NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

GUY KAULUKUKUI
DEPUTY DIRECTOR

LENORE N. OHYE
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

REF:OCCL:AB

CDUP: OA-3558

MEMORANDUM

TO: William J. Aila, Jr., Chairperson

FROM: Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

SUBJECT: Conservation District Use Permit (CDUP) OA-3558 for the Waikīkī Beach Maintenance Project, Located at Waikīkī Beach, Honolulu, O'ahu, Shoreline Fronting TMKs: (1) 2-6-001:008, 012, 013, 015, 018, and 019

On December 1, 2010, the Board of Land and Natural Resources approved the Conservation District Use Application OA-3558 for the Waikīkī Beach Maintenance Project, located at Waikīkī Beach, Honolulu, O'ahu, shoreline fronting TMKs: (1) 2-6-001:008, 012, 013, 015, 018, and 019, subject to the following 18 conditions:

1. The applicant shall comply with all applicable statutes, ordinances, rules, and regulations of the Federal, State, and County governments, and applicable parts of Chapter 13-5, HAR;

2. The applicant shall comply with all applicable Department of Health administrative rules;

3. Any work or construction to be done on the land shall be initiated within one (1) year of the approval of such use, in accordance with construction plans that have been signed by the Chairperson, and, unless otherwise authorized, shall be completed within three (3) years of the approval of such use;

4. The project will also include an option for a second beach nourishment after approximately 10 years, involving approximately 12,000 cubic yards of sand recovered from the same offshore deposits;

5. All representations relative to mitigation set forth in the accepted environmental assessment for the proposed use are incorporated as conditions of the permit;

6. The applicant understands and agrees that the permit does not convey any vested right(s) or exclusive privilege;

7. Work shall be conducted during calm weather periods 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. 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 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.

9. Sand used for beach maintenance shall be screened of course material (rocks) and any non beach compatible material;

10. The applicant shall implement Best Management Practices (BMPs) and an approved monitoring and assessment plan to minimize dirt and silt from entering the ocean through silt containment devices or barriers, and to contain and clean up fuel, fluid, or oil spills immediately for this project. Any spill(s) or other contamination(s) that occur at the project site will be reported immediately to the Department of Health and other appropriate agencies;

11. 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;

12. 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;

13. Where any interference, nuisance, or harm may be caused, or hazard established by the use, the applicant shall be required to take measures to minimize or eliminate the interference, nuisance, harm, or hazard within a time frame and manner prescribed by the Chairperson;

14. The applicant acknowledges that the approved work shall not hamper, impede or otherwise limit the exercise of traditional, customary or religious practices in the

immediate area, to the extent such practices are provided for by the Constitution of the State of Hawai'i, and by Hawai'i statutory and case law;

15. 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 SHPD (808-692-8015), which will assess the significance of the find and recommend an appropriate mitigation measure, if necessary;

16. At the conclusion of work, the applicant shall clean and restore the site to a condition acceptable to the Chairperson;

17. Other terms and conditions as prescribed by the Board; and

18. Failure to comply with any of these conditions shall render this Conservation District Use Permit void.

Please acknowledge receipt of this approval, with the above noted conditions, in the space provided below.

Receipt acknowledged:

Paul J Conry

Applicant's Signature

for William J. Aila, Jr.

Date 12/8/10

c: ODLO
DPP

STATE OF HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
Honolulu, Hawai'i
December 1, 2010

Acceptance Date: July 27, 2010
180-Day Expiration Date: January 23, 2011

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

REGARDING: Conservation District Use Application (CDUA) OA-3558 for the Waikīkī Beach Maintenance Project, Located at Waikīkī Beach, Honolulu, O'ahu, TMKs: (1) 2-6-001:019

APPLICANT: DLNR Office of Conservation and Coastal Lands

LANDOWNER: State of Hawai'i

LOCATION: Waikīkī Beach, Honolulu, O'ahu

TMK: Shoreline fronting (1) 2-6-001:008, 012, 013, 015, 018, and 019

AREA/USE: 3.4 acres

SUBZONE: Resource Subzone

BACKGROUND:

Geological surveys indicate there is an extensive sand reservoir offshore Waikīkī that could provide an excellent source of recycled beach sand through offshore sand pumping. On July 9, 2004, the Board consented to allow the Chairperson of DLNR to issue a Small-Scale Beach Nourishment (SSBN) permit for a beach nourishment project in Kūhiō Beach. This project, which was completed in December 2006, entailed offshore sand extraction and pumping of approximately 10,000 cubic yards of sand to Kūhiō Beach, within the confines of the crib walls.

The 2006 Kūhiō Beach nourishment project successfully demonstrated that offshore sand is an environmentally advantageous, cost-effective source for future beach nourishment efforts. Water quality was acceptable throughout the pumping and dewatering operation because the offshore sand (having already been washed through the surf zone at least once) has such low fines content. Furthermore, offshore sources eliminate trucking through congested resort areas as well as improving nearshore habitat values where smothering sands are removed to expose rugged old reef. The success of the 2006 Kūhiō Beach project demonstrates that regular dredging of the near-shore sand field in Waikīkī may provide a sustainable source of sand for local beach

nourishment, restore and enhance reef structure and health, and improve near-shore water quality for recreational diving and snorkeling.

DESCRIPTION OF AREA:

The proposed Waikīkī Beach maintenance project site is located on Waikīkī Beach, along the shoreline of Māmala Bay on the south shore of O'ahu, fronting TMKs (1) 2-6-001:008, 012, 013, 015, 018, and 019 (**Exhibits 1 & 2**). The project site extends approximately 1,700 linear feet from the west end of the Kūhiō Beach crib walls, near the Duke Kahanamoku statue, to the existing Royal Hawaiian groin between the Royal Hawaiian and Sheraton Waikīkī Hotels (**Exhibit 3**). The project site lies within the Resource subzone of the Conservation District.

The east end of the reach is open and landscaped between Kalakaua Avenue and the shoreline, and provides for three beach concession operations. The balance of the project backshore is occupied by resort hotels, from east to west: Moana Surfrider, Outrigger Waikiki, and Royal Hawaiian.

Since 1985, the shoreline has been chronically eroding and receding at an average annual rate of 1.5 feet (**Exhibit 4**). At high tide, along much of the project area, there is barely sufficient dry beach width seaward of the hotel properties for one towel or beach mat. At higher tides, the beach is almost completely submerged by wave run-up (**Exhibit 5**).

Wave induced currents predominate inside the breaker zone, generating both longshore (shore parallel) currents moving sand primarily from east to west, and offshore (rip) currents. During high wave conditions rip currents can form, resulting in a significant movement of sand offshore which is then lost to the beach. This sand can be periodically recovered and recycled back to the beach.

PROPOSED USE:

The proposed Waikīkī Beach maintenance project will restore and maintain the 1,700-foot-long segment of Waikīkī Beach between the Kūhiō Beach crib wall and the Royal Hawaiian groin. Up to 24,000 cubic yards of sand will be recovered from offshore deposits located 1,500 to 3,000 feet offshore in a water depth of about 10 to 20 feet (**Exhibit 6**).

The recovered sand will be pumped to an onshore dewatering site to be located in an enclosed basin within the east Kūhiō Beach crib wall (**Exhibit 7**). The sand will then be transported along the shore and placed on the shoreline to the design beach profile. The project also includes the removal of two old deteriorated groin structures at the east end of the project area.

The project will widen the beach by an average of 37 feet, restoring the beach to its approximate 1985 width (**Exhibit 8**). The project will also include an option for a second beach nourishment after approximately 10 years, involving approximately 12,000 cubic yards of sand recovered from the same offshore deposits.

The purpose of the project is to restore and enhance the recreational and aesthetic benefits provided by the beach, as well as maintaining lateral access along the shore, and provide a first line of defense to the backshore area in the event of storm wave attack. The beach would not be

enlarged beyond its historical beach width or what is necessary for a reasonable periodic maintenance schedule. No new structures would be constructed along the shoreline.

Construction will begin when the necessary permits and approvals are obtained and a construction contract is awarded, currently estimated for winter/spring 2011. The construction period for sand recovery and placement is estimated to be 60 to 90 days.

SUMMARY OF COMMENTS:

CDUA OA-3558 was referred to the following agencies for review and comment: DLNR – O'ahu District Land Office, Division of Aquatic Resources, Historic Preservation Division, Engineering Division, and Division of Boating and Ocean Recreation; Office of Hawaiian Affairs; Office of Environmental Quality Control; Department of Health; City and County of Honolulu – Planning and Permitting, Parks and Recreation, Police Department, Fire Department, Design and Construction, Enterprise Services, and Environmental Services; Army Corps of Engineers; National Oceanic and Atmospheric Administration; and the Waikīkī Public Library. The following comments were received:

DLNR-O'ahu District Land Office
No comments.

DLNR-Division of Boating and Ocean Recreation
No comments.

DLNR-Historic Preservation Division (SHPD)
This project is unlikely to have an impact on historic or cultural resources because Waikīkī Beach has already been transformed by sea wall development and other landscape alterations. SHPD has no record of burial sites eroding out of the shoreline in the project area. No historic properties will be affected by this action.

> ***Applicant Response:*** In the event that historic resources, including human skeletal remains, are identified during the construction activities, work will cease in the immediate vicinity of the find and the State Historic Preservation Division will be notified.

DLNR-Aquatic Resources
Though some fish and invertebrates could be temporarily displaced during the project, long-term impacts to aquatic resources in the project area are not expected. Also, the pumping of the sand will increase turbidity and sediment in the area, though adverse impacts to aquatic resources should be minimal and temporary. The long-term benefits from this project will result in increased recreational opportunities (fishing area) for the public along the shoreline.

> ***Applicant's Response:*** A number of measures will be implemented during construction of the project to reduce and minimize impacts on water quality, turbidity, and aquatic resources, including the following:
>
> - Requiring the use of hydraulic suction dredging which limits the dispersal of suspended sediment in the vicinity of sand dredging operations;

- Requiring silt curtains to be deployed around the areas of sand dredging, sand dewatering on the shore, and sand placement operations on the beach;
- Implementing a project specific approved Best Management Practices/ Environmental Protection Plan by the contractor during construction; and
- Conducting an Applicable Monitoring and Assessment Program for Clean Water Act Section 401 Water Quality Certification during construction.

DLNR-Engineering
Engineering confirmed that the project site, according to the Flood Insurance Rate Map (FIRM) is located in Zone A. The Flood Insurance Program does regulate for developments within Zone A. Project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations, whenever development within a Special Flood Hazard Area is undertaken.

Honolulu Parks and Recreation Department
No comments.

Honolulu Police Department
No significant impact expected on the facilities or operations of the Police Department.

Save Our Surf
Save Our Surf supports the proposed project with reservations. Their major concerns are that the amount of sand to be added could be too much. They are concerned that the more sand added, the greater the probability that a "buffer zone" will fill in, creating a shallow area resulting in waves rolling through to the beach. As a result of sand build-up, catamaran operations and "learning" surf spots (Baby Queens, Baby Canoes, and Baby Royals) could be negatively affected.

The other major concern of Save Our Surf is the placement location of the sand on the beach. They would like the applicant to measure 37 feet from the property line and place on record each measuring point for public information purposes.

> ***Applicant's Response:*** The project will not alter the existing coastal processes or transport patterns; sand will continue to erode from the beach as it has in the past and move alongshore and offshore. Without the project, the beach will continue to erode and sand will move until the point that there is simply no sand left, such as is the case fronting the Sheraton Waikiki Hotel. Given the existing beach width and the current rate of erosion, the beach in front of the Moana Surfrider could for all practical purposes be completely gone in another 20 years or so, and dry beach would be gone much sooner. Therefore, the project does not result in any change to the nearshore conditions for the foreseeable future, except that instead of continuing to erode the sand currently on the beach, the new sand placed there will erode instead. Either way, the same volume of sand will end up moving along and off shore over the next 20 years.
>
> No alteration of the existing bottom configuration, water depths, beach shape, wave breaking, etc., would result from the proposed project. If this is going to happen, it will happen with or without the project as the existing sand erodes. It is expected that the

with-project conditions will closely approximate the conditions over the past 25 years. In 1985, the beach was as wide as the proposed with-project width, and no unusual safety hazards were evident.

The applicant has prepared detailed construction drawings and specifications which delineate exactly where the sand will be placed, and how much will be placed at various location along the project shoreline. There is not a "movable criterion" for this project. The increase in beach width will vary from about 10 feet to almost 50 feet at various locations along the beach, depending on how much sand is needed where. The average width increase of 37 feet is simply used to help people understand the relatively modest scale of the project.

Kainoa Downing

Mr. Downing commented that the applicant should set and establish a benchmark for the public to know where the 37-foot added shoreline width would start. In addition, the applicant should diagram where the sand blower will travel and the depth of the pipe.

Applicant's Response: The applicant has prepared detailed construction drawings and specifications which delineate exactly where the sand will be placed, and how much will be placed at various location along the project shoreline. There is not a "movable criterion" for this project. The increase in beach width will vary from about 10 feet to almost 50 feet at various locations along the beach, depending on how much sand is needed where. The average width increase of 37 feet is simply used to help people understand the relatively modest scale of the project.

The pipe used to convey sand will be buried about 12 feet below the sand surface, and only a relatively small section of beach (about a 100-foot length at any one time) would be cordoned off from use during active sand placement. This pipe would be completely removed immediately following completion of the sand placement. There will be some temporary disruption of public use during construction; however, every practicable effort will be made to minimize and mitigate the impact on public use, tourism, and commercial activities during construction. The use of sand blowing in lieu of heavy equipment to move sand along the beach from the dewatering site is an innovative way to reduce beach use impacts, noise, and other adverse impacts to the Waikīkī tourist business.

ANALYSIS:

Following review and acceptance for processing, the applicant was notified, by letter dated July 27, 2010 that:

1. The proposed use is identified within the Resource subzone of the Conservation District, pursuant to Chapter 13-5, Hawai'i Administrative Rules (HAR) §13-5-24, R-6, MARINE CONSTRUCTION (D-1) *Marine construction, dredging, filling, or any combination thereof of submerged lands*;

2. Pursuant to §13-5-40(4), HAR, HEARINGS, a public hearing will be required; and

3. In conformance with Chapter 343, Hawai'i Revised Statutes (HRS), as amended, and Chapter 11-200, HAR, a finding of no significant impact (FONSI) to the environment was issued on May 27, 2010. The final environmental assessment (FEA) for the project was published in the June 23, 2010 issue of the *Environmental Notice.*

Negative action, as required by law, on the application by the Board of Land and Natural Resources can be expected should the applicant fail to obtain from the County thirty (30) days prior to the 180-day expiration date, one (1) of the following:

1. A determination that the proposed development is outside the Special Management Area (SMA);

2. A determination that the proposed development is exempt from the provisions of the County Ordinance and/or regulation specific to Section 205A-29(b), HRS; or

3. A Special Management Area (SMA) permit for the proposed development.

Staff notes that the Public Hearing was held on September 15, 2010 at the Waikīkī Community Center, 310 Paoakalani Avenue, Waikīkī, O'ahu. The Public Hearing was noticed in the Honolulu Star-Advertiser on August 15, 2010, and a news release for the Hearing was issued on September 14, 2010. A total of 22 members of the public attended, and 10 testified. The issues brought up during testimony included:

- Uncertainty of where the sand placed on beach will eventually end up.
- The replenished sand will end up building the sandbar by Canoes allowing beach users to walk all the way out to surf break.
- Bigger sandbar will prevent catamarans from operating.
- Safety hazards increase in nearshore area because of shorebreak and filled in sandbar.
- Taking sand from offshore may open up pockets that will create rip currents.
- Bigger beach will bring more people which will put more demand on safety and lifeguards.
- Ft. DeRussy nourishment buried reef, filled in octopus holes, and created murky water.
- The impact of trench and sand blower on tourism.
- Would like flags placed to identify where the new replenished sand will extend.
- Sand build-up impact on "learning" surf spots: Baby Queens, Baby Canoes, and Baby Royals.

Applicant Response to Public Hearing comments: The project will not alter the existing coastal processes or transport patterns; sand will continue to erode from the beach as it has in the past and move alongshore and offshore. Without the project, the beach will continue to erode and sand will move until the point that there is simply no sand left, such as is the case fronting the Sheraton Waikiki Hotel. Given the existing beach width and the current rate of erosion, the beach in front of the Moana Surfrider could for all practical purposes be completely gone in another 20 years or so, and dry beach would be gone much sooner. Therefore, the project does not result in any change to the nearshore conditions for the foreseeable future, except that instead of continuing to erode the sand currently on the beach, the new sand placed there will erode instead. Either way, the same volume of sand will end up moving along and off shore over the next 20 years.

Regarding concerns about sandbar build-up, there is no more likelihood that the replenishment sand will end up building a sandbar out to Canoes than there is that the continuing erosion of the existing beach will do so. No impact to existing catamaran operations is anticipated, other than that they will travel a few feet less to reach the beach. The beach shape and slope will be the same as it currently is. As previously stated, the project will not alter the existing coastal processes.

No alteration of the existing bottom configuration, water depths, beach shape, wave breaking, etc., would result from the proposed project. If this is going to happen it will happen with or without the project as the existing sand erodes. It is expected that the with-project conditions will closely approximate the conditions over the past 25 years. In 1985, the beach was as wide as the proposed with-project width, and no unusual safety hazards were evident.

Rip currents are formed inside of the breaker zone by the mass transport of water shoreward by wave breaking, and the water needing a way to flow back seaward in order to relieve the hydrostatic head formed along the shore. They carry water seaward through the breaker zone. The sand recovery areas are located offshore of the surf zone during most wave conditions, and thus would be seaward of where rip currents would form. In addition, the sand would be taken from pockets bound on all sides by hard reef rock, and no "channel" to shore would be created that could provide an avenue for rip currents to form.

The proposed project will provide improved beach recreation opportunities for residents and visitors alike, and this may well result in an increase in the number of beach users. However, the approximately 65,000 square feet of dry beach area to be created by the project will accommodate 600-800 more beach users, and is expected to ease the present crowded conditions in the project area. An increase in beach usage would increase the demand on lifeguards; however, the project would not increase the beach area beyond its historical (1985) size and the water safety issues that were adequately dealt with at that time. In addition, the project has been coordinated with the C&C Department of Emergency Services, Ocean Safety.

What was done at Fort DeRussy bears no relationship to the proposed project. At Fort DeRussy, the beach was expanded in size, and poor quality man-made sand was imported to do this. As previously stated, the proposed project does not expand the size of the beach seaward past its 1985 historical size, and will use clean natural beach sand with characteristics identical to the sand currently on the beach.

The pipe used to convey sand will be buried about 12 feet below the sand surface, and only a relatively small section of beach (about a 100-foot length at any one time) would be cordoned off from use during active sand placement. This pipe would be completely removed immediately following completion of the sand placement. There will be some temporary disruption of public use during construction; however, every practicable effort will be made to minimize and mitigate the impact on public use, tourism and commercial activities during construction. The use of sand blowing in lieu of heavy equipment to

move sand along the beach from the dewatering site is an innovative way to reduce beach use impacts, noise, and other adverse impacts to the Waikīkī tourist business.

Staff notes that on June 29, 2010, the City and County of Honolulu Department Planning and Permitting issued the project an exemption from the permitting requirements of Chapter 25, Revised Ordinances of Honolulu, the "Special Management Area (SMA)" Ordinance, pursuant to Section 25-1.3(2)(F), relating to the repair, maintenance or interior alterations to existing structures.

CONSERVATION CRITERIA:

HAR Section 13-5-30 provides eight specific criteria that the Department or Board shall apply to proposed land uses within the Conservation District. