

Conservation District Use Application

Prepared and Submitted in Accordance with Hawai'i Revised Statutes
Chapter 13-5, Chapter 190D, Chapter 205A, and Chapter 183C

Southeast Asia-United States (SEA-US) Cable System, Mākaha Beach Landing

Mākaha Beach, Wai‘anae, Island of O‘ahu, Hawai‘i

June 2016

NEC Corporation of America (NEC)
6535 North State Highway 161
Irving, Texas 75039-2402



R. M. TOWILL CORPORATION
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Honolulu, Hawai‘i 96819-3494

Project NO. 1-22645-00P

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Prepared By:
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Section 1

*Conservation District Use Application (CDUA)
State Marine Waters*



**CONSERVATION DISTRICT USE APPLICATION (CDUA)
STATE MARINE WATERS**

File No:	
Acceptance Date:	180-Day Expiration Date:
Assigned Planner:	
<i>for DLNR Use</i>	

PROJECT NAME: Southeast Asia-United States (SEA-US) Cable System

Conservation District Subzone: Resource Subzone

Identified Land Use: Public Purpose Use

(Identified Land Uses are found in Hawai'i Administrative Rules (HAR) §13-5-22 through §13-5-25)

Project Address: 84-284 Farrington Highway, Wai'anae, Hawai'i 96792

Tax Map Key: (1) 8-4-002: 059

Total Area of Proposed Use: 20,475 ft (length) x 0.15 ft (width) = 3,071 square feet (approx.)

Total Area of Proposed Exclusive Use: N/A

Center Point of Leased Area: Latitude: 21° 28' 38" N Longitude: 158° 13' 30" W

Nearest Tax Map Key(s): (1) 8-4-002: 059 and (1) 8-4-001: 012

Ahupua`a: Mākaha

District: Wai'anae District

County: Honolulu

Island: O'ahu

Proposed Commencement Date: Late 2016 to early 2017

Proposed Completion Date: Late 2017 to early 2018

Estimated Project Cost: \$35 million

ATTACHMENTS

\$ 2,500 Application Fee *(ref §13-5-32 through 34)*

\$ 250 Public Hearing Fee *(if applicable; \$250 plus publication costs; ref §13-5-40)*

20 copies of CDUA *(5 hard + 15 hard or digital copies)*

Management Plan *or* Comprehensive Management Plan *(ref §13-5-39 and §13-5 Exhibit 3)*

Draft / Final Environmental Assessment *or* Draft / Final Environmental Impact Statement

REQUIRED SIGNATURES

Applicant

Name / Agency: NEC Corporation of America (NEC)

Street Address: 6535 North State Highway 161

Irving, Texas 75039

Contact Person & Title: John Williams, Manager

Phone: (214) 262-3653

Fax:

Email:

Interest in Property: Developer/Cable Contractor

Signature: See attached authorization letter for John Williams **Date:**

Signed by an authorized officer if for a Corporation, Partnership, Agency or Organization

Agent

Agency: R. M. Towill Corporation (RMTC)

Contact Person & Title: Brian Takeda, Planning Project Coordinator

Mailing Address: 2024 North King Street, Suite 200

Honolulu, Hawai'i 96819-3494

Phone: (808) 842-1133

Fax: (808) 842-1937

Email: BrianT@rmtowill.com

Signature:  **Date:** 6/13/2016

State of Hawai'i

Chairperson, Board of Land and Natural Resources

State of Hawaii

Department of Land and Natural Resources

P.O. Box 621

Honolulu, Hawaii 96809-0621

Signature _____ **Date:**

NEC NEC Corporation of America

Date: 2 February 2016

Subject: Authorization for R. M. Towill Corporation

Reference: Filing for Environmental and Land Use Entitlements for the Southeast Asia – United States (SEA-US) Cable System, Mākaha Beach Landing, Mākaha Beach, Wai‘anae, Island of O‘ahu, Hawai‘I, Tax Map Key: (1) 8-4-002: 059

Dear Sir/Madam:

This letter from NEC Corporation of America (“NEC”) serves as authorization for R. M. Towill Corporation to act as an agent on behalf of NEC Corporation of America, in partnership with Hawaiian Telcom, solely for the preparation and filing of environmental and land use permit applications and permission requests related to NEC’s Southeast Asia Cable Project (“SEA-US Project”).

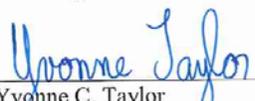
The environmental and land use permit applications and permission requests relate to the installation of a submarine fiber optic telecommunications cable and its appurtenances for the SEA-US Project, including, but may not be limited to, (a) the cable landing; (b) the construction of a beach manhole and a cable landing station, and (c) installation of utility connections with existing telecommunications providers.

Should there be any questions concerning this matter, please contact:

Brian Takeda, Planning Project Coordinator
R. M. Towill Corporation
2024 North King Street, Suite 200
Honolulu, Hawai‘i 96819
(808) 842-1133
briant@rmtowill.com

Thank you.

Sincerely,



Yvonne C. Taylor
Director, Order Management and Procurement
NEC Corporation of America

cc: Brian Takeda, R. M. Towill Corporation

PROPOSED USE

Please provide an executive summary of the proposed land use. Attach any site plans, landscaping plans, photographs, maps, and construction plans as needed.

Introduction:

This application for a Conservation District Use Permit (CDUP), will allow for the installation of the Southeast Asia-United States (SEA-US) transpacific submarine fiber optic (F/O) cable at Mākaha Beach, O‘ahu. See **Section 2 – Figure 2, Project Location**. Major activities associated with the project will include laying the SEA-US cable along the sea floor via a cable laying ship, preparation of the terrestrial telecommunications infrastructure to accept the cable, horizontal directional drilling (HDD) to create an approximately 80 to +100-foot-deep underground lined borehole beneath Mākaha Beach Park (Tax Map Key (TMK): (1) 8-4-001: 012) and Farrington Highway into which the F/O cable will be installed from the ocean end, and the installation of the cable upon its arrival. See **Section 2 – Figure 3 Nearshore and Terrestrial Project Location**. The terrestrial telecommunications infrastructure will include a new beach manhole (BMH) and cable landing station (CLS) constructed at the Hawaiian Telcom property (TMK: (1) 8-4-002: 059), mauka of Farrington Highway (Highway 93).

The portion of the project subject to rules governing Hawai‘i Administrative Rules (HAR), Chapter 13-5, will be the area within State marine waters between the State Certified Shoreline and the territorial limit of State of Hawai‘i waters. Project elements within the CDUP area will comprise approximately 3,071 square feet and include:

- A segment of HDD borehole approximately 2,250 linear feet in length. The borehole will originate from the project parcel, towards and beneath Farrington Highway and the State Certified Shoreline, to submerged waters off Mākaha Beach. The total length of the HDD borehole will be approximately $\pm 2,500$ linear feet;
- A segment of drill pipe approximately 2,250 linear feet in length. The drill pipe will be advanced in the borehole as it progresses toward the submerged site. The HDD drill pipe will serve as conduit for the installation of the cable and to prevent the borehole from collapse; and
- A submerged segment of F/O cable approximately 18,225 linear feet in length that will travel from the territorial limit of State waters to the submerged landing site and an underground segment of F/O cable approximately 2,250 linear feet in length installed in the drill pipe (conduit). The cable will be laid on the ocean floor by a cable ship; upon reaching the nearshore landing site, the cable will be installed in the drill pipe (conduit) and pulled from the submerged end to the project site via a pilot line.

Background:

NEC, Corporation of America (NEC), proposes to construct the SEA-US transpacific submarine F/O telecommunications cable system connecting Indonesia (Kauditan), the Philippines (Davao), Guam (Piti), and the U. S. states, Hawai‘i (Mākaha) and California (Hermosa). See **Section 2 – Figure 1, Overview of SEA-US Cable System**. The Hawai‘i portion of this system will provide for a cable landing at Mākaha Beach, O‘ahu, with the F/O cable extending beyond the territorial limit of State of Hawai‘i waters. This Conservation District Use Application (CDUA) describes the Mākaha Beach, Hawai‘i portion of the SEA-US cable system.

The SEA-US Cable System is being undertaken by a consortium of telecommunications providers in Indonesia, the Philippines, Guam, and the U. S. West Coast and Hawai‘i. The Hawai‘i segment of this system is being developed by NEC in partnership with Hawaiian Telcom, which is a public utility registered to operate in the State of Hawai‘i.

The proposed project at Mākaha Beach is limited to the installation of a submarine F/O telecommunications cable in offshore waters approximately ½ miles seaward of shoreline. Installation of the F/O cable will involve use of HDD equipment positioned on an approximately 2.82-acre parcel, TMK: (1) 8-4-002: 059, owned by Hawaiian Telcom. HDD will be used to create a borehole and will continue underground beneath Farrington Highway and Mākaha Beach Park (TMK: (1) 8-4-001: 012) until it is ready to daylight in sandy ocean bottom at a depth of approximately 14 meters. Drill pipe will be placed into the borehole as the drill progresses. Following HDD, the remaining drill pipe will serve as conduit to pull the F/O cable to a specially prepared BMH at the Hawaiian Telcom property. The F/O cable will then be connected to a newly constructed CLS at the project site (see **Section 2 – Figure 3, Nearshore and Terrestrial Project Location, Figure 4, Horizontal Directional Drilling (HDD) Cross Section, and Figure 5, Proposed Cable Landing Station Site Plan**).

Purpose and Need:

The purpose of the proposed project is to:

- Provide reliable telecommunications service between Indonesia, the Philippines, Guam, and the U. S. West Coast, and Hawai‘i;
- Enhance service now provided through cable systems that have limited bandwidth capacity. The proposed SEA-US cable system will have a high operating bandwidth enabling the more efficient use of high technology services such as telemedicine, real time videotrafficing, and data transmission;
- Improve the long-distance transmission of domestic and international F/O signals and reinforce Hawai‘i’s position as a hub in trans-Pacific submarine telecommunications networks, which will facilitate the future economic growth of the State; and
- Provide a redundant system to the existing fiber optic cable systems between the proposed locations in the event of system failure or damage.

The proposed SEA-US F/O cable system will serve the present and future population of Hawai‘i by providing high-speed worldwide internet connections, which is a necessity for education, communities, and businesses in today’s global society. The SEA-US cable is especially critical for Hawai‘i:

- Broadband Exhaust: A series of studies conducted by the University of Hawai‘i and Johns Hopkins University Applied Physics Laboratory in 2012 and 2013 as part of the Hawai‘i Broadband Initiative, identified broadband demand outpacing supply in Hawai‘i. Several factors contribute to this, most notably:
 - Two of the three main F/O cables in Hawai‘i are beyond the halfway point of their designed life and are not anticipated to meet the forecasted bandwidth demand;
 - Technology has advanced to where a Hawai‘i landing is no longer necessary or desired for new transpacific cable systems; new systems could bypass Hawai‘i; and

- Remaining transpacific systems may charge premium prices knowing no new systems are likely to land in Hawai‘i.
- Direct Fiber Connection to Southeast Asia: This system will connect Hawai‘i to more than two-billion people in the Philippines, Indonesia, and the rest of Southeast Asia providing the infrastructure to facilitate new economic opportunities.

Project Summary:

Project Overview

Construction of the proposed SEA-US Cable System, Mākaha Beach Landing project will include the following:

- A submarine F/O cable positioned along a predetermined route extending from beyond the territorial limit of State of Hawai‘i waters to the project site at Mākaha Beach;
- An approximately ±12-inch diameter borehole starting from a HDD drill pit (future site of the BMH) and guided underground, beneath Farrington Highway and Mākaha Beach Park (TMK: (1) 8-4-001: 012), to the target location approximately 14 meters below mean sea level (msl);
- An approximately ±5-inch diameter steel drill pipe installed following the progression of the boring from the BMH location to the submerged “landing” site (approximately ±2,500 linear feet) to serve as conduit;
- A pilot line placed inside the borehole and connected to the submerged cable, allowing the cable to be pulled underground approximately ±2,500 linear feet, beneath the Mākaha Beach Park (TMK: (1) 8-4-001: 012) and Farrington Highway, to the BMH for eventual connection to the CLS located at the Hawaiian Telcom property;
- Construction of a new approximately 1,500 square foot one-story CLS;
- Installation of a new precast approximately ±12 feet x ±6 feet concrete BMH;
- Installation of concrete/asphalt concrete (AC) pavement to provide access to the CLS;
- Installation of perimeter fencing and lighting; and
- Accessory improvements including connections to existing water, sewer, power, telecommunications utilities, and related improvements.

The submerged Hawai‘i segment of the SEA-US cable system will be installed by a cable laying ship following a prescribed survey route in the Pacific Ocean off the coast of Mākaha Beach. Upon reaching Mākaha Beach, HDD will facilitate the landing of the cable to the terrestrial site. HDD activities will include drilling a borehole approximately ±2,500 linear feet from the Hawaiian Telcom CLS site to the daylight location in sandy ocean bottom approximately 14 meters below msl. The borehole will be lined with an approximately ±5-inch diameter steel drill pipe allowing the cable to be pulled from the submerged waters off the coast of Mākaha Beach to the terrestrial HDD site. An approximately ±12 feet x ±6 feet precast concrete BMH will be constructed at the borehole site to facilitate the landing of the cable and an approximately 1,500 square foot CLS will be constructed to accept the cable telemetry. The cable will be routed from the BMH to the CLS via a ductline installed below grade within a trench with a minimum depth of 36 inches. The subground installation of the cable to the BMH and CLS will provide physical security from natural disasters, potential accidents, and tampering (see **Section 2 – Figure 2**,

Project Location, Figure 3, Nearshore and Terrestrial Project Location, Figure 4, Horizontal Directional Drilling (HDD) Cross Section, and Figure 5, Proposed Cable Landing Station Site Plan).

The installation of the cable within submerged marine waters is necessary for the operation of the proposed SEA-US cable system, that is, the transpacific cable must be routed through the State marine waters within the conservation district to connect to a terrestrial CLS to accept the F/O telemetry. The proposed CLS accepting the cable telemetry will interpret and distribute the signal to existing terrestrial F/O cable infrastructure located along the Farrington Highway right-of-way (ROW) owned by telecommunications providers such as Hawaiian Telcom.

Ownership and Property Requirements

No property acquisition is required for the proposed project. The 2.82-acre project site, TMK (1) 8-4-002: 059, is owned by Hawaiian Telcom and includes the area required for the proposed HDD work and construction of the CLS and support infrastructure.

Land that is makai of the Farrington Highway along the Mākaha Beach Park, TMK (1) 8-4-002: 012, is under jurisdiction of the Department of Parks and Recreation. (DPR), City and County of Honolulu (CCH).

Marine waters beyond the state certified shoreline is owned and under jurisdiction of the Department of Land and Natural Resources (DLNR) up to the territorial limit of State of Hawai‘i waters.

Easements associated with the proposed project will be required for the placement of the cable from the State of Hawai‘i, Department of Transportation (HDOT) within the ROW along Farrington Highway, and the CCH for cable access beneath the Mākaha Beach Park, TMK: (1) 8-4-001: 012.

Construction Timing and Valuation

NEC proposes to commence installation of the F/O cable and construction of the site upon approval of all required environmental permits, anticipated to be in late 2016 to early 2017.

Construction activities at the project site are anticipated to take several months (e.g., approximately 10 – 12 months) and will primarily involve the operation of the HDD rig and the construction of the CLS, BMH, access roadway, and supporting utilities including water and power. The period required for the installation of the submarine F/O cable from the cable ship to the BMH will be relatively short, and is expected to require not more than approximately one to three days.

The cost associated with the construction of the proposed project is estimated at \$35 million, and will be paid for by NEC/Hawaiian Telcom.

Regulatory and Community Consultations

A number of public and agency coordination activities for the Hawai‘i segment of the SEA-US cable system will be required. Public involvement in the project consists of public notice of the proposed action during the Environmental Assessment (EA) process in the State Office of Environmental Quality Control (OEQC) Bulletin. The Draft EA for the project was published in the OEQC Bulletin on March 23, 2016; the public comment period ended on April 25, 2016. The Final EA was prepared to respond to comments received for the Draft EA. The CCH, Department of Planning and Permitting (DPP), filed a Finding of No Significant Impact (FONSI) statement for the Final EA on May 26, 2016 to be published in the OEQC Bulletin on

June 8, 2016. A copy of the Draft EA was forwarded to the Office of Conservation and Coastal Lands (OCCL), DLNR, in March 2016; a copy of the Final EA is provided in **Appendix A**.

The project was introduced to permitting and resource agencies to provide early information about the project, and to solicit input. Anticipated permits and approvals for the project include:

- *Section 404, Clean Water Act (CWA), and Section 10, Rivers and Harbors Act (RHA) (also referred to as a Department of the Army Permit):* All work in and near the Pacific Ocean and potential mitigation, will be coordinated with the USACE, Honolulu Branch.
 - *Section 7, Endangered Species Act (ESA):* Consultation will be conducted by the U. S. Army Corps of Engineers (USACE) with the U. S. Fish and Wildlife Services (USFWS) and the National Oceanic and Atmospheric Administration (NOAA) \during the processing of the Department of the Army Permit.
 - *Section 106, National Historic Preservation Act (NHPA):* Consultation will be conducted by the USACE with the State Historic Preservation Division (SHPD), Archaeology and Architecture Branches, DLNR, during the processing of the Department of the Army Permit.
 - *Magnuson-Stevens Fishery Conservation and Management Act:* Consultation will be conducted by the USACE with the NOAA during the processing of the Department of the Army Permit.
- *Section 401, Water Quality Certification (WQC):* All work within state waters will be coordinated with the USACE Regulatory Branch and the Department of Health (DOH), Clean Water Branch (CWB) to identify requirements pertaining to their jurisdiction.
- *Section 402, CWA, National Pollution Discharge Elimination System (NPDES) Notice of Intent (NOI) Form C for Discharges of Storm Water Associated with Construction Activities:* In accordance with HAR, Chapter 11-55 Water Pollution Control, a permit application will be prepared and submitted to the DOH, CWB to address runoff of construction stormwater.
- *Discharge Permit to the State of Hawai'i Highways Division Storm Drain System:* The subject action requires coordination with HDOT for the discharge construction stormwater into the existing state drainage system.
- *Conservation District Use Permit (CDUP):* All work in the Conservation District and in State waters required for the subject action, will be coordinated with the DLNR, OCCL. A public hearing and a hearing before the Board of Land and Natural Resources (BLNR) will be required for approval.
- *Coastal Zone Management Federal Consistency Determination (CZM FEDCON):* All land and water use activities in the State of Hawai'i must comply with Hawai'i Revised Statutes (HRS), Chapter 205A, Hawai'i Coastal Zone Law, therefore the project will undergo review by the Hawai'i Office of Planning.
- *Right-of-Entry and Grant of Submarine Easement within State Waters:* A grant of easement from the BLNR for the proposed project will be required for the placement of the cable in state waters. This will require a public hearing and hearing before BLNR for approval.
- *Application and Permit for the Use and Occupancy of State Highway ROW:* All activities associated with the subject action upon the state highway will be coordinated

with the HDOT, Highways Division, ROW Branch.

- *Application and Grant of Easement within CCH Lands:* The subject action requires coordination with the CCH, Department of Budget and Fiscal Services (DBFS) for use of land under ownership of the CCH.
- *Special Management Area (SMA) Minor Permit:* All work within the SMA will be coordinated with the CCH, DPP, in accordance with Revised Ordinances of Honolulu (ROH), Chapter 25, SMA.
- *Shoreline Setback Variance (SSV) Permit:* A SSV is required to address the use of land within the 40-foot setback of the certified shoreline as determined by the State Survey Office (see **Appendix B**), DLNR. A CCH, DPP public hearing will be required.

Project scoping and coordination activities will continue to include meetings and correspondence with government agencies, organizations, and individuals throughout the permitting process.

Site Information, Method of Construction, and Proposed Mitigation:

Site Information

The project site is located on the west side of the Island of O‘ahu in the Wai‘anae District of the CCH, and offshore of this location, generally to the northwest of the coast. The proposed terrestrial project site, designated as TMK: (1) 8-4-002: 059, mauka of Farrington Highway, is relatively flat in topography (see **Section 2 – Figure 7, Topography**). Makai of the project parcel and highway, and the proposed location for the underground borehole required for installation of the cable, is the Mākaha Beach Park, TMK: (1) 8-4-001: 012.

The terrestrial site, contained within TMK (1) 8-4-002: 059, is owned by Hawaiian Telcom. The property is zoned by the CCH as Country (see **Section 2 – Figure 8, O‘ahu Zoning**). The terrestrial project site and terrestrial section of the proposed HDD are located within the State Land Use Urban District. The submerged portion of the project is within the State Conservation District, Resource Subzone. See **Section 2 – Figure 9, State Land Use Districts**.

Access to the project site is via an access road, which connects to the Farrington Highway. The general vicinity of the project site includes the Mākaha Beach Park, the Wai‘anae Mountains, single and multifamily housing, agricultural lands, and the Mākaha Resort Golf Course. The project site and surrounding infrastructure are currently used for purposes that are similar to the proposed project, including F/O cable telecommunications facilities. See **Appendix C** for photos of the project site.

A geotechnical field exploration was performed by Yogi-Kwong Engineers LLC in support of the HDD shoreline crossing segment for the proposed project. As part of the field exploration a geological sample was obtained from the proposed HDD corridor (see **Section 2 – Figure 15, Approximate Geotechnical Boring Location**) and boring logs produced (see **Section 2 – Figure 16, Log of Boring in Support of SEA-US HDD Cable Shoreline Crossing**) to identify the substrata the HDD boring would pass through. The regional geology of the project area was identified as generally older alluvium formed during the Pleistocene and Pliocene epochs, in close proximity to surface outcrops of calcareous reef rocks and marine sediments and lava flows. Due to the past complex geologic history and depositional environments in the area, variations in stratigraphy and complex interbedding and intercalations of the local geologic units within short distances, in both the vertical and horizontal directions, should be expected as

generally reflected in **Figure 15**.

No long-term adverse impacts are anticipated to the area geology. Work at the terrestrial site would involve grading and excavation for the construction of the new CLS, BMH, support infrastructure, and landing of the SEA-US cable. Excavation of a boring pit with dimensions of approximately 8 to 10 feet deep by ± 10 feet long by ± 5 feet wide would be required to accommodate the HDD boring rig for the cable landing operations. HDD will be initiated from the boring pit and be guided underground to the off shore target location approximately 14 meters below msl.

Prevention of soil erosion would be included in the specifications for construction and erosion control employed during construction. Any excavated material would be disposed of at an approved waste facility in accordance with State and County regulations.

The submarine cable route offshore of Mākaha Beach was engineered to avoid potential hazards, disruption to marine resources, and to secure long-term protection of the cable. The cable route and project design were developed and refined through surveys of the inshore, and deep-water sections of the route to define the optimum route for cable installation.

The proposed submerged landing site, approximately 14 meters below msl, is located within a sand channel fronting Mākaha Beach. Seabed sediments in the sand channel are predominantly composed of well-sorted fine to medium-grained sand. Extensive coralline limestone fringing reef platforms border both the north and south sides of the sand channel; along this hard substratum are well-developed coral communities. Sea Engineering Inc. (2001) measured the sand thickness in the Mākaha sand channel using a sub-bottom profiler. The survey indicates that the proposed daylight location within the sand channel is composed of sand deposits greater than 1 meter (3 feet) thick. This horizon layer overlies a dense to very dense mix of rubble/cobble and sand. Because of the shifting nature of this substratum, seasonal movement of sand and scouring that occurs with surf in this area, no corals or other slow-growing sessile species are expected at the proposed landing location (Sea Engineering, 2016).

Cable route reconnaissance and surveys undertaken for the proposed project have confirmed that it is possible to daylight the directional bore in sandy ocean bottom at approximately 14 to 17 meters below msl. It is desirable to locate the bore exit in sand to minimize potential for environmental impacts associated with anchoring, armoring, or trenching to secure the cable. The presence of extensive sand deposits on the ocean bottom will permit the cable to eventually bury itself into the sand, providing maximum protection against wave forces.

Previous survey work conducted by Sea Engineering indicates that the sand channel widens seaward of the proposed landing location. At the 17-meter water depth, the sand channel spans a width of 300 meters. Further offshore it connects to a broad sand deposit that parallels the Wai‘anae Coast. The NOAA benthic maps indicate that the area offshore the proposed exit points is uncolonized sand. Uncolonized habitat is usually found on sand or mud bottoms. This bottom type continues to the 40-meter isobaths, the offshore extent of the NOAA maps (Sea Engineering, 2016). In the event scattered corals are discovered seaward of the landing location during the cable lay, the potential for damage to these corals will be avoided by careful placement of the cable between or around any formations.

Method of Construction

This section describes the proposed work activities and materials planned for use. Work activities will include site preparation, HDD, and construction of the facility infrastructure and associated improvements.

Site Preparation

Site preparation will involve:

- Clearing and site preparation for the HDD cable landing activities and construction of the BMH, CLS, and concrete/asphalt concrete (AC) pavement surface for site access and driveway;
- Disposal of debris at an approved construction and demolition debris landfill;
- Design of drainage system in accordance with CCH and State (Department of Health water quality regulations) requirements; and
- Construction of site access and driveway, security perimeter fencing, security lighting (shielded), and on-site utilities and connection to sewer, water, power, and communication.

