

**STATE OF HAWAII**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**  
**OFFICE OF CONSERVATION AND COASTAL LANDS**  
**Honolulu, Hawai'i**

180-Day Exp. Date: October 12, 2019

August 23, 2019

**Board of Land and  
Natural Resources  
State of Hawai'i  
Honolulu, Hawai'i**

**REGARDING:** Conservation District Use Application (CDUA) OA-3841 and Proposed Issuance of a Non-Exclusive Easement for the Sand Island Wastewater Treatment Plant Outfall Shoreline Revetment Project

**APPLICANT/  
LANDOWNER:** City & County of Honolulu, Department of Environmental Services (Applicant)

**AGENT:** Jennifer Scheffel and Carlos Kelton, SSFM International

**LOCATION:** Sand Island, Honolulu, O'ahu  
**TMKs:** (1) 1-5-041: 003, 006

**AREA OF PARCELS:** Approximately ( $\approx$ ) 255.483-acres

**USE:**  $\approx$  0.74-acres

**SUBZONE:** Resource

**DESCRIPTION OF AREA AND CURRENT USE (Exhibits A – E)**

The proposed project is to construct a permanent rock rubble mound and concrete rubble masonry (CRM) revetment, roughly 550 feet long, to function as an erosion control structure, as well as reconstruction of the existing stop gate structure. The stop gate structure and outfall are critical infrastructure for the City and County of Honolulu as it is the only wastewater outfall servicing the Honolulu area, and it is currently sitting in the shoreline area vulnerable to wave action and sea level rise. The area of proposed use is at the southwestern end of Sand Island in Honolulu, O'ahu, directly west-southwest of the Sand Island State Recreation Area. It would comprise use of portions of two parcels with a project area of roughly 0.74-acres and be located within the shoreline area both mauka and makai of the certified shoreline. The land has been set aside to the Department of Land and Natural Resources (DLNR), Division of State Parks (DSP) under Executive Order 2704. The City and County of Honolulu has a current easement for the outfall pipe and intends to coordinate with the DLNR Land Division to execute an easement for the revetment and construction access. The areas makai of the certified shoreline lie within the Resource subzone of the Conservation District.

**ITEM K-1**

The Sand Island Wastewater Treatment Plant (WWTP) 84-inch ocean outfall extends approximately 1,450 feet from the treatment plant to a transition point on the Sand Island shoreline where it extends offshore for 12,500 feet (**Exhibit A**). In its offshore section, the pipeline is buried in a 13-foot 4-inch-wide trench that was excavated into the fossil reef and lined with sheet pile. The top of the pipe is approximately 7.5 feet below the top of the sheet pile. The outfall pipe is the only currently operating utility in the area – there are no electric, cable, phone, or water utilities serving the project site.

The design of the pipeline included a “stop gate” near the shoreline, which consists of a concrete housing measuring 7 feet 8 inches alongshore by 12 feet 4 inches cross-shore.<sup>1</sup> The top of the housing is approximately 3.5 feet above msl, and the 84 inch-effluent discharge pipe passes through the housing. The manhole is 17 feet 2 inches in vertical height. Part of the proposed project is the removal and replacement of the concrete walls and top slab of the stop gate structure in order to continue the prevention of wastewater spillage out of the structure.

At the time of construction, the concrete housing was located approximately 150 feet inland of the shoreline. A small rock revetment was constructed at approximately the same time as the outfall construction in 1975 but is in a very degraded condition and has done little to minimize erosion in the area. Due to severe erosion to this section of Sand Island, the housing currently sits within the shoreline area. It is in immediate proximity to the waterline, and as such is consistently exposed to wave wash and wave action (**Exhibit B**). The purpose of this proposed action is to construct a rock revetment in order to minimize shoreline erosion at the Sand Island WWTP outfall pipeline’s ocean entry as well as repair the exterior of the stop gate structure itself to ensure the continued operation of the outfall with minimal maintenance.

#### Natural Resources

The outfall pipe and stop gate structure are located in the shoreline area on the southwestern tip of Sand Island, southwest of the Sand Island State Recreation Area (State Recreation Area) and parking lot. The State Recreation Area consists of athletic fields, open public spaces, and shoreline areas for public use and recreation. These uses include, but are not limited to, athletic events and activities, fishing, swimming, surfing, snorkeling, and picnics. The topography in the area is flat, with primarily common non-native vegetation coverage, such as kiawe.

The shoreline in this area is composed of a mix of basalt cobbles and coral gravel with little sand, which transitions to small basalt boulders and concrete rubble just south of the stop gate structure. These boulders, along with a set of concrete barriers curved around the outer part of the reef flat in the area, are believed to be a part of the aforementioned rock revetment built around 1975 but offer no real shoreline protection. The basalt boulders continue around the southern tip of Sand Island where they seem to be intended to protect another concrete housing and manhole cover belonging to an inactive pipe. To the east of this point along the southern shore of Sand Island, there is a sandy beach.

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<sup>1</sup> A stop gate is a valve that can stop the flow of liquid through a pipe

This shoreline is directly exposed to wave action, primarily during southern or Kona storm swells that approach from the south. According to the application, these waves have deep-water wave heights of roughly 1 to 4 feet and interval periods of 14 to 20 seconds. The water level could be elevated about 1 to 2 feet during severe storm wave conditions. The subject area is located in Flood Zones AE and VE and are also within the Tsunami Evacuation Zone.

Chronic erosion has been occurring in the subject area for decades (**Exhibit C**). A topographic survey conducted in March 2017 noted that the shoreline in the project area receded up to 20 feet between 2012 and 2017 alone. In addition, the beach around the southern point of Sand Island eroded 10 feet in that time frame and the basalt boulders on the southern tip intended to protect the out-of-use stop gate and pipeline have been further breached.

#### *Flora/Fauna*

A biological resource survey was conducted by SWCA Environmental Consultants (SWCA) in March 2017. In depth surveys were conducted for both terrestrial and marine species of flora and fauna. Only 10 plant species, all of either coastal strand or mixed grass/shrubland types, were recorded in the terrestrial flora survey, with only one species ('aki'aki grass) native to Hawai'i. This species is common throughout Hawai'i, and not threatened or endangered. Other plant species included non-native thickets such as kiawe or algarroba. Regarding marine fauna, there was no appearance of macroalgal beds, but there was algal turf present on the seafloor and other hard surfaces. The proposed project is not expected to have a significant adverse effect on flora in the area.

Regarding fauna, the survey team observed 12 bird species, 11 fish species, and a handful of sea cucumbers and urchins. Additionally, only five coral species were observed in the area. As the project site is adjacent to the Sand Island Recreation Area, it could be expected that feral cats, stray dogs, mice and rats, and the small Indian mongoose could occur in the project area due to proximity.

Six of the observed bird species are federally protected under the Migratory Bird Treaty Act. Three of these species (black-bellied plover, Pacific golden plover, and ruddy turnstone) do not nest in Hawai'i.

One state threatened bird species, the white tern, was recorded in the survey area. While the threatened Newell's shearwater and wedge-tailed shearwater may traverse the project area at night during the breeding season (April – November), none were sighted during the survey.

In addition, three additional endangered or threatened species may occur in the area. These species include the Hawaiian hoary bat, Hawaiian monk seal, and the green sea turtle. The Hawaiian hoary bat can theoretically forage over all vegetation types in the survey area, but there are no historic records of this species in the survey area. The project area does include critical marine habitat for the Hawaiian monk seal. However, Hawaiian monk seals and green sea turtles could potentially transit the project area during construction although this would be unlikely as they typically avoid human activity. Protected species BMPs

would be implemented during construction. BMPs will be included in the conditions of this permit to avoid the potential for the taking of any marine protected species.

#### *Historic/Cultural*

Part of the CDUA process requires that the applicant submit an HRS, 6E form developed by the State Historic Preservation Division. Pursuant to HRS, §6E-42, prior to any agency or officer of the State [in this case, the Board] approving any project involving a permit, license, certificate, land use change, subdivision, or other entitlement for use, which may affect historic property, artifacts, or a burial site, the agency or office [OCCL] shall advise SHPD prior to any approval and allow SHPD an opportunity to review and comment on the effect of the proposed project on historic properties.

Traditional cultural practices that may take place on Sand Island include fishing, diving, recreation, surfing, and other shoreline and marine activities. Sand Island is a man-made island that was created from dredged material in the 1900's. It is highly unlikely that archaeological, cultural, or historic resources exist in the project area as the area is comprised of land fill. The State Historic Preservation Division determined that no historic properties would be affected in their June 29, 2017 letter (**Exhibit D**).

#### *Site Access*

All access to the project site would be through a gate on the southwest side of the Sand Island WWTP and via a construction easement from the State (**Exhibit E**). There would be no impact to traffic east of the Sand Island WWTP during construction. The contractor would be required to obtain a permit from the State Department of Transportation to transport oversized/overweight materials and equipment on State highways. All construction materials and equipment will be transferred to and from the project staging area and site during off-peak traffic hours (8:30 a.m. to 3:30 p.m.) to minimize potential traffic disruptions.

According to the application, most of the construction work will occur from the shore. Equipment and revetment materials would be stored at a 14-acre vacant site on the south side of the Sand Island Wastewater Treatment Plant that would be used as a staging area/contractor yard. Additional or excavated material will also be stored at this yard until such time that it can be properly disposed of at the PVT Integrated Solid Waste Management Facility.

### **PROPOSED USE**

#### *Site (EXHIBIT F)*

The proposed project is to construct a rock rubble mound and concrete rubble masonry (CRM) revetment and to reconstruct the existing stop gate structure at the southwestern corner of Sand Island, Honolulu, island of O'ahu. The proposed revetment would be approximately 550 feet long and would armor the shoreline to prevent further erosion (and potential damage to the outfall) and allow for continued use and maintenance of the stop gate structure for the outfall pipe from the WWTP. The revetment is proposed to extend from the approximate location where the outfall extends into the ocean northward along the shoreline to the dredged channel.

According to the information provided, the proposed area of total use would be 0.74 acres. Construction access will occur from the north via the staging area at the Sand Island WWTP. The revetment would run for roughly 400 feet from station (-) 2+50 southward to station 1+50, where it then turns landward for approximately 150 feet. Other than the entryways for heavy machinery and the work site itself, the surrounding areas (including the Sand Island State Recreation Area) would be left undisturbed.

*Rock Revetment Design and Construction (Exhibit G)*

The revetment would be an uncemented rock rubble mound structure built with boulder sized rocks. The revetment and CRM cap will follow the pipeline alignment for roughly 400 feet from station (-)2+50 to station 1+50, where it would then turn landward (the “breakwater”) for approximately 150 feet. The extensive landward breakwater is to prevent flanking erosion of the structure.

Roughly six feet of excavation depth is necessary to install the toe scour apron on both the seaward and inland sides of the revetment at ground surface. The proposed revetment would have a crest elevation of 7.5 feet above mean lower low water level (MLLW), and the breakwater would have a crest elevation of 10.5 feet above MLLW. It would have a 1:2 slope, and the nominal armor stone size is about 3,250 pounds with a two-stone layer thickness of roughly 5.5 feet. Design wave height for the revetment was determined to be roughly 6.5 feet.

There were three primary considerations for the revetment design. Firstly, though much of the substrate is composed of coralline cobbles, it is still considered an erodible substrate and would require a scour apron. Second, a wide crest would be necessary to protect the pipeline and pipeline trench and to help diminish wave overtopping. Lastly, all construction would take place above the original pipeline elements.

The proposed revetment design has been revised since the publication of the Environmental Assessment due to additional information that showed the project area to be underlain by highly compressible deposits such as loose silty sands and gravel. These revisions include removal of the armor stone directly on top of the pipe and the underlayer stone being grouted in place to form a high-strength CRM cap over the pipe, as well as a new line of sheet pile being driven adjacent to the pipe structure. The sheet pile will permit settlement under the armor stones without transferring the load to the pipe itself (**Exhibit H**).

The revetment considered global sea level rise in its design. This project utilized the US Army Corps of Engineers (USACE) Sea Level Rise Calculator to provide sea level rise projections through 2067 when considering the size and design of the revetment. The final calculation taken into place in the revetment design accounted for 1.5 feet of sea level rise over the 50-year intended design life of the structure. However, more recent sea level rise projections reveal that the project area is in a high-exposure area and that the entirety of the project area would very likely be inundated with just 0.5 feet of sea level rise (**Exhibit I**).

The construction of the revetment would consist of four steps: (1) Base preparation such as grading and debris removal; (2) Laying of geotextile filter fabric; (3) Installation of underlayer stone; and (4) Installation of armor stone. It is expected that all work will occur

from the shoreline. The vacant lot adjacent to the Sand Island WWTP, as shown in **Exhibit E**, would be used as a staging area/contractor yard as well as a storage area for any excavated material prior to its proper disposal.

