

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

FILE NO.: SSBN MA-15-2

TO: Chairperson's Office, Department of Land and Natural Resources

REGARDING: Conservation District Use Application for Category II Small Scale Beach Nourishment (SSBN)

LOCATION: Sugar Cove, Spreckelsville, Hawaii

TMK: Beach fronting TMK: (2) 3-8-002:033

APPLICANT: Sea Engineering, Inc. 41-305 Kalaniana'ole Highway, Waimanalo, Hawaii 96795-1820 (Chris Conger, Coastal Scientist);
On behalf of Sugar Cove AOA (The Applicant)

AREA OF USE: Approximately 26,000 square feet (0.6 acres) of coastal (Conservation) lands for beach restoration; up to 8,000 cubic yards of sand, total; over a 10-year maintenance project in the State Conservation District

SUBZONE: Resource

PURPOSE OF PROPOSED ACTION

Sea Engineering, Inc. on behalf of Sugar Cove AOA (the Applicant) is proposing a Category II Small Scale Beach Restoration (SSBN) project to restore Sugar Cove Beach in Spreckelsville, Maui through a 10-year beach maintenance project using up to 8,000 cubic yards of sand. The purpose of the proposed beach restoration is to address a trend of ongoing chronic (long-term) beach erosion¹. In response to the erosion and ultimately complete loss of the beach in the late 1980s, the Applicant constructed a Hayashi Beachwall (revetment) in 1993 and has conducted a series of beach restoration efforts since 1995. The proposed beach fill material for this project is "Screened Grade A" carbonate Maui dune sand from Ameron Hawaii. The sand is compatible with the existing beach following OCCL *Guidelines for SSBN Cat II General Application*. The sand will be placed landward of the high water mark and is not to be placed directly in the ocean.

Sand replenishment at Sugar Cove is required for ongoing maintenance of the restored beach. The project will enhance the beach for public use and improve access and safety for beachgoers by restoring the deflated beach volume and covering the revetment at the back of the beach.

¹ University of Hawaii Coastal Geology Group, Hawaii Coastal Erosion Website:
<http://www.soest.hawaii.edu/coasts/erosion/maui/>

According to the Applicant, beach restoration projects were conducted at Sugar Cove, on 21 previous occasions since 1995, totaling approximately 30,000 cubic yards (cy) of sand:

<u>Date</u>	<u>Volume (cy)</u>
1. Fall 1995	96
2. Winter 1995	84
3. Spring 1996	3,248
4. Summer 1996	2,406
5. Fall 1997	2,406
6. Winter 1997	120
7. Summer 1998	6,015
8. Spring 1999	1,471
9. Spring 2000	2,099
10. Spring 2001	3,070
11. Fall 2003	729
12. Spring 2005	2,105
13. Spring 2006	152
14. Fall 2006	757
15. Winter 2006	75
16. Spring 2007	610
17. Spring 2008	1,347
18. Spring 2009	615
19. Spring 2010	1,088
20. Spring 2011	414
21. <u>Summer 2011</u>	<u>824</u>
Total Volume	29,731

DESCRIPTION OF PROPOSED ACTION

Sugar Cove is on the North Shore of Maui in the Spreckelsville area, approximately four miles east of Kahului. It is in the Resource Subzone of the State Land Use Conservation District.

The proposed sand source for beach restoration is carbonate Maui dune sand (dominantly marine carbonate sediment in origin). The sand was screened to remove coarse material and is stockpiled at an offsite facility by Ameron Hawaii. Test results for a sample batch of the processed sand indicate an acceptable match to the existing beach sand at the project site and to nearby Kanaha Beach based on OCCL SSBN grain size analysis guidelines. The existing beach at Sugar Cove is a combination of native and placed carbonate sand from previous beach restoration activities.

SCOPE OF WORK

Up to 8,000 cy of sand will be placed in an area of approximately 26,000 ft² on the State Conservation District beach over a 10-year maintenance project for the purposes of restoring the degraded beach fronting Sugar Cove, Maui.