Main Cable Lay and Installation

The main cable installation will involve laying the SEA-US F/O cable along a surveyed route in the Pacific Ocean between Indonesia (Kauditan), the Philippines (Davao), Guam (Piti), and the U. S. states, Hawai‘i (Mākaha) and California (Hermosa) using a special purpose cable ship, referred to as a “cablesip” vessel to distinguish it from support boats.

The Hawai‘i segment of the SEA-US cable system will be laid by cablesip from the Hawai‘i BU, where it will join the Guam (Piti) and California (Hermosa) cable segments, to Mākaha Beach through Hawai‘i State territorial waters. The cablesip will range from approximately 95 to 124 m (312 to 407 feet) in length. During the main cable lay, the cablesip will operate at relatively low speeds of up to approximately 4 knots as it approaches Mākaha Beach, O‘ahu. The main cable lay will be conducted 24 hours per day until the ship reaches shallow water where the nearshore landing operation will be carried out.

The cablesip will approach the landing site using a satellite based global positioning system (GPS). Up to two support boats may be required to assist the cablesip during the nearshore landing operation. The support boats will be smaller vessels typically ranging from approximately 5 to 9 meters (18 to 30 feet) in length. On-station positioning at the submerged landing site will be accomplished using tugboats or side thrusters. Other methods to maintain position, including the temporary use of anchors, may also be used provided that the method used does not destroy or damage corals. Once the cablesip is properly positioned it will begin laying out cable while personnel attach suspension floats at regular intervals, as required, to allow the cable to be guided toward the daylighted borehole using divers or remotely operated vehicle (ROV), a small motor boat, and/or other means. The duration of the main cable lay operation once the ship is on-station fronting the Mākaha Beach will not be more than approximately one to three days. The cablesip will wait for daylight hours and suitable conditions (calm weather and minimal swell) before initiating the nearshore cable landing operations.

The cablesip and support vessels will comply with applicable federal and state regulations and conventions addressing navigational safety, safe operations, and pollution prevention measures. The location and duration of the cablesip and support boats present in the project area will be provided in a Notice to Mariners submitted in accordance with U. S. Coast Guard (USCG) requirements. The USCG will issue the notice to alert other vessels of the cablesip’s presence, expected time in the project area, and contact information.

Horizontal Directional Drilling (HDD) and Cable Landing

A HDD directional boring rig will be staged at the project site, TMK (1) 8-4-002: 059. In anticipation of the cable landing, the proposed area of the BMH will be excavated into a pit to accommodate installation and use of the HDD boring rig. The boring rig will be set into the excavated pit. The borehole will be drilled using a 7 to 8-inch diameter drill bit, resulting in an approximately ± 12 -inch diameter borehole, and will start from the pit and be guided underground to the target location approximately 14 meters below msl. A ± 5 -inch diameter steel drill pipe will be installed following the progression of the boring from the BMH location to the submerged "landing" site (approximately $\pm 2,500$ linear feet).

The HDD operation will involve use of a lubricant such as bentonite, a naturally occurring clay, to facilitate passage of the drill bit through the substratum. During drilling operations drill pipe will be advanced through the bored hole along with the drill bit. Once the drill bit and attached drill pipe clears the submerged hole, the drill bit will be removed and the drill apparatus and pilot line will be pulled back through the drill pipe. The remaining drill pipe will be capped at the ocean end until the day of the cable pull. See below for proposed mitigation measures that will be used during HDD.

On the day of the cable pull, divers will feed the F/O cable into the open submerged drill pipe attaching it to a pilot line previously placed in the drill pipe. The cable will be pulled toward the project site by a winch.

The Farrington Highway and Mākaha Beach Park (TMK: (1) 8-4-001: 012), including the permitted area between the 40-foot shoreline setback and state certified shoreline, are not expected to be adversely affected by construction activities. Construction equipment and personnel mobilized to the job site may require the use of safety signage and/or the use of flag persons to direct traffic when deliveries to the job site are required. However, the Farrington Highway and beach park will remain open to public use throughout all operations. A security guard may be posted at night and on weekends to ensure public safety and security of the job site.

Nearshore ocean waters may need to be closed to ocean activities (surfing, diving, boating, and swimming) to ensure safety to ocean users during the cable laying process and landing operations. The total area anticipated to be closed will be approximately ± 100 feet by ± 100 feet. The period when the waters will be closed is not expected to be more than one day, weather permitting, for the cable laying and landing operations. This short-term "closure" of nearshore water areas will be achieved by publishing a notice to advise mariners to avoid the area. Further, during the cable laying and landing processes, project personnel will advise beach users to avoid nearshore ocean waters via small powered water crafts.

Construction of Beach Manhole

Once the cable landing is completed the HDD equipment will be removed from the drill pit, and a new precast BMH will be installed in its place. The BMH will serve as the primary point of connection for the submarine F/O cable. Following cable installation in the BMH, a trench will be excavated and ductlines installed from the BMH to the CLS to accommodate the F/O cable connection to the CLS. After installation, the site will be restored to its original condition and all equipment no longer necessary to the site will be demobilized.

Construction of Cable Landing Station

Hawaiian Telcom will construct an approximately 1,500 square foot single story modular or concrete CLS structure on the northeast portion of the project parcel. In accordance with ROH, Chapter 21, construction of the CLS within the CCH Country zone is a permitted use. According to Table 21-3, *Master Use Table*, the CLS would be considered a utility installation, Type A, and considered a permitted use by the CCH, DPP. The maximum height for the proposed CLS building will not exceed the height restrictions for the designated Country zone. See **Section 2 – Figure 3, Nearshore and Terrestrial Project Location** and **Figure 5, Proposed Cable Landing Station Site Plan**.

Connection to Farrington Highway Manhole

The CLS accepting the cable telemetry will interpret and distribute the signal to existing terrestrial F/O cable infrastructure located along the Farrington Highway ROW owned by telecommunications providers such as Hawaiian Telcom. Trenching and connection of the SEA-US F/O cable to an existing manhole located within the Farrington Highway ROW will be required.

Construction of Related Infrastructure

Construction of related infrastructure will support the proposed project and include a new paved access driveway. The new driveway will provide access to the proposed site via Farrington Highway. The road will be constructed to standards of the CCH and State of Hawaii. Connection to water and electrical facilities within the Farrington Highway ROW will be required.

Utility Requirements

Potable water serving the project area is provided by the Honolulu Board of Water Supply (BWS). The project is not anticipated to adversely affect the demand for potable water. The incidental use of water may be required for operation of the site involving fire control to supplement the CLS fire suppression system (Halon or similar system). The project is not anticipated to affect the demand for potable water.

Power to the project site is provided by the HECO. Current electrical facilities are a mixture of overhead and underground transmission lines. Other utilities, including telephone lines and telecommunications cables, are on pole lines and underground along the Farrington Highway. No mitigative measures are anticipated to be required to accommodate power and other utilities to the project site.

During construction, portable toilets would be provided for use by construction workers and project-related personnel. Portable toilets will be maintained by the contractor in accordance with State DOH and CCH health regulations. No impact to wastewater facilities is anticipated and no mitigation measures are recommended. The operation of the CLS will not require wastewater treatment as it will be an unmanned facility.

Solid waste generated during construction activities will be disposed of in accordance with applicable rules and regulations governing solid waste disposal. It is expected that the waste generated from construction of the facility would be similar to that from a small commercial business. During the operational phase of the CLS building, disposal of solid waste will be handled by a solid waste collection and disposal service. Sizing of waste dumpsters will be based on need. This waste would primarily include paper products, plastics from used containers such as soda bottles, parts boxes, and take out lunches. No hazardous wastes are anticipated to

be generated from operation of the CLS building. Disposal of used or spent telecommunications equipment will be handled in accordance with applicable Federal, State, and CCH rules and regulations. No adverse effect to the handling and/or management of solid waste on O‘ahu is anticipated.

Proposed Mitigation

No adverse effects to marine resources are anticipated. Project activities potentially affecting water quality are limited to the installation phase when there is the potential for increased turbidity from sediments disturbed in the nearshore cable landing location. Work activities with potential for adverse impacts to water quality will primarily involve use of drilling fluid during HDD operations; operation of the HDD drill bit at the submerged, daylight ocean end; and, cable laying activities to install the F/O cable into the submerged drill pipe. The cable does not contain materials that would be harmful to water quality and will have no effect on water quality.

HDD Bore and Drill Pipe Installation

The HDD operation will involve use of a bentonite-based drilling fluid to facilitate passage of the drill bit through the substratum. The specific bentonite-based drilling fluid will be selected by the drilling contractor and will be used in accordance with the manufacturer’s requirements and applicable laws of the State of Hawai‘i and the Federal government. Bentonite is a non-toxic naturally occurring clay commonly used in farming practices; however, if large volumes of bentonite are discharged to waterways it can cause environmental degradation by smothering benthic invertebrates, aquatic plants and fish and their eggs.

During boring operations, it is possible that fractures in the underlying rock substrate may potentially result in the inadvertent release of bentonite clay into the environment. This event is described as a “frac-out” and typically occurs in highly fractured soils or if the bore path is extremely shallow. Frac-out, or the inadvertent release of drilling fluid, is a potential concern when HDD is used under sensitive habitats, waterways, and areas of concern for cultural resources.

While a frac-out event is a concern, it is unlikely that one would occur at the project site. Other projects involving HDD for the installation of submarine F/O cables on O‘ahu have shown to have little environmental impacts, with no known frac-out events having occurred. Some of these HDD projects include:

- U. S. Navy Project at Barbers Point, 2015;
- Southern Cross Cable Project at Kahe Point, early 2000s; and
- Sandwich Isles Communications, Inc. Project at Mākaha Beach Park, 2005 to 2008.

Based on these and other similar HDD projects on O‘ahu, which have experienced successful installation of F/O cable via HDD without a frac-out occurrence, it is anticipated that the proposed project will have similar results. In addition to past HDD work completed on O‘ahu, a frac-out event is not anticipated during the HDD operations for this project for the following reasons:

- The soils through which the drill bit will pass are not expected to require excessive fluid pressure which would cause a frac-out, i.e., the soils are comprised of a thick layer of alluvium interspersed with layers of fractured basalt (Yogi-Kwong Engineers LLC, 2015);

- As the depth of the HDD and drill pipe increases, the likelihood of an inadvertent return of drilling fluid indicating a frac-out decreases. For the proposed project, the majority of the drill path would be approximately 80 to 100+ feet below grade; this is much deeper than the depth at which frac-outs usually occur (i.e., where the drilling path is less than approximately 20 feet below grade is the primary area of concern for a potential frac-out); and
- The potential for frac-outs are not anticipated to occur as the HDD approaches the point of daylight when shallower depths below the ocean bottom will be encountered as the drilling fluid and drill bit will be regulated by the operator to prevent a discharge.

Based on the above, an inadvertent release of drilling fluid during HDD work would not be expected. However, the boring contractor shall identify mitigative measures to minimize the potential extent of impacts from an inadvertent release or frac-out, should one occur.

General BMPs for the HDD bore and drill pipe installation activities will include the following:

Construction activities within ocean waters and under the sea floor will require appropriate mitigative methods, and measures or practices to be implemented. To reduce potential impacts of inadvertent releases of drilling fluid, the contractor would be required to implement mitigation measures to prevent or contain potential discharges and develop a *Frac-out Contingency Plan*. The *Frac-out Contingency Plan* would require the contractor to temporarily halt boring operations to control a frac-out event and would contain a list of procedures that would be followed to control the drilling fluid, including cleanup activities and notification requirements. See discussion below.

Before Construction

Prior to the portion of work where HDD is required within and below marine waters, the contractor shall obtain a water sample in the vicinity of the proposed bore path. The water sample shall be contained in a controlled environment and tested for standard water quality parameters (i.e., dissolved oxygen, pH, salinity, temperature, and turbidity). To test for the potential effects of the drilling fluids on water quality the contractor shall add the proposed drilling fluid to the water sample and retest the parameters. The contractor shall also visually observe the physical state of the drilling fluid during the controlled water quality test to ensure the drilling fluid remains in its intended, congealed state to facilitate collection.

Comparison of the water quality tests with and without drilling fluid present, will allow the contractor to determine the potential for impacts on the marine environment and develop appropriate tests and mitigation measures to utilize in the event of an inadvertent discharge of drilling fluid.

During Construction

The potential for a discharge of drilling fluid or frac-out occurrence shall be minimized by the HDD operator through the adjustment of the drill and fluid pressure to reduce and control against the likelihood of a discharge. HDD operations will be monitored by the operator who will be alerted to a potential “frac-out” event from the loss of drilling fluid pressure readings on the drilling equipment. Under this condition, the HDD operator will alert the environmental team who will visually observe conditions along the ocean bottom using a camera equipped remotely operated vehicle (ROV), personnel or divers in the nearshore and deeper water, or both. This will allow for the timely detection and response in the event of a potential discharge into the marine environment. If any loss of drilling

pressure occurs during the terrestrial segment of the proposed bore, the area of the suspected frac-out will be located and the area visually observed by environmental personnel.

In the event of sustained low pressure readings for the drilling fluid (i.e., suspected “frac-out” event), impacts to aquatic environment will be prevented through the control of the bentonite-based drilling fluid dynamics through the use of non-toxic additives which would increase viscosity, seal potential fractures, and reduce dispersion in the water column. In addition, the use of HDD will allow for some control over the guidance of the drill head by the operator should it become necessary to avoid locations susceptible to frac-out and loss of drilling fluid; drill pipe will be used as conduit that will be threaded together and pipe-jacked following the progress of the drilling head. As the conduit progresses it will help to effectively seal completed sections of the bore and eliminate the loss of drilling fluid from previously completed segments.

At the ocean exist location, the directional boring contractor will be directed to employ additional precautions to mitigate the potential for release of drilling fluid, sediments or turbidity, these include:

- As the directional drill bit approaches the submerged target site (approximately ± 100 linear feet prior to daylighting) the drill bit speed will be reduced to the minimum necessary. The use of drilling fluid to the drill head will also be stopped to avoid any releases as the drill bit emerges or “daylights” at the ocean bottom;
- The location where the drill bit will daylight generally consists of hard bottom substrate covered by a sand channel approximately one to three meters in thickness. As the drill bit emerges from the sand covered hard substrate, the blanketing effect of the sand, shutoff of drilling fluid, and shutdown of the rotating drill head, will all help to prevent and control the release of any sediments and turbidity; and
- As required, support boats and divers/ROV will be used to observe and supervise all operations involving in-water work.

Upon the completion of drilling, the drill head assembly will be removed by the divers for recovery, and the remaining drill shaft and pilot line will be pulled back through the drill pipe. The remaining drill pipe will be capped at the ocean end until the day of the cable pull.

During a Frac-out or Discharge Event

In the event of a suspected frac-out or inadvertent release of drilling fluid, the operator tracking the progress of the directional bore will utilize personnel, divers or ROV to locate and confirm the release. If a frac-out/discharge event is confirmed the operator will initiate the *Frac-out Contingency Plan*.

The purpose of the *Frac-out Contingency Plan* is to:

- Minimize the potential for a frac-out associated with HDD activities;
- Provide for the timely detection of frac-outs;
- Protect areas that are considered environmentally sensitive (aquatic and terrestrial biological resources);
- Ensure an organized, timely, and minimum impact response in the event a frac-out and inadvertent release of drilling fluid; and
- Ensure that all appropriate notifications are made to regulatory agencies within 24 hours and that documentation is completed.

In the event a frac-out occurs, the contractor will be directed to immediately alleviate or halt the release of drilling fluids; this can be accomplished by modulating pressure in the mud motor.

Further release of drilling fluid from fractured substratum can be reduced or halted by utilizing one of the following methods:

- Sealing the fracture in the underlying rock substrate by pipe jacking the drill pipe past the frac-out location (the threaded drill pipe will seal any fractures stopping the release of drill fluid);
- Utilizing non-toxic additives to seal the fracture (non-toxic additives can assist in the hardening of the bentonite, effectively sealing the frac-out location); and/or
- Pulling back and altering the bore path to avoid the location where the frac-out has occurred. If a frac-out persists for more than 48 hours after attempting to correct the discharge, the boring contractor shall remove the drill pipe as necessary and a new bore path shall be attempted.

Any suspected or actual frac-outs will be monitored and cleanup measures employed, as necessary:

- In the event of a frac-out, clean-up would be required and the time needed for clean-up would vary depending on the size of the potential release.
- If a terrestrial frac-out occurs, the area would be surrounded with sand bags and the material removed either by hand or with the use of a vacuum hose. Any collected material would be recycled or disposed of at a permitted landfill.
- If a marine frac-out occurs, cleanup activities shall be conducted consistent with safe working practices. Congealed drilling fluid shall be removed from the water column by divers using mesh bags, buckets, or similar device. The contractor shall employ mitigation measures to isolate/contain the drilling fluid from further dispersal into the water column, as much as is practicable.
- The practices described above are expected to ensure against a large drilling fluid release from frac-out.

After Construction

At the end of construction activities, the contractor shall prepare a concise summary report detailing all frac-out-related activities including incidents, response, and cleanup activities. The summary report shall contain copies of the monitoring logs.

- The *Frac-out Contingency Plan* shall specify a designated frac-out monitor who will observe the conditions as the drill head progresses and look for evidence of a frac-out. The frac-out monitor shall be required to maintain a separate log of all potential and actual frac-out events. The log shall contain the following information:
 - Details on the release
 - o Estimate of the amount of bentonite released and size of the area impacted
 - o Location, date, and time of release
 - o Success of cleanup action (document post-cleanup conditions with photographs)
 - Name and telephone number of person reporting

- How the release occurred
- Type of activity surrounding the area of the frac-out
- Description of methods used to clean up and secure the site
- Listing of current permits obtained for the project.

Summary

While the potential for a frac-out event or inadvertent discharge of drilling fluid is not anticipated, the contractor shall prepare appropriate mitigative measures and the *Frac-out Contingency Plan* to prevent, identify, and cleanup the potential for discharges.

Cable Laying Activities

Cable laying activities will primarily involve laying the cable on the seabed along a predetermined route, installation of the F/O cable into the drill pipe serving as conduit at the ocean bottom, and connection to the terrestrial CLS. No further excavation, trenching, or turbidity generating activities are therefore planned which would result in potential for adverse impacts to water quality.

Endangered Species Act (ESA) Listed Species and Marine Biota Best Management Practices (BMPs)

Construction activities from the proposed project are not anticipated to negatively impact coral, Essential Fish Habitat (EFH), green sea turtles or marine mammals given that the existing conditions of the site involve human presence and regular boating traffic that may deter regular use of the shoreline and nearshore waters. Marine surveys undertaken for the proposed project were used in identifying a route and design to minimize the potential for impacts to coral reefs and disruption or degradation of coastal water resources. During landing operations, the drill bit will daylight within sandy ocean bottom to avoid impacts to coral reefs. During the cable lay scattered corals may be discovered seaward of the submerged landing; however, the potential for damage to these corals will be avoided by careful placement of the cable between or around any formations.

The following ESA-listed marine species may occur within the action area: Green Sea Turtle (*Chelonia mydas*) - threatened; Hawksbill Turtle (*Eretmochelys imbricata*) - endangered; Hawaiian Monk Seal (*Monachus schauinslandi*) - endangered; and Humpback Whale (*Megaptera novaeangliae*) - endangered. The specific species density for each species in the project area is unknown. However, the project site near shore is within an area of intensive existing uses, including fishing, diving, canoeing, swimming, and surfing. The project is located in marine critical habitat for the Hawaiian Monk Seal; critical habitat starts at the waterline and extends from there out to the 200-meter depth contour, including the seafloor and marine habitat 10 meters in height (NOAA-NMFS, 2015). The Hawaiian Islands Humpback Whale National Marine Sanctuary (HIHWNMS) boundary includes some ocean areas around O‘ahu; however it does not include areas adjacent to the proposed action area. Potential impacts to ESA-listed species associated with the proposed work include (1) collisions with vessels, and (2) disturbance from human activity and equipment operation.

Vessels utilized for this action will include a purposely built cable laying ship and smaller boats to support landing operations near shore. Marine mammals and sea turtles need to come up to the surface to breathe and often rest or bask at the surface. When these animals are at the surface, they are at risk of being struck as vessels transit within the project site. Potential injuries and their severity are contingent on several factors including the speed and size of the vessel, the

part of the vessel that strikes the animal (hull, propeller, etc.), and the part of the animal that is struck. The resulting injuries may include bruising, cuts, broken bones or carapaces, and even death. Given the “developed” nature of Hawai‘i’s coastline and the increasing population of sea turtles, collisions with boats may be a major threat around the main Hawaiian Islands. Boat collision is not identified as a significant risk for monk seals, however incidents may be expected to increase as boat traffic and the animal density increases. Collisions with oceangoing vessels are identified as a threat to humpback whales.

Based on the relatively low number of vessel trips expected as part of the proposed action, and the expectation that the vessels will be operated in accordance with the NMFS/PRD-recommended BMPs, which require vessel operators to carefully watch for and avoid protected species, the potential for collision between project-related vessels and protected species is expected to be negligible. As detailed above, the proposed action includes work in and above marine waters where ESA-listed species may be directly exposed to project-related activity. However, sea turtles and marine mammals usually avoid human activity. Therefore, it is expected that project-related human interaction with ESA-listed species will not occur and that these species will avoid the area during times when construction activities are ongoing.

Project BMPs will include the requirement for the project manager and contractor to watch for and avoid protected marine life before commencing work and by postponing or halting operations when protected species are within 50 yards of project activities. It has been determined that disturbances due to exposure to human activity and equipment operation as part of this project would be rare and non-injurious, resulting in insignificant effects on the ESA-listed marine species.

During the planned cable lay and installation, the following BMPs will be implemented:

Awareness, Education and Preventive Actions:

- All on-site project personnel will receive a briefing regarding ESA-listed species potentially present in the project area.
- During the cable laying period, HDD operations, and landing of the cable, a designated individual(s) shall survey the areas immediately adjacent to the project site for ESA-listed marine species prior to the start of work each day. The designated individual(s) shall also make visual surveys prior to resumption of work following any break of more than 30 minutes as well as performing periodic surveys throughout the work day.
- If a marine protected species is in the area, observe a 50-yard buffer with no human encroachment. If a monk seal/pup pair is seen, a 100-yard buffer must be observed. All in-water work shall be postponed or halted when ESA-listed marine species come within 50 yards of the work site, and shall only begin/resume after the animal(s) have voluntarily left the area. If ESA-listed marine species are noticed within 50 yards after work has already begun, that work may continue if the ongoing activity does not have the potential to adversely affect the animal(s).
- No project personnel shall attempt to feed, touch, ride, harass or otherwise intentionally interact with any ESA-listed marine species that move into the project site.
- In the event a marine protected species enters the project area and activity cannot be halted, conduct observations and immediately contact NOAA/NMFS. For monk seals contact Marine Mammal Response Coordinator at (808) 944-2269 and the monk seal hotline at (888) 256- 9840. For turtles, contact the turtle hotline at (808) 983-5730.

- In order to minimize the risk of entanglement for ESA-listed species which may enter the project site, in-water tethers and mooring lines shall be kept to the minimum lengths necessary and shall be completely removed promptly upon completion of the intended task.

Physical Impacts/Collisions:

- Safe Operating Distance – Vessels associated with the project shall remain at least 100 yards from whales and monk seal/pup pairs, and at least 50 yards from other marine mammals and sea turtles.
- Vessels associated with the project shall reduce speed to 10 knots or less when operating near or within the Safe Operating Distance of marine mammals and sea turtles.
- If a marine mammal or turtle approaches the vessel, the engine must be put in neutral until the animal voluntarily moves at least 50 feet away. The vessel shall then slowly move away to the Safe Operating Distance.
- Marine mammals and sea turtles shall not be put in a situation where they are between vessels and the shore or are encircled or trapped between multiple vessels.

Summary

No significant adverse effects are anticipated to result from the proposed project. Construction activities will generate short-term impacts in the form of noise, dust, solid waste, energy use, water use, and traffic. Construction will provide temporary economic stimulation in the form of jobs and material procurement. Following construction, there will be no noticeable change in the surrounding environment from the SEA-US cable system.

CHAPTER 190D REQUIREMENTS

Pursuant to §190D-11, Hawai'i Revised Statutes (HRS), any person desiring to lease state marine waters shall submit to the board an application which contains the following:

1. An environmental assessment or, if required, an environmental impact statement which shall be prepared and accepted in compliance with the rules adopted under chapter 343.

The Draft EA for the project was published in the OEQC Bulletin on March 23, 2016; the public comment period ended on April 25, 2016. A copy of the Draft EA was forwarded to the OCCL, DLNR, in March 2016. The Final EA was prepared, pursuant to the requirements of HRS, Chapter 343, to respond to comments received for the Draft EA. The CCH, DPP filed a FONSI statement for the Final EA on May 26, 2016 to be published in the OEQC Bulletin on June 8, 2016. A copy of the Final EA is provided in **Appendix A**.

2. A description of the location and boundaries of the state marine waters to be used and a description of the nature of the use desired.

The project site is located on the west side of the Island of O'ahu in the Wai'anae District of the CCH, and offshore of this location, generally to the northwest of the coast. The proposed terrestrial landing site, designated as TMK: (1) 8-4-002: 059, mauka of Farrington Highway, is relatively flat in topography (see **Section 2 – Figure 7, Topography**). Access to the terrestrial site is via a gravel access road, which connects to the Farrington Highway. The general vicinity of the project site includes the Mākaha Beach Park, the Wai'anae Mountains, single and multifamily housing, agricultural lands, and the Mākaha Resort Golf Course. The project site and surrounding infrastructure are currently used for purposes that are similar to the proposed project, including a F/O cable telecommunications building and related infrastructure.

