenance, or Beach Nourishment with Stabilizing Structures) as the preferred method for implementing the Proposed Action in the Draft EIS. The preferred method will be selected after WMRP completes its studies and evaluation of the three potential methods, and after WMRP receives and evaluates community input through the public scoping process. The methods that are not selected and identified will be considered as "alternatives" to the Proposed Action and will be further reviewed in the Draft EIS. Additional discussion of beach nourishment, beach maintenance, and beach nourishment with stabilizing structures is provided in Section 4.

3. ANTICIPATED PERMITS AND APPROVALS

The Proposed Action is anticipated to require the following permits and approvals:

Federal

- Clean Water Action, Section 404 Permit
- Rivers and Harbors Act, Section 10 Permit

Other Federal laws that potentially could be triggered by the Proposed Action include:

- Archaeological and Historic Preservation Act (16 USC § 469a-1)
- National Historic Preservation Act of 1966 (16 USC § 470(f))
- Native American Graves Protection and Repatriation Act of 1990 (25 USC § 3001)
- Clean Air Act (42 USC § 7506(C))
- Coastal Zone Management Act (16 USC § 1456(C) (1))
- Endangered Species Act (16 USC § 1536(A) (2) and (4))
- Magnuson-Stevens Fishery Conservation and Management Act (16 USC § 1801 et seq.)
- Marine Mammal Protection Act of 1972, as amended (16 USC §§ 1361-1421(H) et seq.)
- Migratory Bird Treaty Act of 1918, as amended (16 USC §§ 703-712)
- Fish and Wildlife Coordination Act of 1934, as amended (16 USC § 661 et seq.)
- Executive Order (EO) 13089, Coral Reef Protection (63 FR 32701)
- EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds (16 USC § 703-711 (66 FR 3853))
- EO 12898, Environmental Justice

State of Hawai‘i

- Shoreline Certification
- Conservation District Use Permit
- HRS Chapter 6E Historic Preservation Review
- Section 401 Water Quality Certification
- National Pollutant Discharge Elimination System
- Coastal Zone Management Consistency Review
- Right of Entry Permit
- Revocable Permit (if required)
- Term, Non-exclusive Easement (if required)

County of Maui

- Special Management Area Use Permit
- Shoreline Setback Variance
- Coastal High Hazard Area Certification
- Special Flood Hazard Area Development Permit
- Grubbing & Grading Permit
- Building Permit

4. POSSIBLE ALTERNATIVES FOR THE PROPOSED ACTION

Alternatives to assess in the EIS include no action, beach nourishment, beach maintenance, beach nourishment with stabilizing structures, and long-term adaptation. When establishing goals and objectives for adaptation and evaluating potential adaptation options, it is important to consider both the nature of the erosion affecting a particular shoreline, as well as the timeline for adaptation. While sea level rise is an ongoing process that is expected to increase in the future, erosion and beach loss are generally either chronic, seasonal, or episodic in nature.

4.1 No Action

No Action would consist of foregoing the Proposed Action and allowing Honokōwai Beach to continue to erode. Under the No Action alternative, the existing shoreline processes will continue, and Honokōwai Beach will continue to experience chronic, seasonal, and episodic erosion, all of which are expected to be exacerbated by sea level rise. Based on projections for future exposure to erosion and flooding (CGG, 2019), without mitigative action, the accelerated erosion caused by sea level rise will likely result in total loss of Honokōwai Beach by mid-century or sooner.

4.2 Beach Nourishment

Beach Nourishment refers to an individual action (Project) that involves placement of additional sand to increase beach width and sand volume to offset the effects of erosion without modifying existing structures or installing any new structures. Beach nourishment projects are typically not designed to accommodate sea level rise. The design life for beach nourishment projects is typically based on a combination of historical and projected erosion rates. When conducting beach nourishment along coastlines that are subject to chronic and/or episodic erosion, such as Honokōwai Beach, rates of pre-project beach erosion should be expected to continue following a beach nourishment project.

Beach nourishment at Honokōwai Beach is a short-term response that would consist of placing sand directly along the shoreline without any structures to stabilize the sand. The sand would be placed along 1,000 lf of shoreline with a beach crest elevation of +10 ft MSL and a beach slope of 1V:8H (vertical to horizontal). This alternative would require approximately 27,000 cy of sand and would result in approximately 50,000 sf (1.15 acres) of beach area. Average beach width would be approximately 60 feet, which aligns with the 2007 shoreline position. The estimated construction duration for the nourishment effort would be 90 to 180 days. Beach nourishment would be implemented as a single project with an anticipated design life of 8 years. The beach nourishment alternative will be further evaluated and discussed in the Draft EIS.

4.3 Beach Maintenance

Beach Maintenance refers to a series of actions (Program) that consists of periodic beach nourishment combined with routine beach maintenance, without modifying existing structures or installing any new structures. Beach maintenance actions are typically intended to be conducted on a recurring, periodic basis over a specified period of time and are therefore considered to be programmatic in nature.

A beach maintenance program at Honokōwai Beach would consist of a combination of (i) periodic beach nourishment, (ii) sand pushing, and/or (iii) sand backpassing. It is anticipated that the program would consist of an initial beach nourishment project, followed by periodic sand pushing or sand backpassing, followed by a series of successive beach renourishment projects. This program of actions would repeat over a specified period of time.

Sand pushing is a beach maintenance strategy that involves moving sand from the lower beach face to the upper beach to restore an eroded beach profile and reduce exposure of the backshore to wave action. Sand pushing has been a successful beach maintenance strategy at various beaches throughout Hawaiʻi. Sand pushing could be performed routinely if a sufficient volume of sand is available along the shoreline. Sand pushing may provide a temporary increase in dry beach volume and elevation and may provide some temporary relief from erosion and wave runup.

Sand backpassing is another method of beach maintenance that involves recovering sand from portions of a beach where sand has accreted and placing it in areas that are experiencing erosion and beach loss. Sand backpassing counters the natural longshore movement of sand and can be an effective beach maintenance strategy in areas with dominant seasonal or long-term erosion and sand transport in a particular direction along the shoreline and a surplus of sand accumulating in the area of accretion. For sand backpassing to be feasible, an adequate volume of sand would need to be available from another area within the same littoral cell. Sand backpassing may provide a temporary increase in beach volume and width and may provide some temporary relief from erosion; however, without the addition of stabilizing structures, the sand is likely to move, and erosion and beach loss are likely to continue and accelerate as sea levels continue to rise.

When conducting beach maintenance along coastlines that are subject to chronic and/or episodic erosion, it can be assumed that erosion will continue following each maintenance effort. Based on current projections for future erosion (CGG, 2019), beach nourishment would need to be conducted approximately every 8 years with additional maintenance being performed on an as-needed basis. A suitable and reliable sand source would need to be identified to support each successive beach nourishment project. Due to the recurring nature of beach maintenance, the cumulative costs and impacts of the program must be considered over a specified period of time and, in some cases, may be greater than individual projects.

Beach maintenance at Honokōwai Beach is a mid-term solution that that would consist of initially placing sand directly along the shoreline without any structures to stabilize the sand. Initial sand placement would be along 1,000 lf of shoreline with a beach crest elevation of +10 ft MSL and a beach slope of 1V:8H (vertical to horizontal). Beach maintenance would initially require placement of approximately 27,000 cy of sand and would result in approximately 50,000 sf (1.15 acres) of beach area. Average beach width would be approximately 60 feet, which aligns with the 2007 shoreline position. The estimated construction duration for the initial sand placement effort would be 90 to 180 days. Sand pushing and/or sand backpassing would occur on an as-need basis. The estimated duration of sand pushing and/or sand backpassing would be 10 to 20 days for each individual effort. Additional placement of 5,000 cy of sand is anticipated to be needed every 8 years to maintain a minimum beach width of 45 ft. The estimated construction duration for additional sand placement is 80 to 120 days for each iteration. Ideally, an adequate volume of sand

would be stockpiled to support future renourishment efforts. Beach maintenance would be implemented as a program over a period of 50 years. The beach maintenance alternative will be further evaluated and discussed in the Draft EIS.

4.4 Beach Nourishment with Stabilizing Structures

Beach Nourishment with Stabilizing Structures refers to an individual action (Project) that involves placement of sand to nourish the beach, (i) modifying existing structures, and/or (ii) installing new structures (e.g., groins) to stabilize the sand. Beach nourishment projects with stabilizing structures are typically designed to be implemented as a single, discrete Project with a specified design life. Given the dynamic nature of the beach and seasonal variability and rising sea levels, WMRP is considering utilizing groins to stabilize the beach. This would produce a stable beach and mitigate the need for periodic renourishment and maintenance, which would reduce cumulative costs and impacts.