1. The initial maintenance effort will place approximately 1,000 cy of sand fill on the upper beach. Sand will be placed above the + 5 ft Mean Sea Level (MSL) contour on the

beach, landward of the Mean High Water Mark (MHHW, + 1.14 ft). The fill sand will be formed into a berm restoring the back beach elevation to approximately + 12 ft MSL.

2. Sand is not to be placed seaward of the high water mark to minimize impacts to water quality and the marine environment.
3. Silt containment devices (silt booms) will installed at the +5 ft contour during construction activities.
4. Mechanical equipment (e.g., bulldozer, loader) will be used on the backshore and beach to place and grade the imported sand to the designed beach profile. Use of heavy machinery on the active beach should be kept to an absolute minimum to limit sand compaction.
5. The Applicant proposes to conduct similar beach restoration activities under this authorization over the next 10 years on using approximately 1,000 cy of sand for each maintenance effort approximately every two years up to 8,000 cy, total. The Applicant proposes two "physical triggers" for beach restoration efforts: 1) The seaward portion of the berm and berm crest fall below + 10 ft MSL in elevation or 2) The 0 ft MSL contour begins to migrate landward. The Applicant has developed an *Adaptive Management Plan* (enclosed herein) to monitor beach and ocean conditions following each sand placement. The Applicant will request approval from the OCCL in writing at least 30 days prior to conducting further maintenance activities under this authorization (see: Terms and Conditions). The OCCL will consider the results of the ongoing monitoring program prior to approving subsequent maintenance activities.

SUMMARY OF COMMENTS

The application was referred to the following agencies for their review and comment:

- DLNR Division of Boating and Ocean Recreation
- DLNR Division of Aquatic Resources
- DLNR Historic Preservation
- DLNR Land Division
- Maui County Department of Planning
- Department of Health, Clean Water Branch
- Office of Planning, Coastal Zone Management Program
- US Army Corps of Engineers
- US Fish and Wildlife Service
- NOAA National Marine Fisheries Service
- Office of Hawaiian Affairs

Comments were received from the following agencies:

DLNR Aquatic Resources (DAR)

DAR noted that past beach replenishment projects at this site have resulted in substantial levels of community concern, including complaints about sediment plumes along the north shore. Octopus fishers expressed concern that added sand would fill quality octopus fishing grounds. DAR is concerned about beach restoration projects using inland dune sand for beach restoration

projects. Sand added above the high tide level will enter the marine environment. DAR noted that sand recovered from offshore deposits may be utilized instead of land-based dune sand, as was recently done for another restoration project in the Spreckelsville area. The project is within sea turtle habitat in contrast to the application.

Applicant's Response

The Applicant noted that Maui beaches are eroding faster than on Oahu and Kauai. Benthic habitat mapping efforts by NOAA and DLNR indicate that marine nearshore environment fronting the project area is primarily sand and fossil reef pavement with varying degrees of turf algae cover. A natural sand-filled channel extends from a nearshore sand field fronting the project area out to deeper reef environment. Therefore, the addition of sand through beach restoration efforts is consistent with the existing ecosystem. The entire coastline of North Maui experiences increased turbidity due to high-energy wave events and surface run-off. Water quality impacts were noticeable with the loss of the beach in the late 1980s when an underlying native clay substrate was exposed to marine erosion. The Applicant contends that wide-spread water quality and turbidity issues in the project area have been attributed to runoff from nearby Kailua Gulch are not a result of beach restoration efforts at Sugar Cove. In addition to high runoff events, large North Pacific swell and tradewind waves generate widespread turbidity in the shallow nearshore waters of Spartan Reef fronting the project area and adjoining coast. The Applicant has developed an Adaptive Management Plan including monitoring of beach and water quality performance. The proposed source for the beach maintenance activities is carbonate (marine origin) dune sand with low silt content (0.3% to 2.1% silt). Sand recovered from offshore deposits can contain fine sediment, as shown with the 2012 Waikiki Beach Restoration Project. Sand will be placed well above the high tide line.