The proposed nearshore-landing site, approximately 14 meters below msl, is located within the sand channel fronting Mākaha Beach. Seabed sediments in the sand channel are predominantly composed of well-sorted fine to medium-grained sand. The sand is greater than 1 meter (3 feet) thick in the sand channel and can be seen in aerial photographs. The proposed landing was selected to optimize the approach to infrastructure, minimize interference with existing cables, and use the seafloor features that effectively function as a natural corridor for the cable route. Landing and positioning the cable within the extensive sand deposits offshore of the Mākaha Beach will reduce cable exposure to ocean forces, eventually allowing the cable to be buried beneath the sand. This is expected to allow for the protection of corals and other marine species that depend of the area for food, foraging, and habitat.

The submerged cable location will be along a predetermined linear course in the Pacific Ocean beginning at Mākaha Beach (mean high tide: 21° 28' 38.09" N, 158° 13' 30.46" W) and extending beyond the 3-mile territorial limit of State of Hawai'i waters. Cable laying activities will primarily involve laying the cable on the seabed along a predetermined route, installation of the F/O cable into the drill pipe serving as conduit at the ocean bottom, and connection to the terrestrial CLS. In the event scattered corals are discovered seaward of the landing location during the cable lay, the potential for damage to these corals will be avoided by careful placement of the cable between or around any formations. Once installed the SEA-US Cable System will be used for telecommunication purposes; the cable does not contain materials that would be harmful to water quality and will have no effect on water quality or the aquatic environment.

The exposed cable seaward of the HDD borehole is not expected to result in adverse effects to marine biota. The HDD and cable installation in the marine environment will be designed to avoid or minimize the loss of special aquatic habitat. The proposed cable itself shall introduce a new marine surface as potential habitat for future recruitment and use by benthic and marine species.

The installation of the cable within the Pacific Ocean is necessary for the operation of the proposed SEA-US cable system, that is, the transpacific cable must connect to worldwide terrestrial CLSs to accept the F/O telemetry. The proposed CLS accepting the cable telemetry will interpret and distribute the signal to existing terrestrial F/O cable infrastructure located along the Farrington Highway ROW owned by telecommunications providers such as Hawaiian Telcom.

The project is subject to rules governing ROH, Chapter 23, for proposed activities located between the State Certified Shoreline and the line designating the 40-foot shoreline setback. See **Section 2 – Figure 6, Site Plan (with Certified Shoreline and Shoreline Setback Identified and Photo Index Map)** and **Appendix B**. A permit application for work within the setback area is concurrently being filed with the CCH, DPP for the proposed project. A portion of the proposed project is within the SMA as defined by HRS, Chapter 205A, and ROH, Chapter 25. See **Section 2 – Figure 10, Special Management Area**. A permit application for work within the SMA is currently being filed with the CCH, DPP for the proposed project.

3. A statement of the reasons for selecting the proposed location.

The only feasible means of installing the SEA-US F/O cable will require the physical location of the cable within the Pacific Ocean. The Mākaha Beach landing location is the best practicable location for the landing site as summarized below:

- The terrestrial site designated as Tax Map Key (TMK): (1) 8-4-002: 059 is owned by Hawaiian Telcom and currently available for development and operation of the telecommunications facility.
- NEC and Hawaiian Telcom have partnered to provide telecommunications infrastructure at this location and can facilitate the ready access of the F/O cable to the proposed CLS.
- The terrestrial site has a zoning designation of Country and is located within the State Land Use Urban District which supports the proposed land use (see **Section 2 – Figure 8, O‘ahu Zoning** and **Figure 9, State Land Use Districts**).
- The submerged project area required seaward of the shoreline would be within the Conservation District, *Resource Subzone*, and subject to CDUP requirements. According to HAR, Section 13-5-22, P-6 Public Purpose Uses, the proposed SEA-US submarine cable project is an identified land use in the State Land Use Conservation District and allowable with a CDUP. According to Chapter 13-5, Section 22, HAR:

P-6 Public Purpose Uses

(D-1), “*Not for profit land uses undertaken in support of a public service by an agency of the county, state, or federal government, or by an independent non-governmental entity, except that an independent non-governmental regulated public utility may be considered to be engaged in a public purpose use. Examples of public purpose uses may include but are not limited to public roads, marinas, harbors, airports, trails, water systems and other utilities, energy generation from renewable sources, communication systems, flood or erosion control projects, recreational facilities,*

community centers, and other public purpose uses, intended to benefit the public in accordance with public policy and the purpose of the conservation district”; and

(D-2), *“communication systems...and other public purpose uses, intended to benefit the public in accordance with public policy and the purpose of the conservation district.”*

- The site can provide access to the utilities needed to support the facility without extraordinary new development.
- The activity of landing the SEA-US F/O cable is dependent on a shoreline site. The Mākaha Beach location provides access to accommodate cable installation in a sandy ocean bottom environment, and connection to the proposed CLS. The landing site also provides for reasonable access to basic utilities, i.e., water, sewer, electricity and communications infrastructure.

The placement of submarine F/O cable offshore of the Mākaha Beach location provides the most expedient and effective means of connection between Hawai‘i and the U. S. mainland, Guam, the Philippines, and Southeast Asia, and would have minimal potential for impacts to the surrounding environment. An alternative site for the installation of the F/O cable is not considered feasible as it would not address the project requirement for the use of the joint Hawaiian Telcom/NEC project site.

Consideration for the grant of a CDUP, therefore, will be the only practicable means of developing the project. The absence of a viable option would subject NEC and Hawaiian Telcom to undue hardship if not allowed to use the proposed Mākaha Beach landing site. Denial of the CDUP would incur the following consequences:

Loss of the Mākaha Beach landing site would require that the SEA-US cable be redeployed for a cable lay that would bypass O‘ahu. This would result in the lost opportunity to develop telecommunications markets serving O‘ahu and the greater Honolulu area. This lost opportunity would deprive NEC and Hawaiian Telcom from generation of revenues, however, it would also deprive O‘ahu residents, businesses and government from access to new business and cultural relationships with Indonesia, the Philippines, Guam, and the U. S. West Coast. The proposed submerged cable route and offshore landing location for connection to the CLS site mauka of Farrington Highway at Mākaha Beach is necessary for the operation of the transpacific SEA-US F/O cable system and provides the most expedient and effective means of establishing a new connection between Hawai‘i and the U. S. Mainland and Southeast Asia.

4. A description of the activities to be conducted, including a specification as to whether such activities are commercial or noncommercial, a timetable for construction, deployment, and operation of facilities, and planned levels of production.

The principal action requested in this application involves the use of the State Conservation District, *Resource Subzone*, for HDD boring, and the installation and placement of submarine F/O cable and conduit. The SEA-US Cable System is being undertaken by a consortium of international telecommunications providers and is commercial in nature providing service to public and private sector users.

NEC proposes to commence installation of the F/O cable and construction of the site upon approval of all required environmental permits, anticipated to be in late 2016 to early 2017.

Construction activities at the project site are anticipated to take several months (e.g., approximately 10 – 12 months) and will primarily involve cable laying activities by a cable

ship and the operation of the HDD rig and the construction of the CLS, BMH, access roadway, and supporting utilities including water and power. The period required for the nearshore installation of the submarine F/O cable from the cable ship to the BMH will be relatively short, and is expected to require not more than approximately one to three days.

Once operational, the capacity of the SEA-US broadband F/O telecommunications system will be offered for service to the public and private sector for commerce, trade, cultural, and other purposes associated with high bandwidth telecommunications. This system will provide state of the art capacities of up to 100 gigabytes per second (Gbps) principally to Indonesia, the Philippines, Guam, and the Continental United States.

Because the system can be linked to other Hawai'i systems providing telecommunications traffic, SEA-US will also provide back-up support and redundancy to improve overall reliability to Hawai'i and other end users.

5. A statement on the extent to which the proposed activities will interfere with the use of the state marine waters for the purposes of navigation, fishing, and public recreation.

Recreational facilities in the vicinity of the project site primarily consist of the use of shoreline resources along Mākaha Beach Park, located to the southwest, approximately 140 feet from the project parcel; Kea'au Beach Park, located approximately 0.8 miles northwest of the project site; Makua Kea'au Forest Reserve, located directly northeast of the project site; Mākaha Golf Course and Mākaha Valley Country Club, located approximately 2 miles east of the project site; Wai'anae Regional Park, located approximately 2.4 miles southeast of the project site; Pokai Bay Beach Park, located approximately 3.4 miles southeast of the project site; Lualualei Beach Park, located approximately 3.7 miles southeast of the project site; Mā'ili Beach Park, located approximately 4.9 miles southeast of the project site; and, Keawaula (Yokohama Beach), located approximately 5.6 miles northwest of the project site.

No adverse impacts to beach and shoreline resources are anticipated. This is because the use of HDD will permit the underground installation of the cable within a borehole/drill pipe conduit with no disturbance or effect to the surface.

Some disruption to ocean uses (surfing, diving, boating, fishing, and swimming) in the water beyond the surf zone, may occur when the HDD drill bit daylight at the ocean end and during installation of F/O cable by the cable ship. This will take place approximately ½ miles from shore and extend to deeper ocean waters up to the State territorial limit from the shoreline. During daylighting of the drill bit, there will be support boats and divers and/or ROV in the water. It is anticipated that during daylight activities and cable installation, that the area immediately surrounding the ocean end of the borehole will have to be closed off to maintain public safety and security.

Ocean closure of the area is expected to include only the submerged landing site with a total area of approximately ±100 feet by ±100 feet. Closure of nearshore waters will be accomplished by publishing a notice advising mariners to temporarily avoid the area on days when the ship will lay cable.

The period of time involving closure of the nearshore waters during cable laying operations is expected to be temporary and will last only for the duration that the cable ship is on station at the site, approximately one to three total days. Should it become necessary to further temporarily close the ocean area during daylighting activities, sufficient notice to mariners will also be provided. It is expected that closure of the area surrounding the HDD boring operation and cable landing at the ocean end will be similarly temporary lasting only approximately one

to three total days. Once the cable is installed, there will be no further disruption to the area's recreational resources.

The cable ship and support vessels will comply with applicable federal and state regulations and conventions addressing navigational safety, safe operations, and pollution prevention measures. The location and duration of the cable ship and support boats present in the project area will be provided in a Notice to Mariners submitted in accordance with USCG requirements. The USCG will issue the notice to alert other vessels of the cable ship's presence, expected time in the project area, and contact information.

6. A description of any enclosure, fences, stakes, buoys, or monuments proposed to mark off the desired area.

Buoys may be used to mark off the area surrounding the landing site to ensure the safety of workers and ocean users. Ocean closure of the area is expected to include only the submerged landing site with a total area of approximately ± 100 feet by ± 100 feet. Closure of nearshore waters will be accomplished by publishing a notice advising mariners to temporarily avoid the area on days when the ship will lay cable. The Division of Boating and Ocean Recreation (DOBOR), DLNR will be fully notified of this project when work within marine water is required.

7. An initial description of current users (military, governmental, commercial, recreational, and cultural) and their uses of the state marine waters requested for lease, including any practitioners of traditional and customary Hawaiian rights.

Mākaha Beach is located in Mākaha on the west shore of O'ahu. It is a popular beach for water-related recreation, such as swimming, diving, boogie boarding, body surfing, sunbathing, fishing, boating, canoe racing and surfing. Several surf and canoe club events are held annually at Mākaha Beach Park. It is also a popular tourist destination.

Community, non-profit, and commercial-sponsored surfing and watersports events and competitions that take place at Mākaha Beach include, but are not limited, to the following:

- Na Kama Kai Surf Contest (Canoes, surfboards)
- Buffalo's Big Board Surfing Classic
- Rell Sunn Menehune Surf Contest
- Hawai'i Surf Association Surf Series

A small picnic area is located at the north end of the park (Pacific Architects, Inc., 1997). The shoreline is composed of carbonate sand and limestone and basalt rock. The area is exposed to southerly swells in summer months, northerly swells in winter months, and southerly to westerly waves from Kona storms throughout the year, but most often in the winter.

Mākaha Beach Park has been the site of many cable landings over the years. The near shore bathymetry is well known and there is a broad sand channel connecting an offshore sand cell to the sand beach. Cables have been landed through this channel and on the beach. In general, these cables are buried in the sand.

An Archaeological Assessment (AA) and Cultural Impact Assessment (CIA) were prepared by Cultural Surveys Hawai'i (CSH) to support the proposed project and are included in the appendices of the Final EA (**Appendix A**). The AA supports project-related historic preservation consultation among stake-holding federal and state agencies, interested Native Hawaiian organizations, groups and individuals, and community groups. The CIA addresses

the proposed project's effect on cultural practices and resources. Based on information gathered from the background and community consultation, the proposed project may potentially impact undetected iwi kūpuna (ancestral bones). CSH identifies potential impacts and makes the following recommendations:

1. Previous archaeology conducted in the vicinity of the project area has yielded iwi kūpuna (SIHP #s 50-80-07-4527 and -6825). In addition, no archaeology has been conducted within the project area. There is also a community concern regarding impact to a possible cultural layer, which may include burials (such as SIHP # -6825). Based on these findings, there is a possibility iwi kūpuna may be present within the project area and that land disturbing activities during construction may uncover presently undetected burials or other cultural finds. Should burials (or other cultural finds) be encountered during ground disturbance or via construction activities, all work should cease immediately and the appropriate agencies should be notified pursuant to applicable law, HRS §6E, Historic Preservation.
2. Another community concern was minimal disturbance to the environment and Mākaha Beach users (which may include cultural practitioners such as surfers and fishermen). The community's recommendation was to have more discussion with the community and to discuss plans prior to construction.

No adverse impacts to recreational, traditional cultural practices, or customary Hawaiian rights are anticipated to result from the alternatives considered for this project. Further discussion with the community is planned and has been initiated with the state senator and house representative serving the Mākaha district.

EVALUATION CRITERIA

The Department or Board will evaluate the merits of a proposed land use based upon the following eight criteria (ref §13-5-30 (c)):

1. The purpose of the Conservation District is to conserve, protect, and preserve the important natural and cultural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare. (ref §13-5-1) How is the proposed land use consistent with the purpose of the conservation district?

The Conservation District is generally intended to protect and preserve lands with natural resource and other values necessary to the future welfare of the State. This would include lands on which the F/O cable would be placed having an elevation below the shoreline within marine waters of the State.

According to HAR, Chapter 13-5-22, which governs uses in the State Conservation District, public purpose uses may be permitted as identified by the letter “D”. According to HAR, Chapter 13-5- 22:

“P-6 Public Purpose Uses

(D-1), *“Not for profit land uses undertaken in support of a public service by an agency of the county, state, or federal government, or by an independent non-governmental entity, except that an independent non-governmental regulated public utility may be considered to be engaged in a public purpose use. Examples of public purpose uses may include but are not limited to public roads, marinas, harbors, airports, trails, water systems and other utilities, energy generation from renewable sources, communication systems, flood or erosion control projects, recreational facilities, community centers, and other public purpose uses, intended to benefit the public in accordance with public policy and the purpose of the conservation district”*; and

(D-2), *“communication systems...and other public purpose uses, intended to benefit the public in accordance with public policy and the purpose of the conservation district.”*

The proposed project will provide a communications system that will fulfill a mandated governmental function, activity, or service for public and private benefit, and in accordance with public policy and the purpose of the conservation district:

- The SEA-US Cable System is a state of the art, 100 Gbps ultra-long haul submarine fiber system that will serve a public utility (Hawaiian Telcom) in the State of Hawai‘i, connecting the State to Indonesia, the Philippines, Guam, and the Continental United States.
- The proposed project is a shoreline dependent facility that will not adversely affect the natural environment, cultural resources, or shoreline, and is a permitted use within the current CCH zoning and State Land Use district with the approval of the CDUP.

In 2008, Hawai‘i’s Broadband Task Force, as created by Act 2 of the First Special Session of 2007, submitted a final report entitled *Hawai‘i Broadband Task Force Final Report*. The report

includes findings and major recommendations necessary for Hawai'i to achieve broadband capability comparable to the world's leaders:

- Broadband is critical infrastructure for Hawai'i's 21st century advancement in education, health, public safety, research & innovation, economic diversification and public services. One national study estimated the positive economic impact of advanced broadband in Hawai'i at \$578 million per year. The task force recommends that Hawai'i establish an aggressive and forward-looking vision that positions the State for global competitiveness.
- The task force found that the U. S. as a whole is dramatically lagging the leaders in the developed world in our broadband capabilities and pricing, and is falling farther behind each year. While Hawai'i is doing well on some measures relative to some other parts of the U. S., the State also falls to the bottom in many national broadband studies. The task force recommends that the State consolidate all relevant regulatory and permitting responsibilities in a new, one-stop, broadband advancement authority that promotes Hawai'i's policy objectives and provides advocacy at all levels of government.
- Hawai'i's "lifeline" for broadband to the rest of the world is expensive submarine fiber. While Hawai'i was once the crossroads for transpacific telecommunications, all of the new fiber systems built across the Pacific since 2001 have bypassed Hawai'i. The task force recommends that Hawai'i aggressively promote the landing of new transpacific submarine fiber in Hawai'i, including a shared access cable station that reduces barriers to fiber landing in Hawai'i.
- The task force believes supplying advanced broadband at affordable prices is just one side of the equation. The task force recommends that Government lead by example in demonstrating the value of broadband to our citizenry, deploying broadband services to the public, and ensuring that we do not leave behind the economically disadvantaged members of our communities who may be inhibited from full participation in the 21st century.

In 2010, the State of Hawai'i's Department of Commerce and Consumer Affairs (DCCA) was awarded a Federal grant to assist the State in gathering and verifying data on the availability, speed, location, and technology type of broadband services. This grant ended on January 31, 2015.

On June 21, 2011, Governor Neil Abercrombie signed into law new legislation that signified the first step in expanding broadband in Hawai'i. The Hawai'i Broadband Initiative seeks to bring 1 Gbps data rates to all Hawai'i residents by 2018.

"Our goal is to provide universal access to affordable, ultra-high-speed Internet by 2018. The target is a statewide connection of one gigabit per second, an increase of 200 times faster than today's typical household connection."

- Neil Abercrombie, Governor, State of Hawai'i, 2011

For a state as isolated as Hawai'i, high-speed Internet can be transformative. It connects families, businesses and institutions – between the islands and with the rest of the world. It

spurs economic development, fosters innovation and gives current and future generations a competitive edge. Hawai'i Broadband fosters innovation, enhances multimedia, cultivates new learning techniques, strengthens public safety, improves healthcare, increases government efficiency, and spurs job creation.

Hawai'i Broadband accomplishments to date:

- Utilizing approximately \$33.6 million of federal monies received through the American Recovery and Reinvestment Act (ARRA), Hawai'i has launched an effort to be the first state in the nation with one gigabit per second broadband connectivity at every public school, public library, and public university and college campus.
- Hawai'i was selected as a Rural Health Care Pilot Project by the Federal Communications Commission (FCC). Titled the Pacific Broadband Telehealth Demonstration Project (PBTDN), it enables improved health care through high-speed connections for telehealth and medical education throughout the state.
- July 6, 2010: HB2698 Enacted as Act 199 - Begins implementation of activities to achieve Hawai'i's broadband goals; adds the functions of telework promotion and broadband assistance to the State DCCA; establishes a telework promotion and broadband assistance advisory council.
- May 2011: HB1342 enacted as Act 151 - Eases broadband permitting and pole access.

NEC in partnership with Hawaiian Telcom, which is a public utility registered to operate in the State of Hawai'i, is developing the Hawai'i segment of the SEA-US Cable System. The purpose of the SEA-US Cable System is to upgrade and improve existing telecommunications access between the Southeast Asian nations of Indonesia and the Philippines, U. S. Territory of Guam, Western U. S., and Hawai'i.

The proposed project will facilitate expanded access to telecommunications services necessary to enhance and promote Hawai'i's role as a center for international relations, trade, finance, services, technology, education, culture, and the arts. The project is intended to improve the long-distance transmission of domestic and international F/O signals and reinforce Hawai'i's position as a hub in transpacific submarine telecommunications networks, which will facilitate the future economic growth of the State. The anticipated entry of new capacity by the SEA-US cable system will promote telecommunications services and increase accessibility and use of telecommuting for business, commerce and cultural exchange. This will primarily be from Southeast Asian nations including Indonesia and the Philippines, the U. S. territory of Guam, and the Western U. S., which will be directly connected with the cable system in Hawai'i.

The proposed project serves to promote and expand research and development of businesses and services in the telecommunications and information industries. The proposed SEA-US cable system will have high operating bandwidth enabling the use of high technology services such as telemedicine and real time videotrafficing.

2. How is the proposed use consistent with the objectives of the subzone of the land on which the land use will occur? (ref §13-5-11 through §13-5-15)

The Hawai‘i State Land Use Law, entitled “State Land Use Commission,” HRS, Chapter 205, was adopted in 1961. The law is meant to preserve and protect Hawai‘i lands, and encourage the uses to which the lands are best suited. All land in Hawai‘i is classified as one of the four districts: Urban, Rural, Agricultural or Conservation. The proposed terrestrial project site is located within the State Land Use Urban District. The submerged portion of the project is designated within the State Conservation District, *Resource Subzone*.

The objective of the *Resource Subzone* “is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas.” The proposed use is consistent with the objectives of the *Resource Subzone* and will ensure the sustainable use of the natural resources of the area. Once installed the F/O cable will have no adverse impact on the surrounding environment or preclude the use of the resources in the area.

The proposed project is not anticipated to involve a substantial degradation of environmental quality. The planned construction and operation of the SEA-US cable system and CLS will not substantially alter environmental conditions at the project site. Planning and design for the project includes mitigation measures to prevent or minimize potential adverse environmental effects. The project will not result in cumulative impacts, will not involve a commitment to larger actions, and will not result in the elimination of planning options.

The project would have only temporary and localized effects and the area will be restored upon completion of installation. As demonstrated by similar actions involving the use of HDD near the project site (e.g., Sandwich Isles Communications and Southern Cross Cable), the environmental quality of the area has not been adversely affected; this project is expected to have similar effects.

The proposed project, with the implementation of BMPs and mitigation measures, will not adversely affect public health or safety. The project will be developed in accordance with federal, state, and CCH, rules and regulations governing public safety and health.

The F/O cable and accompanying use of computer generated light signals do not constitute a public health or safety hazard. The cable is constructed of steel, glass fibers, and plastics. Light signals transmitted through the cable will be self-contained, of low power, and are not expected to escape. Should a cable break occur, the resulting loss of signal would require a shutdown of the system until repairs can be made. The primary health concerns, therefore, involve air, water, noise, and traffic impacts during construction. It is expected that potential for minor impacts due to construction will be minimized or brought to negligible levels by use of appropriate mitigation measures as described in the Final EA for the project (**Appendix A**). No substantial adverse impacts to public health are anticipated.

There would be positive long-term impacts in the areas of social benefit for residents and visitors. Long-term gains resulting from development of the proposed project include provision of more effective State telecommunications capabilities (by means of transmission from the F/O cable). The proposed project will maintain and enhance economic productivity by increasing telecommunications service between the State and international (Southeast Asian nations and Guam) and domestic (Western U. S.) locations. The project will further benefit Hawai‘i with increased telecommunications speed and reliability due to the advanced capacity and backup that would be provided. The planned project would benefit the both the resident

and visiting populations on O‘ahu, that will enable O‘ahu to continue to be a desirable place to live and visit.

3. Describe how the proposed land use complies with the provisions and guidelines contained in chapter 205A, HRS, entitled “Coastal Zone Management” (*see 205A objectives on p. 8*).

The following is an analysis of the project's consistency with HRS Chapter 205A.

1. Recreational Resources

The proposed action is not anticipated to adversely affect existing coastal recreational resources or use of nearshore lateral access along the shoreline for ocean recreation. During HDD operations when the drill bit daylight at the ocean end and during installation of the F/O cable by the cable ship the contractors will control access to the work area near the vessels to maintain safe distances between the public and the active area of work. Closure of nearshore waters will be accomplished by publishing a notice advising mariners to temporarily avoid the area on days when the ship will lay cable. The period of time involving closure of the nearshore waters is expected to be temporary.

The project activity will not preclude use of the Mākaha Beach Park, TMK: (1) 8-4-001: 012, and the beach will remain open during the activity. This is because the use of HDD will permit installation of the cable within an underground drill pipe at a depth of approximately 80 to 100 feet or more with no disturbance to the fast land or portions of the park. The drill pipe will extend from the CLS project site beneath Mākaha Beach Park and Farrington Highway to the submerged landing site. No adverse impacts to beach and shoreline resources are anticipated. The project is not expected to affect any public recreational facilities or opportunities.

2. Historic resources

An AA, originally termed an Archaeological Inventory Survey (AIS), of the project area was undertaken by CSH, in consultation with the State Historic Preservation Department (SHPD), Archaeology and Architecture Branches, DLNR. No historic properties were identified within the project area during the initial AIS investigation; therefore, the report was termed an AA, per HAR §13-284-5(b)(5)(A). No further mitigation in the form of archaeological historic preservation work is recommended. No adverse impacts to historic resources are anticipated to result from the alternatives considered for this project. No mitigation is needed or recommended (see Section 7.2 of the Final EA located in **Appendix A**).

In accordance with HRS, Chapter 6E, and the requirements of the SHPD, DLNR, should any historic resources, including human skeletal and significant cultural remains, be identified during project activities: (1) work will cease in the immediate vicinity of the find; (2) the find will be protected from any additional disturbance; and (3) the SHPD, will be contacted immediately at (808) 692-8015 (Main Office, O‘ahu) for further instructions including the conditions under which project activities may resume.

3. Scenic and open space resources

Views to and along the shoreline are generally protected through the Coastal Zone Management Act (CZMA), enacted in 1972. Projects needing federal permits are required by the CZMA to be consistent with Hawai‘i’s Coastal Zone Management Program (CZMP) objectives and policies. The major identified view planes in the project area are the views from Farrington Highway of the Wai‘anae Mountains, Mākaha Beach, and Lahilahi Point. The

proposed project should not be considered as particularly obtrusive, unusual, or adverse to any view plane.

During construction involving installation of support infrastructure and the F/O cable, there will be a temporary impact on coastal views due to the presence of construction equipment, and a cable ship and smaller support vessels in the water. There will be a temporary impact on views mauka of Farrington Highway due to use of a HDD boring rig. However, the rig will be partially obscured from view since it will be situated within a boring pit approximately 8 to 10 feet below grade, within the project site. Once construction is completed, all equipment no longer necessary to the site will be removed with no further disturbance to the scenic resources of the area.

Infrastructure necessary for the project will either be buried or, in the case of the access road and BMH will be at or near grade. The proposed F/O cable, similarly, is not expected to result in potential for adverse visual impacts. The cable will be buried and therefore, will not constitute a potential source of impact.

The project architect has addressed potential for visual impacts associated with construction of the CLS. The CLS, located mauka and above Farrington Highway, will be partially visible to motorists. Existing vegetation and new landscaping will be used to enhance views of the access road and building. The CLS will be a modular or typical concrete structure and colored to be consistent with the earth tones of the surrounding site.

No alternative considered is anticipated to have an adverse effect on the scenic or aesthetic environment. The proposed project conforms to the CZMP Objective 3, Scenic and Open Space, by ensuring that the new development is compatible with the visual environment by designing and locating the project to minimize the alteration of natural landforms and existing public views to and along the shoreline. The project design encourages the protection and preservation of the quality of coastal scenic and open space resources.

4. Coastal ecosystems

The proposed project is not expected have any adverse effects on coastal ecosystems. Potential short-term and temporary impacts on marine biological resources from the proposed project could occur during the cable laying and nearshore landing operations. Marine surveys undertaken for the proposed project were used in identifying a route and design to minimize the potential for impacts to coral reefs and disruption or degradation of coastal water resources. The proposed project will take place within the extensive sand channel offshore of Mākaha Beach beyond the surf zone. Farther offshore, the cable will be placed along a predetermined route on the ocean bottom where sand and uncolonized habitat dominates the seabed.

During landing operations the drill bit will daylight within sandy ocean bottom to avoid impacts to coral reefs. Although HDD would require daylighting at the ocean end, the potential for increased turbidity generated by the drill bit can be more readily controlled at a specific, localized point. To minimize turbidity in submerged waters during daylighting operations, the drill bit will be slowed or stopped completely. Operation of the drill will involve use of a lubricant such as bentonite to facilitate passage of the drill bit through the substratum. The HDD contractor will be directed to avoid lubricant discharges at the ocean end. The use of lubricant will cease approximately ±100 linear feet prior to daylighting to avoid any discharges to State waters. It is expected that any unintentional releases will remain in a congealed state at the ocean bottom where it can be suctioned off by waiting divers observing the drill bit as it daylights.

During construction, BMPs will be employed in compliance with applicable permit requirements to prevent pollutant discharge in storm water runoff. Measures to prevent sediment discharge in storm water runoff during construction will be in place and functional before project activities begin and will be maintained throughout the construction period. Runoff and discharge pollution prevention measures will be incorporated into a site-specific BMP plan. The potential for adverse impacts to the coastal ecosystems will be addressed through adherence to all USACE, DOH, and CCH regulatory requirements.

5. Economic uses

The proposed project is for the installation of a transpacific F/O cable for which landing operations are coastal dependent. Ultimately, the final build-out of the SEA-US project will result in improved telecommunications connectivity between Southeast Asia, Hawai'i, Guam, and the U. S. West Coast. The project will further benefit Hawai'i with increased telecommunications speed and reliability due to the advanced capacity and backup that would be provided. The project is designed to minimize adverse social, visual, and environmental impacts in the coastal zone management area and to locate the proposed cable at Mākaha Beach, one of the major international subsea cable landing sites in Hawai'i.

Some employment will be required during construction activities. However, all employment associated with the proposed project will be short term and will only last until completion of the cable installation. Maintenance and upkeep of the unmanned F/O cable, CLS, and associated facilities will be provided by Hawaiian Telcom staff and cable vendor suppliers. The number of personnel associated with the operation of the Hawai'i segment of the SEA-US cable system is expected to be relatively small, and can be expected to be less than approximately 12 to 24 persons. Although some new employment may be required, this increase is expected to be small and with little to no adverse impact to regional employment within the project site region. The project will not conflict with policies regarding economic use. There are no adverse economic effects resulting from the project.

6. Coastal hazards

The project site is primarily located within Federal Emergency Management Agency (FEMA) - Flood Insurance Rate Map (FIRM), Zone X, an area determined to be outside of the 0.2% annual chance floodplain. This is reflected in FEMA-FIRM map 15003C0177H (HI-NFIP, 2011). See **Section 2 – Figure 11, FIMA FIRM Map** and **Figure 12, Flood Zones**. The proposed CLS site is located outside of the tsunami evacuation zone, as designated by the CCH, DPP O'ahu tsunami evacuation zone map 15 (CCH, DPP, 2010). The CLS site is located in the Extreme Tsunami Evacuation Zone, or XTEZ, for which in the unlikely event of an extreme tsunami, waves may move significantly inland. See Section 5.8 of the Final EA located in **Appendix A**.

The project is not expected to exacerbate flooding or affect flood zone areas. Erosion control measures will be employed during construction. Following project completion, permanent soil stabilization will be achieved through the use of grassing and ground cover vegetation.

7. Managing development

The EA for the subject project has been prepared under the procedural provisions of HRS, Chapter 343, and HAR, Title 11, Chapter 200, which allows for public review and participation (**Appendix A**). Accordingly, the preparation of the EA, and disclosure of anticipated effects of the project, will comply with the policy on managing development.

In addition, the USACE, SSV, SMA, and CZMA assessment processes encourage applicants to fully consider the effects of the proposed action in relation to the unique characteristics of the site and its environment. The process provides an opportunity to gather input, data and information from government entities and the public to facilitate modifications that would enhance coastal resource protection and reduce potential adverse impacts from the proposed action on a variety of resources and public services. By fully incorporating available information into site planning and aspects of the proposed action, coastal hazards and/or their negative effects can be avoided, minimized or mitigated. Further, risks associated with development along the shoreline can be better managed when they are evaluated in a holistic, littoral wide, public and private amenities and benefits context.

Integration of comments, information and concerns expressed by the public, government agency input, and public use considerations have been solicited relative to the proposed action. The process of obtaining public and agency insight will contribute to proposed measures to minimize, mitigate and avoid adverse impacts to coastal, environmental, recreational, historic and cultural resources.

8. Public participation

Public involvement in the project consisted of public notice of the proposed action during the State EA process in the State OEQC Bulletin. The EA helps provide an awareness of coastal, environmental, and social/recreational issues through development of the EA and its evaluation of various alternatives and supporting documents (**Appendix A**).

In addition, the environmental entitlements required for the project will ensure awareness of coastal hazards and that the appropriate steps to implement prudent coastal planning are considered. Throughout the permitting and entitlement process, input will be solicited from members of the public, government agency personnel, and leaders in the coastal conservation field. The public and government agencies would have opportunities to participate by either attending public hearings or submitting comments on the proposed action during the environmental entitlements review process. As such, the public has an opportunity to comment and participate in this decision. See Section 10 of the Final EA located in **Appendix A** for a list of the agencies, organizations and individuals that have been or will be consulted for this project. All written public comments have been provided with a written response. See Section 9 of the Final EA located in **Appendix A** for a copy of the comment and response letters received during the public comment period for the Draft EA. Where appropriate, mitigation measures have been developed to address issues and concerns raised during public review of the project.

9. Beach protection

The project site will be located inland and will not affect beach processes. HDD will be utilized in order to avoid surface disturbance to roads and beaches. The process of HDD will allow the cable to be installed by drilling under the beach area to the offshore landing site in the sandy ocean bottom; therefore, limiting impacts at the bore exit point and avoiding disturbance to the beach and coastal resources. BMPs will be used during construction and any excavated unusable material will be transported off site to prevent discharges of sediments to State waters.

10. Marine resources

Marine biological and water quality assessments were conducted to determine the effects of the proposed project on marine and coastal resources. The studies are included in the EA (**Appendix A**). See Section 5.15 of the Final EA located in **Appendix A** for further discussion on marine and nearshore biological resources occurring in the vicinity of the project and proposed mitigation.

During the construction phase, potential for impacts to marine resources from the HDD operation, and installation and landing of the F/O cable at a depth of approximately 14 meters below msl, may result as the drill bit emerges from the submerged bottom. This activity could temporarily generate increased levels of turbidity, which would affect surrounding benthic communities. Potential for release of bentonite or other lubricant during this process is planned to be addressed by the following:

- As the directional drill bit approaches the submerged target site (approximately ± 100 linear feet prior to daylighting) the drill bit speed will be reduced to the minimum necessary. The use of drilling fluid to the drill head will also be stopped to avoid any releases as the drill bit emerges or “daylights” at the ocean bottom;
- The location where the drill bit will daylight generally consists of hard bottom substrate covered by a sand channel approximately one to three meters in thickness. As the drill bit emerges from the sand covered hard substrate, the blanketing effect of the sand, shutoff of drilling fluid, and shutdown of the rotating drill head, will all help to prevent and control the release of any sediments and turbidity; and
- As required, support boats and divers/ROV will be used to observe and supervise all operations involving in-water work.

The proposed use of HDD for the installation of the SEA-US cable system is expected to be an improvement over trenching methods within the nearshore cable alignment. Although directional boring would require daylighting at the ocean end, the potential for increased turbidity generated by the drill bit can be more readily controlled at a specific, localized point.

The scope and scale of the project will be limited to the installation of a F/O cable, BMH, and CLS. Following construction, the cable and CLS will not affect marine or aquatic resources. The CLS site and BMH will be located inland and will not impact the marine environment. BMPs will be employed during construction and excavated material transported off site to prevent discharges of sediments into State waters that could affect marine or aquatic environments.

The USACE, NOAA, USFWS, and USCG will be consulted for the proposed project. All necessary permit applications and environmental and building permit approvals will be secured prior to the initiation of construction activities. See Section 10 of the Final EA located in **Appendix A** for further detail.

4. Describe how the proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region.

The proposed project will be developed in accordance with the environmental policies of HRS, Chapter 343, and the National Environmental Policy Act (NEPA). The project would not result in significant or substantial degradation of environmental quality. The project would have only temporary and localized effects and the area will be restored upon completion of installation.

As demonstrated by similar actions near the project site, specifically the existence of other cables, the environmental quality of the area has not been adversely affected and this project would have similar effects.

Soil Resources

The land type on which the terrestrial project site is situated is characterized as the Lualualei-Fill land-Ewa Association. According to the U. S. Department of Agriculture, Soil Conservation Service (SCS) publication, “Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawai‘i, 1972” (USDA, 1972) this association consists of well-drained, fine textured and moderately fine textured soils on fans and in drainage ways on the southern and western coastal plains. Soils found in this association are nearly level to moderately sloping. This association makes up about 14 percent of the land area of Oahu (U.S. Department of Agriculture, Soil Conservation Service, August 1972).

There are two primary soil types for the terrestrial project area (see **Section 2 – Figure 13, Soils**):

Coral Outcrop (CR): Consists of coral or cemented calcareous sand. The coral reefs formed in shallow ocean water during the time the ocean stand was at a higher level. Small areas of coral outcrop are exposed on the ocean shore, on the coastal plains, and at the foot of the uplands. Elevations range from sea level to approximately 100 feet.

Stony Land (rST): Occurs in valleys and on side slopes drainageways on the island of O‘ahu. It consists of a mass of boulders and stones deposited by water and gravity. The slope ranges from 5 to 40 percent: Elevations range from nearly sea level to 500 feet. The soil among the stones consists of reddish silty clay loam that is similar to ‘Ewa soils and very dark grayish-brown clay that is similar to Lualualei soils.

A geotechnical field exploration was performed by Yogi-Kwong Engineers LLC in support of the HDD shoreline crossing segment for the proposed project. As part of the field exploration a geological sample was obtained from the proposed HDD corridor (see **Section 2 – Figure 15, Approximate Geotechnical Boring Location**) and boring logs produced (see **Section 2 – Figure 16, Log of Boring in Support of SEA-US HDD Cable Shoreline Crossing and Appendix B**) to identify the substrata the HDD boring would pass through. The regional geology of the project area was identified as generally older alluvium formed during the Pleistocene and Pliocene epochs, in close proximity to surface outcrops of calcareous reef rocks and marine sediments and lava flows. Due to the past complex geologic history and depositional environments in the area, variations in stratigraphy and complex interbedding and intercalations of the local geologic units within short distances, in both the vertical and horizontal directions, should be expected as generally reflected in **Figure 15**.

No significant effects to soils or the geology of the area are expected to result from this project. Work at the site will involve installation of support infrastructure and directional boring on a portion of the terrestrial CLS site. Erosion control measures would be employed during construction, and potential for impacts involving soils stability or erosion addressed by use of applicable State, Federal, and CCH guidelines governing development. Upon completion of construction activity, all equipment no longer necessary to the site will be removed and the ground returned, as much as practicable, to existing preconstruction contours.

No adverse impacts to traditional cultural practices are anticipated to result from the alternatives considered for this project. Surrounding lands may be affected by the temporary generation of noise. Operation of the HDD boring rig is anticipated to be noisy; however, the

noise effects will be intermittent, localized, and temporary. To mitigate noise effects produced from the operation of the HDD boring rig, noise attenuation barriers or enclosures baffled to restrict the escape of noise will be placed around the bore site. With the appropriate mitigation, the noise effects from the HDD boring rig are not anticipated to be significant. All work practices will be in accordance with the noise regulations of the State of Hawai‘i and CCH.

The submerged landing site was selected to make use of an extensive deep sand-filled channel fronting Mākaha Beach that bisects the nearshore bottom and extends seaward. Extensive coralline limestone fringing reef platforms border both the north and south sides of the sand channel; along this hard substratum are well-developed coral communities. Sea Engineering Inc. (2001) measured the sand thickness in the Mākaha sand channel using a sub-bottom profiler. The survey indicates that the proposed daylight location within the sand channel is composed of sand deposits greater than 1 meter (3 feet) thick. This horizon layer overlies a dense to very dense mix of rubble/cobble and sand. Because of the shifting nature of this substratum, seasonal movement of sand and scouring that occurs with surf in this area, no corals or other slow-growing sessile species are expected at the proposed landing location (Sea Engineering, 2016).

Previous survey work conducted by Sea Engineering indicates that the sand channel widens seaward of the proposed landing location. At the 17-meter water depth, the sand channel spans a width of 300 meters. Further offshore it connects to a broad sand deposit that parallels the Wai‘anae Coast. The NOAA benthic maps indicate that the area offshore the proposed exit points is uncolonized sand. Uncolonized habitat is usually found on sand or mud bottoms. This bottom type continues to the 40-meter isobaths, the offshore extent of the NOAA maps (Sea Engineering, 2016). In the event scattered corals are discovered seaward of the landing location during the cable lay, the potential for damage to these corals will be avoided by careful placement of the cable between or around any formations.

Cable route reconnaissance and surveys undertaken for the proposed project have confirmed that it is possible to daylight the directional bore in sandy ocean bottom at approximately 14 to 17 meters below msl. It is desirable to locate the bore exit in sand to minimize potential for environmental impacts associated with anchoring, armoring, or trenching to secure the cable. The presence of extensive sand deposits on the ocean bottom will permit the cable to eventually bury itself into the sand, providing maximum protection against wave forces.

Surface Water Resources

Waters of the Pacific Ocean offshore of the Mākaha Beach and the site of the SEA-US cable landing operations are in the Class A category as defined by the DOH. Class A waters can be used for “recreational use and aesthetic enjoyment,” among other allowable uses compatible with protecting the natural resources in these waters (HAR, Chapter 11-54, WQS).

No other surface water bodies or streams exist in the immediate project area. See **Section 2 – Figure 14, Surface Waters**.

No adverse effects to surface water resources are anticipated. Project activities potentially affecting water quality are limited to the installation phase when there is the potential for increased turbidity from sediments disturbed in the nearshore cable landing location. Work activities with potential for adverse impacts to water quality will primarily involve operation of the HDD drill bit at the submerged, daylight ocean end; and, cable laying activities to install the F/O cable into the submerged drill pipe. The cable does not contain materials that would be harmful to water quality and will have no effect on water quality.

Work proposed within the Pacific Ocean, off the coast of Mākaha Beach is anticipated to require the filing of a Department of the Army permit. All work in the Pacific Ocean and potential mitigation, will be coordinated with the USACE, Honolulu Branch (see Section 8.2 of the Final EA located in **Appendix A**). All work within state waters will be coordinated with the DOH, CWB to identify requirements pertaining to their jurisdiction under Section 401, WQC (see Section 8.3 of the Final EA located in **Appendix A**).

HDD Bore and Drill Pipe Installation

The HDD operation will involve use of a lubricant such as bentonite, a naturally occurring clay, to facilitate passage of the drill bit through the substratum. The directional boring contractor will be directed to avoid lubricant discharges at the ocean end.

The potential for a discharge of drilling fluid or frac-out occurrence during HDD operations shall be minimized by the HDD operator through the adjustment of the drill and fluid pressure to reduce and control against the likelihood of a discharge. HDD operations will be monitored by the operator who will be alerted to a potential “frac-out” event from the loss of drilling fluid pressure readings on the drilling equipment. Under this condition, the HDD operator will alert the environmental team who will visually observe conditions along the ocean bottom using a camera equipped ROV, personnel or divers in the nearshore and deeper water, or both. This will allow for the timely detection and response in the event of a potential discharge into the marine environment. If any loss of drilling pressure occurs during the terrestrial segment of the proposed bore, the area of the suspected frac-out will be located and the area visually observed by environmental personnel.

In the event of sustained low pressure readings for the drilling fluid (i.e., suspected “frac-out” event), impacts to aquatic environment will be prevented through the control of the bentonite-based drilling fluid dynamics through the use of non-toxic additives which would increase viscosity, seal potential fractures, and reduce dispersion in the water column. In addition, the use of HDD will allow for some control over the guidance of the drill head by the operator should it become necessary to avoid locations susceptible to frac-out and loss of drilling fluid; drill pipe will be used as conduit that will be threaded together and pipe-jacked following the progress of the drilling head. As the conduit progresses it will help to effectively seal completed sections of the bore and eliminate the loss of drilling fluid from previously completed segments.

At the ocean exist location, the directional boring contractor will be directed to employ additional precautions to mitigate the potential for release of drilling fluid, sediments or turbidity, these include:

- As the directional drill bit approaches the submerged target site (approximately ±100 linear feet prior to daylighting) the drill bit speed will be reduced to the minimum necessary. The use of drilling fluid to the drill head will also be stopped to avoid any releases as the drill bit emerges or “daylights” at the ocean bottom;
- The location where the drill bit will daylight generally consists of hard bottom substrate covered by a sand channel approximately one to three meters in thickness. As the drill bit emerges from the sand covered hard substrate, the blanketing effect of the sand, shutoff of drilling fluid, and shutdown of the rotating drill head, will all help to prevent and control the release of any sediments and turbidity; and
- As required, support boats and divers/ROV will be used to observe and supervise all operations involving in-water work.

It is expected that any unintentional releases will remain in a congealed state at the ocean bottom where it can be collected by waiting divers or ROV positioned to observe the drill bit as it daylight. If a marine frac-out occurs, cleanup activities shall be conducted consistent with safe working practices. Congealed drilling fluid shall be removed from the water column by divers using mesh bags, buckets, or similar device. The contractor shall employ mitigation measures to isolate/contain the drilling fluid from further dispersal into the water column, as much as is practicable. Upon completion of work, the collected lubricant will be allowed to dry in the retention basin where it can later be collected and disposed of in accordance with applicable State and CCH regulations. No dewatering from the retention basin will be discharged to waters of the State.

Upon the completion of drilling, the drill head assembly will be removed by the divers for recovery, and the remaining drill shaft and pilot line will be pulled back through the drill pipe. The remaining drill pipe will be capped at the ocean end until the day of the cable pull.

Cable Laying Activities

Cable laying activities will primarily involve laying the cable on the seabed along a predetermined route and installation of the F/O cable into the drill pipe serving as conduit at the ocean bottom for connection to the terrestrial CLS. No further excavation, trenching, or turbidity generating activities are therefore planned which would result in potential for adverse impacts to water quality.

During the installation of the F/O cable, articulated split pipe may be placed around the cable from the submerged landing site to deeper ocean waters for additional protection. Split pipe may be secured with the use of mechanically driven bolts into the ocean substrate (rock bottom). This activity is not expected to result in release or generation of additional sediments into the water column. This operation has been applied to previous submarine F/O cable projects, and is similarly not expected to result in potential for adverse impacts to water quality.

Potential for adverse impacts to surface water from construction activities associated with this project will be addressed through the following additional proposed measures and practices:

- Construction will be regulated through adherence to the Department of the Army and NPDES permit conditions (see Sections 8.2 and 8.3 of the Final EA located in **Appendix A**).
- BMPs will be employed to prevent soil loss and sediment discharges from the work site. Project activities and operation of the system following project completion will comply with DOH regulations as set forth in HAR, Title 11 Chapter 54 - WQS, and Chapter 55 - Water Pollution Control.
- Discharge pollution prevention measures will be employed in all phases of the project. Control measures will be in place and functional before construction activities begin, and will be maintained throughout the construction period. A site-specific plan to prevent runoff and discharges of other pollutants into State waters, including removal procedures for the construction site BMPs will be prepared by the construction contractor as part of the project construction plan.
- The BMPs will include guidelines and mitigation measures to prevent runoff, discharge pollution, and other detrimental impacts related to construction activities. In addition, BMPs will include contingency plans to respond to heavy rainfall conditions.

- The project contractor will select locations for stockpiling construction material. Stockpile sites will be identified in the site-specific BMPs and construction plans. A sediment retention berm and/or silt fence will be installed around the down-slope side of stockpile sites to retain sediment discharges during heavy rainfall.
- The contractor, based on professional experience and site conditions, may modify the proposed BMP mitigation measures as necessary to account for unanticipated or site specific conditions.

Marine and Nearshore Biological Resources

A biological survey to assess possible project effects on marine resources, was conducted by AECOS, Inc., and is entitled *Marine Biological and Water Quality Surveys off Mākaha Beach, Wai‘anae, O‘ahu* (AECOS, 2015). See Appendix A of the Final EA (**Appendix A**).

The results of the marine survey conducted in October 2015 concluded that:

“Due to the project design location of the HDD daylighting in a large sand channel, direct impacts to sensitive marine biota have been avoided. Little, if any, adverse indirect impacts may occur as a result of the HDD corridor. Best management practices (BMPs), including environmental protection specifications and endangered species protection... may be applicable” (AECOS, 2015).

The seafloor in the proposed HDD daylight location is sand, with scattered small rocks that host algal growth. Miniature sea urchins (*Echinocyamus sp.*) are common on the sand. One marlinspike auger (*Terebra maculata*) was observed. The sand is pocketed by small burrows, which host spearing mantis shrimp (*Oratosquilla fabricii*) and snake eel (*Callechelys lutea*). An existing cable was observed on the north edge of the HDD daylight area. A green alga (*Caulerpa taxifolia*) and cyanobacteria grow on the exposed parts of the cable. Fishes are rare here; only two were observed: bluefin trevally (*Caranx melampygus*) and blackside razor wrasse (*Iniistius umbrilatus*). Pods of spinner dolphin (*Stenella longirostris*) were seen in this offshore location (AECOS, 2015).

Landward of the HDD daylight location at depths up to 60 feet (18.2 meters), the ocean bottom is composed of sand. Consolidated limestone bottom begins some 525 feet (160 meters) landward from the HDD daylight location where, at a depth of approximately 45 feet (14 meters), the reef slopes upward from the sand bottom. Bottom relief is high, with numerous ledges, caves, and overhangs. Sand in channels that groove the solid bottom are numerous. A moderate amount of coralline algae and algal turfs grows on the limestone. Urchins (*Tripneustes gratilla*, *Echinometra mathaei* and *E. oblonga*) are abundant on the reef, their scouring visible in the limestone surface. Blue soft coral (*Sarcothelia edmondsoni*) is also abundant here. Other, less conspicuous macroinvertebrates include: worms (*Sabellastarte spectabilis*, *Spironbrancus giganteus*, and *Lomia medusa*), bluedragon nudibranch (*Pteraeolidia ianthina*), crabs (*Trapezia sp.*, *Alpheus deuteropus*), urchins (*Heterocentrotus mammillatus*, *Diadema paucispinum*, and *Echinothrix calamaris*), and black sea cucumber (*Holothuria atra*). Several green sea turtles (*Chelonia mydas*) were observed around the limestone bottom (AECOS, 2015).

