STATE OF HAWAI`I
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
HONOLULU, HAWAI`I

October 26, 2018

BOARD OF LAND AND
NATURAL RESOURCES
STATE OF HAWAII
HONOLULU, HAWAII

REGARDING:	Proposed Conservation District Use Application (CDUA) **OA-3821** for the *Grossman Scour Apron Erosion Control Project*
APPLICANT:	Elizabeth Rice Grossman
LANDOWNER:	State of Hawaii - DLNR
AGENT:	Sea Engineering, Inc./ David A. Smith
LOCATION:	Kailua, Ko'olaupoko District, Island of O'ahu
TMK:	*Submerged lands seaward (makai) of (1) 4-3-005:094*
AREA OF PARCELS:	*Submerged lands of the State (N/A)*
AREA OF USE:	1,963 ft^2
SUBZONE:	*Resource*

DESCRIPTION OF AREA AND CURRENT USE:

The proposed project site is an existing seawall seaward (*makai*) of the subject parcel (**Exhibit 1**) located on 1240 Mokulua Drive in Kailua (**Exhibit 2, 2a**). The property consists of a large residential structure, a two-car garage, landscaping, a pool and decking area, along with other common residential appurtenances. Along the *makai* (seaward) property boundary is an existing, functional concrete seawall and boat ramp; the seawall extends approximately 7-feet above mean sea level (msl) and has a splash guard at the top of the wall (**Exhibit 3, 3a, 3b**). To the north of the project site, the neighboring properties have a rip-rap rubble mounds or unconsolidated revetments in front of their seawall (**Exhibit 4**). OCCL staff notes that historical coastal erosion data indicates there is an overall trend towards erosion at this shoreline segment (**Exhibit 5**).

The subject parcel consists of an "L" shaped lot with a total area of 22,197 sq. ft. and a total shoreline frontage of 151 linear feet. The land elevation of the parcel ranges from 6-feet msl to 8-feet msl.

The environment makai of the subject parcel consists of Beaches (BS) and Jaucus Sand (JaC); BS areas consist mainly of light-colored sands derived from coral and seashell material while JaC is a common *Entisol* (poorly developed mineral soils) found near the shoreline of most of the Hawaiian Islands. **The waters offshore of the project site are classified as Class A waters; it is the objective of Class A waters that their use for recreational purposes and aesthetic enjoyment be protected.** The US Fish and Wildlife Service (USFWS) National Wetlands Inventory lists the waters fronting the project site as marine, intertidal and rocky shore that is regularly flooded.

Floral and Faunal Resources:
The applicant states that the US Fish and Wildlife Service (USFWS) compiles data using the *Hawaii Biodiversity and Mapping Program* as it pertains to listed species and designated critical habitat in accordance with Section 7 of the Endangered Species Act of 1973; according to this listing there is no federally designated critical habitat within the immediate vicinity of the proposed project.

The USFWS and *NOAA Fisheries* data indicate the federally endangered Hawaiian hoary bat may forage and roost within the vicinity of the project area. The federally threatened green sea turtle may forage in the waters offshore or bask on the shoreline area near the site. Additionally, the wedge-tailed shearwater (a seabird species protected under US law) may be impacted by components of the project. Additionally, according to NOAA's Essential Fish Habitat (EFH) regulatory guidelines, the proposed project is likely located within waters designated as EFH (including water column and all bottom areas) for coal reef ecosystems, bottom fish, pelagic, and crustacean management unit species.

Cultural and Historical Resources:
The applicant states that internet research and Cultural Impact Assessments from other nearby projects in Kailua reveal that this region of the island was a culturally significant area with many of the natural resources of the area supporting traditional subsistence activities such as fishing an *kalo* cultivation. Native Hawaiian cultural practices that occur or once occurred at beaches in the Kailua area consist of *pahu* and *ipu* making, shoreline fishing, *hukilau*, and surfing.

In consultation with the State Historic Preservation Division (SHPD), it was determined that a *Cultural Impact Assessment* (CIA) was not required for the proposed project.

According to the applicant, cultural practices such as subsistence fishing are found near the project area but should not be affected long-term by the proposed project other than typical short-term closures associated with construction to minimize risks to public health and safety.

PROPOSED USE/ NEED AND PURPOSE:

The subject property has an existing vertical concrete seawall extending seven (7) feet above msl with a small splash guard at the top of the wall; the applicant notes that the seawall is deteriorating, and that the loss of the seawall could potentially destabilize approximately 150-feet of shoreline. According to the applicant, the primary objective of the proposed project is to protect the upland development from coastal erosion and attempt to bolster beach accretion *makai* (seaward) of the applicant's property.

The applicant is proposing to install a rip-rap scour apron *makai* of the existing seawall. The proposed riprap scour apron is a sloping, uncemented structure built of wave resistant material. The structure is designed to be 6-feet across at the top which slopes down to a base width of 13-feet (**Exhibit 6, 6a**). Traditionally used in sub-surface installations, the goal of this design is to prevent scour at the toe of the vertical wall. The rip-rap scour apron is also designed to disperse wave energy and prevent the downward motion of incident/reflected wave energy that results in scour.

The proposed dimensions of the structure are approximately 151-linear feet by 13-feet width and will be composed of approximately 200-250 cubic yards of stone in the size range of 50 to 500 lbs. The rock will overlay approximately 100-125 square yards of geotextile material and up to 10 cubic feet of grout filled sandbags will be inserted into existing gaps in the seawall.

Because of the sandy bottom located along the seawall, the scour apron has been designed to 'settle' into the sand over time to achieve the desired results; therefore, the riprap will be placed in two 'phases' (**Exhibit 7**). In the first phase, the riprap will be place and pushed approximately 1-foot into the sand bottom with the excavator bucket. In the second phase, the riprap will be placed 1-foot higher than the design template to allow for an additional 1-foot of settling over time. Approximately 170-200 cubic yards of riprap is anticipated for Phase 1 placement, and an additional 45-50 cubic yards will be necessary for the phase 2 placement.

Small, grout-filled bags will be inserted into the existing undermined seawall area to reduce the flow or water and subsequent undermining of the existing seawall. It is anticipated that the bags will be filled on land and hand-placed into void in the seawall. The number of bags will be assessed during construction; however, a total volume of less than 10 cubic feet is anticipated. A geotextile liner placed between the seawall and the new stone to reduce the loss of material through void and crack in the wall; approximately 100-125 sq. yards of geotextile fabric will be used.

The applicant states that all equipment will operate from the subject parcel and no equipment will operate in the water or from the beach area (**Exhibit 8**). Additionally, the applicant has established a number of Best Management Practices (BMPs) to minimize impacts to the environment, these include (but are not limited to): containment devices to minimize turbidity (e.g., silt curtains, or fences) (**Exhibit 9**), making sure all construction materials are free of invasive plant or animal species prior to placement in the water; avoidance of seagrass or coral beds during construction, and stockpile construction materials well away from ocean wave impacts or flooding.

SUMMARY OF COMMENTS:

The application was referred to the following agencies for review and comment; The Department of Land and Natural Resources (DLNR): Oahu District Land Office (ODLO), the State Historic Preservation Division (SHPD), Engineering Division, Division of Aquatic Resources (DAR), the Division of Forestry and Wildlife (DOFAW), the Commission on Water Resource Management (CWRM), and the Division of Boating and Ocean Recreation (DOBOR). Additionally, the application was sent to the State Department of Health (DOH) – Clean Water Branch, the Office of Hawaiian Affairs (OHA), the City and County of Honolulu - Department of Planning and

Permitting (CCH-DPP), the National Oceanic and Atmospheric Administration (NOAA), the US National Marine Fisheries Service (USNMFS), and the US Army Corps of Engineers – Honolulu District (USACOE) along with the Kailua Public Library and Lanikai Association in order to make this information readily available to those who may wish to review it.

OCCL staff notes that sixteen (16) letters, in support of the proposed project, were submitted by neighboring residents of the applicant.

A summary of the comments received by OCCL is listed below:

DLNR – Oahu District Land Office (ODLO):
Prior to commencing any construction of the riprap scour apron on State lands, applicant needs to have an executed easement for the use of the State Lands.

***Applicant Response**: I note from the comment that the applicant needs to have an executed easement for the use of State Lands prior to commencing construction of the scour apron. We have engaged a land surveyor to update the easement map and recognize the requirement of an easement.*

DLNR – Division of Aquatic Resources (DAR)
The Division of Aquatic Resources would appreciate the inclusion of a detailed section in the Draft Environmental Assessment (DEA) that would address the proposed actions influence on near-shore currents and how a change in the near-shore currents (should a change occur) would potentially impact the near-shore habitat and biological communities.

The applicant states that the project may cause small or negligible decreases in the strength of local currents and that the construction of a new apron may result in some natural accretion and retention of sand by reducing the wave energy at the shoreline. However, little evidence in the form of data and analysis for these claims are provided. Such information would provide valued insight, when considering the potential benefits or impacts to our public resources.