Maui County Department of Planning

The Maui County Department of Planning (DP) indicated that the Applicant should submit a Special Management Area (SMA) permit application for project activities occurring landward of the Certified Shoreline. DP suggested that the Applicant include a representative from DLNR-DAR in the project Management Team. DP suggested a requirement for an up-to-date benthic habitat survey to verify there are no live coral colonies in the nearshore and to provide a basis for future monitoring of marine impacts. DP suggested a requirement for water quality / turbidity monitoring in association with the placement of sand as an opportunity to provide information for future nourishment efforts.

Applicant's Response

The Applicant will coordinate with DP to assess the need for an SMA permit and will prepare an application if required. In regards to adding additional members to the project Management Team, the Applicant suggested adding the Maui-based Sea Grant extension agent as an overall expert on the local coastal environment and coastal management issues on Maui. In addition, the Applicant noted that DLNR-OCCL, as the lead permitting authority for this project, may appoint addition oversight to the project as deemed necessary. The Applicant has provided a modern benthic habitat map from NOAA (2007) indicating the nearshore environment is characterized by fossil reef pavement and sand. A full benthic monitoring plan seems disproportionate given the plan to place approximately 1,000 cubic yards of sand and submitted monitoring plan, which includes water turbidity testing, visual monitoring, and photographic documentation.

DLNR Land Division, Maui

DLNR Land Division, Maui noted that the Applicant proposes to place sand above the high water line but may still come into contact with marine water due to chronic erosion. In addition, they recommended that the shoreline be recertified to identify where sand will be placed.

Applicant's Response

Placing sand high on the beach profile (above + 5 ft MSL) will minimize its contact with marine water. Chronic erosion is expected to continue at the project beach. The project is not expected to change this underlying condition. Further maintenance efforts will be needed to keep pace with ongoing erosion. Sand placement will occur within the Conservation District, makai of where the shoreline would likely be certified as defined by HRS §205A.

Department of Health, Maui District Health Office

The Maui District Health Office stated that a noise permit would be required if the project exceeds the maximum allowable levels for noise.

Applicant's Response

The Applicant replied that once a final contractor has been selected, equipment noise will be evaluated. If noise thresholds are exceeded, a noise permit will be acquired prior to initiation of construction.

Office of Planning

OP suggested consulting with the County of Maui Planning Department, to confirm that the project does not need a Special Management Area (SMA) permit.

Applicant's Response

The Applicant is currently engaged in consultation with the Maui Planning Department regarding the necessity of an SMA permit.

U.S. Fish and Wildlife Service (USFWS)

The USFWS determined that the project site has the potential to provide habitat for the endangered hawksbill sea turtle, green sea turtle, and Hawaiian monk seal and recommended that the National Marine Fisheries Service (NMFS) be contacted regarding the presence of these animals in the marine environment. Additionally, endangered and threatened sea birds may fly over the site. The USFWS recognized the Applicant's proposed "Project Conservation Measures" listed in their application and provided recommendations for additional Best Management Practices (BMPs) and guidance to avoid impacts to endangered species, including sea turtles; limit the potential for transporting invasive species; and protect against soil erosion and sedimentation. The USFWS also noted concerns about changes to beach conditions, such as compaction and sediment properties, which may affect the nesting behavior of sea turtles.

Applicant's Response

The Applicant responded that they will incorporate the suggested BMPs in their project, where applicable. No project work will be conducted from May – September to avoid sea turtle nesting. Restoration efforts will be limited to 1,000 cy of sand placed approximately every other year and will occur over a single day during daylight hours to avoid the use of external lighting.

NOAA National Marine Fisheries Service (NMFS)

The NMFS recognized the Applicant's proposed project BMPs and offered additional comments. NMFS suggested that the project might benefit from additional offshore surveys to determine the area of influence from sand deposition for this and previous projects. In addition, NMFS suggested that alternative measures to prevent beach erosion be considered more fully.