Coral cover at depths of 25 to 45 feet (8 to 14 meters) is estimated at 50%. At least seven taxa of coral occur. *Pocillopora meandrina*, *Poc. damicornis* and *Porites lobata* are the dominant species. Other less common corals include *Leptastrea bewickensis*, *Montipora capitata*, *M. patula*, and *Pavona varians*. Closer to the shore, the bottom limestone complexity and topographical relief decreases. Expanses of flat limestone dominate here, with low-growing or

turf-like algae dominant. The inshore half of the reef is home to conspicuously large numbers of urchins, including red pencil urchin (*H. mammilatus*), banded urchin (*E. calamaris*), and collector urchin. Coral cover in water 15 to 25 feet (4 to 8 meters) deep is estimated at approximately 20% (AECOS, 2015).

A total of 60 fish taxa were observed during the marine biological survey. Of the 60 taxa, 13 species are endemic to Hawai'i (found only in the Hawaiian Islands). The most well-represented genera across the survey area are surgeonfishes (*Acanthuridae*; 10 species), followed by damselfishes (*Pomacentridae*) and wrasses (*Labridae*), with 8 species each, and butterflyfishes (*Chaetodontidae*) and triggerfishes (*Balistidae*), with 6 species each (AECOS, 2015).

Common fishes are surgeonfishes, including orangeband surgeonfish (*A. olivaceus*), yellow tang (*A. flavescens*), and brown tang (*A. nigrofuscus*); goatfishes, including square-spot goatfish (*Mulloidichthys flavolineatus*), yellowfin goatfish (*M. vanicolensis*), and manybar goatfish (*Parupeneus multifasciatus*); bluestripe snapper (*Lujanus kasmira*) and parrotfishes, including stareye parrotfish (*Calotomus carolinus*) and palenose parrotfish (*Scarus psittacus*). Wrasses are also common, with numerous saddle wrasse (*Thalassoma duperrey*), and bird wrasse (*Gomphosus varius*) recorded (AECOS, 2015).

Observed high in the water column feeding on plankton are various damselfish, including bright-eye damselfish (*Plectroglyphidodon imparipennis*), Hawaiian gregory (*Stegastes marginatus*), oval chromis (*Chromis ovalis*) and blackfin chromis (*C. vanderbilti*), milletseed butterflyfish (*Chaetodon miliaris*) and black triggerfish (*Melichthys niger*). Hawkfish (*Paracirrhites arcatus*, *P. forsteri* and *Cirrhites pinnulatus*) occur sheltered in coral heads. Filefish (*Cantherhines dumerilii* and *C. sandwichensis*), boxfish (*Ostracion meleagris*), Moorish idol (*Zanclus cornutus*), bigeye emperor (*Monotaxis grandoculis*), spiny porcupinefish (*Diodon holocantus*), and Pacific trumpetfish (*Aulostomus chinensis*) are present but tend to be rare in the project area (AECOS, 2015).

The project includes work in marine waters where ESA-listed species may be exposed to project-related activity. One listed (endangered or threatened; DLNR, 2015; NOAA-NMFS, 2010a and 2011; USFWS, 2015) species was encountered during the October 2015 survey: green sea turtle (*Chelonia mydas*). Spinner dolphins, protected under the Marine Mammal Protection Act (MMPA) were also sighted. Other listed and protected marine species (sea turtles, Hawaiian monk seal, and humpback whale) are known to occur in the general vicinity.

Sea turtles and marine mammals typically avoid human activity, so exposure to such activity and equipment operation would be infrequent and non-injurious, resulting in insignificant effects on the ESA-listed marine species. Additionally, protected species BMPs will be followed by the project manager and contractor to reduce the likelihood of interactions, and will include watching for and avoiding protected species before commencing work and postponing or halting operations when protected species are within 50 yards of project activities. Protected and/or listed species that may occur within the project vicinity are discussed further below:

Sea Turtles

Of the sea turtles found in the Hawaiian Islands, only green sea turtle is likely in the project vicinity. The green sea turtle was listed as a threatened species under the ESA in 1978 (ESA; USFWS, 1978, 2001). Since protection, the green sea turtle has become the most common sea turtle in the Hawaiian Islands with a steadily growing population. On February 16, 2012, the National Marine Fisheries Service (NMFS) and the USFWS received a petition from the

Association of Hawaiian Civic Clubs to identify the Hawaiian green turtle population as a distinct population segment (DPS) and delist the Hawai'i DPS under the ESA of 1973, as amended (ESA; 16 U.S.C. 1531 et seq.). In March 2015, NOAA-NMFS published a proposed rule to reclassify the green sea turtle into 11 DPS, but continue protection of the Hawai'i DPS as a threatened species under the ESA (NOAA & USFWS, 2015a). The public comment period for this proposal ended September 25, 2015 (NOAA & USFWS, 2015b).

Shellfishes

Shellfishes, including pearl oyster (*Pinctada margaritifera*), are regulated throughout the State of Hawai'i, where it is prohibited to “catch, take, kill, possess, remove, sell or offer for sale”, without a permit, pearl oysters and six other shellfishes (DLNR, 2009). No pearl oysters were observed in the survey.

Monk Seal

The endangered Hawaiian monk seal (*Monachus schauinslandi*) is known to occur in the waters off Mākaha Beach. Critical habitat for Hawaiian monk seals has been designated (NOAA-NMFS, 2015) and includes the seafloor and marine habitat to 10 meter above the seafloor from the 200-meter depth contour through the shoreline and extending into terrestrial habitat 5 meter inland from the shoreline between identified boundary points. These terrestrial boundary points define preferred pupping areas and significant haul-out areas. (NOAA-NMFS, 2015). Mākaha Beach does not fall within assigned boundary points, therefore is excluded from monk seal critical habitat designation. However, critical habitat starts at the waterline and extends from there out to the 200-meter depth contour, including the seafloor and marine habitat 10 meter in height (NOAA-NMFS, 2015). The Project occurs in a designated marine critical habitat area.

Spinner Dolphin

The spinner dolphin (*S. longirostris*) gained protection under the MMPA in 1972, yet they are not considered depleted in waters of the Pacific Islands Region. Spinner dolphins are frequently encountered around the main Hawaiian Islands. Currently, the Protected Resources Division of the NOAA-NMFS Pacific Islands Regional Office (PIRO) is working on an Environmental Impact Statement (EIS) on the potential rulemaking under the MMPA to provide more protection to Hawaiian spinner dolphins (NOAA-NMFS, 2006). The MMPA states that the essential habitats used by marine mammals should be protected, and marine mammals should be protected from the harmful actions of man. NOAA-NMFS PIRO recommended guidelines for interactions with spinner dolphins include: (1) remain at least 50 yards from dolphin; 2) limit observation time to ½ hour; 3) if approached by a spinner dolphin while on a boat, put the engine in neutral and allow the animal to pass. Boat movement should be from the rear of the animal (NOAA-NMFS, 2011).

Humpback Whale

The humpback whale or *koholā* (*Megaptera novaeangliae*) was listed as endangered in 1970 under the ESA. In 1993 it was estimated that there were 6,000 humpback whales in the North Pacific Ocean, and that 4,000 of those regularly came to the Hawaiian Islands. The population is estimated to be growing at between 4 and 7% per year. Today, as many as 10,000 humpback whales may visit Hawai'i each year (HIHWNMS, 2014). Humpback whales typically arrive in the Hawaiian Islands as early as October and may stay as late as May or early June. The waters off Mākaha Beach are not included in the HIHWNMS.

Coral

Coral species are protected under Hawai'i state law, which prohibits “*breaking or damaging, with any implement, any stony coral from our waters, including any reef or mushroom coral*” (HAR §13-95-70; DLNR, 2014b). It is also unlawful to take, break or damage with any implement, any rock or coral to which marine life of any type is visibly attached (HAR §13-95-71, DLNR, 2014b). On August 27, 2014, NOAA issued a final rule for listing 20 coral species as threatened under ESA (NOAA-NMFS, 2014). None of these newly listed corals occurs in Hawai'i.

Essential Fish Habitat

The 1996 Sustainable Fishery Act amendments to the Magnuson-Stevens Fishery Conservation and Management Act and subsequent EFH Regulatory Guidelines (NOAA, 2002) describe provisions to identify and protect habitats of federally-managed marine and anadromous fish species. Under the various provisions, federal agencies that fund, permit, or undertake activities that may adversely affect EFH are required to consult with the NMFS.

Congress defines EFH as “*those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.*” (MSFCMA, 1996; NOAA, 2002). EFH provisions in MSFCMA designate that species harvested in sufficient quantities to require fisheries management are to be subdivided into similar Management Unit Species (MUS). Five MUS groups are currently managed in Hawaiian waters: bottomfish, pelagics, precious corals, crustaceans, and coral reef ecosystem. In the waters surrounding the Hawaiian Islands, EFH for coral reef ecosystem MUS as defined by the Final Coral Reef Ecosystem Fishery Management Plan (WPRFMC, 2001) and subsequent Fishery Ecosystem Plan for the Hawaiian Archipelago (WPRFMC, 2005), “*includes all waters and habitat at depths from the sea surface to 50 fathoms extending from the shoreline (including state and territorial land and waters) to the outer boundary of the Exclusive Economic Zone*”. The proposed Project is located within waters designated as EFH (including water column and all bottom areas) for coral reef ecosystem, bottomfish, pelagic and crustacean MUS. Of the thousands of species which are federally managed under the coral reef Fishery Management Plan, at least 61 (juvenile and adult life stages; MRC, 2005) are known to occur in waters off Mākaha Beach Park.

Construction activities from the proposed project are not anticipated to negatively impact the green sea turtles or marine mammals given that the existing conditions of the site involve human presence and regular boating traffic that may deter regular use of the shoreline and nearshore waters. See Section 5.6 of the Final EA located in **Appendix A** for mitigation proposed during HDD operations, drill pipe installation, and cable laying activities. Additional mitigation measures to ensure protection of endangered species will include:

- Each day, conduct a survey for marine protected species before any work starts, and postpone work if a species is observed. If a marine protected species is in the area, observe a 150-foot (46-meters) buffer with no human encroachment. If a monk seal/pup pair is seen, a 300-foot (92-meters) buffer must be observed.
- Monitor for marine protected species 30 minutes prior to, during, and 30 minutes after any in-water project activity. Record information on the species, numbers, behavior, sex or age class (if possible), location, time of observation, start and end times of project activity and any other disturbances (visual or acoustic).
- In the event a marine protected species enters the project area and activity cannot be halted, conduct observations and immediately contact NOAA/NMFS. For monk seals contact

Marine Mammal Response Coordinator at (808) 944-2269 and the monk seal hotline at (888) 256- 9840. For turtles, contact the turtle hotline at (808) 983-5730.

5. Describe how the proposed land use, including buildings, structures and facilities, is compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels.

The Hawai'i segment of the SEA-US project will install a single submarine F/O telecommunications cable at Mākaha Beach. The project consists of improvements within a developed and established parcel currently used for telecommunication operations. Public recreation areas and wildlife preserves will not be affected by project activities or operation of the SEA-US cable system or CLS facilities following construction.

The project parcel is located mauka of Farrington Highway on a private parcel, TMK: (1) 8-4-002: 059. The project activity will not preclude use of the Mākaha Beach Park (TMK: (1) 8-4-001: 012), and the beach will remain open during the construction activities. This is because the use of HDD will permit installation of the cable within an underground conduit with no disturbance to the surface. The conduit will extend from the submerged landing site beneath Mākaha Beach Park and Farrington Highway to the CLS site. No adverse impacts to beach and shoreline resources are anticipated. The project would not affect any public recreational facilities or opportunities. Access to beaches, recreation areas, and natural reserves will not be affected by project activities or operation of the SEA-US cable system and CLS facility following construction.

The selection of the proposed landing site will meet the need for connectivity to existing telecommunications infrastructure, minimizes interference with other undersea cables, and makes use of a sand channel along the seafloor as a natural corridor for the cable placement. The cable route is similarly designed to avoid potential undersea hazards, disruption to marine resources and wildlife, and will secure the long-term protection of the cable by allowing it to become naturally buried within the nearshore sand channel. The project is intended to improve the long-distance transmission of domestic and international telecommunications traffic and reinforce Hawai'i's position as a central hub in trans-Pacific telecommunications networks. The proposed project will reinforce this position to facilitate the future economic growth of the State of Hawai'i.

6. Describe how the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon.

The general vicinity of the project site includes the Mākaha Beach Park (TMK: (1) 8-4-001: 012), the Wai'anae Mountains, single and multifamily housing, agricultural lands, and the Mākaha Resort Golf Course. The proposed project involves installation of support infrastructure and submarine F/O cable. Although there will be potential for localized impacts during construction, it is expected to be of short duration and of limited scope. The project will involve the temporary presence of vessels and equipment, which will be visible to beach users but will not substantially affect the vista or viewplane upon completion of the installation. Upon completion, all construction equipment will be removed from the site. Support infrastructure necessary to the project will include a paved access road, BMH, and CLS. These features are not expected to impact the existing scenic vistas or view planes of the area. After the cable is installed, it will have no effect on vistas or viewplanes.

The Wai‘anae Sustainable Communities Plan (WSCP) notes that views of open spaces, shorelands, valleys, and the Wai‘anae Mountains should be protected. Mākaha Beach is a famous surfing beach that many Wai‘anae residents consider an important community asset. According to the WSCP, the Coastal View Study commissioned by the City Department of Land Utilization and published in 1987 identified the view from Mākaha Beach Park as a “Significant Stationary View” (CCH, DPP, 2012).

During construction involving installation of support infrastructure and the F/O cable, there will be a temporary impact on coastal views due to the presence of construction equipment, and a cable ship and smaller support vessels in the water. There will be a temporary impact on views mauka of Farrington Highway due to use of a HDD boring rig. However, the rig will be partially obscured from view since it will be situated within a boring pit approximately 8 to 10 feet below grade, within the project site. Once construction is completed, all equipment no longer necessary to the site will be removed with no further disturbance to the scenic resources of the area.

Infrastructure necessary for the project will either be buried or, in the case of the access road and BMH will be at or near grade. The proposed F/O cable, similarly, is not expected to result in potential for adverse visual impacts. The cable will be buried and therefore, will not constitute a potential source of impact.

The project architect has addressed potential for visual impacts associated with construction of the CLS. The CLS, located mauka and above Farrington Highway, will be partially visible to motorists. Existing vegetation and new landscaping will be used to enhance views of the access road and building. The CLS will be a modular or typical concrete structure and colored to be consistent with the earth tones of the surrounding site. No alternative considered is anticipated to have an adverse effect on the scenic or aesthetic environment.

7. If applicable, describe how subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District.

The project does not involve the subdivision of land; however, easements associated with the proposed project will be required. Easements will be required from the HDOT, for the placement of the F/O cable within the ROW along Farrington Highway, and from the CCH for cable access beneath the Mākaha Beach Park. A right-of-entry and grant of submarine easement within state waters will also be required from the BLNR for the proposed project for the placement of the SEA-US F/O cable in state waters. This will require a public hearing and hearing before BLNR for approval. The grants for easements are currently being sought.

The proposed project is limited to construction of support infrastructure, HDD and installation of drill pipe, and laying and landing of a submarine F/O cable and will not increase the intensity of land uses in the Conservation District. Although the SEA-US F/O cable system will serve the present and future population of Hawai‘i, the project itself, will not result in substantial secondary impacts, such as the generation of new population growth or creation of additional demands for public facilities. The project’s effects are related to installation and are anticipated to be temporary and not substantial.

8. Describe how the proposed land use will not be materially detrimental to the public health, safety and welfare.

The project will be developed in accordance with Federal, State, and CCH, rules and regulations to maintain and protect public health and safety. Mitigation measures and the use of

BMPs prescribed in the environmental permit applications filed for this project will be employed. These measures will include measures and practices designed to (as described in the project EA, see **Appendix A**):

- Prevent the release of pollutants to land and water resources;
- Provide for preventative measures in-place prior to, during, and following the termination of construction activities when BMPs can be safely removed;
- Utilize a proven construction method (i.e., HDD) that is environmentally safe and consistent with the protection of the environment; and
- Provide for monitoring of environmental resources to ensure against adverse effects, e.g., work is to stop immediately in the event that human skeletal remains are discovered, and monitoring will be used to ensure against impacts to threatened and endangered species.

The F/O cable and accompanying computer generated light signals do not constitute a public health or safety hazard. The cable is constructed of steel, glass fibers, and plastics. Light signals transmitted through the cable will be self-contained, of low power, and are not expected to escape outside of its sealed enclosure. Should a cable break occur, the resulting loss of signal would require a shutdown of the system until repairs can be made.

The primary health concerns, therefore, involve air, water, noise, and traffic impacts during construction. It is expected that potential for minor impacts due to construction will be minimized or brought to negligible levels by use of appropriate mitigation measures as described in the EA (**Appendix A**). No substantial adverse impacts to public health are anticipated.

The proposed project will not substantially affect the economic or social welfare of the community or State. The project is intended to improve the long-distance transmission of domestic and international F/O signals and reinforce Hawai'i's position as a hub in trans-Pacific submarine telecommunications networks, which will facilitate the future economic growth of the State. The anticipated entry of new capacity by the SEA-US cable system will promote telecommunications services and increase accessibility and use of telecommuting for business, commerce and cultural exchange.

CULTURAL IMPACTS

Articles IX and XII of the State Constitution, other state laws, and the courts of the State require government agencies to promote and preserve cultural beliefs, practices, and resources of Native Hawaiians and other ethnic groups.

Please provide the identity and scope of cultural, historical and natural resources in which traditional and customary native Hawaiian rights are exercised in the area.

An AA, originally termed an Archeological Inventory Survey (AIS), of the project area was undertaken by CSH, in consultation with the SHPD, Archaeology and Architecture Branches, DLNR. No historic properties were identified during the initial AIS investigation; therefore, the report is termed an archaeological assessment, per HAR §13-284-5(b)(5)(A):

“Results of the survey shall be reported through an archaeological assessment, if no sites were found, or an archaeological survey report which meets the minimum standards set forth in chapter 13-276-5.”

The AA was prepared to support the proposed project’s historic preservation review under Section 106, NHPA; NEPA; HRS Chapter 6E-42; HAR Chapter 13-13-276; and HAR Chapter 13-284. The AA also supports project-related historic preservation consultation among stakeholding federal and state agencies, interested Native Hawaiian organizations, groups and individuals, and community groups. Appendix C of the Final EA (the Final EA is located within **Appendix A** of the subject application) contains a full copy of the November 2015 draft report entitled, *Archaeological Assessment for the Southeast Asia – U. S. (SEA-US) Cable Project, Mākaha Ahupua‘a, Wai‘anae District, O‘ahu TMK: [1] 8-4-002: 059* (CSH, 2015).

In accordance with Hawai‘i State historic preservation review legislation HAR §13-284-7, CSH’s project-specific effect recommendation is “no historic property affected.” No evidence of traditional Hawaiian cultural materials was observed and no significant historical properties were present. The proposed project will not have any adverse effects on traditional Hawaiian cultural materials or deposits and historic properties (CSH, 2015).

As required under the provisions of HRS §6E, in the unlikely event that human burials or significant cultural finds are encountered during ground disturbance/construction activities, all work should cease immediately and the SHPD shall be immediately notified. Work may only be resumed upon authorization of the SHPD following the appropriate treatment of the find.

The project requires compliance with the State of Hawai‘i environmental review process (HRS, Chapter 343, and Session Laws of Hawai‘i, Act 50), which requires consideration of a proposed project’s effect on cultural practices and resources. Appendix D of the Final EA (a copy of the Final EA is located in **Appendix A** of the subject document) contains the 2015 CIA, performed by CSH, and entitled, *Draft Cultural Impact Assessment for the Southeast Asian – United States (SEA-US) Cable System, Mākaha Beach Landing Project, Mākaha Ahupua‘a, Wai‘anae District, O‘ahu TMK: [1] 8-4-002:059* (CSH, 2015). The CIA provides information pertinent to the assessment of the proposed project’s impacts to cultural practices and resources and supports the project’s historic preservation review under HRS Chapter 6E-8 and HAR Chapter 13-275.

Based on information gathered from the background and community consultation, the proposed project may potentially impact undetected iwi kūpuna (ancestral bones). CSH identifies potential impacts and makes the following recommendations:

3. Previous archaeology conducted in the vicinity of the project area has yielded iwi kūpuna (SIHP #s 50-80-07-4527 and -6825). In addition, no archaeology has been conducted within the project area. There is also a community concern regarding impact to a possible cultural layer, which may include burials (such as SIHP # -6825). Based on these findings, there is a possibility iwi kūpuna may be present within the project area and that land disturbing activities during construction may uncover presently undetected burials or other cultural finds. Should burials (or other cultural finds) be encountered during ground disturbance or via construction activities, all work should cease immediately and the appropriate agencies should be notified pursuant to applicable law, HRS §6E.
4. Another community concern was minimal disturbance to the environment and Mākaha Beach users (i.e., cultural practitioners such as surfers and fishermen). The recommendation was to have more discussion with the community regarding plans prior to construction.

No adverse impacts to traditional cultural practices are anticipated to result from the alternatives considered for this project. Surrounding lands may be affected by the temporary generation of noise. Operation of the HDD boring rig is anticipated to be noisy; however, the noise effects will be intermittent, localized, and temporary. To mitigate noise effects produced from the operation of the HDD boring rig, noise attenuation barriers or enclosures baffled to restrict the escape of noise will be placed around the bore site. With the appropriate mitigation, the noise effects from the HDD boring rig are not anticipated to be significant. All work practices will be in accordance with the noise regulations of the State of Hawai‘i and CCH.

During construction involving installation of support infrastructure and the F/O cable, there will be a temporary impact on coastal views due to construction equipment, and a cable ship and smaller support vessels in the water. There will be a temporary impact on views mauka of Farrington Highway due to use of a HDD boring rig. However, the rig will be partially obscured from view since it will be situated within a boring pit approximately 8 to 10 feet below grade, within the project site. Once construction is completed, all equipment no longer necessary to the site will be removed with no further disturbance to the scenic resources of the area. Infrastructure necessary for the project will either be buried or, in the case of the access road will be at or near grade. The proposed F/O cable, similarly, is not expected to result in potential for adverse visual impacts. The cable will be buried and therefore, will not constitute a potential source of impact.

The publication and public dissemination of the EA document serves to provide information to the community concerning this project. In addition, public information meetings and consultation with the community will continue throughout the EA and environmental permitting process. See Section 3.8 of the Final EA located in **Appendix A**.

Identify the extent to which those resources, including traditional and customary Native Hawaiian rights, will be affected or impaired by the proposed action.

Customary and traditional Native Indigenous rights would not be adversely affected by the proposed project. The project, if approved, would have no impact on recreation facilities and would facilitate continued access and use of the beach and nearshore waters.

What feasible action, if any, could be taken by the BLNR in regards to your application to reasonably protect native Hawaiian rights?

Approval of the proposed project would not adversely impact Native Indigenous rights.

REQUIREMENTS APPLICABLE TO MARICULTURE FACILITIES

Proposed Species to be cultivated: N/A

Total Number of Proposed Cages: N/A

Volume of Proposed Cages: N/A

Total Capacity of Proposed Cages: N/A

Describe type of cages to be used:

N/A

Please provide a summary of facility operations (i.e. species specific information including but not limited to biology; breeding, stocking, and harvesting; feeding methods; known diseases and treatment methods; maintenance and cleaning methods; and amount of wild brood stock needed).

N/A

Describe the environment at the project site, including the benthos and any coral reefs. Include marine life surveys. Locate and identify threatened and /or endangered species.

N/A

Discuss the applicant's related expertise, research, planning efforts, similar projects completed or participated in and other related projects previously or currently undertaken that aide in the conduct of the proposed project. Provide relevant project results, if applicable.

N/A

List each proposed structure, project element and use. Indicate the area required for each individual structure. Indicate the duration for each structure, project element or use. Provide an overall site plan that shows the location of the structures or elements of the proposed uses in relation to the surrounding environment.

N/A

CHAPTER 205A, COASTAL ZONE REQUIREMENTS

Land uses are required to comply with the provisions and guidelines contained in Chapter 205A, Hawai'i Revised Statutes (HRS), entitled "Coastal Zone Management," as described below:

- **Recreational resources:** Provide coastal recreational opportunities accessible to the public.
- **Historic resources:** Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.
- **Scenic and open space resources:** Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.
- **Coastal ecosystems:** Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.
- **Economic uses:** Provide public or private facilities and improvements important to the State's economy in suitable locations.
- **Coastal hazards:** Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.
- **Managing development:** Improve the development review process, communication, and public participation in the management of coastal resources and hazards.
- **Public participation:** Stimulate public awareness, education, and participation in coastal management.
- **Beach protection:** Protect beaches for public use and recreation.
- **Marine resources:** Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

MANAGEMENT PLAN REQUIREMENTS

Aquaculture facilities require that a Management Plan be approved by the Board of Land and Natural Resources. The Management Plan can be processed concurrently with the Conservation District Use Application, and must be consistent with the Hawaii Administrative Rules Chapter 13-5, Exhibit 3.

Pursuant to the above, Management Plans should include:

- Project location (e.g., island map, location map, site plan (drawn to scale))
- Natural resource assessment including descriptive information about the natural resources in the project vicinity such as biological, archaeological, cultural, geological, coastal, recreational, and scenic resources, where applicable. The presence of any threatened or endangered species shall be disclosed.
- Natural hazard assessment including descriptive information of erosion, flooding, slope, tsunami, and volcanic hazards, where applicable.
- A description of best management practices used during project construction and implementation (e.g., mitigation measures).
- A description of the best management practices to be used during the lifetime of the project (e.g., mitigation measures).
- A description of the conservation methods and applications to be used in the short term and long term (e.g., mitigation measures).
- Description of existing uses and facilities, if any.
- Description of proposed facilities and uses, including phases, if applicable.
- Project schedule including description of project sequencing from project construction to project completion and on-going maintenance plans, including a description and timing of natural resource monitoring and maintenance plans.
- A description of the annual reporting requirements.
- Any other information or data, as required by the department.

The natural resource monitoring and maintenance plans, and the annual reporting requirements, should include information on:

- Emergency Operations
- Water Quality
- Benthic Health
- Fish Health
- Shark Management Plan
- Marine Protected Species

Please attach the proposed Management Plan as a separate document.

CERTIFICATION

I hereby certify that I have read this completed application and that, to the best of my knowledge, the information in this application and all attachments and exhibits is complete and correct. I understand that the failure to provide any requested information or misstatements submitted in support of the application shall be grounds for either refusing to accept this application, for denying the permit, or for suspending or revoking a permit issued on the basis of such misrepresentations, or for seeking of such further relief as may seem proper to the Land Board.

I hereby authorize representatives of the Department of Land and Natural Resources to conduct site inspections on my property. Unless arranged otherwise, these site inspections shall take place between the hours of 8:00 a.m. and 4:30 p.m.



6/13/2016

Signature of authorized agent(s) or if no agent, signature of applicant

AUTHORIZATION OF AGENT

I hereby authorize Brian Takeda, Planning Project Coordinator, RMTC to act as my representative and to bind me in all matters concerning this application.

See attached Applicant authorization letter on Page 3

Signature of applicant(s)

Section 2
Figures

Figures

- Figure 1 Overview of the SEA-US Cable System**
- Figure 2 Project Location**
- Figure 3 Nearshore and Terrestrial Project Location**
- Figure 4 Horizontal Directional Drilling (HDD) Cross Section**
- Figure 5 Proposed Cable Landing Station Site Plan**
- Figure 6 Site Plan (with Certified Shoreline and Shoreline Setback Identified and Photo Index)**
- Figure 7 Topography**
- Figure 8 O'ahu Zoning**
- Figure 9 State Land Use Districts**
- Figure 10 Special Management Area**
- Figure 11 FEMA FIRM Map**
- Figure 12 Flood Zones**
- Figure 13 Soils**
- Figure 14 Surface Water**
- Figure 15 Approximate Geotechnical Boring Location**
- Figure 16 Log of Boring in Support of SEA-US HDD Cable Shoreline Crossing**

Figure 1, Overview of SEA-US Cable System

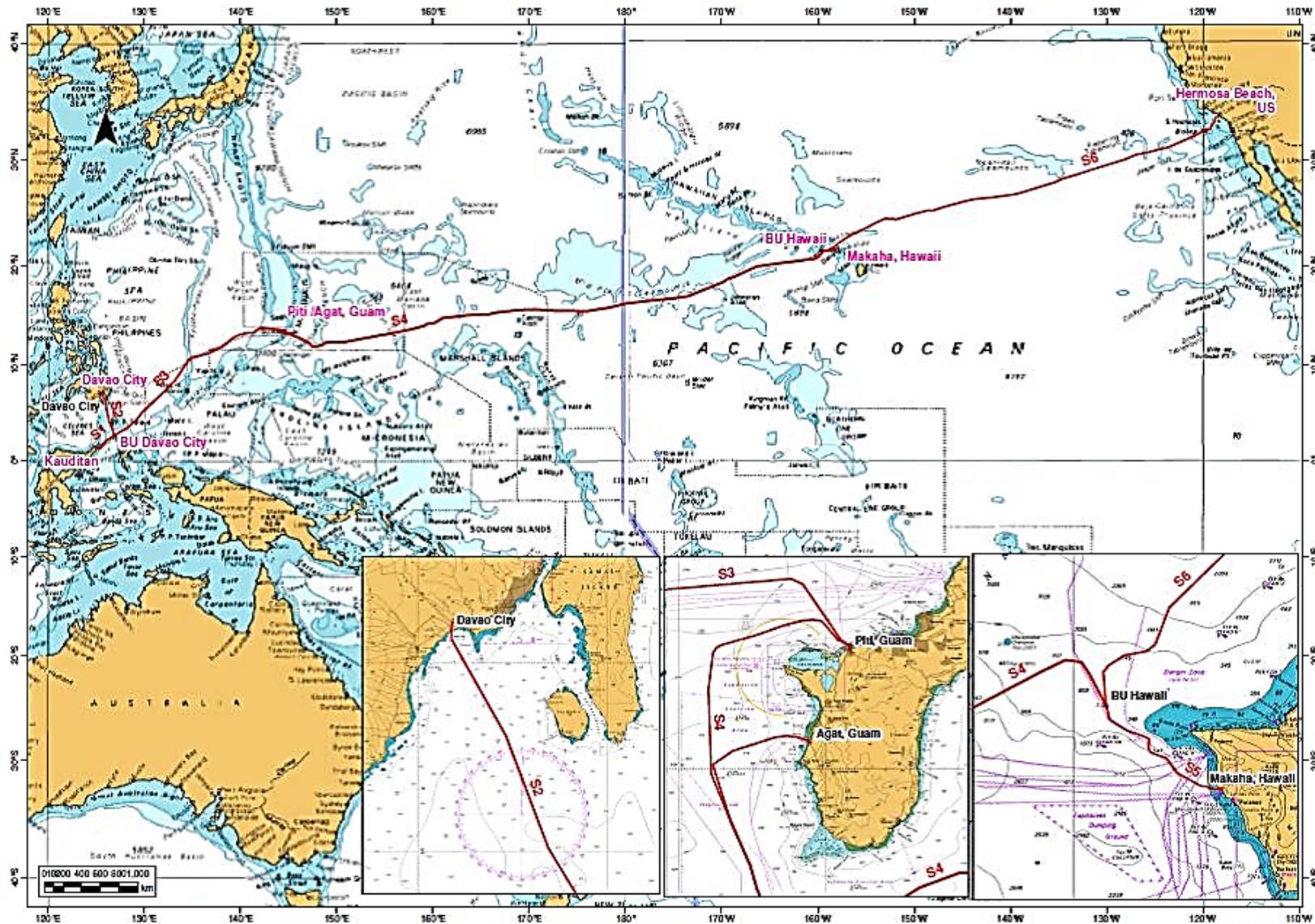


Figure 2, Project Location

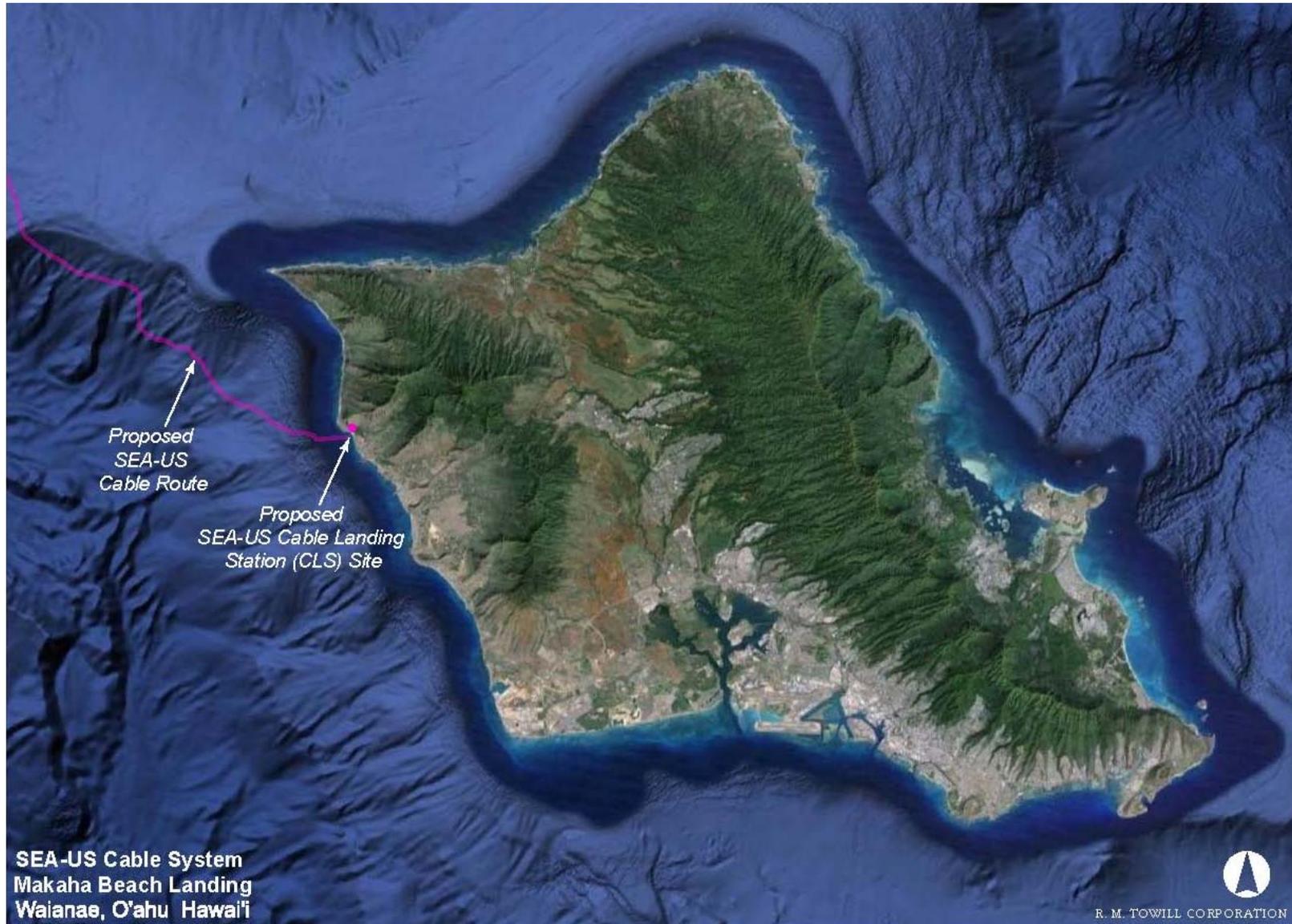


Figure 3, Near Shore and Terrestrial Project Location

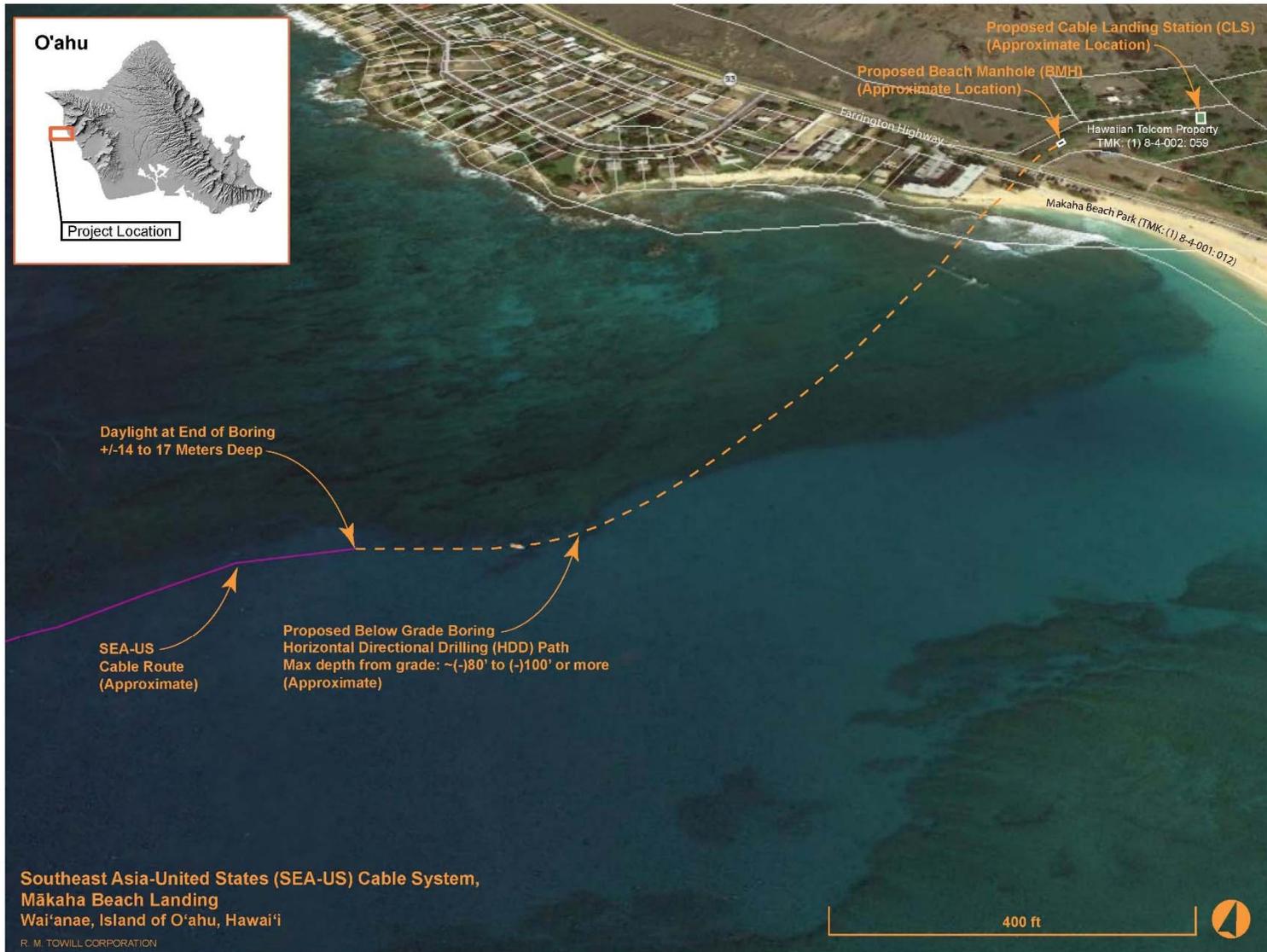
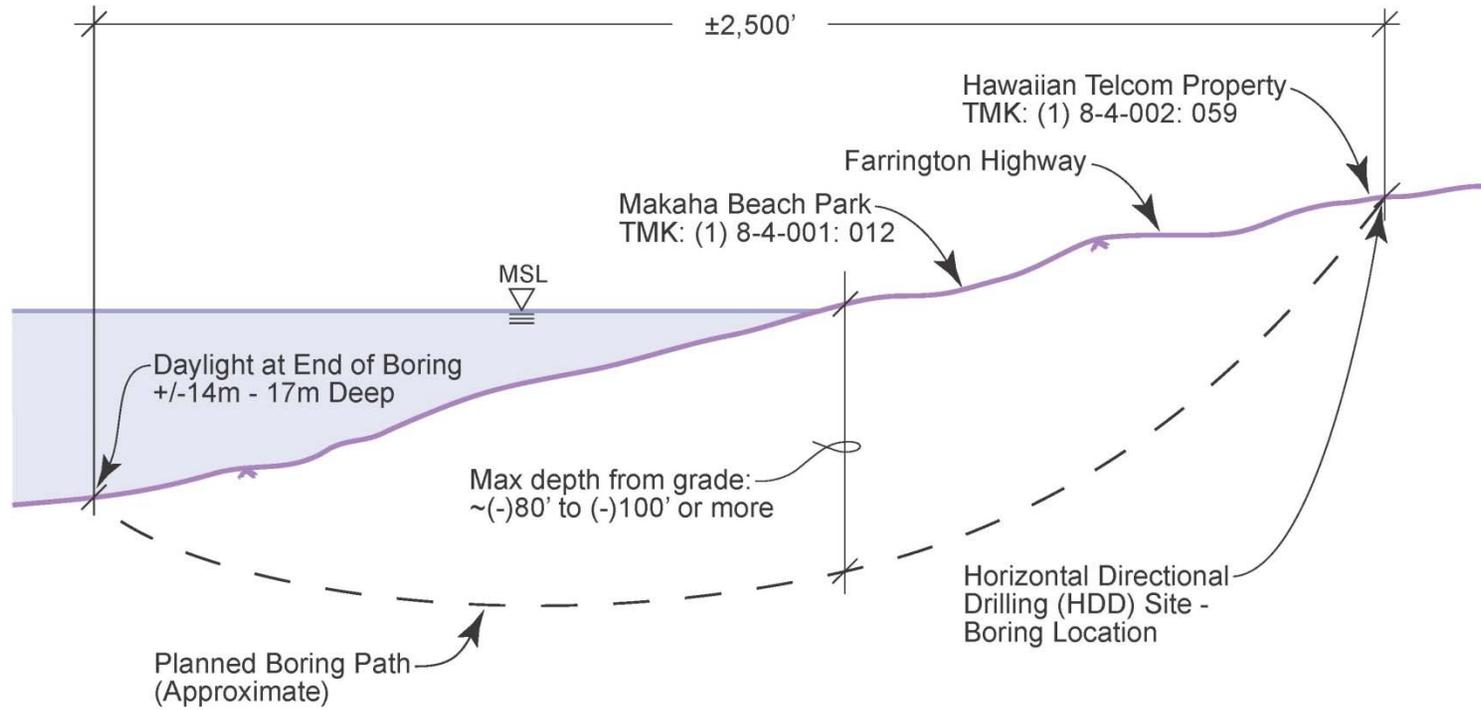


Figure 4, Horizontal Directional Drilling (HDD) Cross Section



Not to Scale.

Figure 5, Proposed Cable Landing Station Site Plan

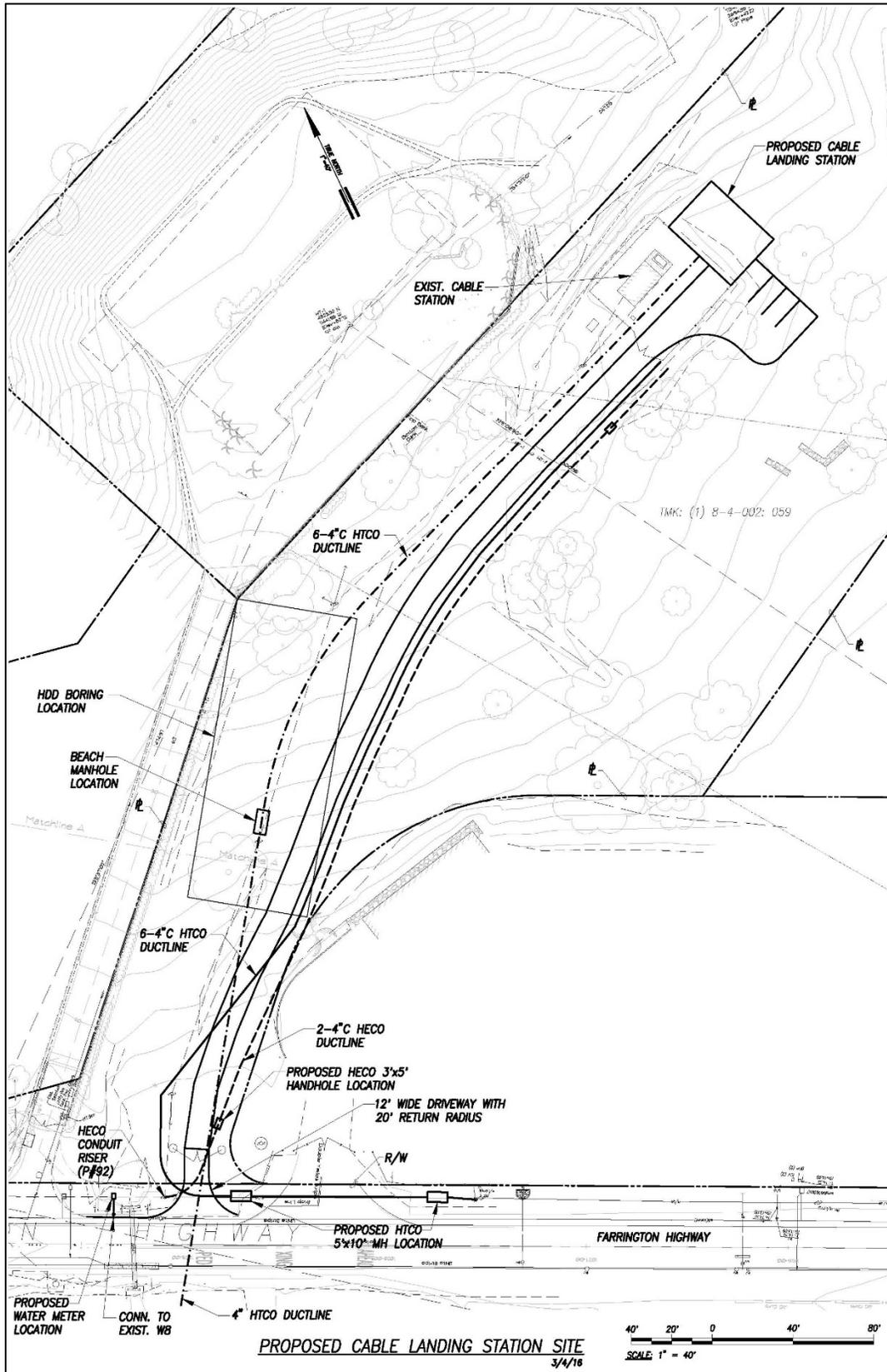
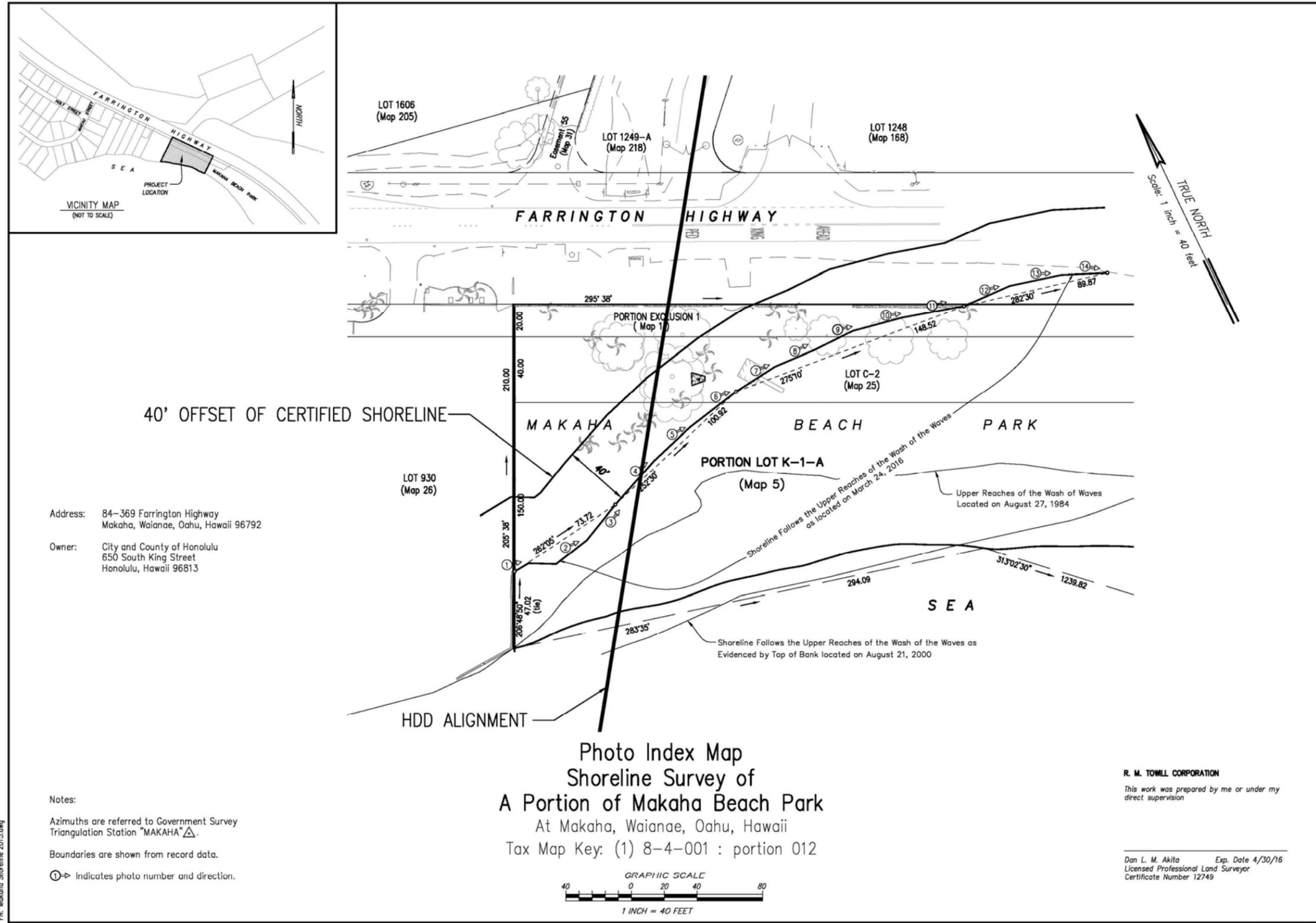