In the base preparation, all debris within the construction area would be removed, including portions of the existing revetment. Parts of the existing revetment that are not in the way of construction would remain in place. Areas in which geotextile and stones will be placed will be graded to be free of any obstruction or depressions to ensure a smooth surface for laying of the geotextile fabric. A filter layer of the geotextile fabric would be then placed on the prepared base, secured to the soil by pins, staples, sandbags, or stone to prevent movement prior to the placement of underlayer stone. Work would be scheduled to ensure that the underlayer stone is installed within 7 days of the laying of the geotextile fabric.

In order to avoid negative effects to the geotextile fabric, the underlayer stones would be placed on top in one operation. The underlayer stone would be played in two layers, lowered in a bucket or container. Placement would begin at the bottom of the slope and proceed upward. Two layers of armor stone would then be placed atop the underlayer stone with minimal voids through which underlayer stone cannot pass. The application states that stones would be randomly placed by equipment suitable for handling the stones without damage. If construction requires use of a crane, Federal Aviation Administration (FAA) Form 7460-1, Notice of Proposed Construction or Alteration, would be required.

Finally, the stop gate structure will be repaired. The stop gate structure is a reinforced concrete box that has extensive abrasion and cracks on the cover and the top of the side walls. There is a steel plate measuring 1 5/8 inches thick that is bolted to the side walls under the top concrete slab to prevent wastewater from spilling out of the structure. The cover and damaged portions of the wall above the steel plate under the top concrete slab will be removed and replaced with a new top slab and new concrete walls. The steel plate that exists under the top slab would be undisturbed and remain secured throughout construction. Construction is estimated to take roughly six months.

### **Expected Mitigative Actions and Practices**

#### *Best Management Plans (BMPs), General and Site Specific*

The proposed revetment has been designed to be compatible with standard construction and NOAA BMPs, including, but not limited to:

- Daily inspection of equipment for conditions that could cause spills or leaks;
- Cleaning of equipment prior to operation in or near the water;
- Proper location of storage, refueling, and servicing sites away from the water;
- Implementation of adequate on-site spill response procedures;
- Stormy weather preparation plans;
- No construction materials will be stockpiled in the water;
- Turbidity containment barriers would be installed and maintained to control and contain construction-generated turbidity; and

- The water area around the construction site would be visually monitored, with construction suspended should monitoring suggest that turbidity standards are being exceeded.

In addition, the proposed revetment has been designed to be compatible with site-specific BMPs, including, but not limited to:

- A dust control plan, to be approved by DOH, would be developed and implemented to minimize dust during construction;
- Construction activities would be conducted on weekdays and in daytime hours. If work must occur after normal working hours or if permissible noise levels are exceeded, the contractor would be required to obtain a Community Noise Variance;
- The contractor would be required to obtain a permit from the State Department of Transportation to transport oversized/overweight materials and equipment on State highways;
- The City and County of Honolulu would obtain coverage under (1) the NPDES General Permit for stormwater discharge associated with construction activities, and (2) The NPDES Individual Permit Authorizing Discharges Associated with Construction Activity Dewatering;

Construction shall be in compliance with Federal, State and County laws. Standard Best Management Practices will be observed.

*Mitigative actions for sea level rise:*

The proposed action took projected global sea level rise into consideration when designing the revetment. The Final Environmental Assessment for the proposed revetment used a projected sea level rise of 1.5 feet in the structure's design, calculated by utilizing the USACE Sea Level Rise Calculator. The specifications of the revetment design, such as its height, depth, and the materials used, were intended to mitigate the effects of sea level rise and coastal erosion for the 50-year design life of the structure. The inland breakwater section of the design was intended to mitigate flanking of the westward-facing majority of the revetment from wave action originating to the south in the face of inevitable sea level rise.

However, more recent sea level rise projections, such as the Hawai'i Sea Level Rise Vulnerability and Adaptation Report and the Hawai'i Sea Level Rise Viewer found on the University of Hawai'i's website, reveal that the proposed revetment is in a high-risk exposure area. The breakwater section of the revetment is intended to prevent flanking from the south, but the Hawai'i Sea Level Rise Viewer reveals that the area to the north end of the revetment is also in the sea level rise exposure area. The applicant states that the northern end of the revetment would not be located at the shoreline and would be embedded into a higher elevation feature, but the Hawai'i Sea Level Rise Viewer reveals that flanking around the northern tip of the wall is possible. The Sea Level Rise Viewer reveals that the entirety of the project area would very likely be inundated with just 1.1 feet of sea level rise, and even 0.5 feet of sea level rise in the area is projected to inundate almost all of the project area (**Exhibits I & J**).

*Mitigative actions for endangered species and other flora and fauna:*

While it is not expected to encounter any endangered species in the project area based on site surveys, standard mitigation measures to reduce impacts to protected species will be followed;

- Tree removal and trimming would be conducted during fall and early winter when white tern breeding is at its lowest;
- Any fences that are erected during construction would not include barbed wire to prevent the entanglement of the Hawaiian hoary bat on the barbed wire;
- No trees taller than 15 feet would be trimmed or removed between June 1 and September 15 when juvenile Hawaiian hoary bats still incapable of flying may be roosting in the trees;
- Trees should be inspected for white tern eggs or chicks prior to tree removal;
- Construction activities would not occur if a Hawaiian monk seal or green sea turtle is within 150 feet of the construction area. Construction will only begin after the animal voluntarily leaves the area. If a monk seal/pup pair is present, a 300-foot buffer would be observed;
- If a Hawaiian monk seal or sea turtle is noticed after work has begun, all mechanical or construction activities would cease within 100 feet until the animal voluntarily leaves the area;
- Any construction-related debris that may impose an entanglement threat to monk seals and sea turtles would be removed from the construction area at the end of each day and at the conclusion of construction;
- Workers would not attempt to feed, touch, ride, or otherwise intentionally interact with any listed species;
- To minimize potential impacts to seabirds during their breeding season, all outdoor lights would be fully shielded so that the bulb can only be seen from below. Outdoor lighting would only be used when necessary. Nighttime construction would be avoided during the seabird fledging period between September 15 and December 15;
- If headlights must be used, light filtering tape or filters that fully enclose the light source such that the frequency of the light reaching the sandy beach is above 580 nanometers would be utilized. When practicable, red light (700 nanometers) would be used because it is less visible to sea turtles;

*Mitigative actions for Cultural and Historic Resources:*

Since Sand Island was manmade in the mid-20<sup>th</sup> century, it is highly unlikely that there will be impact to historical or cultural resources or practices. In the unlikely event that subsurface historic resources, including human skeletal remains, structural remains, cultural deposits, artifacts, sand deposits, or sinkholes are identified during the demolition and/or construction work, all work shall be ceased in the immediate vicinity of the find, the find would be protected from additional disturbance, and SHPD would be notified immediately.

**Alternatives**

The applicant explored three alternative erosion control methods prior to submitting their application. The three alternatives were: (1) a seawall, (2) beach nourishment, or (3) beach



nourishment with stabilizing structures. The seawall was deemed inappropriate due to lack of solid substrate on which to build. The other two alternatives were both deemed unfeasible as not only are appropriate sand resources hard to find, a beach nourishment project would not alter the ongoing coastal processes that are causing this erosion. In addition, stabilizing structures would significantly increase the footprint and impacts of the project in the marine environment. After considering these alternative options, the applicant decided on the subject rock revetment as the best possible solution.

## SUMMARY OF COMMENTS

The application was referred to the following agencies for their review and comment: the **State:** Department of Health; Office of Hawaiian Affairs; Office of Environmental Quality Control; Department of Transportation; Department of Land and Natural Resources Divisions of: Aquatic Resources, Forestry and Wildlife, O'ahu District Land Office, Historic Preservation, Conservation and Resource Enforcement, and State Parks; the **City & County of Honolulu:** Department of Parks and Recreation and Department of Planning; and **Federal Agencies:** National Oceanic Atmospheric Administration, the US Army Corps of Engineers, and the US Fish and Wildlife Service. In addition, this application was also sent to the Kalihi/Palama Neighborhood Board and the nearest public library, the Hawai'i State Public Library, to make this information readily available to those who may wish to review it.

Not all agencies responded to the request for comments. Responses were received and have been summarized from the following agencies:

### STATE OF HAWAII

#### *Department of Transportation*

The Hawai'i Department of Transportation, Airports Division (HDOT-A) is in receipt of the subject CDUA and offers the following comments:

- (1) The project site is approximately 1.76 miles from the Diamond Head end of the Reef Runway 8R-26L, at Daniel K. Inouye International Airport (HNL). The location is also below the horizontal surface for HNL, which is a ceiling height restriction of 163 feet above mean sea level. In addition, all construction or development projects within five miles from Hawai'i State airports are advised to review the Technical Assistance Memorandum (TAM) for guidance with developments and activities that may require further review and permits.
- (2) HDOT-A is concerned with the height of the "crawler service crane" and "lift booms" to be used during the construction. It is recommended that a Federal Aviation Administration (FAA) Form 7460-1 *Notice of Proposed Construction or Alteration* pursuant to the Code of Federal Regulation, Title 13, Part 77.9, be submitted to FAA if the construction or alteration is within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with its longest runway more than 3,200 feet.
- (3) DEM must be aware that construction impacts may result in the accumulation of water at or near the project site, thereby creating a potential for a wildlife

attractant. HDOT-A recommends that DEM incorporates measures to minimize hazardous wildlife attractants in compliance with FAA Advisory Circular (AC) 150/5200-33B, as amended in FAA AC 150/5200-33C Hazardous Wildlife Attractants on or near Airports. If the project results in a wildlife attractant, these effects shall be immediately mitigated by DEM upon notification by the HDOT-A and/or FAA.

*Applicant's Response*

We offer the following responses to your comments:

1. We acknowledge that the proposed project is located approximately 1.76 miles from the Diamond Head end of the Reef Runway 8R-26L at Daniel K. Inouye International Airport (HNL). Technical Assistance Manual (TAM) 2016-1 regarding Federal Aviation Administration (FAA) Order 5190.6B has been reviewed as part of project planning. All construction will comply with any additional required review and permit acquisition.
2. We acknowledge that FAA Form 7460.1, Notice of Proposed Construction or Alteration, will be required if construction requires the use of a crane.
3. We acknowledge that construction at the site may result in conditions that create a potential wildlife attractant. Measures to minimize hazardous wildlife attractants in compliance with FAA Advisory Circular (AC) 150/5200-33B, as amended in FAA AC 150/5200/33CHazardous Wildlife Attractants on or near Airports will be implemented during construction. If the project results in a wildlife attractant, these effects will be immediately mitigated upon notification by the State of Hawaii Department of Transportation – Airports Division and/or the FAA.

DEPARTMENT OF LAND AND NATURAL RESOURCES

*Aquatic Resources*

DAR has previously commented on this project recommending Best Management Practices (BMPs) for minimizing sediments from entering the ocean and causing turbidity. The Final Environmental Assessment includes BMPs addressing DAR's concerns.

*Applicant's Response*

We acknowledge that the Division of Aquatic Resources requests the opportunity to review and comment on any changes to the project plan. Any changes to the project plans will be submitted to DLNR-OCCL for distribution for comment as part of the CDUA process.

*Forestry and Wildlife*

Forestry and Wildlife had no comments on the project.

*Applicant's Response*

The applicant notes that DFW had no comments on the proposed project at this time.

*Land Division*

The applicant currently has a perpetual, non-exclusive easement for sewer outfall purposes (Liber 9723, Page 230). Upon completion of the proposed easement, Applicant shall obtain approval from the Land Board for amendment of existing easement.

*Applicant's Response*

The City and County of Honolulu Department of Environmental Services (CCH-ENV) will coordinate with the Board of Land and Natural Resources regarding any required amendment(s) to their existing perpetual, non-exclusive easement for the Sand Island Wastewater Treatment Plant Sewer Outfall.

CITY & COUNTY OF HONOLULU

*Department of Planning and Permitting*

Please ensure that the site plan clearly delineates the certified shoreline per the certified shoreline survey, the portions of the revetment that will be allowable under the CDUA, and the portions that are within the Shoreline Setback Area, regulated under Chapter 23, Revised Ordinances of Honolulu.

*Applicant's Responses*

The site plan will clearly delineate the certified shoreline, the portions of the revetment that will be allowable under the CDUA, and the portions of the revetment that are within the Shoreline Setback Area, as regulated under Chapter 23, Revised Ordinances of Honolulu.

*Department of Parks and Recreation*

The DPR had no comments on the proposed project.