Applicant's Response

The Applicant responded that the project is intended to restore the pre-existing beach system. Natural ongoing erosion processes are expected to continue. Similar beach erosion is occurring throughout the Spreckelsville area on the North Shore of Maui. The proposed beach maintenance plan has been revised based on comments received, from approximately 1,300 cy of placed sand every third year to approximately 1,000 cy of placed sand every other year to help keep the placed sand volume high on the beach profile (above + 5 ft MSL). The project will use carbonate dune sand of marine origin. In addition, the Applicant notes that the project beach is fronted by a natural sand-filled paleo-channel as shown on NOAA substrate maps. Currents tend to move eroded sand into and through this channel. The Applicant suggests additional surveys could be added to the adaptive management plan to assess the condition of the sand channel. The Applicant agrees that NMFS' suggestion that beach stabilization structures (e.g. groins) may be needed in the future if conditions change significantly. Currently, the natural embayment provides an acceptable site to retain a nourished beach if regular maintenance is continued.

The application was also made available for 30-day public review and comment in the Office of Environmental Quality and Control (OEQC) Environmental Bulletin. In all, 53 letters were received. Of those 52 of the letters were positive and in support of the proposed project and one letter raised concern.

Mr. Paul Hanada stated that he is not opposed to sand replenishment projects or shoreline armoring projects. He is opposed to "using fine grained, dirty inland sand as a nourishment sand source because it has a detrimental impact on the marine environment" due to concerns about water quality and impacts to the reef ecosystem. Mr. Hanada asked the Applicant why there is a need to constantly replenish the beach and how has the eroded sand from previous restoration efforts impacted the marine ecosystem? Mr. Hanada asked for more details regarding the quality of the proposed sand for nourishment. In addition, he suggested that sand should not be placed where high tides and high waves carry the sand into the ocean and the marine ecosystem should be monitored for impacts throughout the duration of the project.

Applicant's Response

The Applicant responded that the beach restoration is consistent with the existing subaerial and nearshore beach environment at the site. The existing, restored, sandy ecosystem is similar to other healthy, neighboring beach systems inside of Spartan Reef. Restoration efforts have returned this beach system to a more stable configuration. Grain size analysis provided by the applicant shows an acceptable match between the existing beach system and nearby Kanaha Beach. The proposed nourishment sand has low fine (silt) content of between 0.3% and 2.1%, which is below the 6% threshold guideline with the DLNR SSBN Application Form. The carbonate dune sand is windblown sand of marine origin. Thus, it is appropriate for use on carbonate beaches, like the project site. Sand will be placed between + 5 ft and + 12 ft MSL to

limit interaction with the marine environment. The condition of the site will be reviewed prior to future sand placements under this proposed SSBN project through the Applicant's Adaptive Management Plan.

ANALYSIS

After reviewing the application, the Department finds that:

1. The proposed activities are identified land uses within the Resource subzone of the Conservation District, according to Hawaii Administrative Rules (HAR) §13-5-22 (P-16) *Beach Restoration*;
2. The project is consistent with the purpose of the Conservation District and consistent with the goals and objectives of the Hawaii Coastal Erosion Management Plan (COEMAP) adopted by the Board of Land and Natural Resources in 1999. It is a major goal of COEMAP to promote appropriate erosion control and beach restoration efforts such as this.
3. The beach restoration approach taken has been to develop an effective design with the smallest environmental and community "footprint" possible and follows the SSBN and COEMAP guidelines and policies.
4. The project is consistent with the Environmental Assessment and Statewide Conservation District Use Permit (CDUP ST-3000) for Small-Scale Beach Nourishment projects in Hawaii. A Finding of No Significant Impact (FONSI) for the Final Environmental Assessment supporting the Statewide CDUP and State Program General Permit for Small Scale Beach Nourishment Projects in the Hawaiian Islands was issued by DLNR in May, 2000.