Figure 6, Site Plan (with Certified Shoreline and Shoreline Setback Identified and Photo Index Map)



FH: Makaha Shoreline 2015.dwg

Ref: RMTc No. 1-22590-0-S
FB No. 8526

2024 North King Street Suite 200
Honolulu, Hawaii 96819
Tel: (808)842-1133



① →

Date of Photo: March 24, 2016
Time of Photo: 3:42 PM



② →

Date of Photo: March 24, 2016
Time of Photo: 3:42 PM



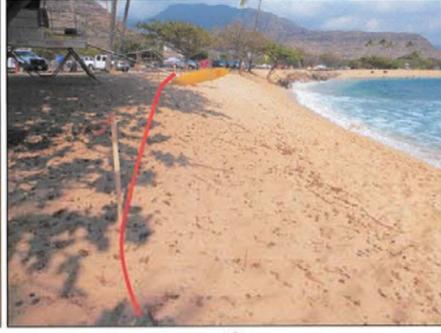
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Time of Photo: 3:43 PM



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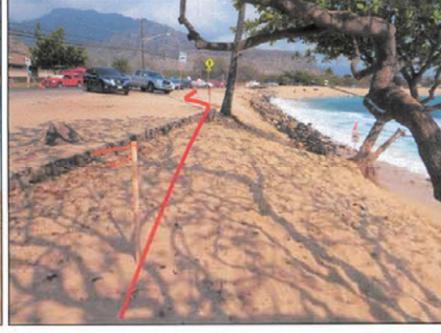
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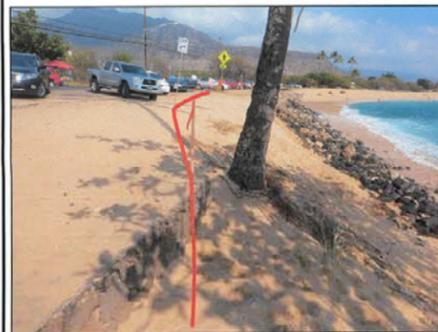
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Photo Index Map
Shoreline Survey of
A Portion of Makaha Beach Park
At Makaha, Waianae, Oahu, Hawaii
Tax Map Key: (1) 8-4-001 : portion 012

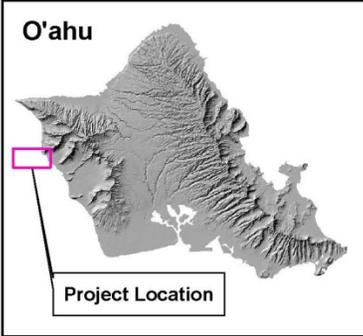
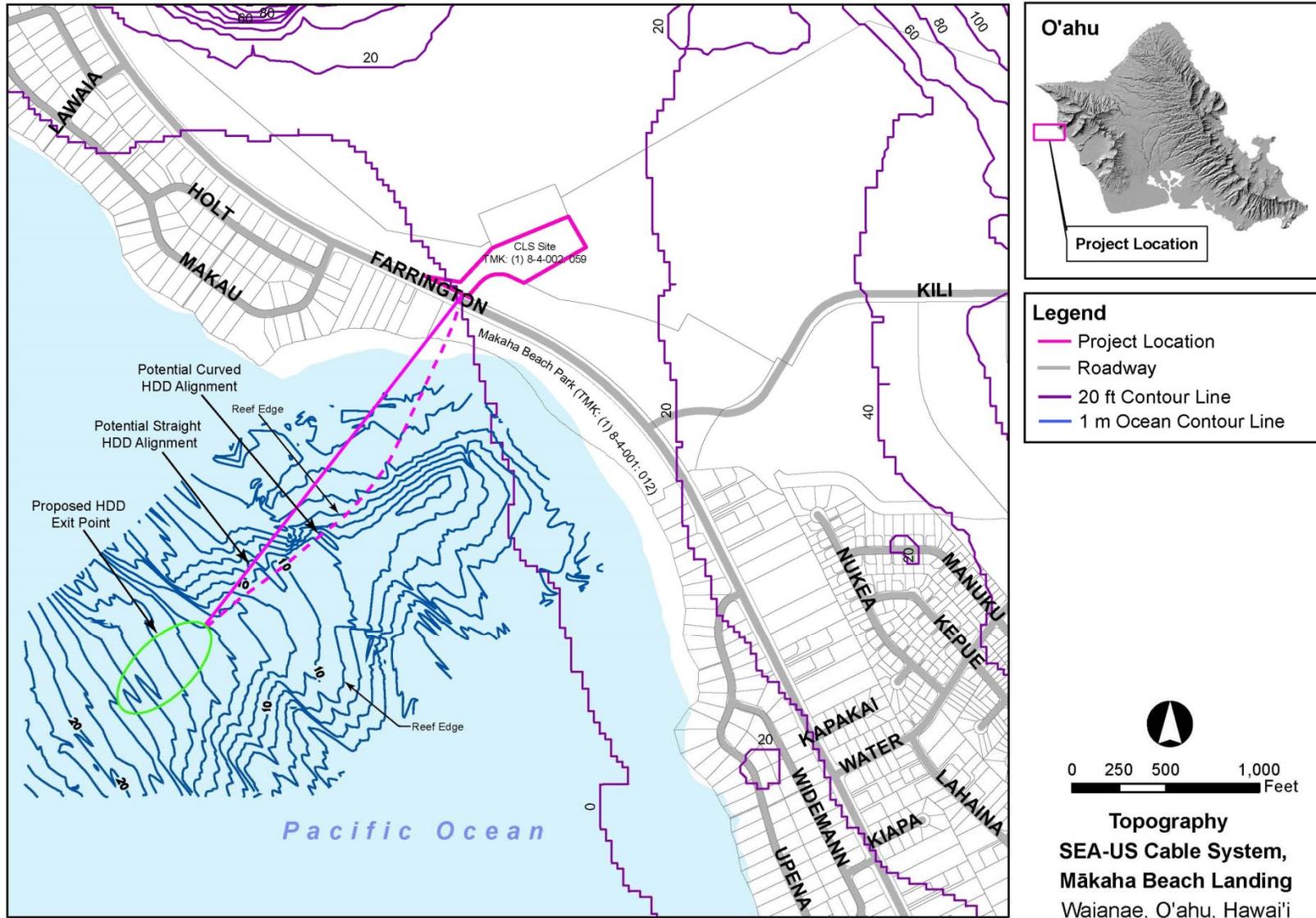
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Ref: RMTC No. 1-22590-0-S
FB No. 8526

R. M. TOWILL CORPORATION
SINCE 1988

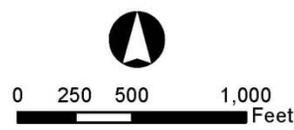
2024 North King Street Suite 200
Honolulu, Hawaii 96819
Tel: (808)842-1133

Figure 7, Topography



Legend

- Project Location
- Roadway
- 20 ft Contour Line
- 1 m Ocean Contour Line



Topography
SEA-US Cable System,
Mākaha Beach Landing
 Waianae, O'ahu, Hawai'i

Figure 8, O'ahu Zoning

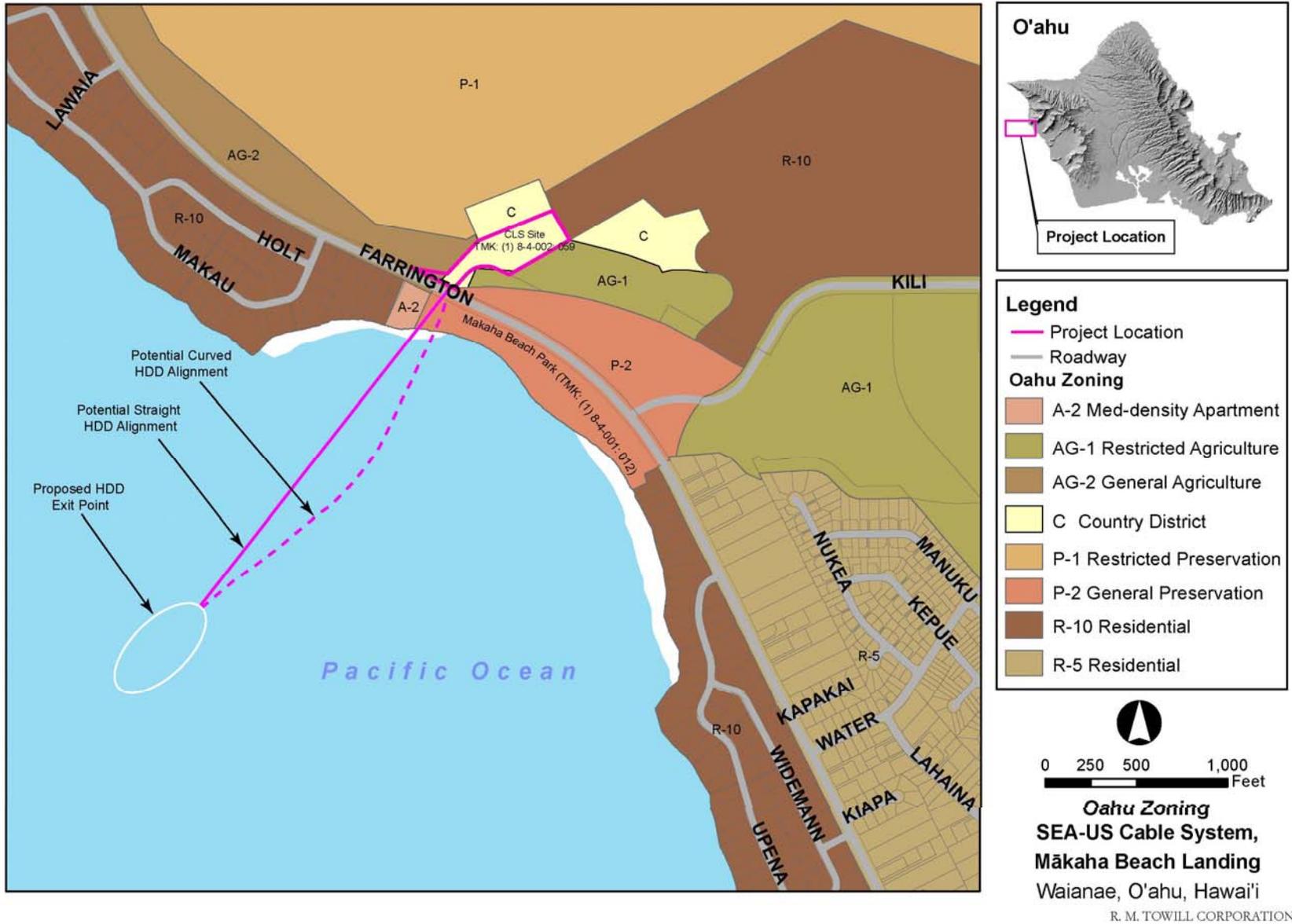


Figure 9, State Land Use Districts

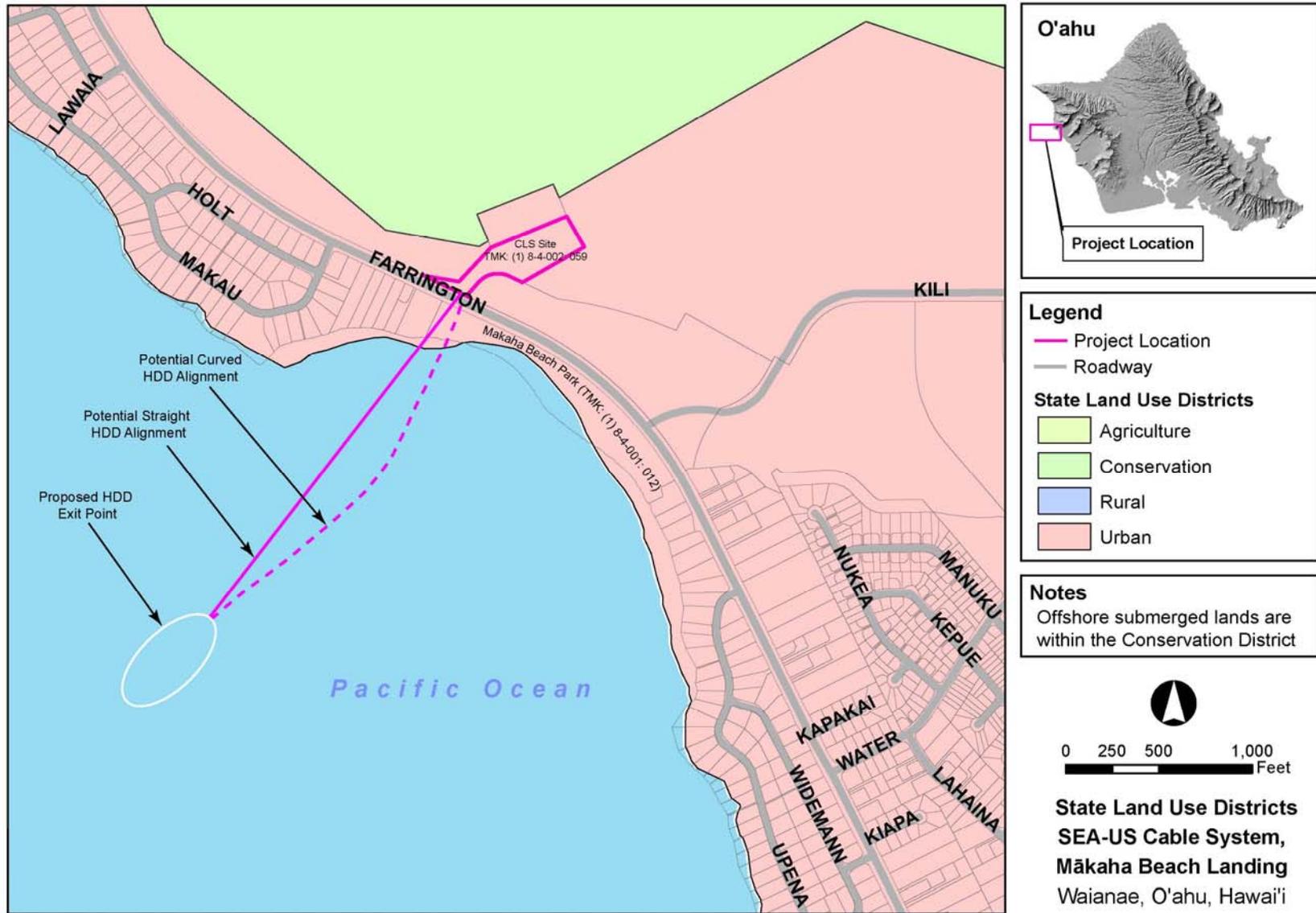


Figure 10, Special Management Area

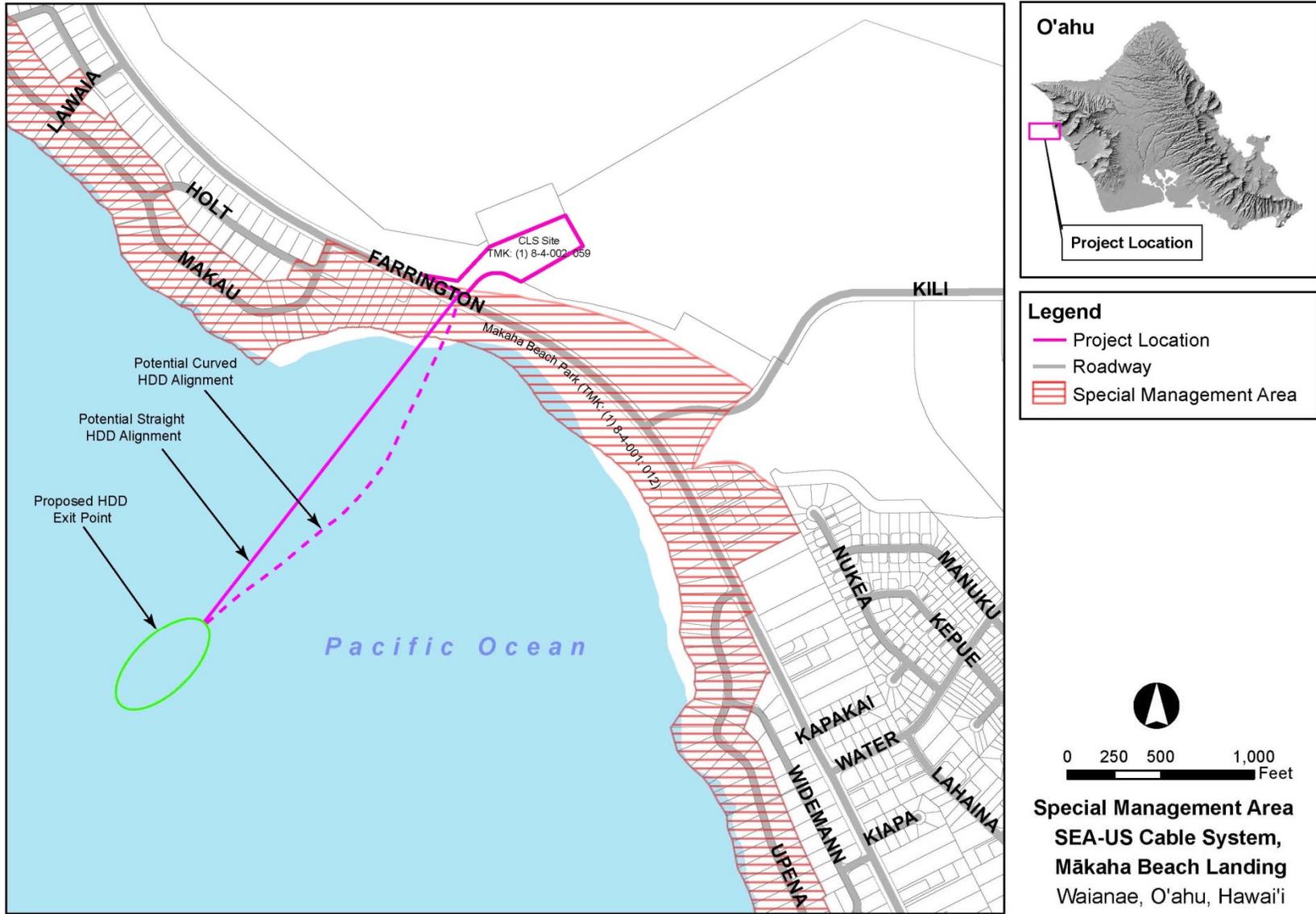


Figure 12, Flood Zones

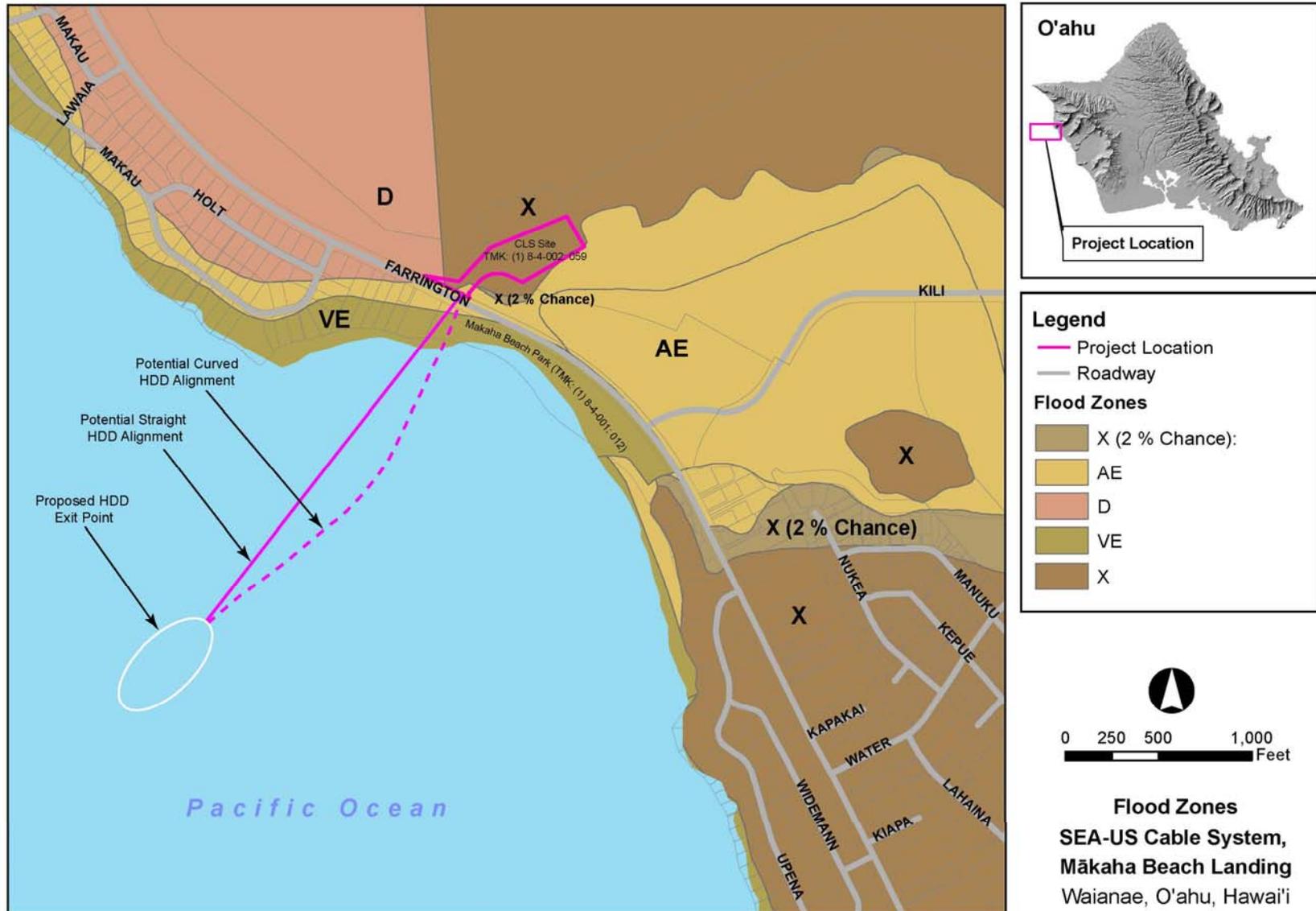


Figure 13, Soils

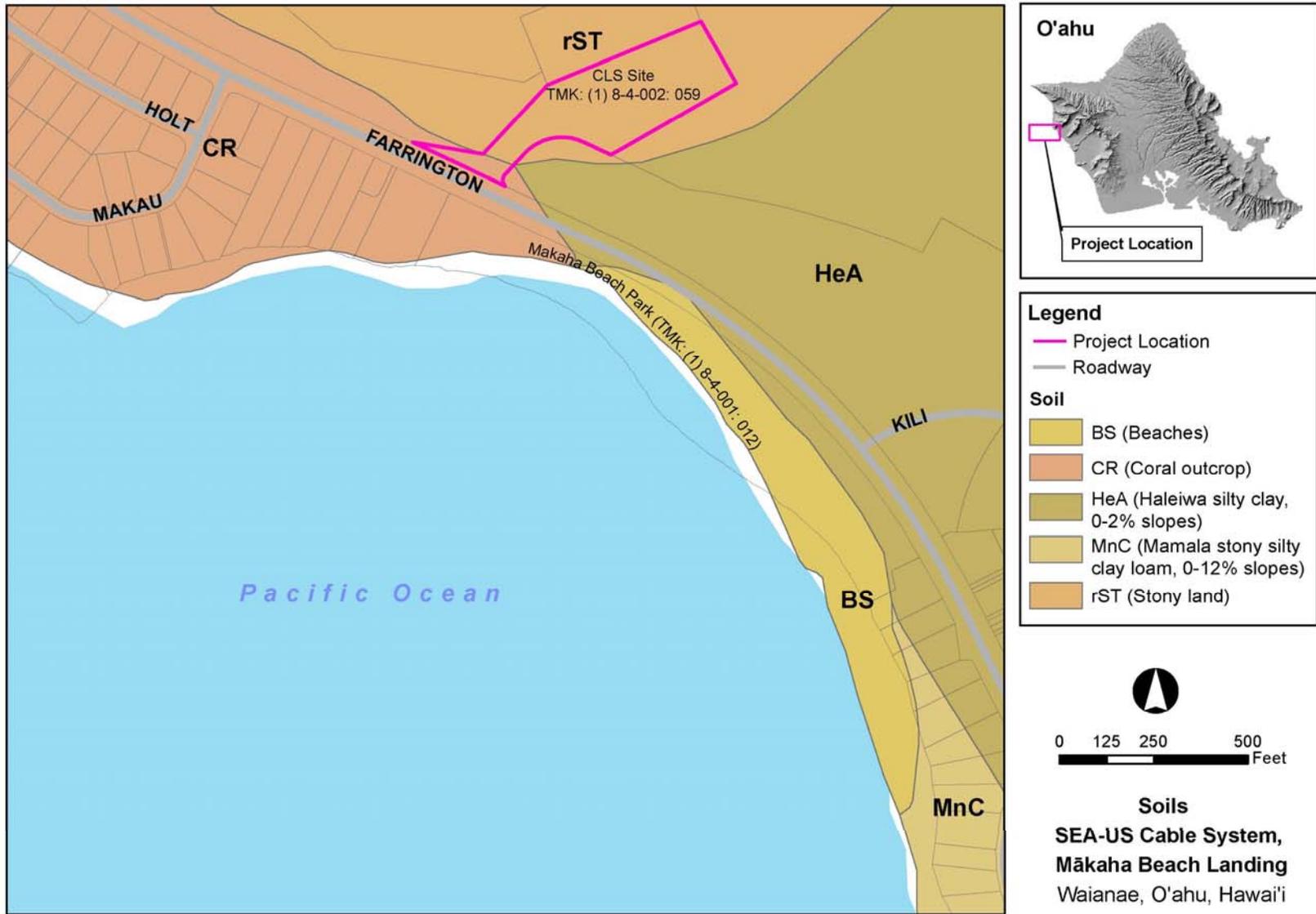
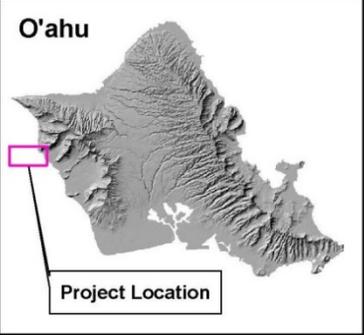
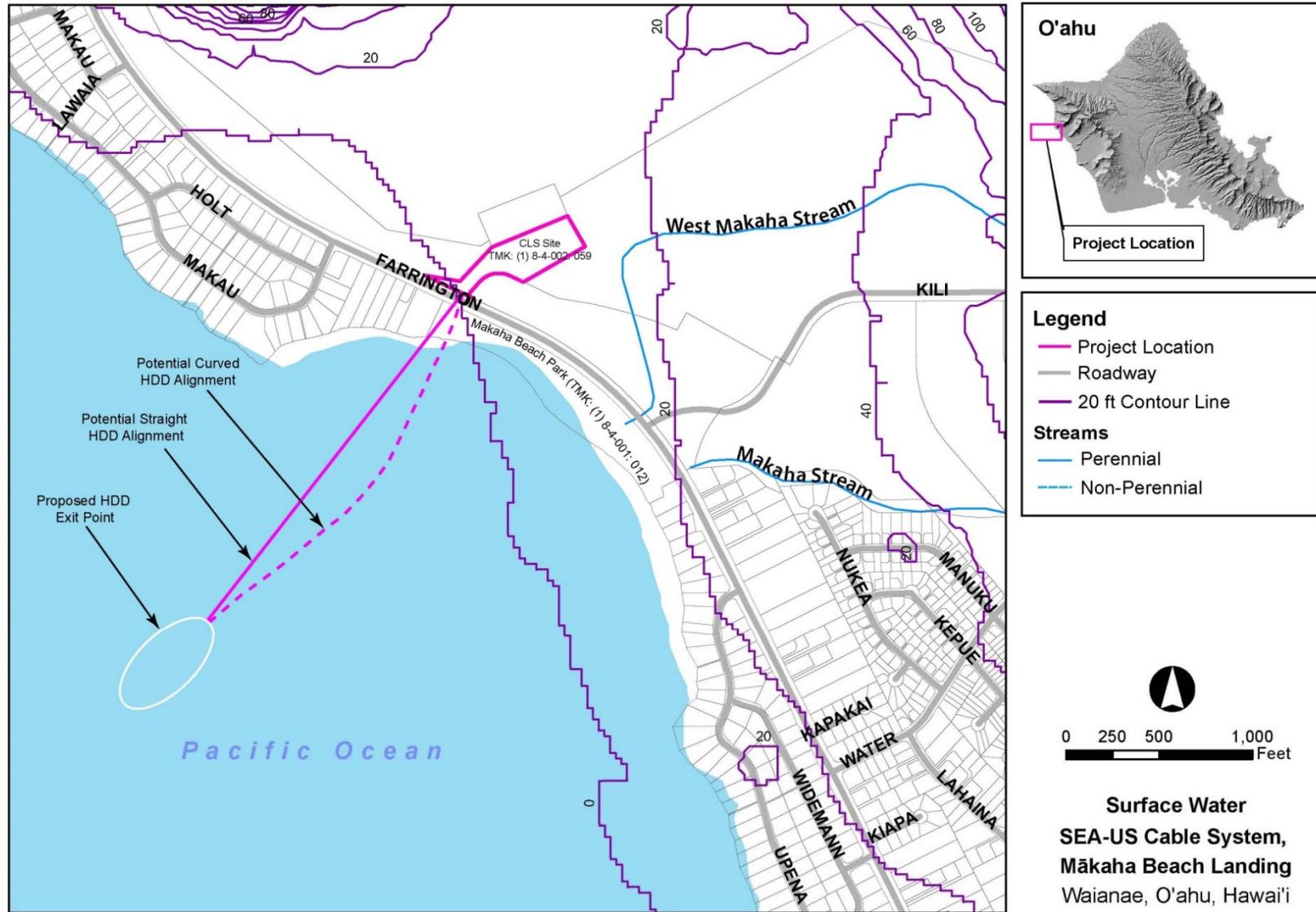


Figure 14, Surface Water

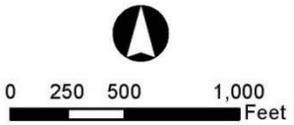


Legend

- Project Location
- Roadway
- 20 ft Contour Line

Streams

- Perennial
- - - Non-Perennial



Surface Water
SEA-US Cable System,
Mākaha Beach Landing
 Waianae, O'ahu, Hawai'i

Figure 15, Approximate Geotechnical Boring Location

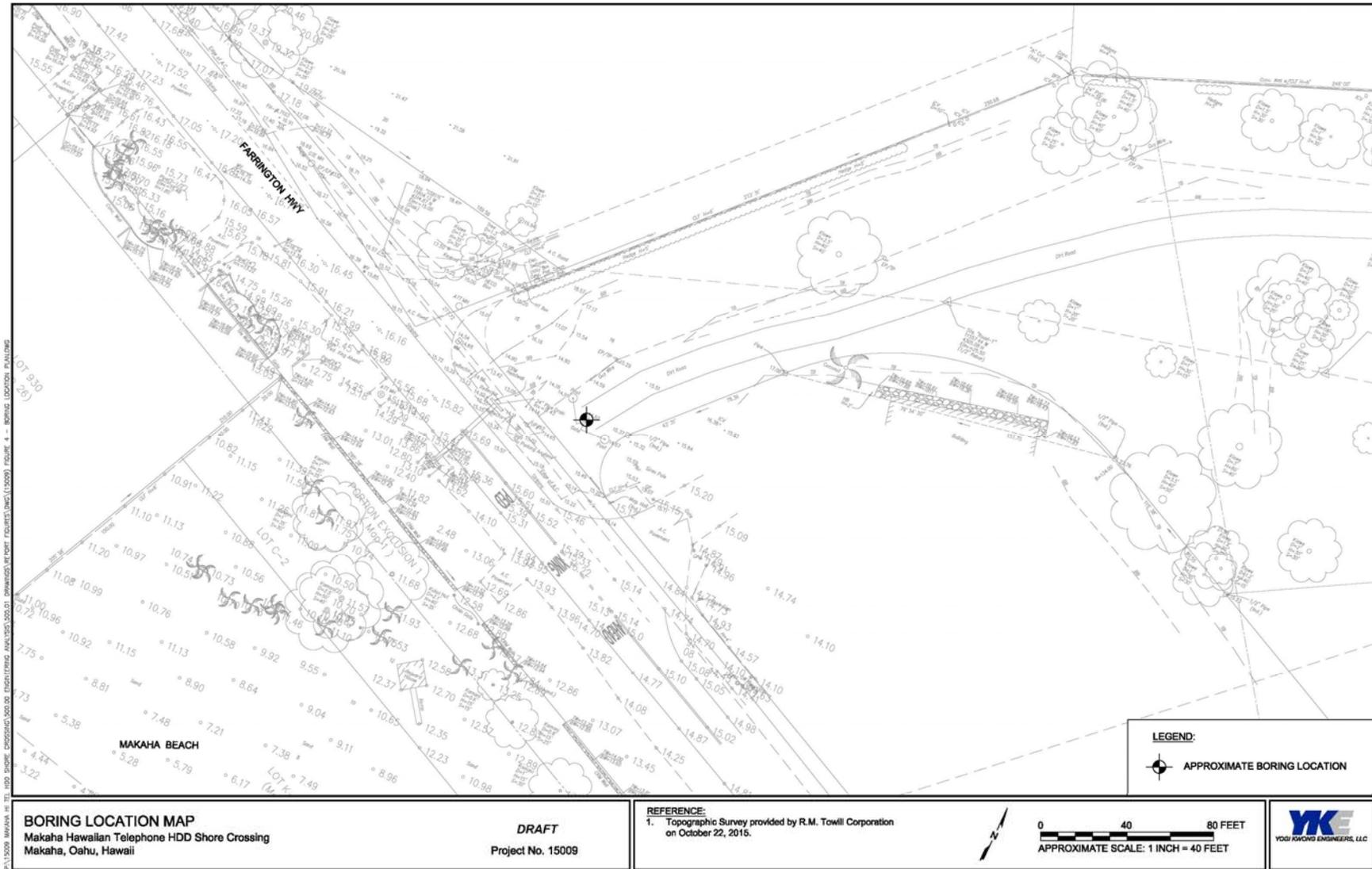
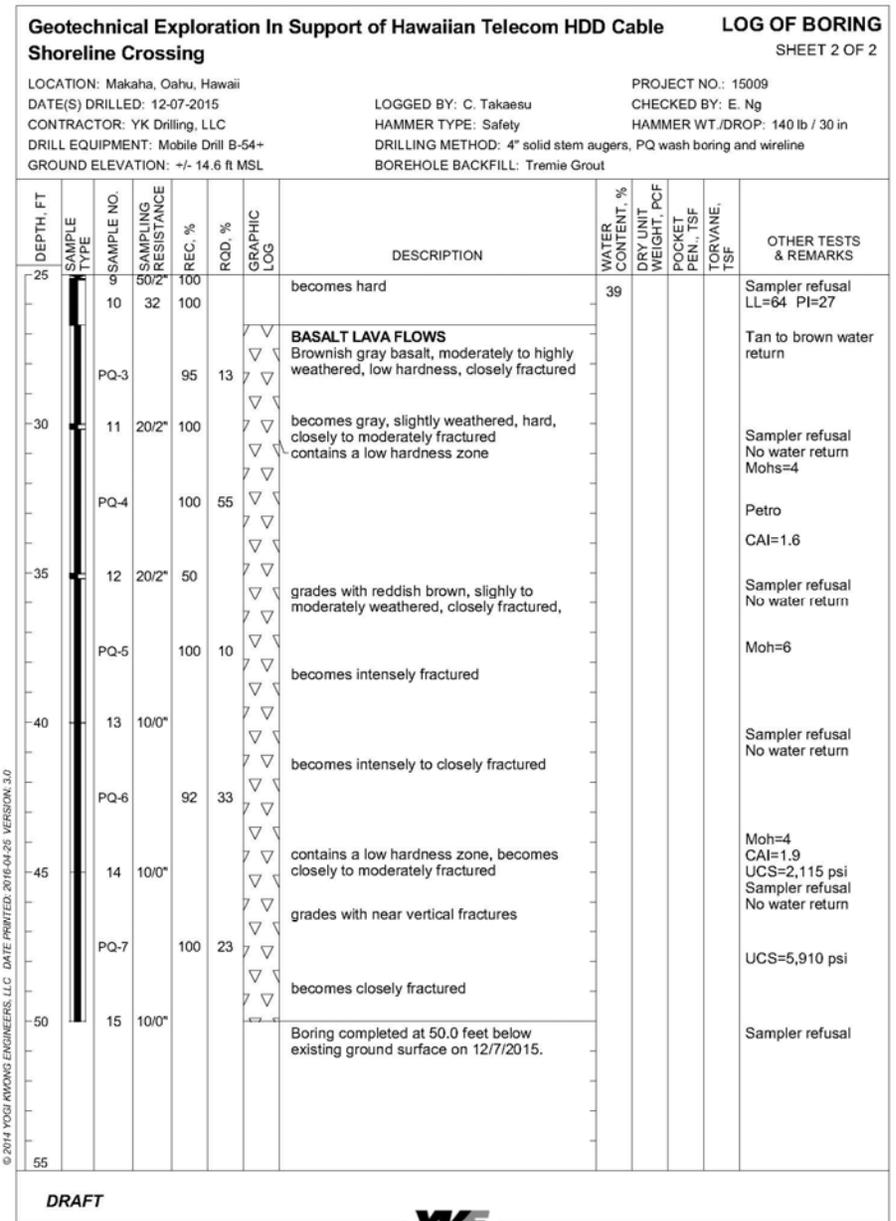
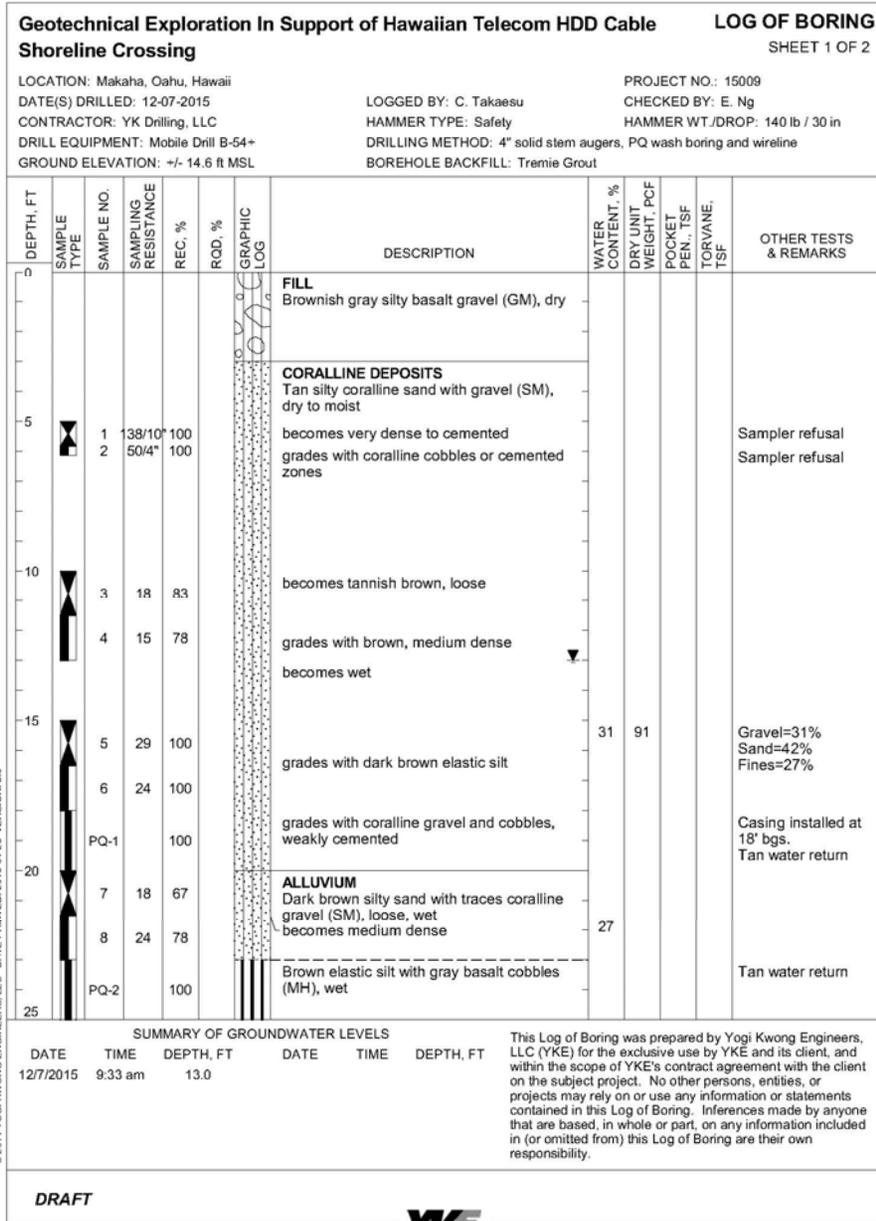


Figure 16, Log of Boring in Support of SEA-US HDD Cable Shoreline Crossing



Appendix A

*Finding of No Significant Impact and
Final Environmental Assessment
(Under Separate Cover)*

FONSI and Final EA

A copy of the FONSI letter is provide below. The Final EA is under separate cover.

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 768-8000 • FAX: (808) 768-6041
DEPT. WEB SITE: www.honoluluodpp.org • CITY WEB SITE: www.honolulu.gov

KIRK CALDWELL
MAYOR



GEORGE I. ATTA, FAICP
DIRECTOR

ARTHUR D. CHALLACOMBE
DEPUTY DIRECTOR

2016/ED-2(MT)

May 26, 2016

Mr. Scott Glenn, Director
State of Hawaii
Department of Health
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Mr. Glenn:

SUBJECT: Chapter 343, Hawaii Revised Statutes (HRS)
Final Environmental Assessment (EA)

Project: Southeast Asia-United States (SEA-US) Cable System - Mokuaha Beach Landing
Applicant: NEC Corporation of America
Landowner: Hawaiian Telecom SVCS CO Inc. and City and County of Honolulu
Agent: R.M. Towill Corporation (Brian Takeda)
Location: 84-284 Farrington Highway - Waianae
Tax Map Keys: 8-4-1: 12 and 8-4-2: 59
Proposal: To allow a transpacific submarine fiber optic telecommunication cable between Southeast Asia and the United States to connect with Hawaii.

RECEIVED
16 MAY 26 P 3:11
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

Attached and incorporated by reference is the Final EA prepared by the Applicant for the Project. Based on the significance criteria outlined in Title 11, Chapter 200, Hawaii Administrative Rules, we have determined that the preparation of an Environmental Impact Statement is not required, and have issued a Finding of No Significant Impact. We respectfully request publication of this Final EA in the next edition of "The Environmental Notice" on **June 8, 2016**.

We have enclosed a hard copy of the Final EA, a hard copy of the Applicant's completed Office of Environmental Quality Control publication form with Project summary, and a compact disc with the Final EA (pdf) and publication form (Microsoft word) copied on it.

Should you have any questions, please contact Mark Taylor at 768-8020.

Very truly yours,

Handwritten signature of George I. Atta in cursive script.

George I. Atta, FAICP
Director

Enclosure: Final EA
Publication Form
CD (Final EA and Publication Form)

Appendix B
Shoreline Certification Map

Shoreline Certification Map

A copy of the shoreline certification map with the shoreline setback identified relative to the proposed project is provided in **Section 2 – Figure 6, Site Plan (with Certified Shoreline and Shoreline Setback Identified and Photo Index Map)**. The Shoreline Certification Map was approved by the State Survey Office on May 24, 2016; the signed certified map is attached.

DAVID Y. IGE
GOVERNOR OF HAWAII



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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 26, 2016

File No.: OA-1692

R.M. Towill Corporation
2024 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Applicant:

Subject: Transmittal of Signed Shoreline Certification Maps
Owner(s): City & County of Honolulu
Tax Map Key: (1) 8-4-001:012 (por.)

Enclosed please find three (3) copies of the certified shoreline survey maps for the subject property.

If you have any questions, please feel free to call us at (808) 587-0420. Thank you.

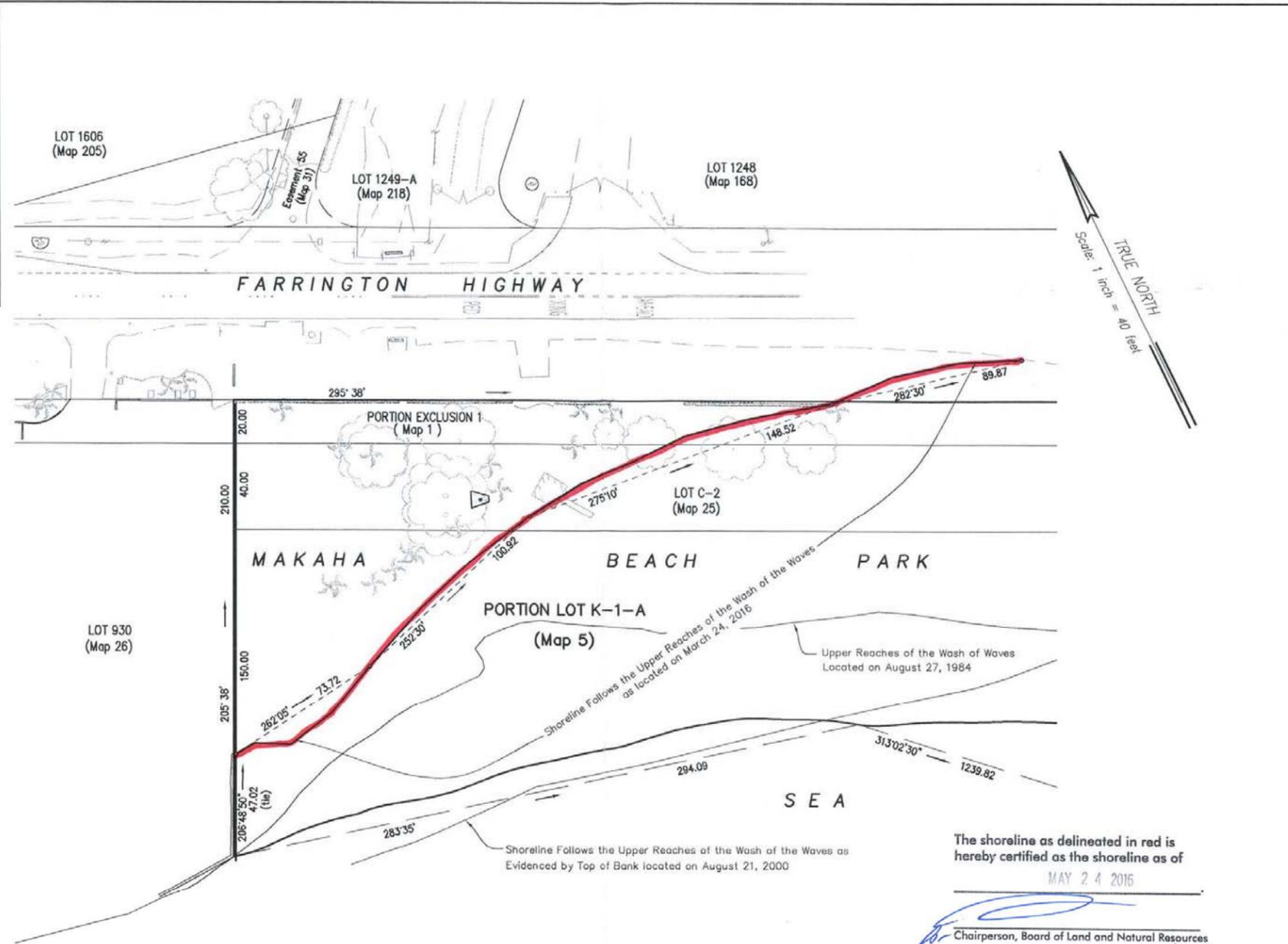
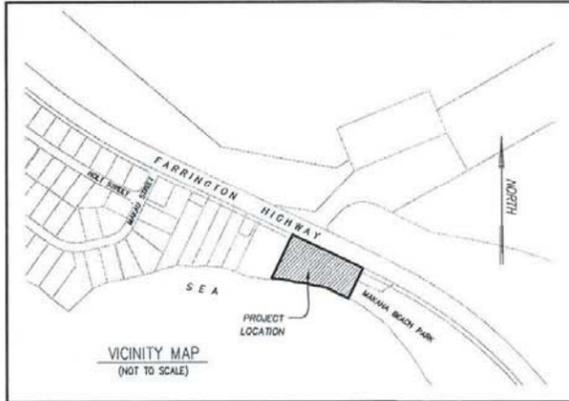
Sincerely,

A handwritten signature in blue ink, appearing to read "Ian Hirokawa".

Ian Hirokawa
Special Projects Coordinator

Enclosures

cc: DAGS



Address: 84-369 Farrington Highway
Makaha, Waianae, Oahu, Hawaii 96792

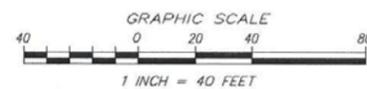
Owner: City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

The shoreline as delineated in red is hereby certified as the shoreline as of
MAY 24 2016

[Signature]
Chairperson, Board of Land and Natural Resources

Notes:
Azimuths are referred to Government Survey Triangulation Station "MAKAHA" Δ .
Boundaries are shown from record data.

Shoreline Survey of A Portion of Makaha Beach Park At Makaha, Waianae, Oahu, Hawaii Tax Map Key: (1) 8-4-001 : portion 012



R. M. TOWILL CORPORATION
This work was prepared by me or under my direct supervision

[Signature]
Dan L. M. Akita Exp. Date 4/30/16
Licensed Professional Land Surveyor
Certificate Number 12749

File: Makaha Shoreline 2015.dwg

Ref: RMITC No. 1-22590-0-S
FB No. 8526

R. M. TOWILL CORPORATION
SINCE 1930

2024 North King Street Suite 200
Honolulu, Hawaii 96819
Tel: (808)842-1133

Appendix C
Photos of the Site



Photo 1. View from site facing south. Farrington Highway and lifeguard tower fronting Mākaha Beach.



Photo 2. View from site facing north. Site gate and gravel driveway.



Photo 3. View from site facing east. Mākaha Beach Park canoe hālau and parking lot.



Photo 4. View from back of site facing north. Existing Cable Landing Station (CLS).