The applicant states that lateral access along the coast line will be enhanced by the proposed construction of a riprap apron. However, there may be some fishermen that prefer to traverse over the existing sand rather than the proposed riprap. Proper public vetting of the project should occur to determine the publics preference as it pertains to this and other aspects of the proposed project.

***Applicant Response**: We consider all energy sources when assessing impacts to the shoreline. The primary driving factors along shorelines are waves, currents, and tides. Sea Engineering, Inc. performed a field study in 2008 to measure the reflected wave energy from different shorelines in Waikiki. Nearshore wave measurements were conducted using a floating wave gauge which recoded the direction, height, and period of the waves. The wave gauge was deployed between 50-100 feet from the shore at different locations representing a vertical seawall, a rock revetment, and a beach. The results showed that seawalls reflected 61% of incident wave energy, while beaches and revetments reflected 21% and 30%, respectively.*

A study of nearshore profiles fronting reflective seawalls, dissipative seawall, and beaches showed that profiles were flatter in front of highly reflective shorelines and steeper fronting

dissipative shorelines. An increase in slope toward the shore is therefore caused by accretion of sand fronting beaches and dissipative seawalls, such as those with toe aprons.

Scientific and empirical evidence suggest that the proposed project would reduce energy at the shoreline, resulting in sand accretion along the scour apron. The impact of reduced wave energy is expected to be an increase in wet beach and possibly dry beach, returning the shoreline to a more natural sandy slope.

The Final Environmental Assessment (FEA) contains more information on the reflection study and beach profile study.

You comment that fishermen may prefer to traverse sand vs rock. I agree with you. Observation and scientific literature show that sand accretion along the scour apron would occur away from the seawall, allowing the fishermen to walk on sand bottom while decreasing their exposure to incident and reflected waves along the seawall. Without the scour apron in place, users would be wading through deeper water or close the seawall where they would be exposed to greater wave energy.

DLNR – Division of Boating and Ocean Recreation (DOBOR)
The agency had no comments on the proposed project.

State of Hawaii – Office of Planning (OP)
OCCL Staff note: The comments provided by OP have been summarized below:

A. The Final Environmental Assessment (Final EA) shall provide an assessment with supporting data and evidence that affirms the statement that lateral access to the beach is anticipated to improve after the installment of the apron because there is more likely to be a beach there than without the apron, and for the potential to accrete sand. In addition, the issue of beach protection, as discussed in Section 6.3.6 of the Draft EA should reference and incorporate HRS §205A-2(c)(9), as amended, in its examination.

B. OP recommends that the Final EA consider the findings in the "Hawaii Sea Level Rise Vulnerability and Adaptation Report, 2017"

C. The Final EA should present the location of the potential staging and stockpiling areas and provide confirmation from the Department of Planning and Permitting for Special Management Area (SMA) project requirements.

D. The Final EA should include a discussion on the projects ability to meet all parts of the Hawaii State Planning Act, as listed in HRS Chapter 226. The discussion must examine the projects consistency with these statutes or clarify where it is in conflict.

Applicant Response:

A. The discussion on potential for accretion in front of a scour apron has been significantly expanded in Section 1.2 of the FEA. The FEA now contains reference to reports on wave reflection from structures and beach profile response. More photographs of seawalls and rock aprons are also presented.

B. *The discussion of sea level rise has been greatly expanded to include the updated NOAA projections and the findings of the Hawaii Sea Level Rise Vulnerability and Adaptation Report (2017). The new discussion can be found in sections 3.1.2.9 of the FEA.*

C. *The Department of Planning and Permitting (DPP) previously determined the project to be outside of the City and County's jurisdiction, and therefore, no SMA permit was required. A figure identifying the proposed access and staging areas has been added to the FEA. Additionally, the DPP has again been contacted regarding the need for an SMA permit resulting from the staging areas.*

D. *The discussion on the State Planning Act has been expanded to include other parts of the act as appropriate. The discussion can be found in Section 6.2.1 of the FEA.*

The Lanikai Association:
The Lanikai Association fully supports the above referenced project. Thank you for allowing us the opportunity to comment on this application.

No other comments were received by any agency or the public.

ANALYSIS:

Following review and acceptance for processing, the Applicant's Agent was notified, by letter dated *May 1, 2018* that:

A. Your proposal to conduct the *Grossman Scour Apron Erosion Control project* located in the Ko'olaupoko District, on the Island of Oahu is considered an identified land use within the Conservation District Resource Subzone pursuant to Hawaii Administrative Rules (HAR), §13-5-22, P-15, **SHORELINE EROSION CONTROL** (D-1), *Seawall, revetment, groin, or other coastal erosion control structure or device, including sand placement, to control erosion of land or inland areas by coastal waters, provided that the applicant shows that (1) the applicant would be deprived of all reasonable use of the land or building without the permit; (2) the use would not adversely affect beach processes or lateral public access along the shoreline, without adequately compensating the State for its loss; or (3) public facilities (e.g., public roads) critical to public health, safety, and welfare would be severely damaged or destroyed without a shoreline erosion control structure, and there are no reasonable alternatives (e.g., relocation). Requires a shoreline certification.* Please note that the final decision to approve or deny this application rests with the Board of Land and Natural Resources (BLNR);

B. Pursuant to HAR §13-5-40, Hearings, a public hearing *will not be* required;

C. A Draft Environmental Assessment with an Anticipated Finding of No Significant Impact (DEA-AFONSI) was submitted for publication in the Office of Environmental Quality Control (OEQC) publication, *The Environmental Notice* (EN) on May 8, 2018. OCCL staff notes that, while this proposed project may not have *significant* environmental effects, the project does contradict our current policies and objectives for beach protection provided under Hawaii Revised Statutes (HRS) 205A-2(9):

1) HRS 205A-2(9)(A) - *Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;*
2) HRS 205A-2(9)(B) – *Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities.*

With that said, the Final Environmental Assessment (FEA) with a Finding of No Significant Impact (FONSI) has been submitted to OEQC and was published in the *September 23, 2018* issue of the EN.

D. The proposed project *is not* located within the City and County of Honolulu - Special Management Area (SMA).

§13-5-30 CRITERIA:

The following discussion evaluates the merits of the proposed land use by applying the criteria established in HAR §13-5-30.

1) ***How is the proposed use consistent with the purpose of the Conservation District?*** *The objective 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.*

The applicant states that the proposed riprap toe apron is consistent with the definition of the Conservation District, because it will protect the shoreline from erosion. It will conserve the existing sediment in the region and preserve the shoreline shape. The beach and shoreline are natural and cultural resources that will be protected for years to come with the installation of this apron. Without the apron, the beach will continue to disappear and the property mauka of the shoreline, with existing sinkholes, will continue to be undermined.

OCCL Staff notes that a study conducted by the agent for the applicant indicates that while sand beaches provide the best protection for the shoreline, sloped revetments can reduce incoming wave energy better than a vertical seawall; however, this requires the loss of beach area due to the footprint of the rock revetment.

2) ***The proposed land use is consistent with the objectives of the Subzone of the land on which the use will occur****. The existing and proposed groin are located in the Resource Subzone of the Conservation District, pursuant to HAR §13-5-13, the objective of the Resource Subzone is to ensure, with proper management, the sustainable use of the natural resources of the area.*

The applicant states that the installation of the rip-rap toe apron is a sustainable option introducing rocks (riprap) to the environment to preserve the sandy shoreline and dry land mauka of the beach, which are the natural resources in this area.

OCCL does not consider the structure itself to be 'sustainable' as it will require maintenance, and possible improvements due to sea level rise, or if the material becomes dislodged or moves due to major wave action it could impact lateral shoreline access or recreational users located in the water.

3) *The proposed land use complies with the provisions and guidelines contained in Chapter 205A, HRS entitled "Coastal Zone Management", where applicable. The Coastal Zone Management Program recognizes a number of objectives and policies to monitor when determining potential impacts to the coastal zone area. While not all of the objectives and policies are relevant to each project, some objectives have the potential to be influenced by the proposed project.*

Recreational resources: The applicant states that once construction begins, swimmers and other users of the area at the project site will be forced to take a more seaward route past this section of the shoreline. Installation of the rip-rap scour apron is not anticipated to have any other long-term impacts on recreational resources in this area.

OCCL staff notes that recreational fishermen who traverse this shoreline, or use the area makai of the project site, will be required to find a new location during construction activities.

Historic Resources: The applicant states that there are no historic resources found within the project area and the project is not anticipated to impact historic resources in the region.

OCCL staff reviewed the materials submitted, as well as previously approved projects in the vicinity of this proposed use and determined that there appears to be no cultural or historic resources currently existing at this site.

Scenic and open space resources: The applicant believes that the installation of the riprap toe apron is not anticipated to affect existing scenic viewplanes; the existing seawall and boat ramp will remain the dominant features in this area while the rip-rap should become covered by sand and should not impact views along this coast. OCCL staff notes that these types of structures are a common sight along the shoreline in this area, and other similarly eroding beaches of the State.

Coastal Ecosystems: The applicant states that the coastal ecosystem surrounding the property is sand. Installation of the rip-rap to apron will utilize the proposed Best Management Practices (BMPs) an is not expected to result in long-term degradation of the existing coastal ecosystem.