*Applicant's Response*

The applicant notes that DPR had no comments on the proposed project at this time.

FEDERAL GOVERNMENT

*US Army Corps of Engineers*

The Honolulu District, U.S. Army Corps of Engineers (Corps), Regulatory Branch has received your request for comments. Your request has been assigned DA file number POH-2019-00087. Based on the description in your submittal, it appears that there are waters of the United States (US) on the project site that are subject to our federal permitting authority pursuant to Section 404 of the Clean Water Act (CWA) of 1972 (33 USC 1344) and Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 U.S.C. 403). Section 404 of the CWA prohibits the placement of dredged or fill material into waters of the US, including wetlands, unless the work has been authorized by a Department of the Army (DA) permit. Under Section 10 of the RHA, a DA permit is required for work or structures in or affecting navigable waters of the US.

In section 3.5 on page 3-19 of your submittal, the applicant indicates that the permits described herein would be obtained and that they would comply with all permit conditions. As of the date of this letter (May 6, 2019), the Corps has not received an application for this project.

Before authorizing work under our statutory authorities, the Corps must ensure a project complies with applicable Federal laws and regulations, such as the Endangered Species act (ESA), Magnus-Stevens Fishery Conservation and Management Act (MSFCMA), Section 401 of the Clean Water Act, Coastal Zone Management Act, and the National Historic Preservation Act. In most instances, the Corps will coordinate directly with the appropriate agencies, but we may require additional information from the applicant to complete the coordination and consultation.

*Applicant's Response*

We acknowledge that a Section 404 and Section 10 permit will be required for the proposed project. The application for these permits was submitted to the U.S. Army Corps of Engineers on June 28, 2019. Vera Koskelo contacted SSFM on July 3, 2019 to request additional information. This information was provided on July 15, 2019.

*US Department of the Interior, Fish and Wildlife Service*

The Fish and Wildlife Service was unable to specifically address the matter due to significant workload constraints. They provided a table of the protected species most likely to be encountered in the project area as well as their web address to access potentially useful information on protected species.

*Applicant's Response*

We acknowledge that there are seven protected species that may occur in the project area: Hawaiian hoary bat, green sea turtle, Hawaiian stilt, band-rumped storm-petrel, Hawaiian petrel, Newell's shearwater, and white tern. None of these species were identified at the project site during biological resource surveys. However, minimization and mitigation measures would be implemented during construction to minimize potential impacts to these species. The following minimization and mitigation measures are proposed to reduce potential impacts to special status species, including the white tern, Hawaiian hoary bat, and Hawaiian monk seal and green sea turtle:

- Tree removal and trimming would be conducted during fall and early winter when white tern breeding is at its lowest.
- Trees would be inspected for white tern eggs or chicks prior to tree removal.
- Any fences that are erected during construction would not include barbed wire to prevent entanglements of the Hawaiian hoary bat on barbed wire. If fences are present, the top strand of barbed wire would be removed or replaced with barbless wire.
- No trees taller than 15 feet would be trimmed or removed between June 1 and September 15 when juvenile Hawaiian hoary bats that are not yet capable of flying may be roosting in the trees.
- Construction activities would not occur if a Hawaiian monk seal or green sea turtle is in or within 150 feet of the construction area. Construction will only begin after the animal voluntarily leaves the area. If a monk seal/pup pair is present, a 300-foot buffer would be observed.
- If a Hawaiian monk seal or sea turtle is noticed after work has begun, all mechanical or construction activities would cease within 100 feet until the animal voluntarily leaves the area to avoid project impacts to the species.

- Any construction-related debris that may impose an entanglement threat to monk seals and turtles would be removed from the construction area at the end of each day and at the conclusion of construction.
- Workers would not attempt to feed, touch, ride, or otherwise intentionally interact with any listed species.
- To minimize potential impacts to seabirds during their breeding season, all outdoor lights would be fully shielded so that the bulb can only be seen from below. Outdoor lighting would only be used when necessary. Nighttime construction would also be avoided during the seabird fledgling period, between September 15 and December 15.
- If headlights must be used, light filtering tape or filters that fully enclose the light source such that the frequency of the light reaching the sandy beach is above 580 nanometers would be utilized. When practicable, red light (700 nanometers) would be used because it is less visible to sea turtles.

## ANALYSIS

After reviewing the application, received by our office on February 12, 2019, the Department has found that:

1. The proposed use is an identified land use in the Resource subzone of the Conservation District, pursuant to §13-5-22, Hawai‘i Administrative Rules (HAR), P-15 SHORELINE EROSION CONTROL: “Seawall, revetment, groin, or other coastal erosion control structure or device, including sand placement, to control erosion of land or inland area 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 be advised, however, that this finding does not constitute approval of the proposal;
2. Pursuant to §13-5-40 of the HAR, a Public Hearing will not be required;
3. In conformance with Chapter 343, Hawai‘i Revised Statutes (HRS), as amended, and Chapter 11-200, HAR, the Final Environmental Notice (FEA) was published in the OEQC’s October 23, 2017 Environmental Notice, and the City and County of Honolulu, Department of Environmental Services was the approving agency of the Final Environmental Assessment and Finding of No Significant Impact for the proposed project; and
4. Since the project would be constructed within the shoreline setback area, the applicant will prepare and submit an application package to the City and County of Honolulu, Department of Planning and Permitting to obtain the necessary Shoreline Setback Variance in concurrence with the Special Management Area Use Permit.

## CONSERVATION CRITERIA

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

1. *The proposed land use is consistent with the purpose of the Conservation District.*

The objective of the Conservation District is to conserve, protect and preserve the important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare.

The proposed use is an identified land use in the Resource subzone of the Conservation District; as such, it is subject to the regulatory process established in Chapter 183C, HRS and detailed further in Chapter 13-5, HAR.

The proposed land use is to mitigate and minimize shoreline erosion at the Sand Island WWTP outfall pipeline's ocean entry in order to ensure the continued operation of the outfall. The Sand Island WWTP outfall is the only wastewater outfall servicing the Honolulu area. Failure of or damage to the outfall could have catastrophic health, environmental, and economic consequences.

2. *The proposed land use is consistent with the objectives of the subzone of the land on which the use will occur.*

The objective of the Resource subzone is to ensure, with proper management, the sustainable use of the natural resources of those areas. A permanent shoreline revetment is an identified land use pursuant to the HAR, §13-5-22, P-15 SHORELINE EROSION CONTROL, Seawall, revetment, groin, or other coastal erosion control structure or device, including sand placement, to control erosion of land or inland area 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.

The design and construction of the revetment conforms to the objectives set forth in HAR 13-5-22, specifically parameter 3 of P-15, SHORELINE EROSION CONTROL. The proposed revetment is intended to prevent further shoreline erosion to protect the outfall pipe, which is critical public infrastructure to the City and County of Honolulu. The stop gate structure currently sits in an area exposed to consistent wave wash and action, and the proposed revetment would assist in mitigating the effects of erosion and wave action on the critical infrastructure and allow for continued use and maintenance of the outfall pipe and stop gate maintenance structure. Staff believes the proposed land use is consistent with the objectives of the subzone, provided identified mitigation and best management

practices are adhered to, as it aligns with parameter 3 of HAR 13-5-22, P-15, SHORELINE EROSION CONTROL.

3. *The proposed land use complies with provisions and guidelines contained in Chapter 205, HRS, entitled "Coastal Zone Management," where applicable.*

The intended purpose of the revetment is to minimize shoreline erosion at the Sand Island WWTP outfall pipe's ocean entry in order to ensure continued operation of the outfall, a critical public facility. This land use is consistent with intended objectives 5 (Economic Uses) and 6 (Coastal Hazards) of the Coastal Zone Management Program objectives, as the outfall pipe and stop gate structure are public facilities under threat from the hazard of coastal erosion.

Under Policy number 9 ("Beach protection") in the Hawai'i Revised Statutes Chapter 205A-2, "Coastal Zone Management Program; Objectives and Policies", point C states a goal to "minimize the construction of public erosion protection structures seaward of the shoreline". OCCL recognizes the importance of the continued use and maintenance of the WWTP outfall pipe and stop gate structure as it is the only wastewater outfall servicing the Honolulu area. It is imperative that all Best Management Practices (BMPs) are carefully followed in order to minimize any potential negative impacts during construction.

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

The proposed revetment is intended to mitigate the coastal erosion in the area and to protect critical public infrastructure currently sitting in the sea level rise exposure area. After completion, the stop gate structure would be shielded from wave action that has caused significant erosion in the past. A finding of no significant impact (FONSI) for the proposed project was determined finding little to no adverse impacts to existing resources.

Staff believes the proposed land use should not cause substantial adverse impacts to existing natural resources within the surrounding area, community or region provided that BMPs and mitigative measures are implemented and the applicant shall be required to take measures to minimize or eliminate the interference, nuisance, harm, or hazard that the project may cause.

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

Sand Island is largely an artificial landform which is heavily industrialized. Within the immediate project area there is no recreational beach – only derelict structures, cobbles, and rocks. While there is public use of the area including passive park use, fishing, boating and offshore canoe paddling, the project is not expected to significantly detract from these activities, nor is it incompatible with the surrounding land uses.

6. *The existing physical and environmental aspect of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable.*

Sand Island is largely an artificial landform which is heavily industrialized. The proposed project is not expected to improve or degrade the area's natural beauty.

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

No subdivision of land is proposed for this project.

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

Staff believes the proposed land use will not be materially detrimental to the public health, safety and welfare. In fact, it is believed that the proposed action is necessary to public health, safety, and welfare as it is imperative to ensure that the outfall pipe is not exposed and potentially compromised by ongoing shoreline erosion. The Sand Island WWTP outfall pipe is critical infrastructure for the City & County of Honolulu as it discharges an average of 66 million gallons of effluent per day. With proper BMPs identified and followed correctly, the proposed land use will improve public health and welfare in the area.

### *CULTURAL IMPACT ANALYSIS*

The proposed project is not expected to have any impact on cultural or historical resources as Sand Island was man-made in the 20<sup>th</sup> century and therefore is unlikely to have significant place significance or artifacts on site. Vegetation near the site is mostly the invasive kiawe tree, which is not associated with traditional and cultural activities. The applicant states that traditional cultural practices that may take place in the project vicinity include fishing, diving, surfing, and other shoreline activities.

A letter from SHPD dated June 29, 2017 provided a determination of no historic properties affected (**Exhibit D**). During the processing of this application, no comments were received from native practitioners or the Office of Hawaiian Affairs. The proposed action does not appear to affect traditional Hawaiian rights. It is believed that the project will not impair, diminish, or preclude customary or traditional native Hawaiian rights and thus no action is necessary to protect these rights.

### **DISCUSSION**

The proposed land use consists of the construction of a permanent rock rubble mound and concrete rubble masonry (CRM) revetment with a total length of 550 feet constructed on top of a sewer outfall, and reconstruction of the existing stop gate structure at the southwestern end of Sand Island. The construction of the proposed revetment is intended to mitigate ongoing erosion issues at the site that have exposed the outfall pipe's stop gate



structure to risk. The revetment and CRM cap will follow the pipeline alignment for roughly 400 feet from station (-)2+50 to station 1+50, where it would then turn landward for approximately 150 feet. The extensive landward breakwater is to prevent flanking erosion of the structure from the south. The northern end of the revetment would not be located at the shoreline and would be embedded into a higher elevation feature, but the Hawai'i Sea Level Rise Viewer reveals that flanking around the northern tip of the wall is still possible (**Exhibits I & J**).

Total area of use for the construction is approximately 0.74 acres within the Resource subzone of the Conservation District. No functioning structures or utilities are present on the parcel other than the stop gate structure and the outfall pipe itself. The proposed revetment would extend southward for roughly 400 feet, then turn inland (eastward) for 150 feet to serve as a breakwater to prevent flanking from the south. A Finding of No Significant Impact (FONSI) was issued for the Final Environmental Assessment for this project.

The parameters of this proposal are consistent with Hawai'i Administrative Rules, Chapter 13-5-22, P-15, Shoreline Erosion Control., "Seawall, revetment, groin, or other coastal erosion control structure of device, including sand placement, to control erosion of land or inland area 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."

The proposed project fulfills the third parameter in HAR 13-5-22, P-15 listed above, "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". The stop gate structure and outfall are critical infrastructure for the City and County of Honolulu as it is the only wastewater outfall servicing the Honolulu area, and it is currently in the shoreline area and vulnerable to wave action and sea level rise. The construction of the proposed revetment would protect the stop gate structure and sewer outfall from further erosion and potential demise and would not adversely affect natural beach processes (there is no recreational beach in the project area), the natural environment, or public access in the shoreline area.