Some shorelines are characterized by natural features such as headlands, embayments, or reefs that disrupt sediment transport and naturally stabilize beaches in response to wave climate and headland size and orientation. In some cases, beaches can also be stabilized by constructing artificial headlands that mimic these natural features. T-head groins are engineered structures that are constructed perpendicular to the shoreline to block the longshore transport of sediment (i.e., sand). T-head groins decrease and reorient the amount of wave energy reaching the beach and create artificial littoral cells to stabilize the sand.

Bodge (2003) proposed the use of T-head groins as artificial headlands to produce stable beaches. The experience gained from studying natural headland-bay beaches provides a design tool for coastal engineers to produce stable sandy shorelines. Hsu and Evans (1989), Silvester and Hsu (1993), and Klein et al. (2003) present methods for determining the stable beach planform adjacent to rocky headlands, thus facilitating the use of engineered artificial headlands as beach stabilizing structures. Bodge (1998, 2003) furthered these studies by presenting a method for estimating the stable shoreline position for a beach between two T-head groins. This approach has been implemented successfully in numerous locations in Florida and the Caribbean (Bodge, 1998), and more recently at Iroquois Point on the island of Oʻahu.

Rubblemound T-head groins are recommended to reduce rip currents, wave reflection, and the subsequent offshore sand losses. The beach should be nourished with sand to achieve the predicted shoreline shape. T-groins can be aligned, or "tuned," according to the prevailing wave crest orientation, to produce the desired beach configuration. According to Bodge (1998), tuned structures work well when the erosion is so severe that renourishment would be too frequent to be economical or practical, or when the shoreline is no longer conducive to having beaches, such as at a hardened shoreline. T-head groins are not appropriate for all shorelines and are most effective in areas where sandy beaches already exist, or existed in the past, or where the prevailing wave climate is naturally conducive to beach formation. The application of groins may be limited in areas that have historically been devoid of sand or where water depths are too deep or irregular. The beach nourishment with stabilizing structures alternative will be further evaluated and discussed in the Draft EIS.

4.5 Long-term Adaptation

Climate change and sea level rise pose both current and long-term threats to Hawaii's shorelines, economy, sustainability, and security. Considering the long-term projections for sea level rise, and the implications associated with the projected increase in erosion and flooding, alternative strategies may be required in the future to protect and preserve Honokōwai Beach and the adjacent properties. Long-term adaptation could potentially consist of one or more strategies that could be implemented individually or in combination. These strategies include:

- Resist
- Accommodate
- Avoid
- Retreat
- Advance

Long-term adaptation is a complex planning process that will require thoughtful analysis and consideration of a wide range of factors including but not limited to disaster risk reduction, social cohesion, environmental preservation, and economic security. The intersection of these factors, combined with high levels of uncertainty regarding potential approaches, responsibilities, legal factors, funding, and logistics, creates a challenging planning dilemma.

Long-term adaptation planning is based on anticipated environmental conditions that are substantially different than the conditions that exist today. When compared to typical mid-term solutions, the geographic scale of long-term adaptation strategies is likely to be larger and may involve fundamentally altering the character and appearance of the existing environment and the range of beneficial uses it currently supports. Long-term adaptation planning should be a collaborative and participatory process that seeks to balance the needs, goals, and objectives of communities at broader scales. From the perspective of adapting a densely developed resort area like Honokōwai, the discussion of alternatives is based on conservation and preservation of beaches in the mid-term while longer-term adaptation plans and supporting government policies and programs are developed to address relocation of vulnerable development landward of the shoreline.

WMRP has initiated exploration of alternative long-term adaptation strategies that extend beyond the 50-yr planning horizon of the Proposed Action. These long-term adaptation alternatives will be further evaluated and discussed in the Draft EIS.

5. AFFECTED ENVIRONMENT

The following section provides an overview of the affected environment and includes regional, location, and sites maps where appropriate. Additional information regarding potential impacts to the natural and human environment will be provided in the Draft EIS.

5.1 Natural Environment

5.1.1 Climate

The Hawaiian Island chain is situated south of the large eastern Pacific semi-permanent high-pressure cell, the dominant feature affecting air circulation and climate in the region. Over the Hawaiian Islands, this high-pressure cell produces persistent northeasterly winds called tradewinds. During the winter months, cold fronts sweep across the north-central Pacific Ocean, bringing rain and intermittently modifying the tradewind regime. Thunderstorms, which are rare but most frequent in the mountains, also contribute to annual precipitation.

Due to the tempering influence of the Pacific Ocean and their low-latitude location, the Hawaiian Islands experience extremely small diurnal and seasonal variations in ambient temperature. Average temperatures in the coolest and warmest months in Honokōwai are 73.4˚F (January) and 78.8˚F (August). These temperature variations are quite modest compared to those that occur at inland continental locations.

Topography and the dominant northeast tradewinds are the two primary factors that influence the amount of rainfall across Maui. Near the peaks of the West Maui Mountains and the windward slope of Haleakalā, which are fully exposed to the tradewinds, rainfall averages nearly 250 inches per year. On the leeward side of the island, where the Project Site is located, rainfall is much lower with average annual rainfall of less than 15 inches per year. Although the Project Site is on the leeward side of the island, the humidity is still moderately high, ranging from mid-60 to mid-70 percent.

During the summer months of April through October, tradewinds occur 80-95 percent of the time with average speeds of 10-20 mph. The tradewind frequency decreases to 50-60 percent of the time during the winter months, when southerly or “Kona” winds may occur. Kona winds are generally associated with local low-pressure systems. Kona conditions occur about 10 percent of the time during a typical year, with winds ranging from light and variable to gale strength. A severe, relatively long duration Kona storm which occurred in January 1980 produced sustained wind speeds of 30 mph, with gusts in excess of 50 mph, from the southwest. Winds of hurricane strength occur infrequently in Hawaiʻi, but they are sometimes important for design purposes because of their intensity.

The West Maui Mountains have a blocking effect that decreases the influence of tradewinds in the Kāʻanapali area and causes the winds to come from a more northerly direction (following the land contours). Wind speeds in the channels between Maui, Molokaʻi, and Lānaʻi can be significantly faster due to the funneling effect caused by the land masses.

5.1.2 Geology and Soils

Honokōwai is located on the Kāʻanapali coastal plain where the surficial geology is primarily unconsolidated Holocene alluvium (Sherrod et al., 2007). The shoreline is characterized by an extensive fringing reef complex associated with a broad, shallow, and generally smooth reef flat that parallels most of the coastline. The coastline consists of a combination of carbonate sand beaches with varying widths, natural rocky shoreline, and armored shoreline. The terrestrial soils at the Project Site are classified as "Pulehu silt loam" with 0 to 3% slopes. This series consists of well-drained soils on alluvial fans and stream terraces and in basins on the islands of Lānaʻi, Maui, Molokaʻi, and Oʻahu. These soils developed in alluvium washed from basic igneous rock. On this soil, permeability is moderate. Runoff is slow, and the erosion hazard is no more than slight (USDA, 1972, pg. 115, Plate 93).

5.1.3 Terrestrial Flora and Fauna

The properties surrounding Honokōwai Beach are professionally landscaped. Vegetation along the shoreline consists primarily of native species including Naupaka (*Scaevola taccada*), False Kamani, Milo, and various palm trees. The Project Site is located at a deltaic headland that is primarily composed of terrigenous sediment (alluvium). There are no coastal dunes located within the Project Site, so typical dune vegetation, such as pōhuehue (*Ipomoea pes-caprae*), pāʻūohiʻiaka (*Jacquemontia sandwicensis*), and ʻakiʻaki grass (*Sporobolus virginicus*) are not present.

5.1.4 Streams

The Project Site is located in the Honokōwai watershed, which has a total area of 9.8 square miles and a maximum elevation of 5,689 ft. The nearest perennial stream is Honokōwai Stream, which is located at the northern boundary of Honokōwai Beach. Honokōwai Stream is 16.9 mi long and passes under Honoapiʻilani Highway via a concrete box culvert. The lower reach of the stream drainage is concrete-lined where it meets the ocean. During flood events, the discharge of terrigenous sediment and debris from Honokōwai Stream causes turbidity plumes to form in the waters offshore of the Project Site.

5.1.5 Tides

Hawaiʻi tides are semi-diurnal with pronounced diurnal inequalities (i.e., two high and low tides each 24-hour period with different elevations). Tidal predictions and historical extreme water levels are provided by the National Oceanic and Atmospheric Administration (NOAA) National Ocean Service (NOS), Center for Operational Oceanographic Products and Services (COOPS). The nearest tide station to the Project Site is located at Kahului Harbor on the north coast of Maui. The water level data from this station is shown in Table 5-1.

Table 5-1 Tidal datums at Kahului Harbor, Station 1615680 (1983-2001 Epoch)

Datum	Elevation (feet MLLW)	Elevation (feet MSL)
Highest Astronomical Tide	+3.1	+2.0
Mean Higher High Water	+2.2	+1.1

Mean High Water	+1.9	+0.8
Mean Tide Level	+1.1	0.0
Mean Low Water	+0.3	-0.8
Mean Lower Low Water	0.0	-1.1

5.1.6 Sea Level Rise

The present rate of global mean sea level change shows a rise of +3.3 ± 0.4 mm/yr (NASA, 2022). Global mean sea level rise has accelerated over preceding decades compared to the mean of the 20th century. Factors contributing to the rise in sea level include melting of land-based glaciers and ice sheets; as well as an increase in ocean water volume due to warmer water temperatures (thermal expansion). The relative sea level trend for Kahului Harbor for the period of 1947 to present is shown in Figure 5-1 (NOAA, 2022). The relative sea level trend at Kahului Harbor shows a rise of 2.26 ± 0.39 mm/yr. Figure 5-1 also shows interannual variability exceeding 0.5 ft (15 cm) in magnitude due to natural oceanic variability from processes such as the El Niño-Southern Oscillation (ENSO).

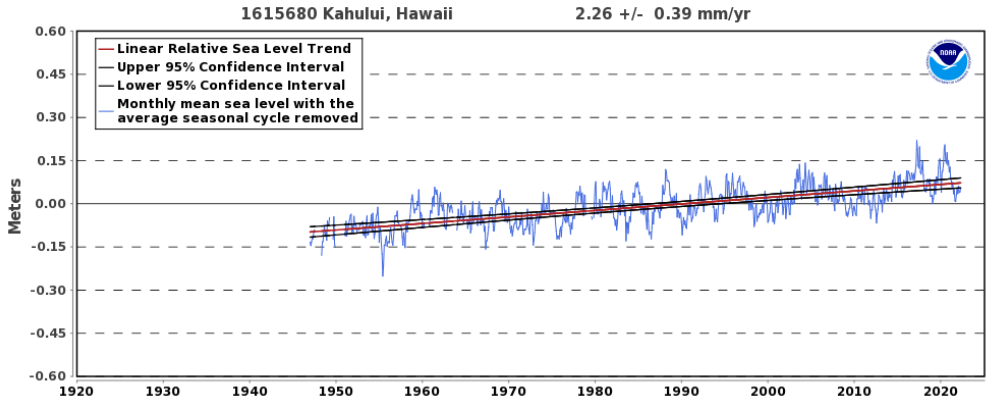

Figure 5-1 Relative sea level trend, Kahului Harbor, 1947 to present (NOAA, 2022)

NOAA recently revised their sea level change projections (relative to 2000) through 2100 taking into account up-to-date scientific research and measurements (Sweet et al. 2022). In an update from the 2017 report, an *Observational Extrapolation (OE)* curve was added, and the *Extreme* scenario was removed. The *Extreme* scenario was calculated as the largest sea level rise "physically plausible" in 2017 but was determined to be highly improbable and is no longer listed. The *Intermediate* scenario represents 4.0 ft of sea level rise by 2100 and the *High* scenario represents more than 8.1 ft of sea level rise by 2100.

Hawaiʻi thus far has seen a rate of SLR lower than that of the global average due to variations in regional phenomena described above. Acceleration in global mean SLR has only recently been detected. It may be that SLR has been accelerating regionally among the Hawaiian Islands over the past decade or more; however, the acceleration is not discernable in the local tide gauge record yet due to high inter-annual variability "masking" a longer-term signal. Regional acceleration in the rate of SLR is expected to become discernable over the coming decades as ice mass (melt water) is redistributed from polar regions to the global oceans due to equilibrium changes in Earth's gravitational field and rotation.

Sea level rise is negatively impacting beaches and shorelines in Hawaiʻi. Impacts include beach narrowing and beach loss, loss of land due to erosion, negative impacts to water quality and benthic habitat, and infrastructure damage due to erosion and flooding. Anderson et al. (2015) found that, due to sea level rise, average shoreline recession in Hawaiʻi by 2050 is projected to be nearly twice the historical rates, and nearly 2.5 times the historical rates by 2100. The impacts from anomalous sea level events (e.g., El Niño, king tides, mesoscale eddies, storm surge) are also likely to increase.

The *Hawaiʻi Sea Level Rise Vulnerability and Adaptation Report* (State of Hawaiʻi, 2017) discusses the anticipated impacts of projected future sea level rise on coastal hazards, and the potential physical, economic, social, environmental, and cultural impacts of sea level rise in Hawaiʻi. The report concluded that 3.2 ft of sea level rise may have substantial impacts on the island of Maui. A key component of the report was a numerical modeling effort by the University of Hawaiʻi Coastal Geology Group (CGG) to estimate the potential impacts that a 3.2-ft rise in sea level would have on coastal hazards including passive flooding, annual high wave flooding, and coastal erosion. The footprint of these three hazards were combined to map the projected extent of chronic flooding due to sea level rise, referred to as the *sea level rise exposure area (SLR-XA)*.

Figure 5-2 Projected erosion and flooding at the Project Site with 3.2 ft of sea level rise

5.1.7 Waves

The wave climate in Hawaiʻi is characterized by four general wave types including northeast tradewind waves, southern swell, North Pacific swell, and Kona wind waves. Tropical storms and hurricanes also generate waves that can approach the islands from virtually any direction. Unlike winds, all of these wave conditions may occur at the same time.

Severe tropical storms and hurricanes have the potential to generate extremely large waves, which in turn could potentially result in large waves at the Project Site. Previous hurricanes that have impacted the Hawaiian Islands include Hurricane ʻIwa (1982) and Hurricane ʻIniki (1992). ʻIniki directly hit the island of Kauaʻi and resulted in large waves along the southern shores of all the Hawaiian Islands. Damage from these hurricanes was extensive. Honokōwai is at the center of the Maui Nui complex, which consists of the islands of Maui, Lānaʻi, Molokaʻi, and Kahoʻolawe. These islands shelter the Honokōwai area from direct exposure to northeast tradewind-generated waves and North Pacific swell from the northwest. However, the area is exposed to southern swell, North Pacific swell from the north, and occasional swell from the west.

5.1.8 Sediment Transport

Coastal processes in West Maui are dynamic and complex, with a wave climate affected by underwater topography, wind, and island sheltering; current variation; coastal morphology including lae, or headlands, and embayments; beaches that are seasonally variable; and a very limited supply of sediment (Podoski et al., 2016).

Honokōwai Beach is located in the Honokōwai littoral cell, which extends from Honokōwai Point north to Kahana Bay and spans approximately 6,200 lf (1.15 mi) of shoreline. The Project Site is located at a point where the shoreline transitions from predominantly sandy beaches, dunes, and unarmored shoreline (south of Honokōwai Point) to predominantly rocky or armored shoreline (north of Honokōwai Point) (Figure 6 4). There are only two unarmored properties in the entire Honokōwai littoral cell: Kāʻanapali Beach Club and Honokōwai Beach Park (0.5 mi north of the Project Site). Shoreline armoring begins approximately 800 ft south of the Project Site and extends north to Kahana Bay.

Nearshore hydrodynamics along the Honokōwai shoreline are very complex. Sediment transport is bi-directional and driven by a complex combination of wave exposure, bathymetry, nearshore currents, and sediment availability. During the summer months, the dominant direction of sediment transport is from south to north. Summer swells that reach the Honokōwai shoreline break at an oblique angle to the west facing beach, creating a longshore current that transports sediment to the north. This typically causes erosion and beach narrowing at the south end of Honokōwai Beach and accretion and beach widening at the north end of the beach. During the winter months, when North Pacific Swell dominates, the dominant direction of sediment transport reverses, which causes the north end of the beach to narrow and the south end of the beach to widen. As a result, Honokōwai Beach is seasonally dynamic and subject to seasonal and episodic variations in beach width and volume.

5.1.9 Shoreline Change

Historical Shoreline Change

The University of Hawaiʻi Coastal Geology Group (CGG) conducted a historical analysis of sandy shorelines on Maui and produced shoreline change maps based on survey data and aerial imagery from 1912 to 2018. Their analysis uses the beach toe as the reference feature to measure changes in the position of the shoreline over time. Since 2018 (the most recent data point in the analysis), most beaches throughout West Maui appear to be experiencing an increase in erosion that appears to exceed the historical rates.

The historical shoreline change trend for Honokōwai Beach (transects 1179 to 1195) from 1912 to 2018 has been erosion at an average rate -0.44 ft/yr (CGG, 2022). The north end of the beach (transects 1190 to 1195) has been eroding at an average rate of -0.33 ft/yr. Erosion has historically been more pronounced along the south end of the beach (transects 1179 to 1184), which been eroding at an average rate of -0.55 ft/yr.

Projected Shoreline Change

Erosion, coastal flooding, and beach loss are expected to continue and accelerate in Hawaiʻi as sea levels continue to rise. Recent record high water levels and severe erosion events indicate that this acceleration may already be occurring. Anderson et al. (2015) forecasted future coastal change in Hawaiʻi by combining historical shoreline trends with projected accelerations in sea level rise using the Davidson-Arnott profile model. The analysis found that, due to sea level rise, the average shoreline recession is projected to be nearly twice the historical rates by 2050, and nearly 2.5 times the historical rates by 2100 (Anderson et al. 2015).