OCCL staff notes that the coastal ecosystem could be improved upon <u>if the project accretes sand as stated by the applicant</u>. If the sand doesn't accrete as predicted the project would end up being an unnatural rock pile located at the shoreline which is inconsistent with a sandy beach ecosystem.

Economic uses: The applicant states the installation of the rip-rap toe apron is necessary to protect the residence on the shore mauka of the project site and maintain the economic

value of the residence. The proposed project is anticipated to cause beach accretion and therefore increase the intrinsic economic value of a shoreline for the State of Hawaii.

Coastal hazards: The applicant states that the installation of the rip-rap toe apron will strengthen the structural integrity of the seawall currently fronting the subject property and dissipate the incoming wave energy impacting the shoreline, thereby reducing coastal natural hazard impacts to the property and the residents who rely on the beach as a shoreline barrier.
OCCL staff believes the current coastal hazards associated with the existing seawall relate to its failure, and could be reduced if the structure is repaired, but not expanded. Additional hazards include walking along the existing wall during high tides which can be hampered by reflecting waves, however, during low or lower tides lateral access is available.

Beach Protection: The applicant states the proposed project is intended to promote beach protection by dissipating the incoming wave energy on the shoreline, decreasing sand re-suspension in the water column, and increasing sand accretion along this length of shoreline.

OCCL staff has concerns regarding the placement of rocks at the shoreline and its effects on coastal erosion and lateral beach access. Additionally, the applicant claims that a revetment is preferred to a vertical seawall; while this may be true under certain conditions, it would be unlikely to make any difference to a chronically eroding shoreline such as this.

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

The applicant states that the installation of the rip-rap toe apron will follow the Best Management Practices Plan (BMPP) that was developed for this specific action on the coastline, and for work in the nearshore waters of the state. The purpose of the BMPP is to ensure that adequate protective measures are in place during the installation of the rip-rap toe apron in order to minimize or prevent adverse impact to the environment.

OCCL staff notes that any shoreline development has the potential to influence shoreline processes and the coastal ecosystem. In this location development directly adjacent to the shoreline has diminished the available space for a beach to remain in equilibrium.

5) *The proposed land use, including buildings, structures and facilities, shall be compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels.*

The applicant states that the proposed rip-rap toe apron in front of the subject property's seawall is similar to the existing apron that fronts the seawall at the neighboring property. The apron will be visually consistent with the local area and is appropriate for this moderate wave energy shoreline environment. The beach in from the subject's property is

only exposed at lower low tide and the apron is not anticipated to have an impact on existing coastal uses.

OCCL staff notes that a large rock revetment located on the beach is not necessarily compatible with the natural conditions of this site which is a sandy beach, and is considered state unencumbered lands for use by the public.

6) *The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable.* The applicant states that the existing physical and environmental aspects of the land and water will be preserved through installation of the rip-rap toe apron by protecting the land mauka of the shoreline and by promoting accretion of beach sand on the shoreline. The proposed apron is not anticipated to alter the ecology, water quality, scenic or open spaces, or marine and coastal environments.

OCCL staff notes that the existing environmental aspects of the land, as well as the natural beauty of the site may not be significantly altered by the construction of a rock apron as the shoreline in this area is a mix of concrete walls, large stone rubble mounds, rip-rap apron, and revetment structures. However, if the rocks become exposed or dislodged it could be a detriment to shoreline aesthetics.

7) *Subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District.*

The proposed use will not require the subdivision of land in the Conservation District.

8) *The proposed land use will not be materially detrimental to the public health, safety and welfare.*

The applicant stated that the proposed project is designed to mitigate potential impacts on the coastline by reducing erosion and stabilizing the shoreline and seawall. There are currently sinkholes forming on the applicant's upland parcel. The proposed project will aim to protect the shoreline from a collapse that would otherwise threaten public health, safety, and welfare of beachgoers.

OCCL staff agrees that a failure of the seawall or collapse of the seawall on the beach could be detrimental to public health, safety and welfare, however, there may be other options besides increasing the amount of hard shoreline erosion control elements.

CULTURAL AND HISTORICAL IMPACT REVIEW:

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

Under this section the applicant has reported on numerous historical references for the Lanikai and Kailua region; not necessarily specific to the project site.

Native Hawaiian cultural practices in the ocean *makai* of the subject property include ocean sports such as: fishing, canoe paddling, diving, and surfing. Currently there is no lateral shoreline access to the area, however, to the north, the neighboring property has a sandy beach fronting the parcel – but it drops off at the applicant's parcel. Implementation of the project does not involve construction on or excavation of backshore land areas that might contain physical remains. The applicant states that care will be taken when working on the beach to avoid disturbing previously undisturbed sandy sediments that may hide subsurface deposits.

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

The applicant states that there does not appear to be any known traditional Hawaiian cultural practices that would be adversely affected by the proposed project, nor does it seem like the activities associated with the project will conflict with traditional cultural practices as expressed in legend. The proposed project is being accomplished in an area that has been substantially altered and is entirely makai of the shoreline where the existence of any cultural artifacts or remains are very unlikely.

OCCL staff notes that based on the information provided in the application, and a review of cultural and historical records for this area, the proposed project is unlikely to have any adverse effect on rights customarily and traditionally exercised for subsistence, cultural and religious purposes.

What feasible action, if any, could be taken by the Board of Land and Natural Resources in regard to your application to reasonably protect Native Hawaiian rights?

The applicant states that no action is necessary by the Board of Land and Natural Resources (BLNR), as the proposed project is not anticipated to affect any known traditional or customary Native Hawaiian rights or practices. Neither does it seem that the activities associated with the proposed project would conflict with traditional cultural practices as expressed in legend. If cultural practices are taking place within the project site, but have not been observed, then all effort will be made to minimize and mitigate any project impacts.

The applicant indicates that they considered the potential impacts of the project on archeological and cultural resources, and traditional cultural practices, and concluded that the project is unlikely to have an adverse effect on rights customarily and traditionally exercised for subsistence, cultural, and religious purposes. OCCL staff accepted the applicant's findings by recommending to the DLNR Chairperson that the Environmental Assessment (EA) be accepted.

DISCUSSION:

The proposed activity under this Conservation District Use Application (CDUA) is to alleviate or minimize the undermining of the seawall which is impacting the upland parcel. The proposed project includes the construction of a rip-rap toe apron designed to prevent or minimize undercutting of the seawall by wave action and erosion, and to reduce the prevalence of sinkhole formation in the upland area adjacent to the shoreline. There is an existing seawall at this location which was described by the applicant as 'deteriorating'; the seawall terminates at the southern end of the parcel that ties into an existing boat ramp also part of the applicant's parcel. The wall has been in place for over 60 years and has protected the property since that time. Current environmental conditions along this section of shoreline reveal a trend towards erosion, such that the beach has disappeared completely south of the proposed project location. To the south the neighboring properties lined with hardened shoreline erosion control structures such as seawalls, revetments, and rip-rap rubble mounds to protect the upland development. To the north of the project site, the shoreline remains typically unimproved and a dry beach is present (**Exhibit 10, 10a**); however coastal geomorphology (i.e., the shape of the shoreline) may be a determining factor for the loss of the beach at or near the project site.

OCCL staff believes coastal development can be a serious impediment to protecting and preserving coastal ecosystems, recreation, and processes. In this case, the residential and urban development was created at a time when mean sea level was at a lower elevation, and coastal erosion, sea level rise, and climate change were not necessary attributes for regulatory discussions. OCCL staff notes that the applicant did incorporate future Sea Level Rise (SLR) measurements into the design of the rip-rap toe apron structure, however, significant changes to the project design were constrained by the existing seawall and boat ramp which were sited long ago, and development mauka of the project area that is considered static (i.e., residence). Staff also believes that the seawall is still functional and robust for this location, and if repaired, could continue to protect the property without sacrificing a public trust resource.

The applicant's agent claims the proposed rip-rap apron placed *makai* of the existing seawall will allow for the long-term accretion of sand. While the studies provided by the agent are comprehensive and do indicate the *potential* for accretion, the OCCL has reservations that the location of the study, and the shape of the study area shoreline are not similar enough to this proposed project location. Additionally, we do not believe the applicant has provided sufficient evidence to show that the rip-rap apron/revetment will improve beach resources in the long-term at this specific site.

OCCL staff believes this proposed project, if approved, could set an undesirable precedent towards shoreline hardening and the overall loss of a public trust resource. Pursuant to Hawaii Revised Statutes (HRS) §205A-2(9), titled Beach Protection, it is the policy of the state to: (A) *locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion,* and (B) *prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities*. OCCL staff believes the proposed construction of a new hardened shoreline erosion control structure appears to go against the State's policies and objectives relating to coastal zone management and beach protection,

especially when there are other upland repair options for the existing seawall that do not include the use of public lands as is preferred under Ch. 205A-2(9)(A).

While we applaud the agents' comprehensive studies on shoreline erosion and the effects of wave action on hard structures, the OCCL cannot in good conscience recommend approval. Therefore, staff believes that the project, as proposed, would not be consistent with Conservation District objectives.