Staff notes that during construction Standard Best Management Practices will be observed. Within the Application and the Final Environmental Assessment, the applicant has identified a number of mitigative measures, conditions and practices to ensure that the proposal will have minimal effects on the natural and other resources nearby. As such these proposed measures, conditions and practices are incorporated into the permit. These are listed in the "Mitigation" section of this report.

Since Sand Island was manmade in the mid-20<sup>th</sup> century, it is highly unlikely that there will be impact to historical or cultural resources or practices. In the unlikely event that subsurface historic resources, including human skeletal remains, structural remains,

cultural deposits, artifacts, sand deposits, or sinkholes are identified during the demolition and/or construction work, all work shall be ceased in the immediate vicinity of the find, the find would be protected from additional disturbance, and SHPD would be notified immediately.

The staff of OCCL has concerns in the revetment design regarding future sea level rise. Recent projections show that the project area is well within the sea level rise exposure area, even for conservative sea level rise projections of just 0.5 feet. The applicant states that 1.5 feet of sea level rise was used in considering the design of the revetment, but evidence shows that despite this the project area is still heavily at risk with much less than the noted 1.5 feet of sea level rise (**Exhibits I & J**). It is likely that the proposed revetment will cause flank erosion (end scour) and will ask that the City report any flank erosion should it occur. If the revetment results in significant flank erosion the City shall consult with the DLNR, Division of State Parks for potential remediation.

Overall, staff believes that the project will have negligible adverse environmental or ecological effects provided that best management practices and mitigation measures as described in the application and environmental assessment, and as required by rule or laws, are fully implemented.

### **RECOMMENDATION (1)**

Based on the preceding analysis, staff recommends that the Board of Land and Natural Resources APPROVE Conservation District Use Application OA-3841 for the Sand Island Wastewater Treatment Plant Outfall Shoreline Revetment Project at Sand Island, Honolulu, island of O'ahu, TMKs: (1) 1-5-041: 003 and 006, subject to the following conditions:

1. The permittee shall comply with all applicable statutes, ordinances, rules, and regulations of the federal, state, and county governments, and applicable parts of this chapter;
2. The permittee, its successors and assigns, shall indemnify and hold the State of Hawai'i harmless from and against any loss, liability, claim, or demand for property damage, personal injury, and death arising out of any act or omission of the applicant, its successors, assigns, officers, employees, contractors, and agents under this permit or relating to or connected with the granting of this permit;
3. Before proceeding with any work authorized by the department or the board, the permittee shall submit four copies of the construction plans and specifications to the chairperson or an authorized representative for approval for consistency with the conditions of the permit and the declarations set forth in the permit application. Three of the copies will be returned to the permittee. Plan approval by the chairperson does not constitute approval required from other agencies;

4. Unless otherwise authorized, any work or construction to be done on the land shall **be initiated within one year of the approval of such use, in accordance with construction plans that have been signed by the chairperson, and shall be completed within three years of the approval of such use;**
5. The permittee shall notify the Office of Conservation and Coastal Lands (OCCL) in writing at least 24 hours prior to the initiation and upon completion of the project;
6. All representations relative to mitigation set forth in the accepted application and environmental assessment or impact statement for the proposed use are incorporated as conditions of the permit;
7. The permittee shall comply with all of the mitigation representations stated in this document;
8. The permittee shall comply with all applicable Department of Health administrative rules;
9. Where any interference, nuisance, or harm may be caused, or hazard established by the use, the permittee shall be required to take measures to minimize or eliminate the interference, nuisance, harm, or hazard;
10. The applicant shall plan to minimize the amount of dust generating materials and activities. Material transfer points and on-site vehicular traffic routes shall be centralized. Dusty equipment shall be located in areas of least impact. Dust control measures shall be provided during weekends, after hours and prior to daily start-up of project activities. Dust from debris being hauled away from the project site shall be controlled. Landscaping and dust control of cleared areas will be initiated promptly;
11. **Should historic remains such as artifacts, burials or concentration of charcoal be encountered during construction activities, work shall cease immediately in the vicinity of the find, and the find shall be protected from further damage. The contractor and/or on-site archaeological monitor shall immediately contact SHPD (692-8015), which will assess the significance of the find and recommend an appropriate mitigation measure, if necessary;**
12. The applicant shall implement both site-specific and standard Best Management Practices (BMPs), including the ability to contain and minimize silt in nearshore waters and clean up fuel, fluid or oil spills immediately for projects authorized by this letter. Equipment must not be refueled in the shoreline area. If visible petroleum, persistent turbidity or other unusual substances are observed in the water as a result of the proposed operation, all work must cease immediately to ascertain the source of the substance;
13. During construction, appropriate mitigation measures shall be implemented to minimize impacts to the aquatic environment, off-site roadways, utilities, and public facilities;

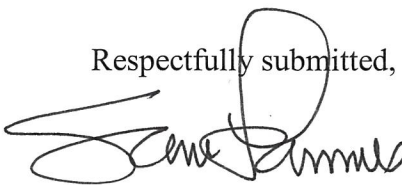
14. When provided or required, potable water supply and sanitation facilities shall have the approval of the Department of Health and the City & County Board of Water Supply;
15. That a Federal Aviation Administration (FAA) Form 7460-1 *Notice of Proposed Construction or Alteration* pursuant to the Code of Federal Regulation, Title 13, Part 77.9, be submitted to FAA if the construction or alteration is within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with its longest runway more than 3,200 feet.
16. Obstruction of public roads, trails, lateral shoreline access, and pathways shall be avoided or minimized. If obstruction is unavoidable, the permittee shall provide alternative roads, trails, lateral beach access, or pathways acceptable to the department;
17. During construction, appropriate mitigation measures shall be implemented to minimize impacts to off-site roadways, utilities, and public facilities;
18. Artificial light from exterior lighting fixtures, including but not limited to floodlights, uplights, or spotlights used for decorative or aesthetic purposes, shall be prohibited if the light directly illuminates or is direct to project across property boundaries toward the shoreline and ocean waters, except as may be permitted pursuant to HRS §205A-71. All exterior lighting shall be shielded to protect the night sky;
19. The activity shall not adversely affect a federally listed threatened or endangered species or a species proposed for such designation, or destroy or adversely modify its designated critical habitat;
20. The activity shall not substantially disrupt the movement of those species of aquatic life indigenous to the area, including those species which normally migrate through the area;
21. No contamination of the marine or coastal environment (trash or debris) shall result from project-related activities authorized under this letter;
22. All placed material shall be free of contaminants of any kind including: excessive silt, sludge, anoxic or decaying organic matter, turbidity, temperature or abnormal water chemistry, clay, dirt, organic material, oil, floating debris, grease or foam or any other pollutant that would produce an undesirable condition to the beach or water quality;
23. The permittee acknowledges that the approved work shall not hamper, impede, or otherwise limit the exercise of traditional, customary, or religious practices of native Hawaiians in the immediate area, to the extent the practices are provided for by the Constitution of the State of Hawai‘i, and by Hawai‘i statutory and case law;

24. If the revetment results in significant flank erosion the City will be required to correct the problem in consultation with the OCCL.
25. The permittee understands and agrees that the permit does not convey any vested right(s) or exclusive privilege;
26. In issuing the permit, the Department and Board have relied on the information and data that the permittee has provided in connection with the permit application. If, subsequent to the issuance of the permit such information and data prove to be false, incomplete, or inaccurate, this permit may be modified, suspended, or revoked, in whole or in part, and the department may, in addition, institute appropriate legal proceedings;
27. Other terms and conditions as prescribed by the chairperson; and
28. Failure to comply with any of these conditions shall render this Conservation District Use Permit void under Chapter 13-5, as determined by the chairperson or board.

RECOMMEDATION (2):


Staff recommends that the Board of Land and Natural Resources authorize the issuance of a non-exclusive easement to the permittee for the purposes stated in Conservation District Use Application (CDUA) OA-3841, further subject to the terms shown on the attached Schedule A (Exhibit K).

Respectfully submitted,

  
*FSR*

Salvatore Saluga, Coastal Lands Program Specialist  
Office of Conservation and Coastal Lands

Approved for submittal:

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

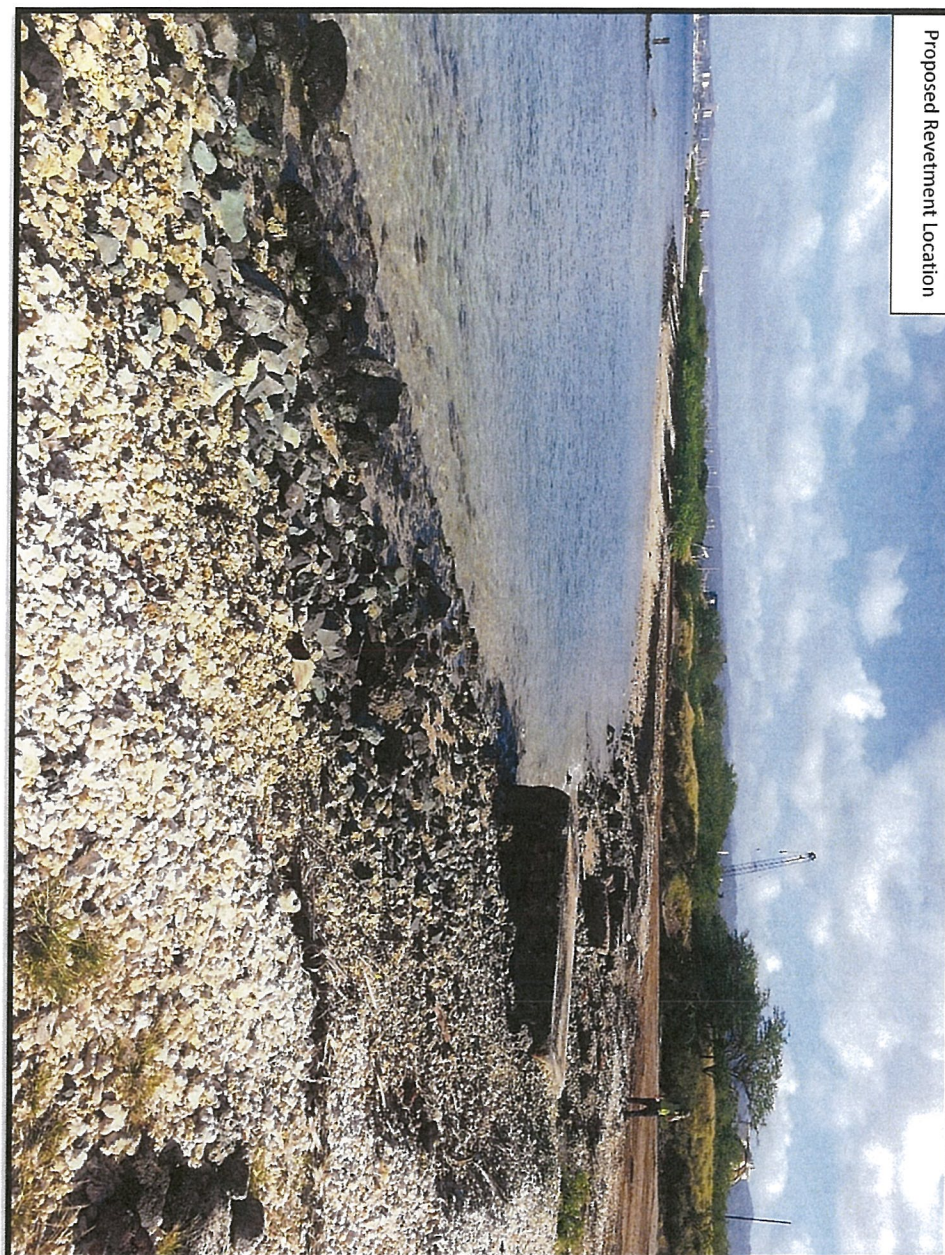
Sand Island Wastewater Treatment Plant Outfall  
Shoreline Revetment Project  
Honolulu, Hawai'i