The CGG calculated also projected future exposure to erosion and flooding to account for sea level rise (CGG, 2019). The projected shoreline change trend for Honokōwai Beach is erosion ranging from -1.66 to -3.07 ft/yr, which is 4 to 7 times the historical extrapolation. Based on the CGG erosion projections, without mitigative action, the accelerated erosion caused by sea level rise will likely result in total loss of Honokōwai Beach by mid-century or sooner.

5.1.10 Coastal Hazards

Coastal Flooding

The National Flood Insurance Program (NFIP), administered by the Federal Emergency Management Agency (FEMA), produces maps identifying flood hazards and risks. Figure 5-3 shows the flood hazard map for the Project Site. The map indicates that the area is rated as Flood Zone VE in red. Zone VE designates areas subject to inundation by the 1% annual chance flood event with additional hazards due to storm-induced velocity wave action. The Base Flood Elevation (BFE) is 10 ft. The map indicates that the area inland of the subject shoreline (in blue) is Flood Zone AE. Zone AE designates an area inundated by 1% annual chance flooding, for which BFEs have been determined, but without additional hazards due to storm-induced velocity wave action. The BFE's in Flood Zone AE landward of the Project Site are 10 ft.

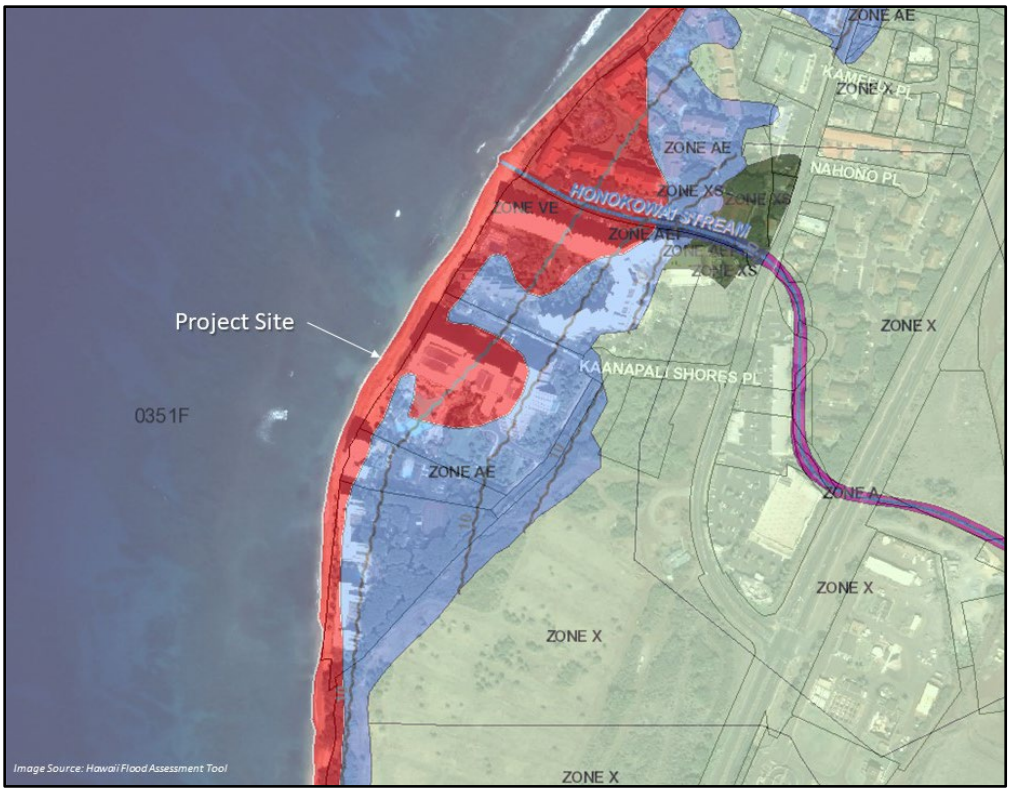

Figure 5-3 Flood zones at the Project Site (FEMA)

Storm Waves

The Hawaiian Islands are annually exposed to severe storms and storm waves generated by passing low-pressure systems (Kona storms) and tropical cyclonic storms (hurricanes). Kona storms occur when the winter low pressure systems that travel across the North Pacific Ocean dip south and approach the Islands. Strong southerly and southwesterly winds generated by these storms result in large waves on exposed shorelines, and often heavy rains.

Tsunamis

Tsunamis are waves that result from large-scale displacements of the seafloor. They are most commonly caused by large magnitude earthquakes (typically magnitude 7.0 or greater). If the earthquake involves a large segment of land that displaces a large volume of water, the water will travel outwards in a series of waves, each of which extends from the ocean surface to the seafloor where the earthquake originated. Tsunami waves typically have small wave heights in deep water but can have wavelengths of hundreds of miles and travel at speeds up to 500 mph. A tsunami can travel from one side of the Pacific to the other in less than a day. The speed decreases rapidly as the water shoals. The waves increase greatly in height as they shoal and can push further inland. The water then recedes, also at considerable speed, and the recession often causes as much damage as the original wave front itself.

Most tsunamis in Hawaiʻi have historically originated from the tectonically active areas located around the Pacific Rim (e.g., Alaska, Japan, and Chile). Waves created by earthquakes in these

areas take hours to reach Hawaii, and the network of sensors that are part of the Pacific Tsunami Warning System are able to provide Hawai‘i with several hours advance warning prior to the arrival of tsunami waves generated from these locations. Less commonly, tsunamis originate from seismic activity in the Hawaiian Islands, and there is little to no advance warning for these locally generated events.

5.1.11 Marine Environment

Bathymetry

Nearshore bathymetry[4] at Honokōwai Beach is very complex. Nearshore water depths seaward of the Project Site are one fathom or less (< 6 feet) on the inner reef flat, reef crest, and fore reef which extends approximately 1,000 feet offshore. Water depths on the offshore shelf range from 3 to 19 fathoms (18 to 114 feet) before dropping off into deeper waters offshore. A beach rock outcrop runs parallel to shore approximately 100 ft makai of the shoreline. The beach rock outcrop is bisected by a channel that runs perpendicular to the shoreline near the center of the beach. The channel provides access to the offshore waters for ocean-based recreational activities, such as swimming, snorkeling, diving, surfing, and paddling.

Water Quality

The waters offshore of Honokōwai Beach are classified in the Hawai‘i Water Quality Standards (HDOH, 2012) as (a) marine waters, (b) open coastal, (c) reef flat, (d) Class A, and (e) Class II marine bottom ecosystem. It is the objective of Class A waters that their use for recreational purposes and aesthetic enjoyment be protected (§ 11-54-3(c)(2), HAR). Other uses are permitted as long as they are compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters. Class A waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control.

An assessment of the marine environment at the Project Site will be performed by Marine Research Consultants, Inc. and included in the Draft EIS.

Marine Biota

A detailed assessment of the marine environment will be performed to assess the physical, chemical, and biotic composition of the nearshore and offshore environments. The assessment will include a discussion of protected species, including federally listed threatened and endangered species. The results of the Assessment of the Marine Environment will be included in the Draft EIS.

[4] ***Bathymetry:*** The measurement of the depth of water in oceans, rivers, or lakes.

5.2 Human Environment

5.2.1 Socioeconomic Setting

The Honokōwai area is characterized by visitor-oriented businesses, hotels, and resort residential developments. The area's sandy beaches, scenic landscapes, and year-round dry and warm climate contribute to its value as a visitor destination. As such, Honokōwai Beach is an important socioeconomic resource. Erosion and beach loss at Honokōwai Beach pose a potential risk to this resource. The Proposed Action is intended to restore and preserve the beach and maintain its value to the area's socioeconomic setting.

5.2.2 Population and Growth

The island of Maui currently has approximately 145,000 residents. The West Maui region covers the majority of the traditional moku of Lāhainā and Kāʻanapali and is comprised of 29 ahupuaʻa. West Maui is a popular visitor destination and the island's second largest employment center (DBEDT, 2019). West Maui has a resident population of 25,000 settled over approximately 96 square miles, with the major population center being Lāhainā. In 2019, the West Maui region had the largest estimated average daily transient population of around 36,000 and the highest number of estimated visitor units of about 16,000 units. The estimated average daytime population in West Maui is 63,706 people, which consists of about 10,287 residents, 19,868 workers, and 33,551 visitors (ESRI, 2017; DBEDT, 2017).

5.2.3 Land Ownership

Honokōwai is located north of Kāʻanapali, which is West Maui's primary tourist destination, attracting millions of visitors annually. The Honokōwai shoreline is home to a series of hotels, resorts, and condominiums that extend from Honokōwai Point to Kahana Bay. The Project Site is limited to approximately 1,000 lf of shoreline at the south end of the Honokōwai littoral cell and is backed by three privately-owned parcels (Table 5-2).