Staff, therefore, recommends as follows:

RECOMMENDATION:

Staff recommends that the Board of Land and Natural Resources **DENY** this Conservation District Use Application (CDUA) for the proposed *Grossman Scour Apron Erosion Control Project* located on submerged lands of the state in Kailua, Ko'olaupoko District, Island of Oahu, seaward of *Tax Map Key: (1) 4-3-005:094* due to the following reasons:

1. Staff believes the proposed project is inconsistent with the objectives and policies related to Coastal Zone Management in the State of Hawaii pursuant to HRS 205A-2;

2. Staff believes that the project, as designed, will set an undesirable precedent for the armoring of the shoreline and the loss of a public trust resource;

3. Staff believes that the permittee has not provided enough site-specific evidence that the proposed project will improve the beach resource significantly;

4. Staff believes the proposed project is not typical for shoreline erosion control projects that promote beach preservation; and

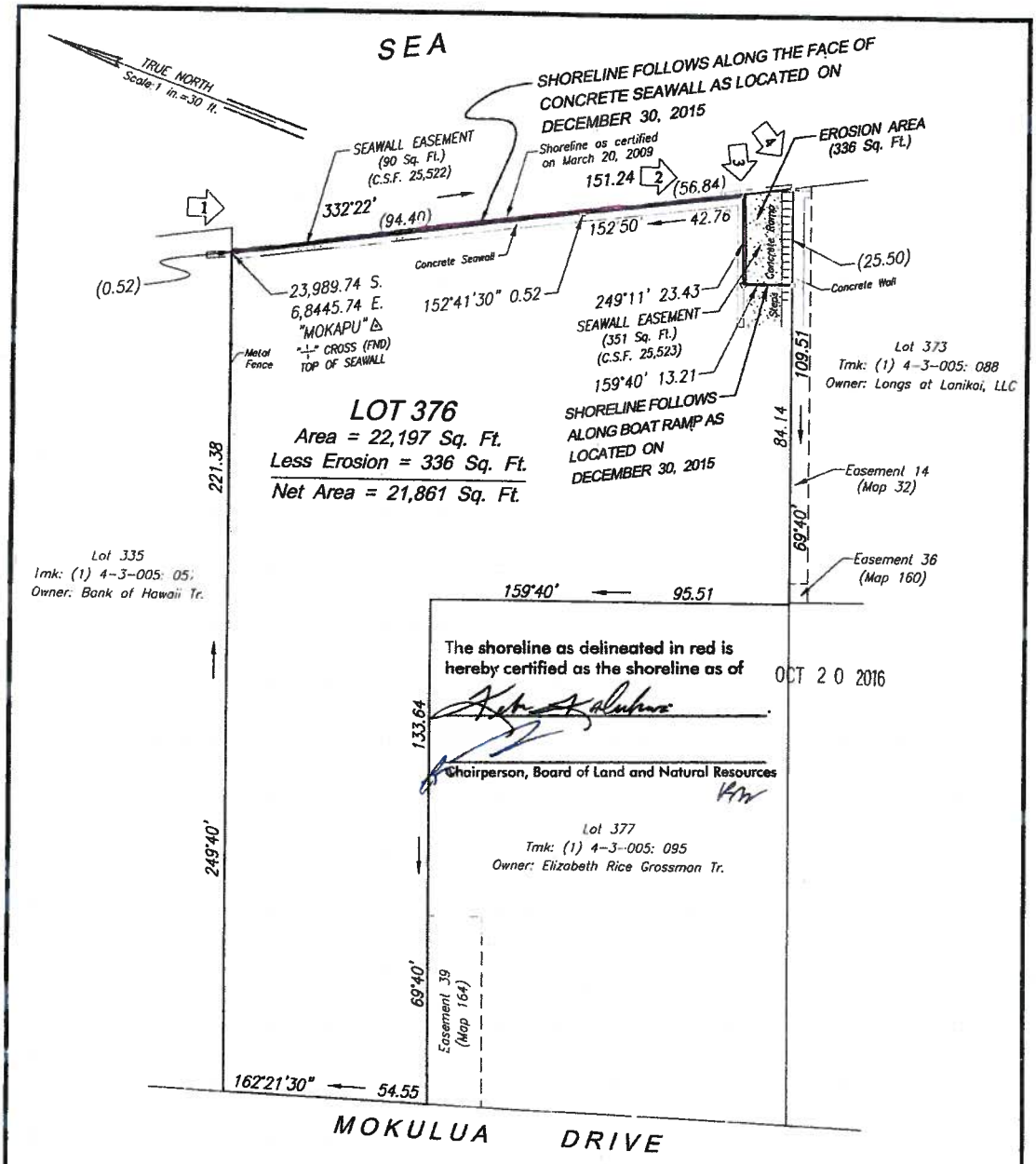
5. Staff believes that a mauka-side repair of the existing seawall would achieve the desired results of protecting the upland parcel.

Respectfully submitted,

Alex J. Roy, M.Sc., Staff Planner
Office of Conservation and Coastal Lands

Approved for submittal:

Suzanne D. Case, Chairperson
Board of Land and Natural Resources



SHORELINE SURVEY
LOT 376 (MAP 164)
OF LAND COURT APPLICATION 616

AT KAILUA, KOOLAUPOKO, OAHU, HAWAII
TAX MAP KEY: (1) 4-3-005: 094

OWNER: Elizabeth Rice Grossman Tr.
ADDRESS: 1240 Mokulua Drive
Kailua, Hawaii 96734

ROBERT K.Y. LEE
LICENSED PROFESSIONAL LAND SURVEYOR
No. 5075
HAWAII, U.S.A.

This work was prepared by me or under my direct supervision.

Denotes approximate position and direction of Shoreline Photographs.

Notes:

1. *Azimuths and Coordinates are referred to Government Survey Triangulation Station "MOKAPU".*

Robert K.Y. Lee 4/18

Robert K.Y. Lee
Licensed Professional Land Surveyor
Certificate Number 5075

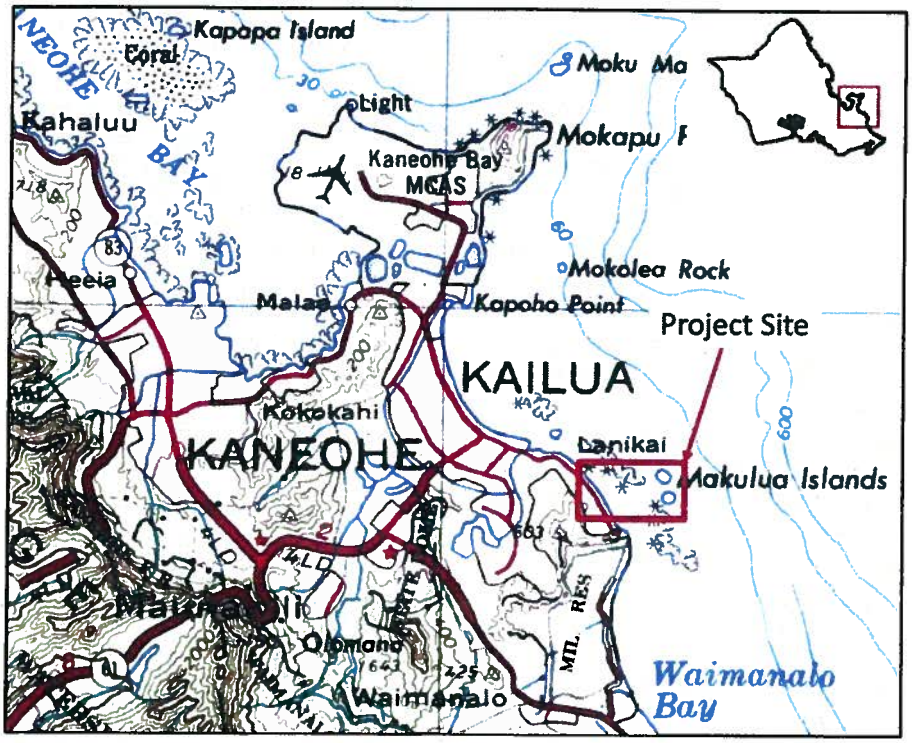
September 12, 2016

2153 N. KING STREET
SUITE 308
HONOLULU, HAWAII 96819

J:\L2\SURVEY CAD FILES\2016\5209\DWG\5209_LOT376_SHORE.DWG

10" X 15" = 1.0 Sq. Ft.

EXHIBIT 1 CDUA: OA-3921



Project location on the island of Oahu

Aerial photograph of the project site area and reef (Google Earth)

EXHIBIT 2 CDUA : OA-3921

EXHIBIT 2A
CDUA: 0A-3821
PACIFIC
O K U L U A
11,250 sf
13
150.00
50-A
10,671 sf
14
145.50
194.69
R=139.47
39.74
40.98
62.28
41
R=480.58
67.06
13,891 sf
189.27
36.68
42
75.08
43
75.08
44
75.08
063 sf
11,289 sf
(10,018 sf)
L C Aw
54
66.04
50.77
54.25
27.64
49-A
(1581 sf)
169.46
2 6 5 7 : 2
13,053 sf
(10,454 sf)
(1018 sf)
55
34.20
5.09
169.41
A-2-B
72.60
28.01
A-2-A
203.61
5.00
201.55
(4279 sf)
14.78
A-1
(1000 sf)
46.09
56
18,376 sf
(13,097 sf)
1-A
85.15
205.86
221.38
79.09
57
20,079 sf
335
54.55
94
228.05
221.38
105.79
Highwater mark as of Nov. 1960
133.64
ACCESS ESMT "39" [730 sf]
377
376
95.61
95
12,978 sf
22,197 sf
95.51
138.13
138.61
63.07
6 1 6
BOAT RAMP ESMT
ACCESS ESMT "36" [25 sf]
109.51
SEAWALL ESMT [90 sf]
151.24
58
8826 sf
372
12.01
141.57
63.00
131.00
ESMT "14" [522 sf]
109.03
373
20.16
59
19,459 sf
(8253 sf)
365
88
9934 sf
1,250.92
SEWER ESMT "37" [932 sf]
10.75
7.35
8.51
28.81
126.76
Shoreline boundaryas of 9/26/2000
12.01
131.00
16.00 STORM DRAIN 3918 sf
261.21
261.19
(11,206 sf)
366
75.00
13,058 sf
261.14
(6528 sf)
261.11
13,055 sf
(6527 sf)
261.09
(3264 sf)
261.07
13,053 sf
(9789 sf)
7-A
50.00
7-B
25.00
8-A
-1

Existing wall, boat ramp, and beach fronting 1240 Mokulua Dr. (July 2015 photograph taken near lower low tide).

EXHIBIT 3 CDUA: OA-3821

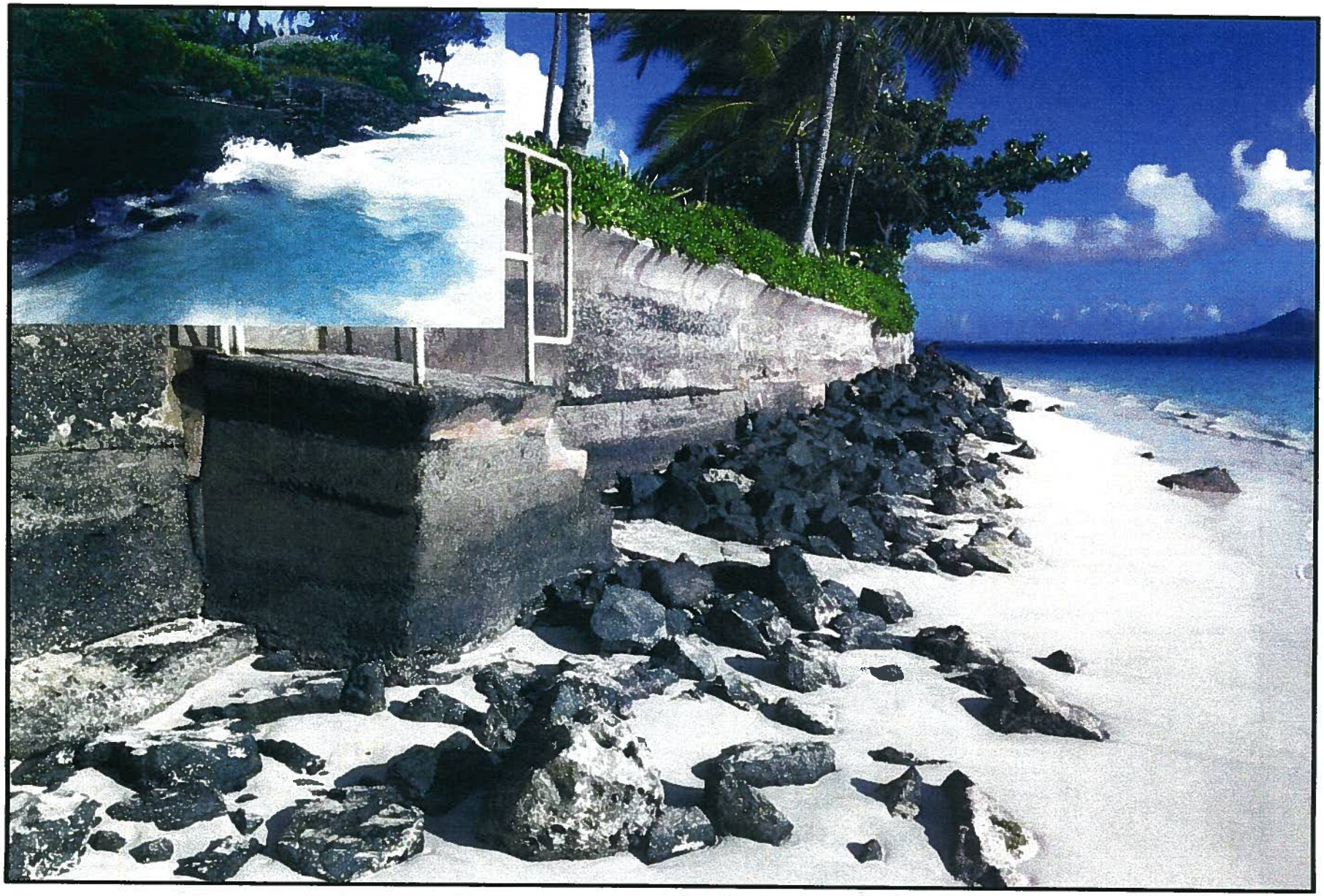
Photo of existing seawall looking south (Photo taken near lower low tide, July 2015).

EXHIBIT 3A CDUA: OA-3821

Boat ramp on the southern end of the subject property (photograph taken near lower low tide) Photo date: July 2015.

EXHIBIT 3B

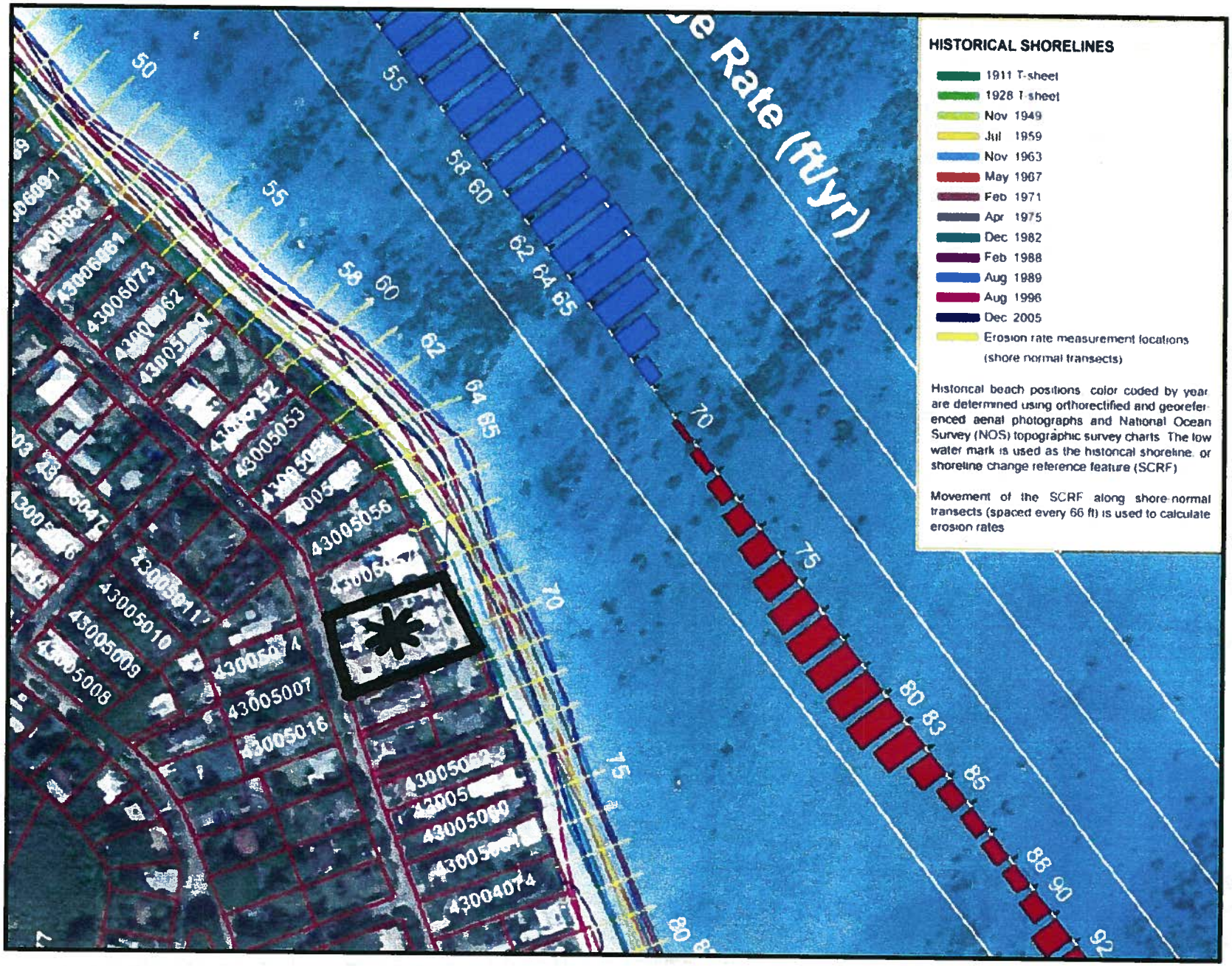
CDMA: 0A-3821



Vertical seawall with scour apron protection, property to the north (high tide swash top left corner). Photo date: July 2015.