DISCUSSION

The proposed project is intended to restore the beach at Sugar Cove with up to 8,000 cy of sand, total, through intermittent placements of approximately 1,000 cy on biannual basis over 10 years. The project will utilize calcium carbonate dune sand to enhance the beach for public use and improve access and safety for beachgoers. Repeated beach nourishment efforts conducted over the past 20 years have restored and maintained a public beach. Prior to the restoration efforts, the beach environment was highly degraded and characterized by loose cobbles and boulders and an exposed clay bank. In 1993 a sloped revetment (Hayashi Beachwall) was installed to protect the private properties from further erosion and land loss.

In particular, DAR and local resident Paul Hanada raised concerns about use of inland dune sand with this nourishment project, citing potential impacts to the nearshore ecosystem from increased turbidity and siltation. OCCL staff has carefully considered these concerns and believes the Applicant has provided sufficient justification for using the proposed sand source. In addition, the Applicant has developed a suitable plan for sand placement and environmental monitoring to limit potential water quality and environmental impacts.

Beach-quality sand for nourishment projects on Maui and throughout Hawaii is scarcely available. The Maui dune sands are wind-blown deposits of carbonate sand originating from the marine and beach environment and, therefore, are chemically and physically compatible with the existing beach. In fact, erosion of beach front dunes is an important natural process for sustaining North Maui's remaining beaches, which have some of the highest rates and greatest extent of erosion in Hawaii (87% of beaches eroding). Turbidity plumes may be a problem with dune sand if it contains a relatively high proportion of fine (silt, clay) sediment. In addition to physical samples, the Applicant has provided grain size analysis showing that the proposed sand for nourishment contains between 0.3% and 2.1% fines – well within the DLNR guidelines of less than 6% fines. The existing beach at Sugar Cove is a combination of native and placed carbonate sand from previous beach restoration activities. Test results for a sample batch of the proposed nourishment sand indicate an acceptable match to the existing beach sand at the project site and to nearby Kanaha Beach based on OCCL SSBN grain size analysis guidelines. Additionally, the sand will be placed high on the beach profile (above +5 ft MSL), which will reduce interaction with wave run-up and erosion. The Applicant has demonstrated that the natural, pre-existing marine environment fronting the project site is characterized by sand overlying a fossil reef pavement. A natural sand-filled channel in the reef extends from a nearshore sand field fronting the project site out to deeper water. The nourishment project is intended to restore a pre-existing beach and is not constructing a new beach; therefore, the project is consistent with the existing environment.

Agency and reviewer comments have suggested that the applicant consider using sand dredged from offshore deposits for the nourishment as an alternative to dune sand. This may be a feasible option for this project. However, recent offshore sand recovery and nourishment projects at North Maui (Stable Road, SSBN MA-08-01, 2010) and Waikiki (CDUP OA-3558, 2012) have shown that using offshore sand comes with its own set of logistical constraints and environmental challenges. Dredging equipment and pipes needed to pump sand to shore can present a hazard to corals and benthic environments if not managed carefully. Dredged sand may also contain substantial amounts of fine (e.g., carbonate silt) and coarse sediment (e.g., coral rubble). Ocean conditions are rough on the North Shore of Maui year-round due to frequent strong tradewinds and North Pacific swell making dredging operations challenging and potentially hazardous.

The Applicant has developed an *Adaptive Management Plan* to monitor beach and ocean conditions following each sand placement. The Applicant will limit the amount of sand with each nourishment effort (~1,000 cy) and the sand will be placed on the upper beach profile (+ 5 MSL to +12 ft MSL) above the high tide line (Mean High High Water, + 1.14 MSL). Through the *Adaptive Management Plan* the OCCL will monitor performance of each beach nourishment effort, along with any possible impacts to the marine environment. Subsequent nourishment efforts under this SSBN authorization will be given careful scrutiny following the results of the ongoing monitoring and reports. OCCL may request adjustments to the plans for subsequent nourishment efforts under this authorization, including requesting a new sand source. Subsequent nourishment efforts under this SSBN authorization may be denied if substantial impacts are discovered.

Staff understands the concerns of DAR and Mr. Hanada for the aquatic environment. However, we feel that the Department has thoroughly vetted and alleviated these concerns through the Applicant's project design and *Adaptive Management Plan*, as well as the suggested *Terms and Conditions*, below.

RECOMMENDATION

Based on the preceding analysis, Staff recommends that the Chair of the Board of Land and Natural Resources **Approve** Category II Small Scale Beach Nourishment (SSBN) application MA-15-2 for the restoration of the beach at Sugar Cove, Spreklesville, Maui, Hawaii; fronting TMK: (2) 3-8-002:033.

TERMS AND CONDITIONS

If approved, the project will be subject to the following Terms and Conditions:

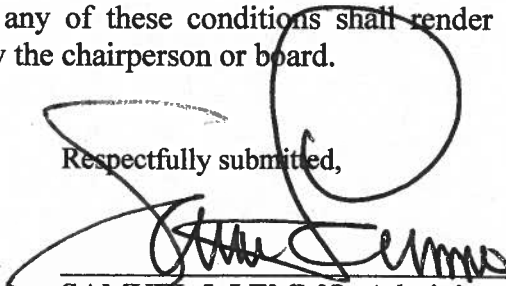
1. The coastal and marine environment will be monitored following the approved *Adaptive Management Plan* (attached herein);
2. A post project report will be completed and issued to DLNR 90 days after completion of each maintenance effort. The report will include a project summary, deviation(s) from plan (if any), photos and data regarding the effectiveness of the project following the approved *Adaptive Management Plan*;
3. A project performance report shall be completed and issued to DLNR on an annual basis documenting and summarizing results from each of the monitoring tasks detailed in the approved *Adaptive Management Plan*;
4. Work shall be conducted at low tide to the most practical extent possible and no work shall occur if there is high surf or ocean conditions that will create unsafe work or beach conditions;
8. The initial beach maintenance effort authorized under this authorization shall be completed within one (1) year of the approval of such use. The applicant shall notify the DLNR in writing 1 week before construction activity is initiated and when it is completed;
9. The Applicant will request approval from the OCCL in writing at least 30 days prior to conducting further maintenance activities under this authorization. Authorization of subsequent beach maintenance activities under this authorization is contingent upon review of the project performance based on ongoing monitoring following the approved *Adaptive Management Plan* and acceptance of the proposed sand source for nourishment by OCCL;

10. Authorization of the sand use and placement is contingent upon review and approval of the sand by the Department. The sand shall meet the following State quality standards:
 - a) The proposed fill sand shall not contain more than six (6) percent fines, defined as the #200 sieve (0.074 mm);
 - b) The proposed beach fill sand shall not contain more than ten (10) percent coarse sediment, defined as the #4 sieve (4.76 mm) and shall be screened to remove any non-beach compatible material and rubble;
 - c) No more than 50 (fifty) percent of the fill sand shall have a grain diameter less than 0.125 mm as measured by #120 Standard Sieve Mesh;
 - d) Beach fill shall be dominantly composed of naturally occurring carbonate beach or dune sand. Crushed limestone or other man made or non-carbonate sands are unacceptable;
11. To avoid encroachments upon the area, the applicant shall not use artificially accreted areas due to nourishment as indicators of the shoreline;
12. The applicant shall implement Best Management Practices (BMPs) to minimize dirt and silt from entering the ocean and the ability to contain and clean up fuel, fluid, or oil spills immediately for projects authorized under this authorization and immediately report any spill(s) or other contamination(s) that occurs at the project site to the Department of Health and other appropriate agencies;
13. The applicant shall ensure that excessive siltation and turbidity is contained or otherwise minimized to the satisfaction of the all appropriate agencies, through silt containment devices or barriers, high sand quality and selective sand placement;
14. Appropriate safety and notification procedures shall be carried out. This shall include high visibility safety fencing, tape or barriers to keep people away from the active construction site and a notification to the public informing them of the project;
15. 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;
16. A survey of the project area shall be conducted prior to commencement of the proposed activities to ensure no protected marine species are in the project area. If protected species are detected activities shall be postponed until the animal(s) voluntarily leave the area. All on-site personnel shall be apprised of the status of any protected species;
17. At the conclusion of work, the applicant shall clean and restore the site to a condition acceptable to the Chairperson;
18. 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;

19. The permittee, its successors and assigns, shall indemnify and hold the State of Hawaii 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;
20. The permittee shall obtain appropriate authorization from the department for the occupancy of state lands, if applicable;
21. The permittee shall comply with all applicable department of health administrative rules;
22. The permittee understands and agrees that the permit does not convey any vested right(s) or exclusive privilege;
23. 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;
24. 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;
25. 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;
26. For all landscaped areas, landscaping and irrigation shall be contained and maintained within the property, and shall under no circumstances extend seaward of the shoreline as defined in section 205A-1, HRS;
27. 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 directed to project across property boundaries toward the shoreline and ocean waters, except as may be permitted pursuant to section 205A-71, HRS. All exterior lighting shall be shielded to protect the night sky;
28. 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 Hawaii, and by Hawaii statutory and case law;

29. 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 shall immediately contact HPD (692-8015), which will assess the significance of the find and recommend an appropriate mitigation measure, if necessary;
30. Other terms and conditions as prescribed by the chairperson;
31. Failure to comply with any of these conditions shall render a permit void under the chapter, as determined by the chairperson or board.

Respectfully submitted,



SAMUEL J. LEMMO, Administrator
Office of Conservation and Coastal Lands (OCCL).

Under the authority of §13-5-22 (P-16), Hawai'i Administrative Rules, this request for a Departmental Permit for SSBN MA-15-2 is hereby:

☒ Approved

☐ Disapproved

Dated at Honolulu, Hawai'i 7/6/15


SUZANNE D. CASE, Chairperson
Board of Land and Natural Resources



ADAPTIVE MANAGEMENT PLAN

The intent of this plan is to approach long-term berm maintenance with a programmatic, well planned, managed approach that allows for ongoing monitoring and adaptive management. The 10-year lifespan of the management plan, covering multiple berm maintenance efforts requires ongoing monitoring of beach face and nearshore elevations, review of berm fill sand prior to each placement, review of the placement plan prior to each effort, monitoring of each effort both during and after placement, and environmental monitoring to include water turbidity monitoring, benthic photographic documentation, and marine and coastal environmental photographs.

Adaptive Management Goals

The adaptive management plan is intended to review each previous effort for the following:

- Quality of placed material, after placement
- Observed beach and ocean conditions
- Beach profile adjustments
- Maintenance activity lifecycle

The overarching goal is to use the data collected to quantify and qualify the effectiveness of material placement during each berm maintenance cycle, and the material's impact, or lack thereof, on the environment.

Management Team

The management team will consist of the following:

- A Sugar Cove AOA representative
- A technical consultant
- A representative from the Office of Conservation and Coastal Lands

Recommended team members to include:

- Sea Grant Extension Agent positioned with the Maui County Planning Department

Management Tasks

Quality of Placed Material

Prior to each maintenance effort, grain size analysis of the beach quality sand proposed for use will be provided to the OCCL for review. OCCL will review the proposed sand under the existing SSBN sand source guidelines. OCCL sand source approval will be required prior to initiating each maintenance effort.

Six months after placement, a composite sand sample from the berm will be analyzed for grain size distribution. These data will be compared to the pre-placement beach sample and berm maintenance fill sand sample data to document any changes in character to the beach sand.

Observed Coastal and Marine Environmental Conditions

Conditions will be documented through photographs of the nearshore waters, nearshore substrate characteristics, location of the shoreline, and general condition of the beach and backshore.



Photographs will be collected from along each of the three transects and across the cove from each end of the beach. These photographs will be collected just prior to start of each effort, during placement, and after placement. Additional photographs will be collected during each beach profile effort.

In addition, water quality data will be collected during monitoring activities and provided as a quantitative evaluation of conditions at Sugar Cove and local control sites. Water quality data will consist of turbidity measurements and documented environmental conditions. Two control sites have been identified in analogous coastal environments to the east and west of Sugar Cove.

Figure 0-1 identifies the locations of each sample station. Each sample station is located approximately 150 feet from the waterline. Control Station East is located at Baldwin beach, approximately 0.65 miles east of the project site station. Sugar Cove Station is located in the middle of the project beach. Control Station West is located at Spreckelsville Beach, approximately 0.45 miles west of the project site station.



Figure 0-1 Water quality monitoring stations for turbidity sample collection.



Beach Profile Adjustments

Beach profiles will be collected before and after each placement, and continuing on with the semi-annual schedule. These beach profile data will be collected at the three previously identified locations. Data will be added to the long-term record for review and analysis.

Maintenance Activity Lifecycle

The project will be reviewed prior to each berm maintenance effort to assess the duration of previous berm maintenance actions, with respect to the beach quality sand augmenting the dry beach volume and profile.

Effectiveness of Material Placement

Each placement will be photographed to document beach conditions prior to placement, during placement, immediately after placement, and semi-annually after placement. Photographs will be taken along each of the transect locations and looking in multiple directions, to capture existing beach conditions.

Review

Data from each of these tasks, combined with the photograph sets, will be reviewed prior to the next berm maintenance effort. Each review will detail potential erosion events, such as extreme waves, storms, or tsunamis, which may have impacted the shoreline. Each review will discuss the volume placed, starting and ending profiles, environmental conditions including both nearshore and beach areas, water quality as documented through turbidity sample data collection, and berm maintenance material characteristics from previous efforts. Each review will also revisit alternative measures to assess their viability under current conditions.

Management Decisions

The maintenance program is designed to place beach quality fill sand high on the beach profile, to augment the overwash berm that rests against and atop the Hayashi Beachwall. The 0-foot contour should remain stable if sufficient sand is supplied to protect the dry beach during wave events. This will minimize sand volume lost to offshore currents.

Physical Triggers for Berm Maintenance:

Berm deflation is the primary physical trigger for identifying when to conduct routine volume maintenance efforts. As a general indicator, when the seaward portion of the berm and berm crest are at elevation close to or below +10 feet in elevation, the next maintenance effort should be conducted. At that time approximately 1,000 cy of beach quality sand should be added to the upper portion of the profile, during a single day maintenance effort.

Additional triggers are beach width and beach slope at Transect 5. Transect 5 is the least affected by the seasonal changes in winter and summer, and is the good indicator of long-term changes in the littoral cell. Beach width, measured at the 0-foot contour, at Transect 5 routinely returns to 100 feet from the profile's reference point, and is increasing stable at that width with the gradual, cumulative increase in littoral cell sediment. An additional trigger will be when the 0-foot contour narrows to less than 100 feet from the Transect 5 reference point. Berm deflation is typically coupled with flattening of the foreshore slope. A return of the foreshore slope to



between 1V:6H to 1V:8H is another physical trigger that will indicate a need for future maintenance actions.

Ensuing Berm Maintenance Design:

The management team will review existing data from the previous berm maintenance effort(s), prior to the next effort to determine if the proposed design and materials are within the scope of this management plan and the Small Scale Beach Nourishment program. The management team will determine if the previous effort(s) were successful in design and implementation. They will review the proposed maintenance effort design and materials, with respect to the previously collected data sets, including the history of environmental conditions from previous effort(s). Specifically, the proposed berm maintenance sand will be evaluated based on the requirements within the SSBN program and past performance of the material, if applicable, when used for berm maintenance.

If the team determines that alteration(s) are needed for the upcoming berm maintenance effort, and these alterations can be supported by the existing data, then the design and materials will be adapted as needed.