Table 5-2 Summary of land ownership at the Project Site

Tax Map Key	Address	Property	Owner(s)	Units
(2) 4-4-001:097	3445 Lower Honoapi'ilani Road	Kāʻanapali Shores Condominium	Individual Condominium Owners	463
(2) 4-4-001:098	104 Kāʻanapali Shores Place	Kāʻanapali Beach Club	West Maui Resort Partners, L.P.	435
(2) 4-4-001:100	106 Kāʻanapali Shores Place	Maui Kai Condominium	Individual Condominium Owners	80

Shorelines, beaches, and nearshore waters in Hawaiʻi are considered part of the public trust, with access and use available to all people. As a result, Hawaii's shorelines are heavily regulated. The current definition of the "shoreline" in Hawaiʻi is as follows:

"*Shoreline*" means the upper reaches of the wash of the waves, other than storm or seismic waves, at high tide during the season of the year in which the highest wash of the waves occurs, usually

evidenced by the edge of vegetation growth, or the upper limit of debris left by the wash of the waves (§ 205A-1, HRS).

Generally, County jurisdiction begins at the shoreline and extends landward. State jurisdiction begins at the shoreline and extends seaward. Federal jurisdiction begins at the mean higher high water (MHHW) line and extends out to the 200 nautical mile limit of the U.S. exclusive economic zone (EEZ); this area is also defined as "navigable waters of the United States." The relevant jurisdictional boundaries for shoreline construction in Hawaiʻi are shown in Figure 5-4.

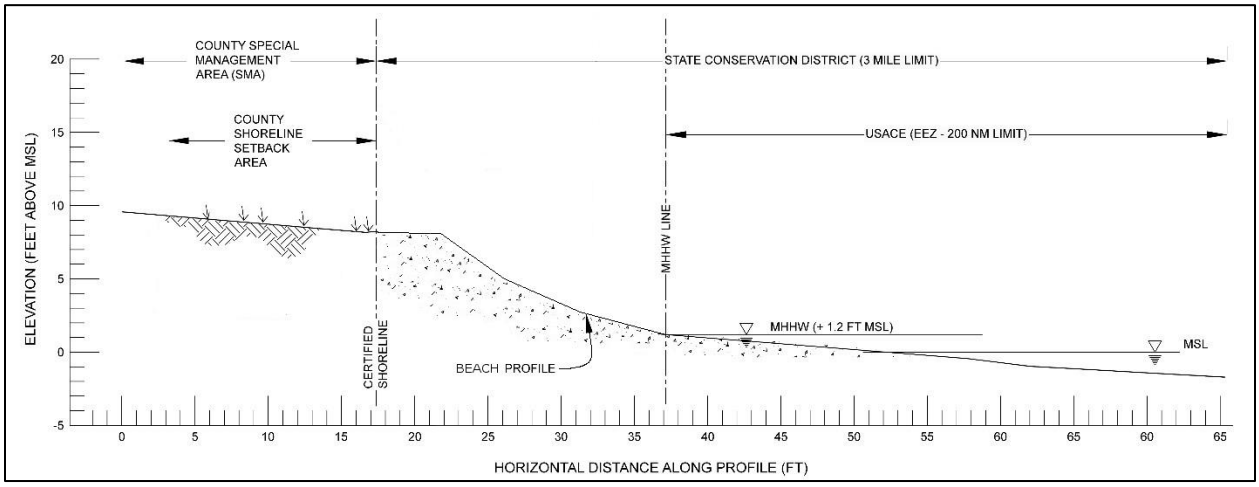

Figure 5-4 Jurisdictional boundaries for shoreline construction in Hawaiʻi

The Federal, State, and County governments have different objectives, policies, and rules regulating the shoreline. Therefore, the definition and location of the "shoreline" is critical for the planning and permitting of any coastal construction. The certified shoreline is a line established by a licensed land surveyor and certified by the State, which reflects the shoreline definition stated above. The certified shoreline is valid for one year and is used to establish jurisdiction and Shoreline Setback boundaries.

Lands makai (seaward) of the shoreline are considered submerged lands that are owned by the State of Hawaiʻi. Submerged lands are managed by the DLNR Land Division. Honokōwai Beach is subject to Governor's Executive Order No. 4230, which grants regulation of ocean recreation, boating, and coastal activities to the DLNR Division of Boating and Ocean Recreation (DOBOR). Lands makai (seaward) of the shoreline are also located in the Conservation District, which is overseen by the DLNR Office of Conservation and Coastal Lands.

5.2.4 Economy

Following the cessation of large-scale sugar cane and pineapple cultivation on Maui during the late 20th century and early years of the 2000s, the visitor industry has played a prominent role in Maui's economy. The visitor industry, in turn, supports the retail and service industries. The West Maui region is one of the State's major resort destination areas. The foundation for the region's visitor strength lies in its world-class resorts and beaches. The travel restrictions and resort closures brought about by the COVID-19 pandemic in early 2020 had a devastating effect on the local

economy, with many businesses being forced to temporarily or permanently shut down or drastically reduce operations. By mid-2022, however, visitor arrivals statewide have returned to 89% of pre-pandemic levels from mid-2019, and visitor spending now exceeds mid-2019 levels (DBEDT, June 2022).

On a short-term basis, the Project will generate construction and construction-related employment. Over the long term, the Project will serve to restore and preserve the beach at Honokōwai. An assessment of the potential impact on employment and the economy resulting from the proposed Project will be carried out during the environmental review process and included in the Draft EIS.

5.2.5 Historical, Cultural, and Archaeological Resources

From a traditional Hawaiian spiritual perspective, the area referred to as Honokōwai Beach is situated approximately 0.25-miles north of Puʻu Kekaʻa, a leina a ke akua (leaping place of the souls), where the souls of those who have passed from the realm of the living leap into Po. If judged to be worthy, a soul's aumakua (animal spirit) would be waiting to take them to Po, the unknown netherworld. But if judged poorly, the spirit would go to ao kuewa where they would wander between dead and living for eternity (Kennedy 1997:F). Others also believe that Puʻu Kekaʻa is the site of the Hoʻakua, the Transmutation Ritual performed after the death of a chief (Tarallo-Jensen 1987:26). This puʻu was bound by Kekaʻa village to one side, and the Loʻi Hiehie (royal taro patch) to the other. Below the summit of the Puʻu Kekaʻa is a cave named for the akua Moemoe, the patron of restful sleep, who was thought to have lived at Kekaʻa with Maui the demi-god who slowed the journey of the sun for a time (Kaha and Fornander 1872:544). It was also on this puʻu that the High Chief Kahekilinuiʻahu-manu proved his bravery to the ancestors by diving off the rock into the ocean and surviving (Tarallo-Jensen 1987:26).

The traditional fishing grounds in this region have been described as being very shallow from twenty to thirty fathoms in depth and extending from Hāwea Point at Kāʻanapali to the eastern point of Lānaʻi (Kahāʻulelio 2006:59). In 1839, clarity of the fishing grounds and fish of the makaʻāinana (common people) and that of the konohiki (land lord) and aliʻi (chief) were written down as a part of the Kingdom laws, a pattern which may be an extension of a traditional management system. The King declared that the fishing grounds without the coral reef and the lūheʻe (octopus fishing) grounds were for the people (Maly and Maly 2003:244). But the fishing grounds from the coral reefs to the sea beach are for the landlords, and for the tenants of their several lands, but not for others.

To ensure that potential cultural impacts from the Project are identified, a cultural impact assessment (CIA) will be prepared. The EIS will incorporate the results from the CIA including the outcome of these consultations with Native Hawaiian practitioners and Native Hawaiian organizations and discuss any impacts to cultural practices.

An archaeological study will be conducted to identify, inventory and evaluate any archaeological resources in the project area. This study will be incorporated into the Draft EIS. Should any historic buildings or structures be identified, those will also be identified, inventoried, and evaluated by a qualfieid architectural historian. HRS 6E compliance will be undertaken separately from the HRS Chapter 343 process.

5.2.6 Shoreline Access

The shorelines of Hawaiʻi are a public trust resource that provides significant economic, social, recreational, and environmental benefits. The public's right to access the shoreline is rooted in common law and the Public Trust Doctrine. Public access to and along the shorelines of Hawaiʻi is an indisputable right of every citizen and is regarded by the courts and State law as inviolable. The Hawaiʻi Supreme Court has consistently ruled in support of the important public policy of "extending to public use and ownership as much of Hawaii's shoreline as is reasonably possible" and the long-recognized common law principle, now enshrined in the Hawaiʻi Constitution, that the lands below the shoreline are held by the state in public trust for the people of Hawaiʻi.