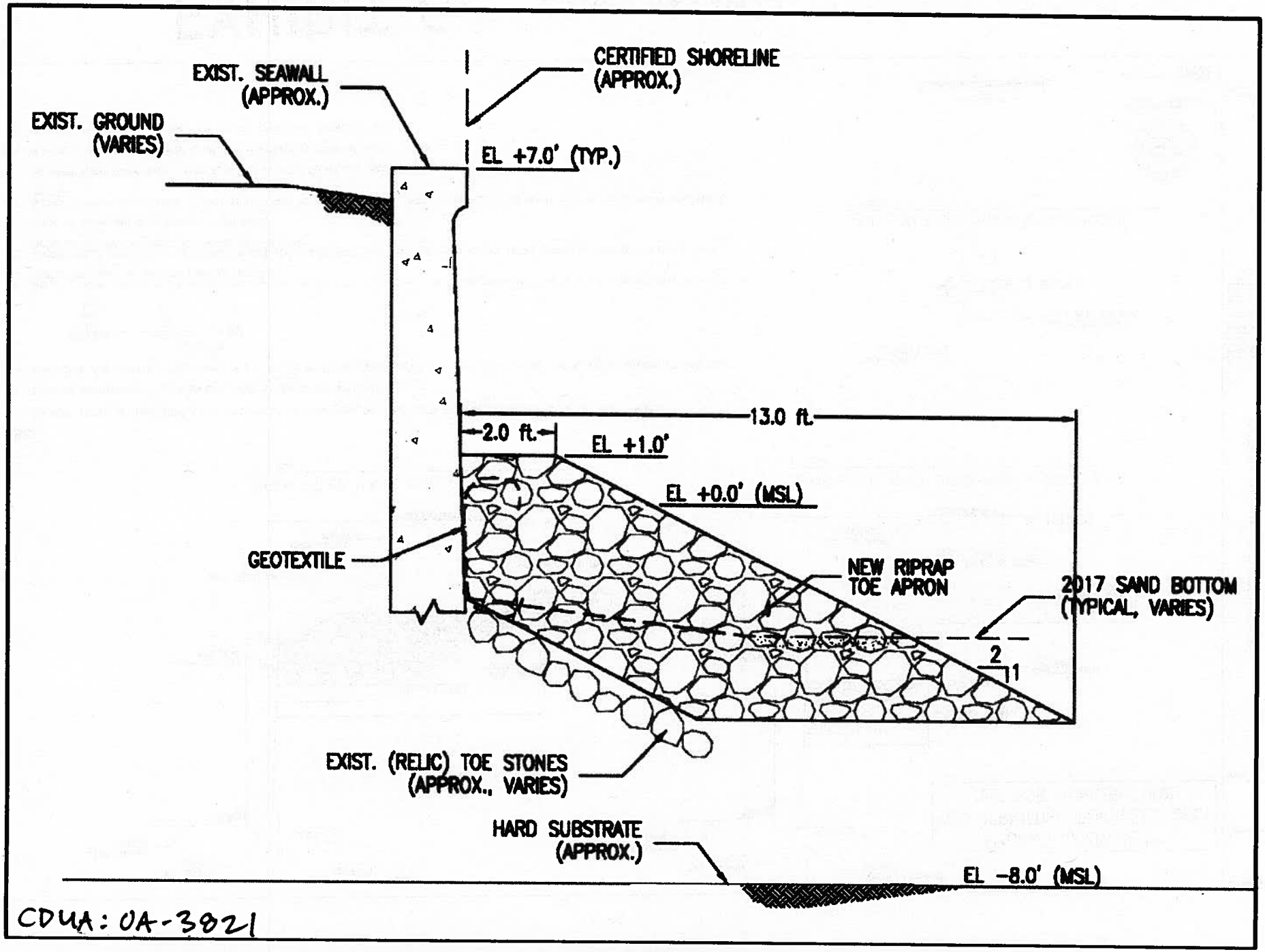
EXHIBIT 4

CDUA: OA-3821



Historical shoreline change analysis (UH Coastal Geology Group).

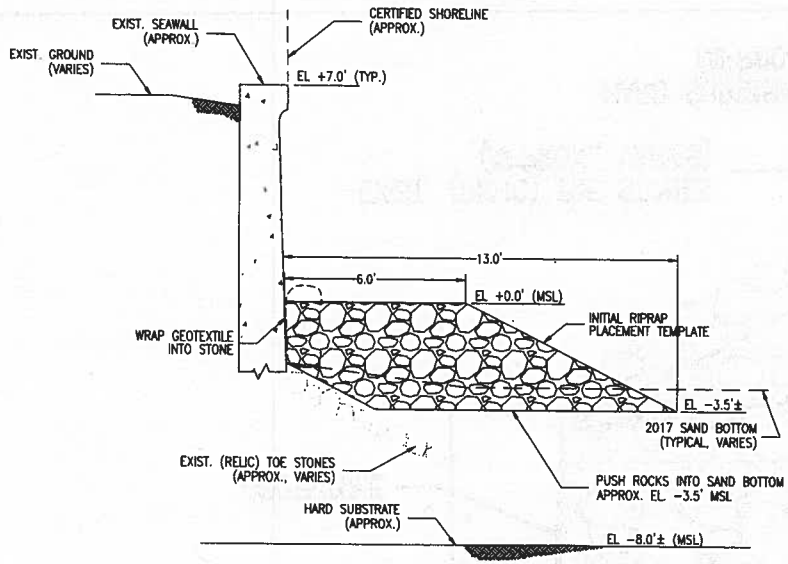
EXHIBIT 5 CDUA: OA-3821



CDUA: OA-3821

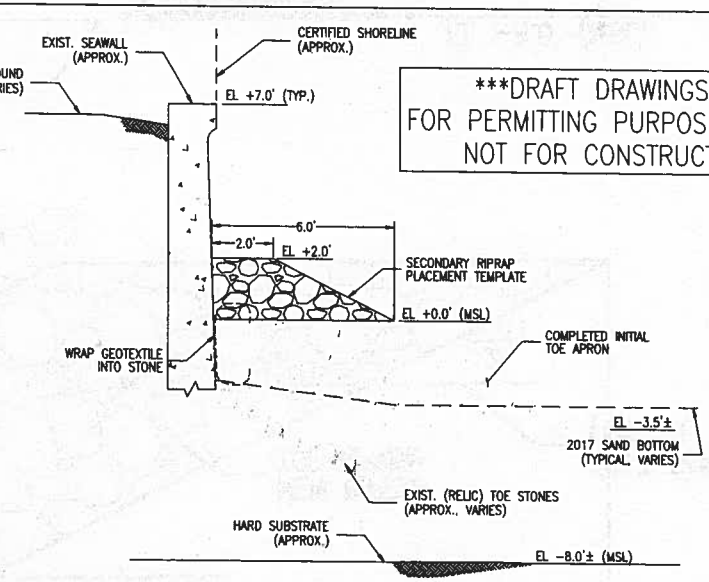
EXHIBIT 6

Section view of the seawall and scour apron -- design



RIPRAP SCOUR APRON INSTALLATION – PHASE 1

1" = 2'-0"



RIPRAP SCOUR APRON INSTALLATION – PHASE 2

1" = 2'-0"

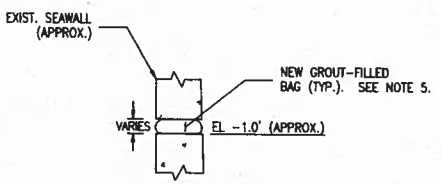
DRAFT DRAWINGS
FOR PERMITTING PURPOSES ONLY
NOT FOR CONSTRUCTION

NOTES

1. THE WORK CONSISTS OF CONSTRUCTING A ROCK RIPRAP SCOUR TOE APRON ALONG THE ENTIRE LENGTH OF SEAWALL AND BOAT RAMP ON THE SUBJECT PROPERTY.
2. ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL (MSL). ALL LENGTHS ARE GIVEN IN FEET.
3. RIPRAP STONE HAVE A MINIMUM SPECIFIC GRAVITY OF 2.5, SHALL BE WELL GRADED BETWEEN WEIGHTS, AND STONE WEIGHTS SHALL CONFORM TO THE FOLLOWING SIZE GRADATION:

	WEIGHT (LB)	
PERCENTILE	MIN	MAX
W15	50	110
W50	110	190
W100	220	440

4. IMMEDIATELY PRIOR TO PLACING RIPRAP, GROUT-FILLED BAGS SHALL BE USED TO FILL THE SEAWALL GAP LOCATED APPROXIMATELY 10 TO 15 FEET FROM THE NORTH END OF THE SEAWALL. BAGS SHALL BE MIRAFI 180 NONWOVEN OR SIMILAR.
5. GEOTEXTILE FILTER FABRIC SHALL BE MIRAFI FW404 OR EQUIVALENT. FILTER FABRIC SHALL BE PLACED ALONG THE FACE OF THE SEAWALL AS SHOWN ON C-4 DETAILS 1 AND 2. EXCESS MATERIAL SHALL BE TRIMMED AND WRAPPED INTO THE RIPRAP.
6. RIPRAP TOE APRON SHALL BE CONSTRUCTED IN TWO PHASES.
7. IN PHASE 1, RIPRAP SHALL BE PLACED TO THE LINES AND GRADES AS SHOWN ON SHEET C-4 DETAIL 1. RIPRAP SHALL BE PUSHED INTO THE SAND BOTTOM BY APPROXIMATELY ONE FOOT.
8. THE RIPRAP PLACED DURING PHASE 1 SHALL BE ALLOWED TO SETTLE FOR NO LESS THAN 72 HOURS.
9. IN PHASE 2, RIPRAP SHALL BE PLACED TO THE LINES AND GRADES AS SHOWN ON SHEET C-4 DETAIL 2.
10. NEW RIPRAP SHALL CONTACT AND FIRMLY ABUT EXISTING SEAWALL WITH NO GAPS OR VOIDS.



GROUT-FILLED BAG INSTALLATION (TYPICAL)

1" = 2'-0"

DAVID A SMITH
LICENSED PROFESSIONAL ENGINEER
No. 11483-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

GRAPHIC SCALE
(FEET)

NOTES:

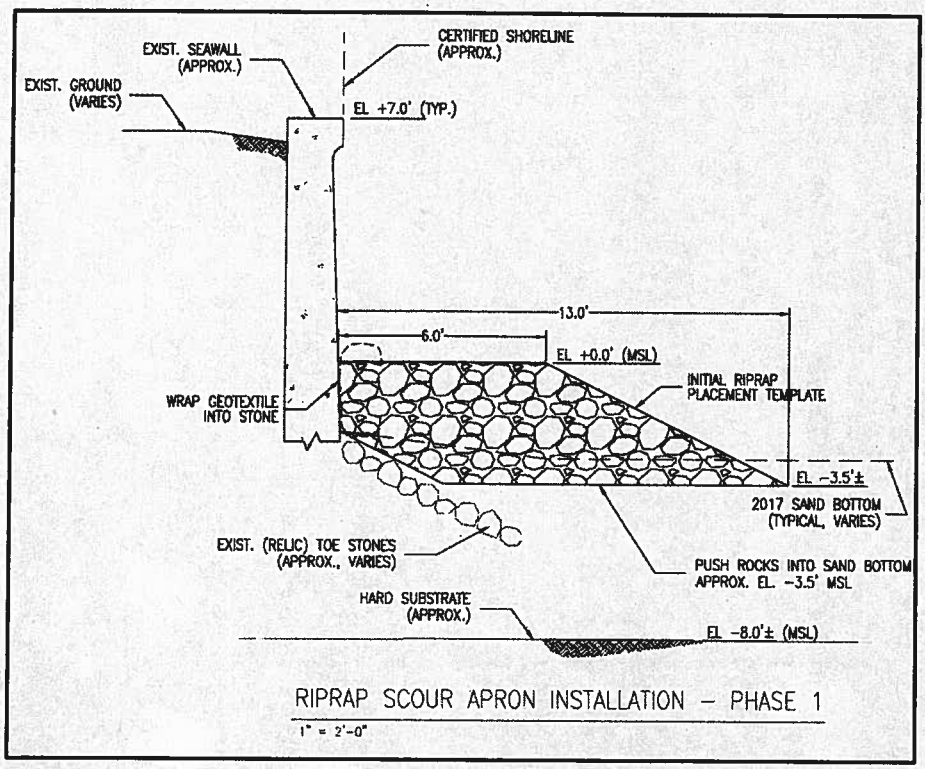
SCOUR APRON CONSTRUCTION
1240 MOKULUA DRIVE, LANIKAI
ISLAND OF OAHU, HAWAII

PROJECT NUMBER: 25563
PROJECT ENGINEER: DS
DRAWN BY: DS
CHECKED BY: DL
SCALE: 1" = 10'
DATE: MARCH 13, 2017

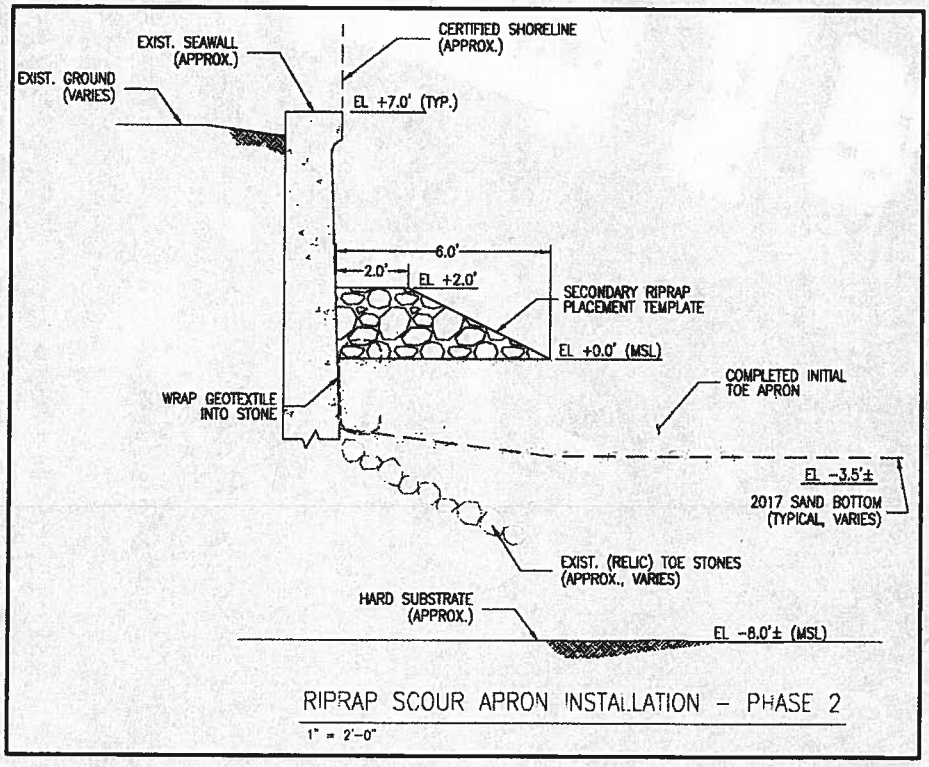
TYPICAL SECTIONS AND DETAILS

SHEET: 6 | RING:

EXHIBIT 6A CDUA: OA-3821



Phase 1 riprap scour apron placement



Phase 2 riprap scour apron placement

EXHIBIT 7
CDNA: 04-3921

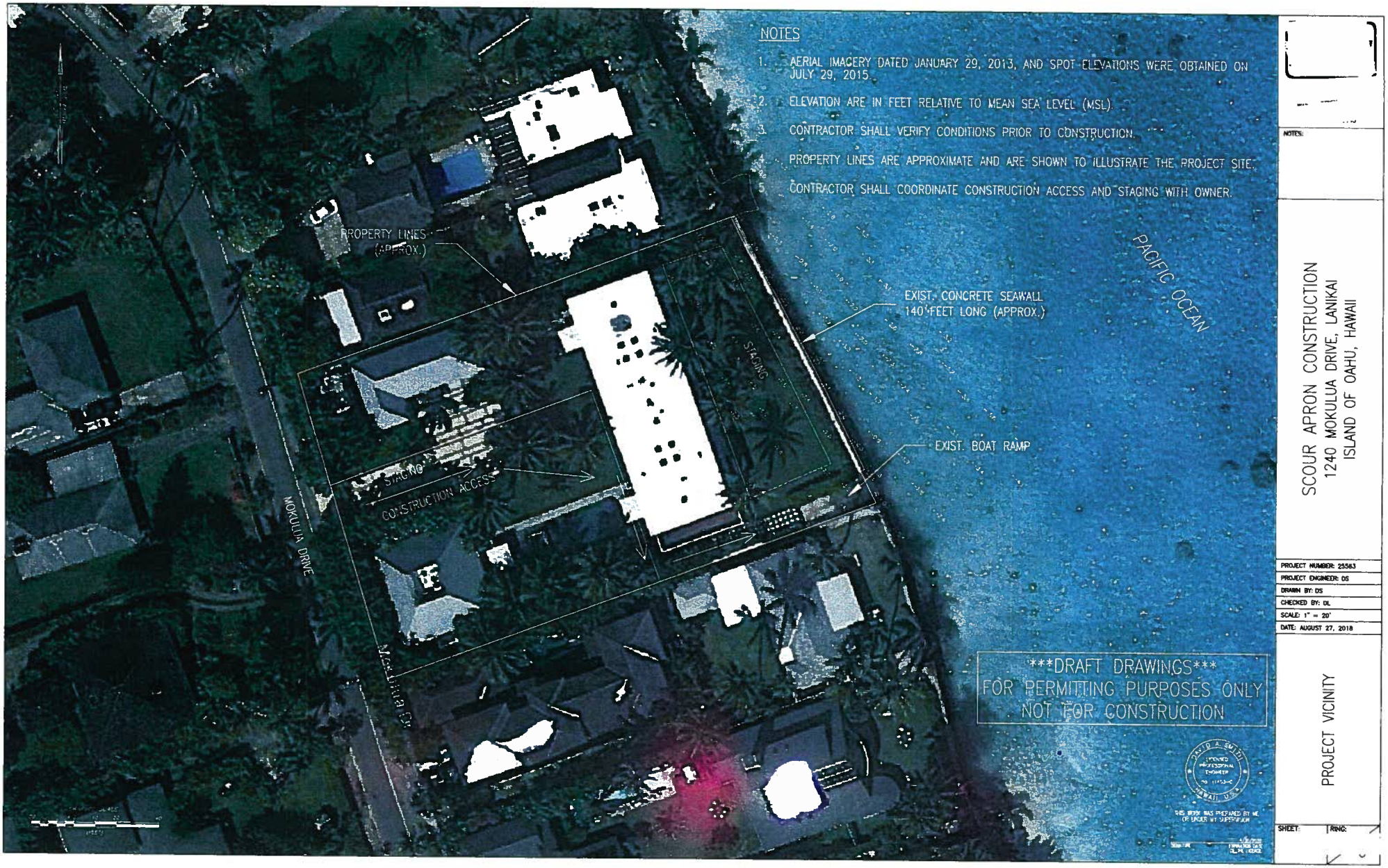
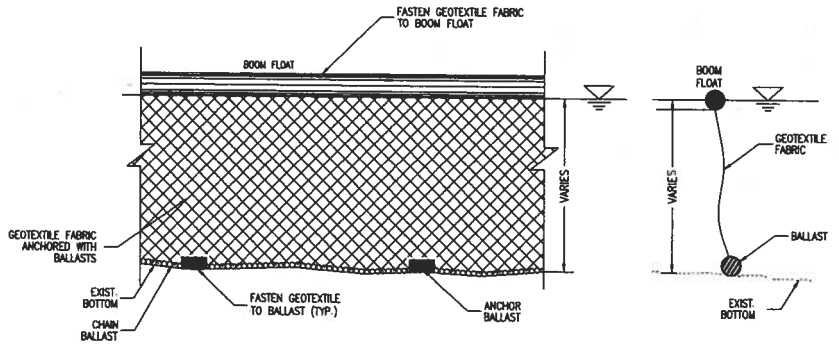


EXHIBIT 8 CDUA: OA-3821



ELEVATION

SECTION

TYPICAL TURBIDITY CONTAINMENT DEVICE DETAIL
SCALE: NTS

DRAFT DRAWINGS
FOR PERMITTING PURPOSES ONLY
NOT FOR CONSTRUCTION

NOTES:

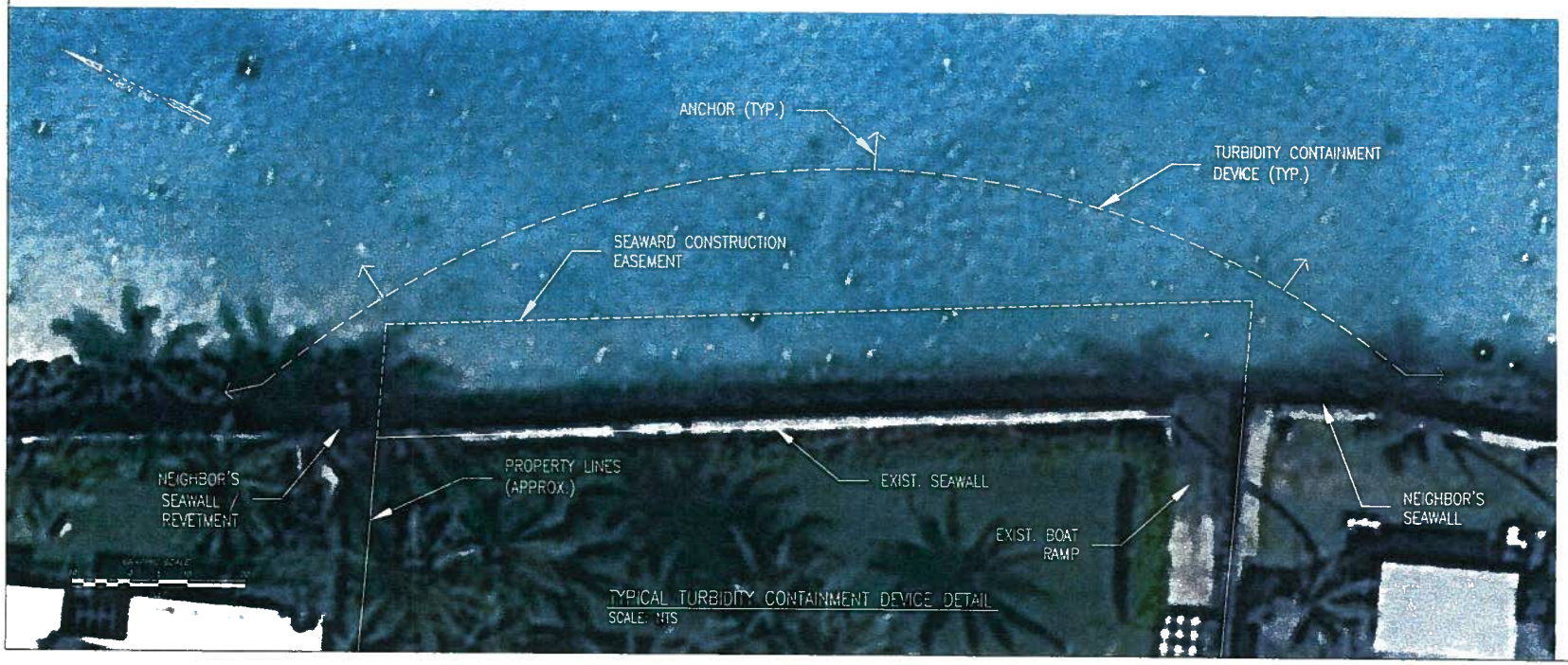
GENERAL

1. A TURBIDITY CONTAINMENT DEVICE SHALL BE DEPLOYED COMPLETELY AROUND THE ACTIVE IN-WATER WORK AREA.
2. THE TURBIDITY CONTAINMENT DEVICE SHALL GENERALLY BE COMPOSED OF A WATER SURFACE FLOATATION BOOM WITH A MINIMUM FREEBOARD OF 4 INCHES, A SKIRT HANGING VERTICALLY TO THE BOTTOM, BALLAST WEIGHT AT THE SKIRT BOTTOM, AND SUFFICIENT ANCHORS TO MAINTAIN THE DEVICE IN PLACE.
3. THE TURBIDITY CONTAINMENT DEVICE SHALL BE OF SUFFICIENT DESIGN, STRENGTH, AND SUITABILITY FOR THEIR INTENDED APPLICATION AND THE OCEAN ENVIRONMENT.
4. THE TURBIDITY CONTAINMENT DEVICE MATERIAL SHALL BE MONOFILAMENT WOVEN POLYPROPYLENE WITH THE FOLLOWING MINIMUM PHYSICAL REQUIREMENTS:

PROPERTY	VALUES	TEST METHOD
GRAB STRENGTH	200 LBS	ASTM D 4632
PUNCTURE	90 LBS	ASTM D 4833
TRAPEZOID TEAR	90 LBS	ASTM D 4533

PERVIOUS GEOTEXTILE SKIRT MATERIAL SHALL HAVE A MAXIMUM APPARENT OPENING SIZE (AOS) AND PERCENT OPEN AREA (POA) CAPABLE OF RETAINING FINE SUSPENDED SEDIMENTS 0.004 MM OR LARGER IN DIAMETER.

5. THE TURBIDITY CONTAINMENT DEVICE SHALL BE INSPECTED DAILY AND IMMEDIATELY REPAIRED OR REPLACED AS NECESSARY TO ENSURE ITS EFFECTIVENESS.



808.259.7966
FAX 808.259.8143

NOTES:

SCOUR APRON CONSTRUCTION
1240 MOKULUA DRIVE, LANIKAI
ISLAND OF OAHU, HAWAII

PROJECT NUMBER: 25563
PROJECT ENGINEER: DS
DRAWN BY: DS
CHECKED BY: DL
SCALE: NTS
DATE: MARCH 13, 2017

ENVIRONMENTAL PROTECTION

SHEET: RING:

DAVID A. SMITH
LICENSED PROFESSIONAL ENGINEER
No. 11453-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

EXHIBIT 9

CDUA: OA-3821

EXHIBIT 10

CDUA: OA-3821

Lanikai Beach further north of the property. Photo date: July 2015.

EXHIBIT 10A CDUA: OA-3821