Chapter 1  
Project Description

**Figure 1-4. Project Location and Land Ownership**

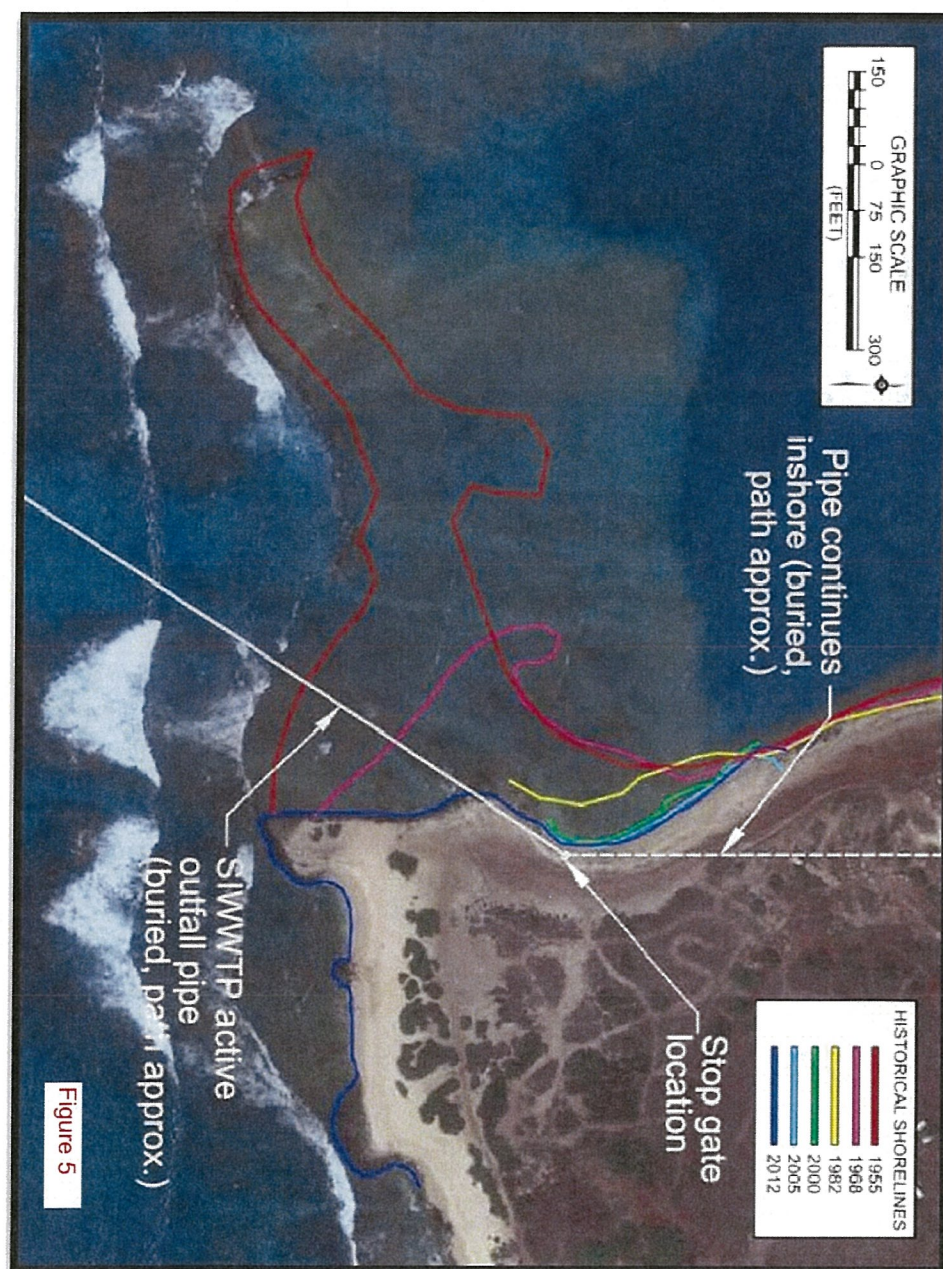






## EXHIBIT B





## EXHIBIT C





STATE HISTORIC PRESERVATION DIVISION  
KAKUHIHEWA BUILDING  
601 KAMOKILA BLVD. STE 555  
KAPOLEI HAWAII 96707

**MEZANNE D. CASE**  
 CHAIRPERSON  
 HUSBAND OF CAROL ANN HARRIS, BARRISTER  
 ASSOCIATION OF WATER RESOURCES MANAGERS/MENT

**KYNDRA KALETHWA**  
 FORMER SENATOR

**JEFFREY T. PEARSON**  
 SENIOR EXEC. DIR. WATER

ADJUTANT GENERAL  
 BRITISH ARMY AND THE RESERVE  
 COMMANDER OF THE 1ST BRIGADE  
 COMMANDER OF THE 1ST BRIGADE, 1ST ARMY  
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 CREATION OF THE 1ST BRIGADE, 1ST ARMY  
 CREATION OF THE 1ST BRIGADE, 1ST ARMY

**ROBERTSON AND WILKINS**  
 SENIOR SENATOR, SENATOR  
 SENIOR SENATOR, SENATOR  
 SENIOR SENATOR, SENATOR

SENIOR SENATOR, SENATOR

IN REPLY REFER TO:  
Log No. 2017.01047  
Doc No. 1706GC12  
Archaeology

SUBJECT: Chapter 6E-8 Historic Preservation Review -  
Draft Environmental Assessment  
Sand Island Wastewater Treatment Plant Outfall Shoreline Revetment Project  
Honolulu Ahupua'a, Honolulu (Kona) District, Island of O'ahu  
TMK: (1) 1-5-041:003 and 006

Based on the information provided, SHPD's determination is no historic properties affected. The permitting process may continue.

# EXHIBIT D

Mr. Tsuji  
June 29, 2017  
Page 2

Please attach to the permit: In the unlikely event that subsurface historic resources, including human skeletal remains, structural remains, cultural deposits, artifacts, sand deposits, or sinkholes are identified during the demolition and/or construction work, cease work in the immediate vicinity of the find, protect the find from additional disturbance, and contact the State Historic Preservation Division at (808) 692-8015.

Please contact me at (808) 692-8019 or at [Susan.A.Lebo@hawaii.gov](mailto:Susan.A.Lebo@hawaii.gov) for any concerns regarding this letter.

Aloha,

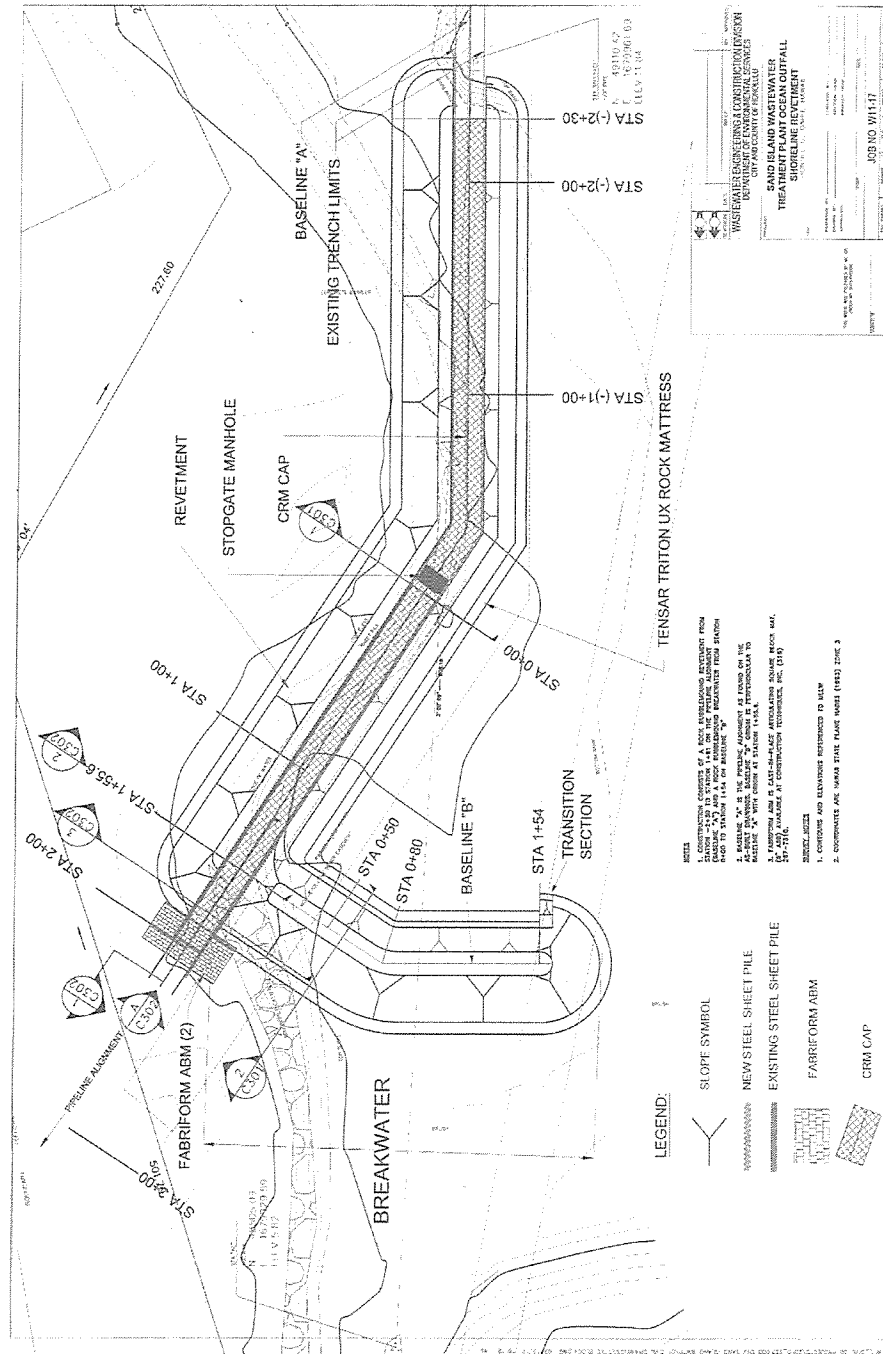


Susan A. Lebo, PhD  
Archaeology Branch Chief

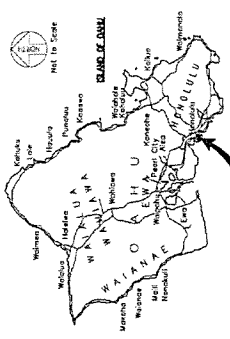
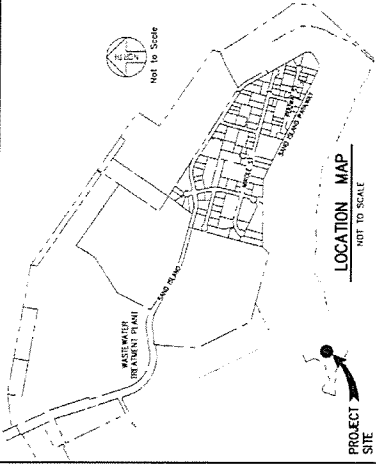
cc: Lydia Morikawa, DLNR Land Division ([Lydia.M.Morikawa@hawaii.gov](mailto:Lydia.M.Morikawa@hawaii.gov))







# EXHIBIT F

<p style="text-align: center;">JOB NO. W11-17</p> <p style="text-align: center;"><b>SAND ISLAND WASTEWATER TREATMENT PLANT OCEAN OUTFALL SHORELINE REVETMENT</b></p> <p style="text-align: center;">HONOLULU, OAHU, HAWAII</p> <p style="text-align: center;">TAX MAP KEY: (1) 1-5-041:006 &amp; 003</p> <p style="text-align: center;">WASTEWATER ENGINEERING &amp; CONSTRUCTION DIVISION DEPARTMENT OF ENVIRONMENTAL SERVICES CITY &amp; COUNTY OF HONOLULU</p> <p style="text-align: center;">PREPARED BY: SSFM INTERNATIONAL, INC. 501 SUMNER ST., SUITE 620 HONOLULU, HAWAII 96817</p>			<p style="text-align: center;">APPROVED:</p> <div style="display: flex; justify-content: space-between;"> <div> <p>DATE</p> <p>DESIGN: ENVIRONMENTAL SERVICES CITY AND COUNTY OF HONOLULU</p> </div> <div> <p>DATE</p> <p>DEPT. ENVIRONMENTAL MANAGEMENT DIVISION CITY AND COUNTY OF HONOLULU</p> </div> </div>	
<p style="text-align: center;">VICINITY MAP</p>  <p style="text-align: center;">PROJECT LOCATION VICINITY MAP NOT TO SCALE</p>	<p style="text-align: center;">LOCATION MAP</p>  <p style="text-align: center;">PROJECT SITE LOCATION MAP NOT TO SCALE</p>			

DRAWING NO. SHEET OF TITLE PROJECT TOWER NO.