State and local governments have the duty to maintain both perpendicular and lateral access to the shoreline in order to ensure that the public has adequate access to this valuable public resource. While the counties have the primary authority and duty to develop and maintain public access to and along the shorelines, primarily via shore-perpendicular access ways (HRS § 46-6.5), the State of Hawaiʻi has the primary authority and responsibility to maintain lateral shoreline access within *beach transit corridors* (§ 115-5, HRS), which is the area seaward of the *shoreline* (§§ 115-5 and 205A-1, HRS). The DLNR is the lead agency with regulatory authority for maintaining access within *beach transit corridors*.

Honokōwai Beach provides a unique combination of perpendicular and lateral shoreline access and public amenities that is rare along the coastline of West Maui. Perpendicular access to the shoreline is available via a paved road between Kāʻanapali Beach Club and Kāʻanapali Shores Condominium (adjacent property to the north). The public beach right of way features dedicated public parking stalls and a public changing station with restrooms and a shower. Lateral access along the shoreline is available along the beach and via a concrete walkway that provides ADA-compliant access along approximately 1,000 lf of shoreline from the south end of the Kāʻanapali Beach Club property to the north side of Honokōwai Stream.

5.2.7 Recreation

Honokōwai Beach, including the offshore waters, supports a diverse array of shoreline and ocean-based recreational activities including, but not limited to, sunbathing, swimming, surfing, paddling, bodyboarding, snorkeling, shore fishing, diving, and spear fishing. Local commercial operators regularly utilize the beach and shoreline area to provide surf lessons and guided snorkel tours. General beach recreation (e.g., walking, sunbathing) is possible along the entire length of the Project Site. Conditions are typically best during low tides and periods of low surf. At high tide, the dry beach area is significantly reduced along much of the shoreline and, when combined with high surf, the majority of the dry beach area is often submerged.

The nearshore waters support a variety of ocean-based recreational activities. Snorkeling conditions are not ideal on the inner reef flat due to the barren nature of the seafloor. Snorkeling conditions improve along the outer reef crest located approximately 200 m offshore. Swimming and snorkeling can be hazardous at Honokōwai Beach due to the strong rip currents that form in the channel. This is complicated by the fact that many ocean users are not local residents and are therefore not familiar with Hawaii's ocean conditions. In addition, during periods of high surf,

visibility over the reef can be reduced due to wave agitation and resuspension of sediment. There are two recognized surf sites in proximity to the Project Site: *Rainbows* and *Hotels*.

Three general types of fishing occur at Honokōwai Beach: shore fishing, spear fishing, and throw netting.

A Recreational Impact Study will be prepared and included in the Draft EIS.

5.2.8 Ocean Safety

Swimming, snorkeling, and other ocean-based recreational activities can be hazardous in Hawaiʻi. The Hawaiʻi Department of Health (2019) identified ocean drowning as the leading cause of fatal injuries in Hawaiʻi, with snorkeling being the leading cause of all drownings. The island of Maui had the highest number of snorkeler-related fatal drownings with 94 deaths (SFGATE, 2022).

Ocean conditions can be dangerous at Honokōwai Beach, particularly due to the strong rip currents that form in the channel. Anecdotal reports from local residents indicate that ocean safety incidents are common at Honokōwai Beach. There are no lifeguard towers located in close proximity to the Project Site. The closest lifeguard towers are located at Hanakaʻōʻō Beach Park (2.75 mi south of the Project Site) and DT Fleming Beach Park (4.5 mi north of the Project Site).

5.2.9 Scenic and Open Space Resources

The Honokōwai shoreline is a popular destination for both the resident and visitor populations. The wide expanse of water with typically calm conditions, the deep blue colors of the ocean, and an unobstructed view of the island of Lānaʻi make the seaward and alongshore views from the shoreline very desirable. At the same time, the buildings landward of Honokōwai Beach partially obstruct views of the West Maui Mountains from the Project Site.

The appearance of the beach and shoreline is important to the community, adjacent landowners, visitors, and others that access or utilize the shoreline area. Honokōwai Beach, like all sandy shorelines in Hawaiʻi, is available to any member of the public and can be visited and enjoyed at any time. Erosion and beach loss at Honokōwai Beach are having deleterious effects on the scenic and aesthetic value of the shoreline. The Proposed Action is intended to countervail these negative impacts.

5.2.10 Public Infrastructure and Services

Solid Waste

The County of Maui provides solid waste collection service to West Maui. Construction waste is accepted at the Pohakulepo Concrete Recycling Facility and the Maui Demolition and Construction Landfill located in Central Maui.

Water Supply System

The County of Maui, Department of Water Supply provides potable water to West Maui. Water in West Maui is sourced from the Kanaha Stream. Water treatment and storage takes place at the

Lāhainā Water Treatment Facility above Lāhaināluna High School. The average daily production is 1.6 million gallons per day.

Wastewater System
Wastewater in Honokōwai is treated at the Lāhainā Wastewater Reclamation Facility (WWRF), located 4.75 mi south of the Project Site.

Police, Fire, and Emergency Medical Services
Law enforcement in West Maui is provided by the Maui Police Department, Lāhainā District. The Lāhainā Police Station is located at the Lāhainā Civic Center. Fire protection in West Maui is provided by the Maui County Department of Fire and Public Safety. Two fire stations are located in West Maui: the Lāhainā Fire Station, located at the Lāhainā Civic Center, and the Napili Fire Station, located on Honoapiʻilani Highway in Napili.

The only major hospital on the island is the Maui Memorial Medical Center in Kahului. The 214-bed facility provides general, acute, and emergency care services. Ambulance service is operated under a state contract with American Medical Response (AMR). Two units operate in West Maui, out of the Napili Fire Station and the Lāhainā Comprehensive Health Center. Other health services in West Maui include the Maui Medical Group, Lāhainā Physicians, West Maui Healthcare Center, Kaiser Permanente's Lāhainā Clinic, and other small private practices.

Schools
The Hawaiʻi Department of Education (DOE) operates four public schools in West Maui. Additionally, two private schools serve the West Maui area.

Electrical, Telephone, and Cable Television Services
Electrical service to West Maui is provided by Maui Electric Company, Ltd. Hawaiian Telcom provides telephone service and Spectrum provides cable television service. No electrical, telephone, or cable television (CATV) infrastructure is located in the Project Site.

Transportation
Access to West Maui is provided by Honoapiʻilani Highway (Hawaiʻi Route 30) from Central Maui to South Maui. This is the only highway that provides vehicle access between West Maui and Wailuku and Kahului, the main population center of the island. Most traffic into and out of the Project Site is via Honoapiʻilani Highway. Kāʻanapali Shores Place provides vehicular access to the shoreline between the WMRP property and the Kāʻanapali Shores Condominium property. The nearest harbor is the Lahaina Small Boat Harbor, which is owned and operated by the State of Hawaiʻi. The nearest airports are Kapalua Airport (1.25 mi north of the Project Site) and Kahului Airport (17 mi east of the Project Site).

5.2.11 Air Quality

The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, 2.5-micron and 10-micron particulate matter ($PM_{2.5}$ and PM_{10}), and airborne lead. These ambient air quality standards establish the maximum concentrations of pollution considered acceptable, with an

adequate margin of safety, to protect the public health and welfare. The State of Hawaiʻi has also adopted ambient air quality standards for some pollutants. In some cases, these are more stringent than the Federal standards. The State of Hawaiʻi has established standards for five of the six criteria pollutants (excluding $PM_{2.5}$), in addition to hydrogen sulfide (DOH, 2003).

In general, air quality in the Honokōwai area is excellent. The State of Hawaiʻi Department of Health (DOH) monitors ambient air quality on Maui using a system of 3 monitoring sites. The primary purpose of the monitoring network is to measure ambient air concentrations of the 6 criteria NAAQS pollutants. DOH monitoring data for 2008 shows that at no time did air quality exceed the short-term or long-term State or National standards for the 6 pollutants measured [particulate matter ($PM_{2.5}$ and PM_{10}), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), carbon monoxide, and hydrogen sulfide]. The only DOH ozone monitoring station is located at Sand Island on Oʻahu. Existing ozone concentrations at that location also meet State and Federal ambient air quality standards.

5.2.12 Noise

Hawaiʻi Administrative Rules Chapter 11-46, "Community Noise Control" establishes maximum permissible sound levels and provides for the prevention, control, and abatement of noise pollution in the State from stationary noise sources and from equipment related to agricultural, construction, and industrial activities. The standards are also intended to protect public health and welfare, and to prevent the significant degradation of the environment and quality of life. The limits are applicable at the property line rather than at some predetermined distance from the sound source.

The Project Site is in the Conservation District, but there are no noise-sensitive uses at the present time. Because of that, the Class B limits applicable to land zoned for resort use appears the most applicable for the Proposed Action. HAR § 11-46-7 grants the Director of the Department of Health the authority to issue permits to operate a noise source which emits sound in excess of the maximum permissible levels specified if it is in the public interest and subject to any reasonable conditions. Those conditions can include requirements to employ the best available noise control technology.

6. CUMULATIVE AND SECONDARY IMPACTS

Pursuant to the Hawai'i Administrative Rules (HAR), Chapter 200, Section 11-200.1, entitled Environmental Impact Statement Rules, a *cumulative impact* means:

> *The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.*

Secondary impacts are those which have the potential to occur later in time or farther in distance but are still reasonably foreseeable. They can be viewed as actions of others that are taken because of the presence of the project. Secondary impacts from highway projects, for example, can occur because they can induce development by removing one (1) of the impediments to growth.

Both cumulative impacts and secondary impacts will be discussed in further detail in the Draft EIS.

7. DETERMINATION TO PREPARE AN EIS

Hawaiʻi Administrative Rules (HAR) Chapter 11-200.1 Environmental Impact Statement Rules establishes procedures for determining if an action may potentially have a significant effect on the environment and thus require an EIS. WMRP consulted with the Approving Agency (DLNR-OCCL) to review the technical aspects of the Proposed Action and the decision criteria for environmental review. It was determined that the Proposed Action could have potentially significant impacts that should be evaluated and discussed by preparing an Environmental Impact Statement (EIS) in accordance with HRS Chapter 343 and HAR Chapter 11-200.1.

Pursuant to HAR § 11-200.1-13, in the Draft EIS, the applicant must consider the significant effect, defined under State law and rules as the sum of effects on the quality of the environment, including actions that irrevocably commit a natural resource, curtail the range of beneficial uses of the environment, are contrary to the state's environmental policies or long-term environmental goals and guidelines as established by law, or adversely affect the economic or social welfare. Accordingly, the applicant will address the thirteen (13) significance criteria established in HAR, Chapter 200.1-13 to determine if the Proposed Action may have a significant effect.

EIS Significance Criteria

1. Irrevocably commit a natural, cultural, or historic resource.
2. Curtail the range of beneficial uses of the environment.
3. Conflicts with the state's long-term environmental policies or long-term environmental goals established by law.
4. Have a substantial adverse effect on the economic or social welfare of the community or State.
5. Have a substantial adverse effect on public health.
6. Involves adverse secondary impacts, such as population changes or effects on public facilities.
7. Involve a substantial degradation of environmental quality.
8. Be individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions.
9. Have a substantial adverse effect on a rare, threatened, or endangered species, or its habitat.
10. Have a substantial adverse effect on air or water quality or ambient noise levels.
11. Have a substantial adverse effect on or be likely to suffer from damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, sea level rise exposure area, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.
12. Have a substantial adverse effect on scenic vistas and viewplanes, during day or night, identified in county or state plans or studies.
13. Require substantial energy consumption or emit substantial greenhouse gases.

8. EARLY CONSULTATIONS AND PROPOSED SCOPING PROCESS

8.1 Early Consultations

Early consultations were conducted with the following agencies, landowners, individuals, and citizen groups:

Agencies Consulted
Department of the Army, Honolulu Regulatory Branch
County of Maui Planning Department
DLNR Office of Conservation and Coastal Lands
DLNR Division of Aquatic Resources

Landowners, Individuals, and Citizen Groups Consulted
Maui Kai Condominium
Kāʻanapali Shores Condominium
Don McLeish (local photographer and surfer)
Tova Callender (West Maui Ridge to Reef Initiative)
The Surfrider Foundation, Maui Chapter
Councilmember Tamara Paltin, Maui County Council (West Maui)
West Maui Preservation Association

8.2 EIS Public Scoping Meeting

Pursuant to Hawaiʻi Administrative Rules (HAR) Section 11-200.1-23(c), the period for public review and submitting written comments shall be thirty (30) days from the date of publication of the EISPN in *The Environmental Notice*. Written comments shall be received by or postmarked to either the approving agency or applicant within the 30-day period. Pursuant to HAR Section 11-200.1-23(d), a public scoping meeting will be held during the EISPN 30-day public comment period. The purpose of the public scoping meeting is to provide agencies, citizen groups, and the public with an opportunity to assist the proposing agency in determining the range of actions, alternatives, impacts, and proposed mitigation measures to be considered in the Draft EIS and the significant issues to be analyzed in depth in the Draft EIS. The public scoping meeting will include a separate portion reserved for oral comments and that portion of the public scoping meeting will be audio recorded.

The information for the public scoping meeting is listed below:

January 17, 2023
5:00pm -7:00pm
Lahaina Civic Center Social Hall
1840 Honoapi'ilani Hwy
Lahaina, Maui, HI 96761

Comments may be submitted to the Approving Agency at:

Office of Conservation and Coastal Lands
Department of Land and Natural Resources
State of Hawai‘i
1151 Punchbowl Street, Room 131
Honolulu, HI 96813
Contact: Michael Cain
Email: michael.cain@hawaii.gov

Comments may also be submitted to the applicant's consultant at:

Sea Engineering, Inc.
Makai Research Pier
41-305 Kalaniana‘ole Hwy
Waimānalo, HI 96795
Contact: Andy Bohlander
Email: honokowai@seaengineering.com

For additional information, please visit the Project website at:
https://www.hoalahonokowai.com/

9. EISPN DISTRIBUTION

The following agencies, organizations, and individuals will be directly notified of publication of the Environmental Impact Statement Preparation Notice (EISPN) for the Hoʻāla Honokōwai project.

FEDERAL AGENCIES

John P. Hoffmann, Center Director
Pacific Islands Water Science Center
U.S. Geological Survey
1845 Wasp Boulevard, B176
Honolulu, Hawai'i 96818

Ms. Chelsie Javar-Salas, Acting Island Team Leader
Pacific Islands Fish and Wildlife Office
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard., Room 3-122
Honolulu, Hawai'i 96850

Pacific Islands Regional Office
National Marine Fisheries Service
U.S. Department of Commerce
1845 Wasp Blvd., Building 176
Honolulu, Hawai'i 96818

Frank Lands, Regional Director
National Park Service
U.S. Department of the Interior
333 Bush Street, Suite 500
San Francisco, California 94104

Gerald Gregory, District Conservationist
Natural Resources Conservation Service
U.S. Department of Agriculture
77 Hoʻokele Street, Suite 202
Kahului, Hawai'i 9673

Linda Speerstra, Chief
U.S. Army Corps of Engineers, Honolulu District
U.S. Department of the Army
Regulatory Branch, Building 230
Fort Shafter, Hawai'i 96858
Via email: CEPOH-RO@usace.army.mil

Commander, 14th Coast Guard District
U.S. Department of Homeland Security Coast Guard
300 Ala Moana Boulevard, Room 9-204
Honolulu, Hawai'i 96850

Pacific Islands Office
U.S. Environmental Protection Agency, Region 4
P.O. Box 50003
Honolulu, Hawai'i 96850

STATE OF HAWAIʻI

Phyllis Shimabukuro-Geiser, Chair
State of Hawaiʻi
Department of Agriculture
1428 South King Street
Honolulu, Hawai'i 96814

Keith Regan, Comptroller
State of Hawaiʻi
Department of Accounting and General Services
1151 Punchbowl Street, #426
Honolulu, Hawai'i 96813

Chris Sadayasu, Director
State of Hawaiʻi
Department of Business, Economic Development & Tourism
P.O. Box 2359
Honolulu, Hawai'i 96804

Major General Kenneth Hara, Adjutant General
State of Hawaiʻi
Department of Defense
3949 Diamond Head Road
Honolulu, Hawai'i 96816

William Aila, Jr., Chairman
State of Hawaiʻi
Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, Hawai'i 96805

Patti Kitkowski, District Environmental Health Program Chief
Department of Health, Maui Sanitation Branch
State of Hawai‘i
54 South High Street, Room 300
Wailuku, Hawai’i 96793

State of Hawai‘i
Department of Health
Environmental Health Administration
P.O. Box 3378
Honolulu Hawai’i 96801

Alec Wong, P.E., Chief
State of Hawai‘i
Department of Health
Clean Water Branch
Hale Ola, Room 225
2827 Waimano Home Road
Pearl City, Hawai’i 96782

Lene Ichinotsubo
State of Hawa,i‘i
Department of Health,
Solid and Hazardous Waste Branch
2827 Waimano Road, Suite 100
Pearl City, Hawai’i 96782

Suzanne Case, Chairperson
State of Hawai‘i
Department of Land and Natural Resources
P. O. Box 621
Honolulu, Hawai’i 96809
Via email: dlnr@hawaii.gov and dlnr.land@hawaii.gov

Dan Orodenker, Executive Officer
State of Hawai‘i
State Land Use Commission
P.O. Box 2359
Honolulu, Hawai’i 96804

Ed Sniffen, Director
State of Hawai‘i
Department of Transportation
869 Punchbowl Street
Honolulu Hawai’i 96813

Scott Glenn, Director
State of Hawai‘i
Office of Planning and Sustainable Development
P. O. Box 2359
Honolulu, HI 96804

Sylvia Hussey, Chief Executive Officer
State of Hawai‘i
Office of Hawaiian Affairs
560 N. Nimitz Highway, Suite 200
Honolulu, Hawai‘i 96817

Sea Grant Program
University of Hawai‘i
2525 Correa Road
Hawai’i Institute of Geophysics, Room 238
Honolulu, Hawai‘i 96822

COUNTY OF MAUI

Eric Nakagawa, Director
County of Maui
Department of Environmental Management
200 South High Street
Wailuku, Hawai’i 96793

Brad Ventura, Chief
County of Maui
Department of Fire and Public Safety
200 Dairy Road
Kahului, Hawai’i 96732

Karla Peters, Director
County of Maui
Department of Parks and Recreation
700 Halia Nakoa Street, Unit 2F
Wailuku Hawai’i 96793

Michele Chouteau McLean, Director
County of Maui
Department of Planning
2200 Main Street, Suite 315
Wailuku, Hawai’i 96793

Jordan Molina, Director
County of Maui
Department of Public Works
200 South High Street
Wailuku, Hawai'i 96793

Herman Andaya, Emergency Management Officer
County of Maui
Emergency Management Agency
200 South High Street
Wailuku, Hawai'i 96793

JoAnn Inamasu, Director
County of Maui
Office of Economic Development
2200 Main Street, Suite 305
Wailuku, Hawai'i 96793

John Pelletier, Chief
County of Maui
Police Department
55 Mahalani Street
Wailuku, Hawai'i 96793

STATE LIBRARIES

Hawai'i Document Center, Hawai'i State Library
State of Hawai'i, Department of Education
478 South King St.
Honolulu, Hawai'i 96813

Lāhainā Public Library
State of Hawai'i
680 Wharf Street
Lāhainā, Hawai'i 96761

MEDIA

The Maui News
100 Mahalani Street
Wailuku, Hawai'i 96793

Lāhainā News
P.O. Box 10427
Lāhainā, Hawai'i 96761

Honolulu Star Advertiser
7 Waterfront Plaza, Suite 500
500 Ala Moana Boulevard
Honolulu, Hawai‘i 96813

ELECTED OFFICIALS

Mazie K. Hirono, U.S. Senator
300 Ala Moana Blvd., Rm. 3-106
Honolulu, Hawai'i 96850

Brian E. Schatz, U.S. Senator
300 Ala Moana Blvd., Rm. 7-212
Honolulu, Hawai'i 96850

Ed Case, U.S. Representative
1003 Bishop St., Suite 1110
Honolulu, Hawai'i 96813

Kaiali‘i Kahele, U.S. Representative
99 Aupuni St., Suite 118
Hilo, Hawai'i 96720

Angus L.K. McKelvey, State Senator
Hawai‘i State Capitol, Room 223
415 S. Beretania Street
Honolulu, Hawai'i 96813

Elle Cochran, State Representative
415 S. Beretania Street
Honolulu, Hawai'i 96813

Michael Victorino, Mayor
County of Maui
200 South High Street
Wailuku, Hawai‘i 96793

Yuki Lei Sugimura
Maui County Council
200 South High Street
Wailuku, Hawai'i 96793

Keani Rawlins-Fernandez
Council Vice Chair
Maui County Council
200 South High Street

Alice Lee
Council Chair
Maui County Council
200 South High Street
Wailuku, Hawai'i 96793

Gabe Johnson
Maui County Council
200 South High Street
Wailuku, Hawai'i 96793

Tasha Kama
Maui County Council
200 South High Street
Wailuku, Hawai'i 96793

Kelly King
Maui County Council
200 South High Street
Wailuku, Hawai'i 96793

Mike Molina
Maui County Council
200 South High Street
Wailuku, Hawai'i 96793

Tamara Paltin
Maui County Council
200 South High Street
Wailuku, Hawai'i 96793

Shane Sinenci
Maui County Council
200 South High Street
Wailuku, Hawai'i 96793

OTHER ORGANIZATIONS AND INDIVIDUALS

Aston Kaʻanapali Shores
3445 Lower Honoapiilani Road
Lāhainā, Hawaiʻi 96761

Maui Kai Kaʻanapali Beach
106 Kaanapali Shores Place
Lāhainā, Hawaiʻi 96761

Hawai‘i Tourism Authority
1801 Kalākaua Avenue, 1st Floor
Honolulu, Hawai‘i 96815

West Maui Preservation Association
P. O. Box 11150
Lāhainā, Hawai‘i 96761

Tova Callender, Watershed Coordinator
West Maui Ridge to Reef Initiative
Via email: tova@westmauir2r.com

Hawai‘i Shore and Beach Preservation Association
Via email: hisbpa@gmail.com

Sierra Club Maui
P.O. Box 791180
Paia, Hawai’i 96779

Surfrider Foundation Maui Chapter
P.O. Box 790549
Paia, Hawai‘i 96779

Ke'eaumoku Kapu, CEO
‘Aha Moku O Maui
Via email: kapukapuakea@gmail.com

Kaipo Kekona, Kā‘anapali Moku
‘Aha Moku O Maui
Via email: kekona83@gmail.com

U‘ilani Kapu, Lāhainā Moku
‘Aha Moku O Maui
Via email: uilani.kapu@gmail.com

10. STUDIES ANTICIPATED TO BE INCLUDED IN THE DRAFT EIS

Cultural Impact Assessment
A Cultural Impact Assessment will be prepared pursuant to Act 50, Session Law of Hawaii, 2000.

Archaeological Assessment
Archaeological documentation will be prepared to document archaeological resources within the Project Site. Chapter 6E, HRS will be complied with separately from the Chapter 343, HRS environmental review process.

Assessment of the Marine Environment
An Assessment of the Marine Environment will be prepared to document existing conditions including benthic habitat, marine biota, protected species, essential fish habitat, water chemistry, and water quality.

Economic/Fiscal Analysis
An Economic/Fiscal Impact Analysis will be performed to document existing demographic and economic/fiscal conditions and evaluate the potential economic/fiscal impacts of the Proposed Action and possible alternatives to the Proposed Action.

Recreational and Ocean Safety Study
A Recreational and Ocean Safety Study will be performed to document existing recreational uses within the Project Site and evaluate potential impacts to recreational uses and ocean safety.

11. GLOSSARY

Accretion: The gradual addition of new beach to old by the deposition of sediment carried by the ocean.

Bathymetry: The measurement of the depth of water in oceans, rivers, or lakes.

Beach Berm: A low shelf or narrow terrace on the backshore of a beach, formed of material thrown up and deposited by storm waves or seasonal changes in wave climate.

Beach Face: The section of beach normally exposed to the action of the wave uprush; the foreshore of the beach.

Beach Nourishment: The practice of adding large quantities of sand or sediment to beaches to mitigate erosion and increase beach width.

Beach Profile: The trace of a beach surface on a vertical plane normal to the shoreline. It is commonly concave upward, as the slope is steeper above the water and more gentle seaward.

Breakwater: A man-made structure that is designed is to protect the shoreline from waves. Breakwaters are typically parallel to shore and can be attached to shore or detached.

Certified Shoreline: The line established by a licensed land surveyor and certified by the State, which reflects the shoreline definition stated in Chapter 13-222 (HAR) and Chapter 205A (HRS).

Depth of Closure: Typically, the deepest depth at which sediment transport connected to the beach system occurs.

Dredging: In this context, to bring up sand from an area of water.

Erosion: The wearing away of soil and rock by weathering, mass wasting, and the action of streams, glaciers, waves, wind, and underground water.

Environmental Restoration: Defined in 1987 by John J. Berger as "A process in which a damaged resource is renewed. Biologically. Structurally. Functionally."

Groin: A man-made structure that is designed to block the longshore transport of sediment. Groins are typically constructed perpendicular to the shoreline.

Littoral Cell: A coastal compartment that contains a complete cycle of sedimentation including sediment sources, transport paths, and sinks.

Makai: Seaward or toward the sea.

Mauka: Landward or toward the mountains.

Resilience: The capacity of a system to adapt to changing conditions and respond to stressors or a disturbance by resisting damage and recovering quickly. Such stressors or disturbances can include natural hazards such as fires, flooding and drought, and human activities such as poor or overtaxed infrastructure or the introduction of exotic plant or animal species.

Rip Current: A relatively strong, narrow current flowing outward from the beach through the surf zone and presenting a hazard to swimmers.

Sea Level Rise: The average long-term global rise of the ocean surface. Regional sea level rise refers to the long-term average sea level rise relative to the local land level, as derived from coastal tide gauges.

Seawall: A man-made structure built along the shoreline that is designed to protect the backshore from waves and erosion. Seawalls are typically steep or vertical and constructed of rock, concrete, or sheet pile.

Turbidity: The quality of being cloudy, opaque, or thick with suspended matter.

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