# EXHIBIT G


INDEX OF DRAWINGS:

SHEET NO.	DWG. NO.	CIVIL	TITLE
1	C000		TITLE SHEET
2	C001		INDEX OF DRAWINGS AND ABBREVIATIONS
3	C002		GENERAL NOTES
4	C003		WATER POLLUTION AND EROSION CONTROL NOTES - 1
5	C004		WATER POLLUTION AND EROSION CONTROL NOTES - 2
6	C005		BORING LOGS REPORT
7	C006		BORING LOCATIONS PLAN - EXISTING CONDITION
8	C100		HAUL ROUTE
9	C101		EROSION CONTROL SEDIMENTATION PLAN - DURING CONSTRUCTION
10	C102		SITE PLAN
11	C103		GRADING PLAN
12	C104		EROSION CONTROL DETAILS
13	C201		SECTIONS - 1
14	C202		SECTIONS - 2
		STRUCTURAL	
15	S101		STOP GATE REPAIR DETAIL

ABBREVIATIONS:

BMP	BEST MANAGEMENT PRACTICES
BR	BRIDGE
CANAL	CANAL
CONF	CONFIRMED
CONV	CONVERT
DET	DETAIL
DIST	DISTRICT
DWG	DRAWING
ER	EROSION
EX	EXISTING
FL/FT	FEET
H	HORIZONTAL
HRS	HOURS
IN	INCHES
LBS	POUNDS
MAN	MANHOLE
MAP	MAP
MD	MARYLAND
MOA	MARYLAND OFFICIAL
NPDES	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
O.C.	ON CENTER
PA	PHONE
ROW	RIGHT-OF-WAY
STA	STATION
TR	TRUCK
TRF	TRUCK
V	VERTICAL
W/	WITH

PROJECT NO.	DATE	BY	APPROVED
WATER AND WASTEWATER ENGINEERING & CONSTRUCTION DIVISION			
CITY AND COUNTY OF HONOLULU			
SAND ISLAND WASTEWATER TREATMENT PLANT OCEAN OUTFALL			
SAND ISLAND WASTEWATER TREATMENT PLANT			
HONOLULU, CITY AND COUNTY OF HONOLULU			
INDEX OF DRAWINGS AND ABBREVIATIONS			
JOB NO. W11-17			
SHEET NO. 15 OF 15			


		JOB NO. <b>W1-17</b>	
PROJECT NAME: <b>WASTEWATER ENGINEERING &amp; CONSTRUCTION PROJECT</b>		DATE: <b>10/1/88</b>	
PROJECT LOCATION: <b>STATE OF HAWAII, DEPARTMENT OF ENVIRONMENTAL SERVICES, CITY AND COUNTY OF HONOLULU</b>		DRAWING NO.: <b>101</b>	
PROJECT DESCRIPTION: <b>SANITARIATION TREATMENT PLANT OCEAN OUTFALL</b>		SCALE: <b>AS SHOWN</b>	
PROJECT OWNER: <b>SHORELINE REVMET INC.</b>		PROJECT MANAGER: <b>JOHN A. HARRIS</b>	
PROJECT ADDRESS: <b>HONOLULU, OAHU, HAWAII</b>		PROJECT STATUS: <b>UNDERWAY</b>	
PROJECT CONTACT: <b>GENERAL NOTES</b>		PROJECT BUDGET: <b>\$1,000,000</b>	
PROJECT CONTACT: <b>GENERAL NOTES</b>		PROJECT CONTACT: <b>GENERAL NOTES</b>	

**GENERAL:**

## 343

- ## WATER POLLUTION AND EROSION CONTROL NOTES:
3. GENERAL:
1. SEE TABLE RELATING TO WATER QUALITY OF THE ADMINISTRATIVE RULES, TITLE 20, DEPARTMENT OF PLANNING AND PERMITTING, CHAPTER 3 (AUGUST 16, 2016).
4. WASTE DISPOSAL:
1. WASTE MATERIALS:
- COLLECT AND STORE ALL WASTE MATERIALS IN A SECURELY LOGGED WITH, DUMPSTER OR PAIL OF CONTAINER WITH COVER TO KEEP RAIN OUT OR LOSS OF WASTE DURING WINDY CONDITIONS. THE TRASH AND CONSTRUCTION DEBRIS FROM THE SITE IN THE DUMPSTER, EMPTY THE DUMPSTER WEEKLY OR WHEN THE CONTAINER IS TWO-THIRDS FULL. WOODENIES IS DROPPED, DO NOT BURY CONSTRUCTION WASTE IN THE GROUND. DO NOT ALLOW WASTE MATERIALS TO BE BLOWN OFF THE SITE OR TO BE DEPOSITED IN ANY CORRECT PROCEDURE FOR WASTE DISPOSAL. POST NOTICE WARNING THESE PRACTICES IN THE OUTSIDE TRAILER OR A WEATHERPROOF RAILING FENCE. OTHER ACCESSIBLE LOCATION ACCEPTABLE TO THE FOLLOWING. STORE THE SOLID WASTE DISPOSAL FORM FOR CONSTRUCTION SITES TO THE INSPECTOR WITHIN 30 CALIFORNIA DAYS OF CONTRACT EXECUTION. PROVIDE A COPY OF ALL THE DISPOSAL RECEIPTS TO THE INSPECTOR. THESE RECEIPTS SHOULD ALSO INCLUDE DOCUMENTATION FROM ANY INTERMEDIATE FACILITY WHERE SOLID WASTE IS HANDLED OR PROCESSED.
2. HAZARDOUS WASTE:
- COLLECT AND STORE ALL HAZARDOUS WASTE MATERIALS IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATIONS AND BY THE MANUFACTURER OF THE CONTAINER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THESE PRACTICES AND SHALL BE RESPONSIBLE FOR SCHEDULING FOR REMOVAL. THESE PRACTICES ARE FOLLOWED.
3. SANITARY WASTE:
- COLLECT ALL SANITARY WASTE FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK, OR AS REQUIRED. DISPOSE OF SANITARY WASTE IN AN APPROPRIATE MANNER. THESE PRACTICES ARE FOLLOWED.
4. EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN:
- PROJECT SCHEDULE:
1. INSTALL STABILIZED CONSTRUCTION ENTRANCES, PERMITS CONTROLS, FILL RAIN RESPONSE PLAN, RAINFALL, AND TEMPORARY FENCING OR PROTECTED AREAS, CLEANING AND GRASSING IS NECESSARY FOR THE ESTABLISHMENT OF THESE BARS.
2. INSTALL A RAIN GAGE prior TO FIELD WORK. THE RAIN GAGE SHALL HAVE A TOLERANCE OF AT LEAST 0.01 INCHES. THE RAIN GAGE SHALL BE INSTALLED IN A LOCATION WHERE IT WILL NOT BE DAMAGED BY WATER RAIN FALLING FROM ENTERING THE GAGE OPENING. DO NOT INSTALL IN A LOCATION WHERE RAIN WATER MAY SPILL INTO THE RAIN GAGE. THE RAIN GAGE INSTALLATION SHALL BE SHOWN AND LOCATED ON THE CONSTRUCTION PLAN. THE RAIN GAGE IS INSTALLED AND SPECIFIC BEST MANAGEMENT PRACTICES ARE IN PLACE.
3. PROCEED WITH CONSTRUCTION WITH LEAST POSSIBLE DISTURBANCE OF VEGETATIVE AREAS AND PROJECT STRUCTURES.
4. PRACTICE GOOD BOOKKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
5. INSPECTIONS WILL BE PERFORMED WEEKLY.
6. REMOVE ALL DUMPSTER TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
- RAIN RESPONSE PLAN:
- THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, TROPICAL STORM OR HURRICANE IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS.
1. TEMPORARY SUSPENSION OF ACTIVE GRADING, DRILLING AND TRENCHING.
2. INSPECT ALL PERMITTED CONTROLS AND MONITOR AS NEEDED. REPAIRING ANY PERMITTED CONTROLS THAT WERE PLANNED TO BE ACTIVE WORK IN THE AREA OF A SEVERE STORM IS EXPECTED. REMOVE LIMIT PROTECTION DEVICES TO PREVENT FLOODING ON SURROUNDING STREETS.
3. COVER OR RELOCATE MATERIAL, STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINFALL.
4. PLACE SPILL PANS OF OIL-ONLY SPILL PANS UNDER CONSTRUCTION VEHICLES TO PREVENT RAINFALL FROM CONDUCTING ANY SPILLED PETROLEUM PRODUCTS PROPERLY STORED OR ANY ACCUMULATED RAINFALL. TROPICAL STORM OR HURRICANE AND REDUCE OR REMOVE ANY DUMPS AS NEEDED.
5. GOOD HOUSEKEEPING:
1. MATERIALS DELIVERY, STORAGE AND USE MANAGEMENT: PREVENT RAINFALL OR PLUMMET TO THE DISCHARGE OF POLLUTANTS FROM MATERIAL DELIVERY, STORAGE, AND USE. TO THE STORAGE OF POLLUTANTS ON WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS. CONSTRUCTION MATERIALS, WASTE TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER SOURCES OF POLLUTION SHALL NOT BE STORED IN BUTTER. STOCKPILES AND OTHER SOURCES OF POLLUTION SHALL NOT BE STORED IN BUTTER. WATERS, OR DRAINAGE IMPROVEMENTS THAT DISCHARGE OFF-SITE. PRIMARY AND SECONDARY CONTAMINANT CONTROLS AND COVERS SHALL BE IMPLEMENTED TO THE MEET.
2. SPILL PREVENTION AND CONTROL: CREATE AND IMPLEMENT SPILL PREVENTION AND RESPONSE PLANS TO ELIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO THE WATERS, ABSORBING, CONTAINING AND CLEANING UP SPILLS AND PROPERLY DISPOSING OF SPILL MATERIALS. AT A MINIMUM, ALL PROJECTS SHALL CLEAN-UP ALL TILS AND SPILLS

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	DATE	BY	APPROVED
<b>WASTEWATER ENGINEERING &amp; CONSTRUCTION DIVISION</b> CITY AND COUNTY OF HONOLULU			
PROJECT: <b>SAND ISLAND WASTEWATER TREATMENT PLANT OCEAN OUTFALL SHORELINE REVEITEMENT</b> HONOLULU, CITY, HAWAII			
FROM: <b>WATER POLLUTION AND SEWAGE CONTROL DIVISION - 1</b>		TO: _____ APPROVED BY: _____ APPROVED DATE: _____ PROJECT NO.: _____ SHEET NO.: _____	
REVISION: _____		DATE: _____	JOB NO. <b>W11-17</b>

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# NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NOTES

1. AVOID CONSTRUCTION DURING HIGH WAVE CONDITIONS (FRONT SIDE WAVE HEIGHTS GREATER THAN 2 FEET)
2. ENSURE APPROPRIATE BARS AND SOURCE CONTROL MEASURES ARE IN PLACE AND MAINTAINED TO AVOID AND POTENTIAL ADVERSE EFFECTS TO EXISTING FISH HABITAT FROM THE INTRODUCTION OF CONSTRUCTION-RELATED POLLUTANTS.
3. HALT CONSTRUCTION ACTIVITIES DURING RAINY PERIODS. DEVELOP A RAIN EVENT ACTION PLAN THAT INCLUDES PREPARATIONS AND PLANS FOR MANAGING ACTIVITIES DURING RAIN EVENTS.
4. MINIMIZE PHYSICAL CONTACT WITH LIVE CORALS AND ANY SUBMERGED AQUATIC VEGETATION (SAV) INCLUDING SEAGRASS AND CALCIFYING AND CRUSTACEAN CORALLINE ALGAE AS MUCH AS POSSIBLE.
5. INSTALL Silt FENCES AND BERMES ALONG THE BEACH TO PREVENT SEDIMENTS AND DEBRIS FROM ENTERING THE OCEAN.
6. INSTALL TURBIDITY CURTAINS IN THE MARINE ENVIRONMENT TO ISOLATE THE CONSTRUCTION ACTIVITY AND PREVENT RELEASE OF SEDIMENTS AND TURBIDITY PLUMES. ENSURE TURBIDITY CURTAINS ARE NOT ANCHORED ON AND EXCLUDE BOTH CORAL AND SAV.

		<b>WASTEWATER ENGINEERING &amp; CONSTRUCTION DIVISION</b> DEPARTMENT OF ENVIRONMENTAL SERVICES CITY AND COUNTY OF HONOLULU	
DATE	BY	APPROVED	
<b>SAND ISLAND WASTEWATER TREATMENT PLANT OCEAN OUTFALL SHORELINE REVEITEMENT</b> PROJECT NO. 15-001		JOB NO. W11-17	
PREPARED BY: [Signature] CHECKED BY: [Signature] DATE: 10/1/15		SCALE: 1" = 100'	
SHEET NO. 1 OF 1			

CHAWING 0301 SHEET 05

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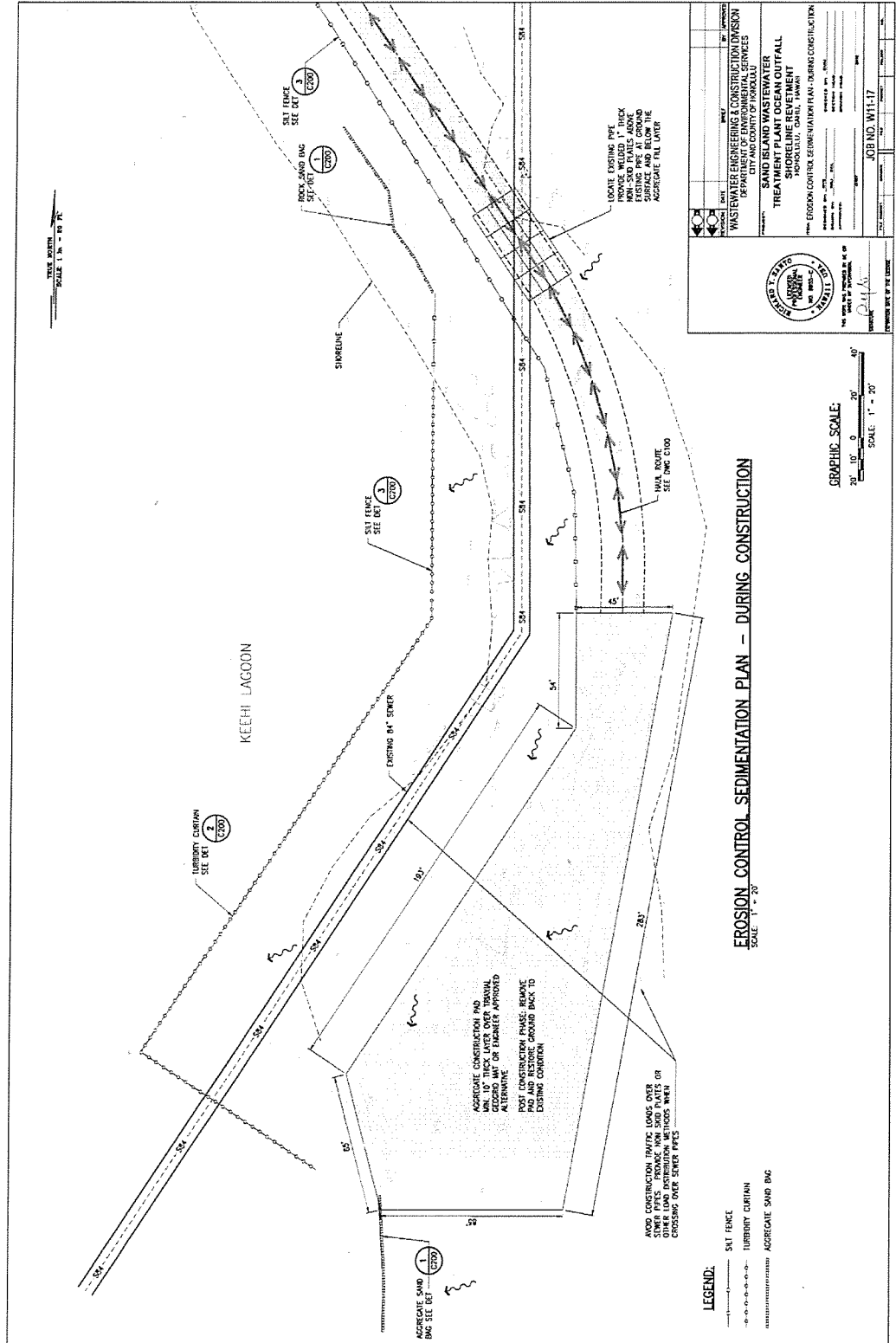
4. A geotechnical engineering report entitled "Geotechnical Engineering Exploration, Outfall Improvements/Rehabilitation, Sand Island Wastewater Treatment Plant, Hanalei, Kauai, Hawaii," dated September 26, 2007 has been prepared by Geotels, Inc. A copy of the report is on file at the office of the Engineer for review by the Contractor.

3. For boring locations, see Sheet C100.
4. The information transferred in the logs of borings record the subsurface conditions encountered at the specified location and at the time of the tests conducted. The logs are to be prepared in accordance with the logs of borings previously obtained and beyond the borings.
5. The logs may contain, in the logs of borings, indicates the number of borings required for the specific project. The logs sample record is to be included to obtain the Standard Penetration Test (SPT) blow counts.
6. The logs may also contain information on the borings which exceeds the 20' and the boring data and draw their own conclusions therefrom as to the character of materials to be encountered. The Engineer will not assume responsibility for the accuracy of the logs. The logs are to be prepared at the boring locations and to be reviewed by the Engineer. The logs are to be prepared in accordance with the logs of borings previously obtained and beyond the borings.

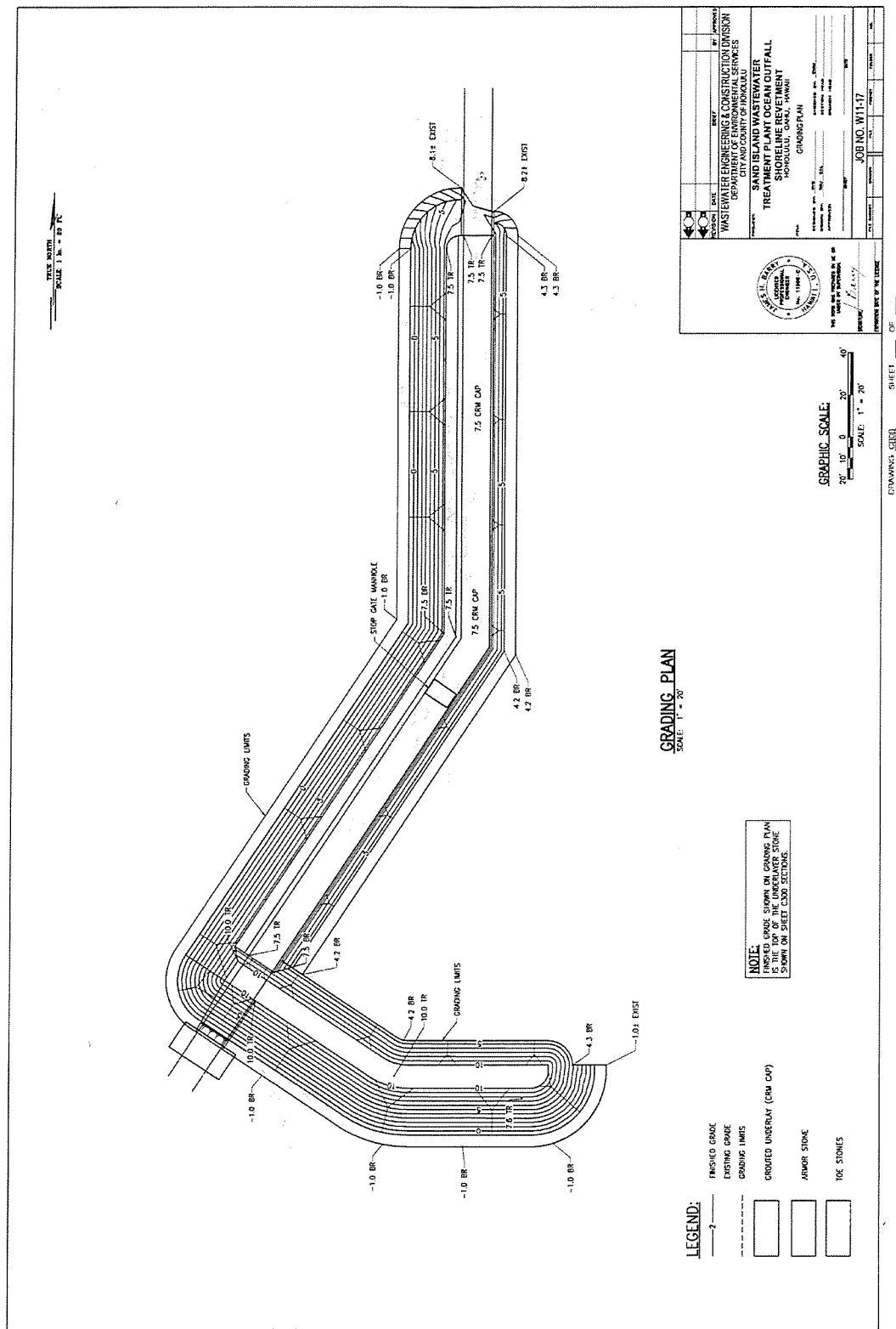
**NOTE:**  
FOR BORING LOCATIONS, SEE SHEET  
C101 BORING LOCATIONS PLAN - EXISTING CONDITION.





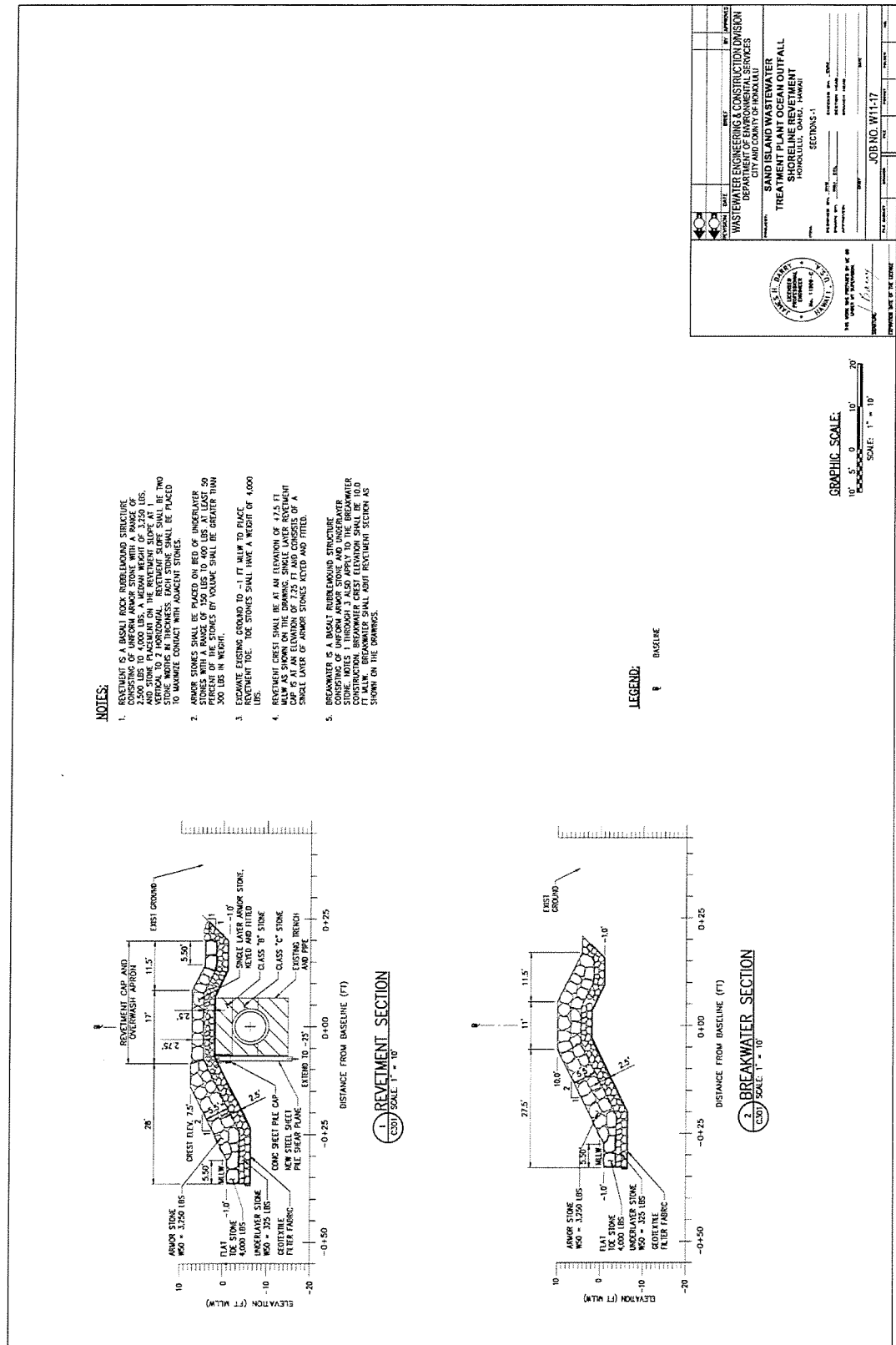


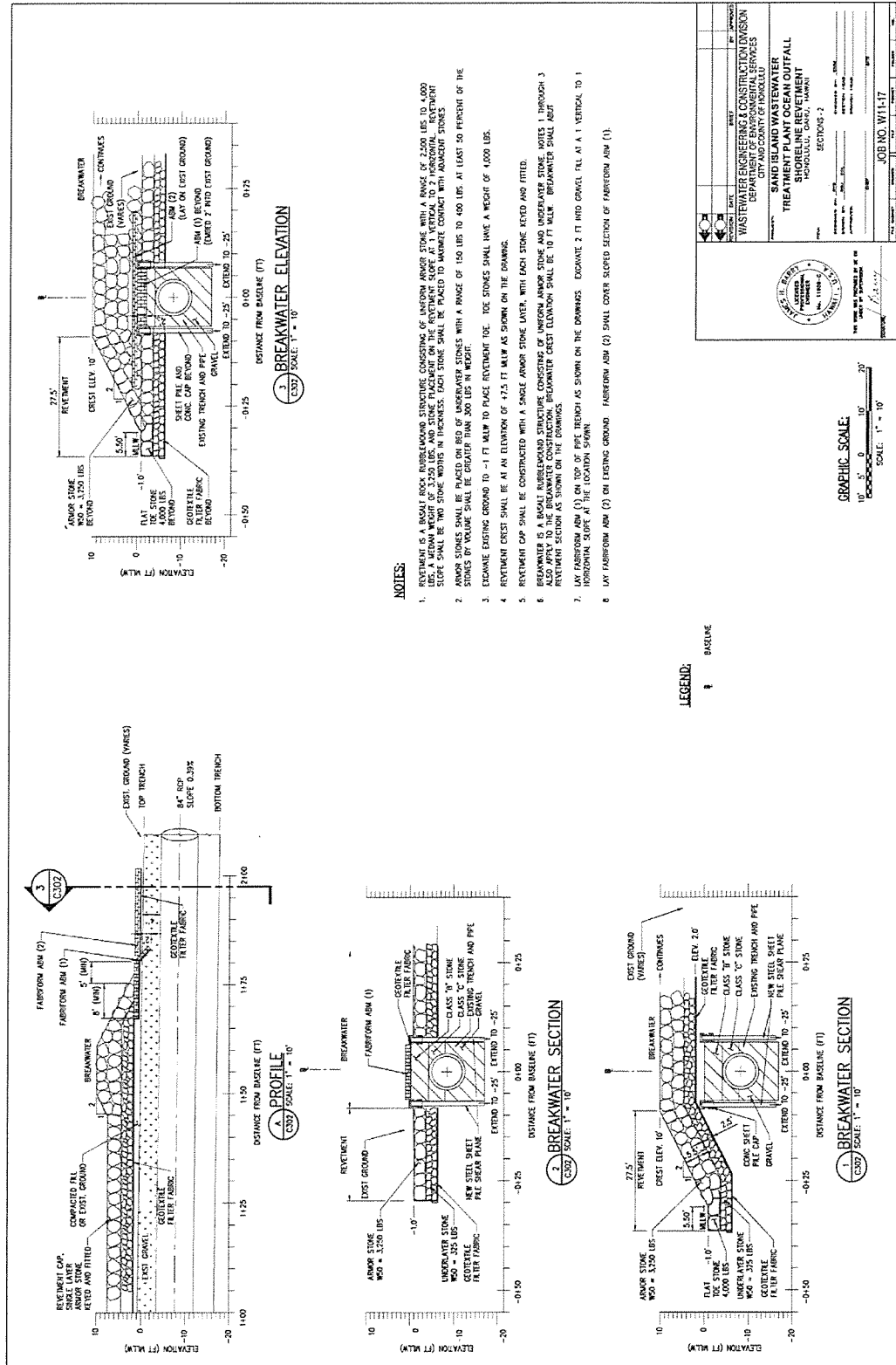










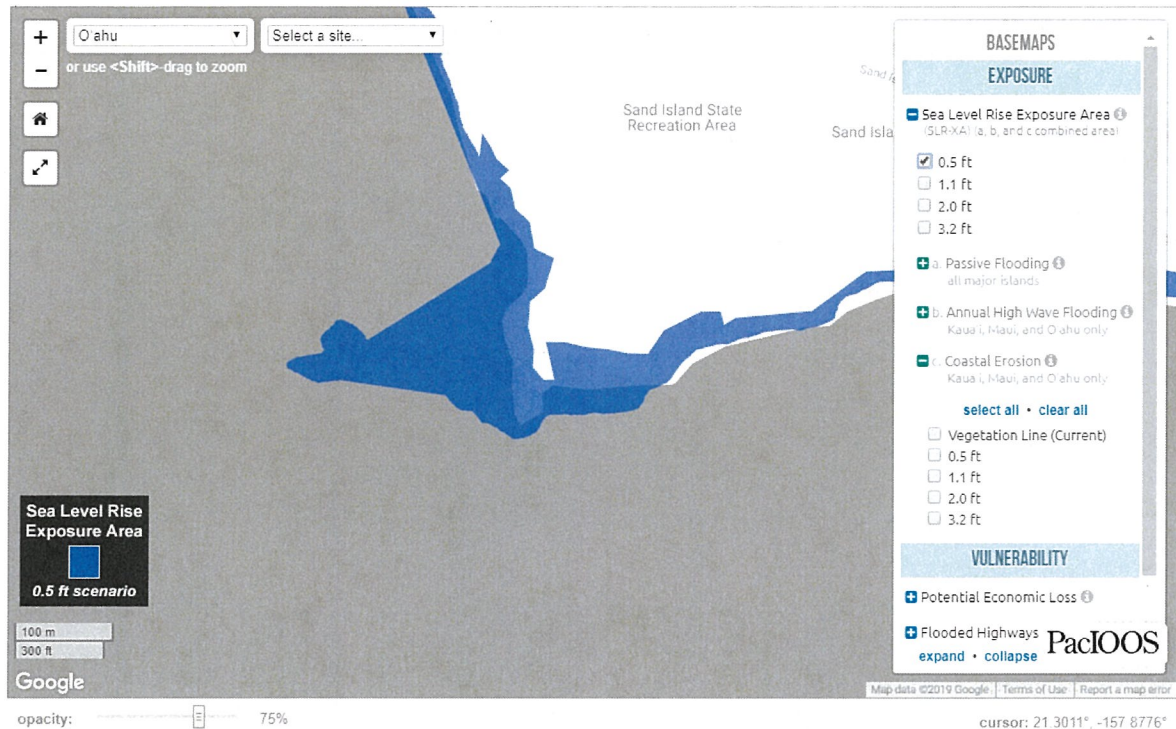






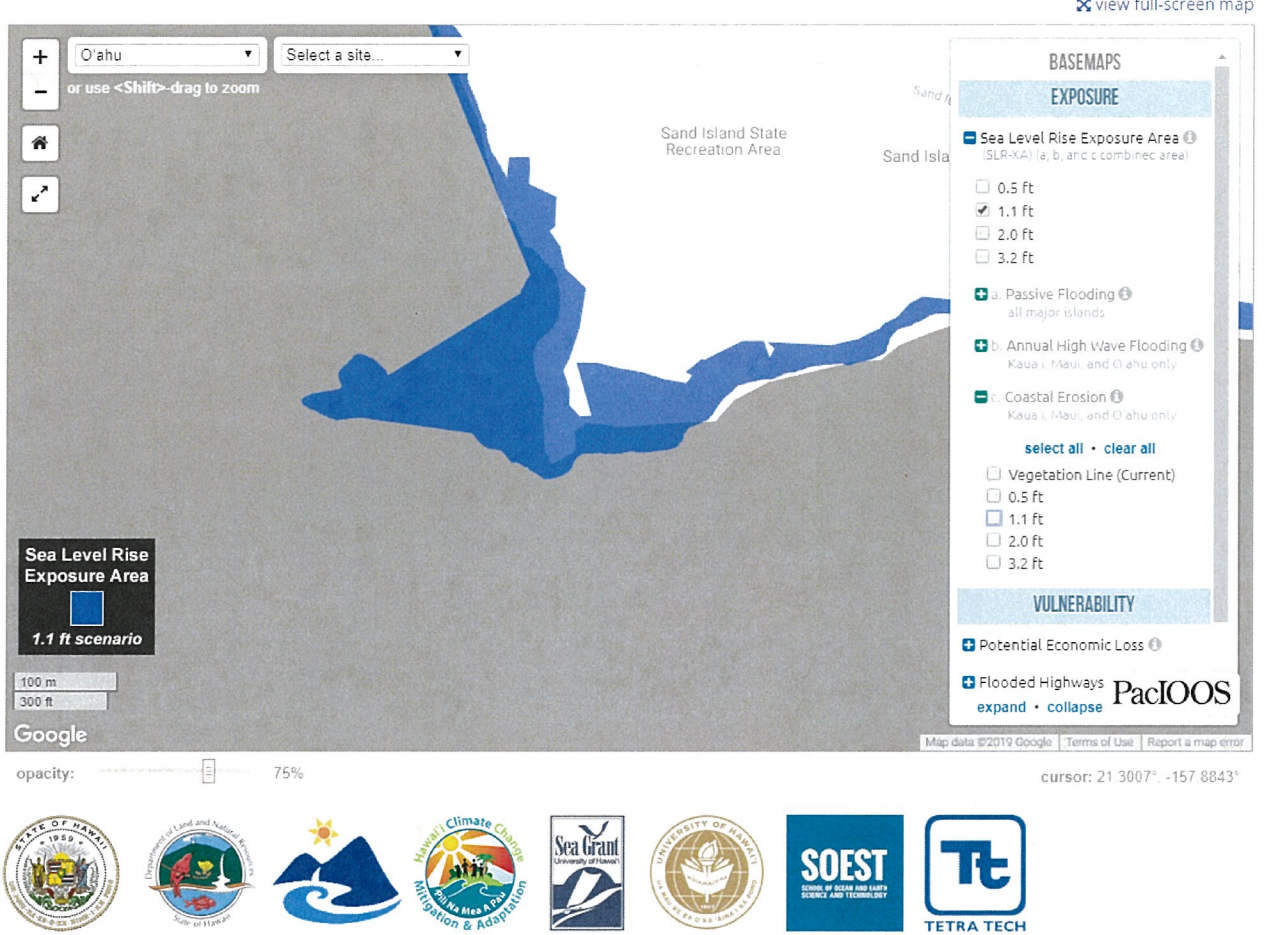
## Sea Level Rise : Hawai'i Sea Level Rise Viewer

[view full-screen map](#)



## EXHIBIT I

## Sea Level Rise : Hawai'i Sea Level Rise Viewer



## EXHIBIT J

Terms for Issuance of Non-Exclusive Easement Involving State Lands, including Lands in the Conservation District

## **Schedule A**

LEGAL REFERENCE:

Sections 171-6, 13, and 95, Hawaii Revised Statutes, as amended and appropriate.

LOCATION and AREA:

Portion of Government lands situated at Sand Island, Honolulu, Oahu, Tax Map Key: (1) 1-5-041: 003, 006.

Final easement area to be determined, subject to review and approval by the Department of Accounting and General Services, Survey Division ("DAGS").

CHARACTER OF USE:

Right, privilege, and authority to construct, use, maintain, and repair a right-of-way over, under, and across State-owned land for revetment purposes.

CONSIDERATION:

Gratis

EASEMENT TERM:

Perpetual, with commencement date to be determined by the Chairperson.

APPLICANT REQUIREMENTS:

1. Provide survey maps and descriptions according to State DAGS standards and at Applicant's own cost;
2. Obtain designation of easement approval from the City and County of Honolulu, Department of Planning and Permitting, if applicable; and
3. Contact the respective district land office [contact information provided below] to follow-up with the disposition process.

District Land Offices Contact Information

County	Address	Tel.	Fax
Honolulu	1151 Punchbowl St., Room 220, Honolulu, HI 96813	(808) 587-0433	(808) 312-6357
Maui	54 High St., Room 101, Wailuku, HI 96793	(808) 984-8103	(808) 984-8115
Hawaii	75 Aupuni St., Room 204, Hilo, HI 96720	(808) 961-9590	(808) 961-9599
Kauai	3060 Eiwa St., Room 208, Lihue, HI 96766	(808) 274-3491	(808) 241-3535

EXHIBIT

K

ISSUANCE OF EASEMENT:

Subject to the Applicant fulfilling all of the Applicant Requirements listed above, authorize the issuance of a perpetual non-exclusive easement to the City and County of Honolulu covering the subject area for revetment purposes under the terms and conditions cited above, which are by this reference incorporated herein and further subject to the following:

- A. The standard terms and conditions of the most current perpetual easement document form, as may be amended from time to time;
- B. Review and approval by the Department of the Attorney General;  
and
- C. Such other terms and conditions as may be prescribed by the Chairperson to best serve the interests of the State.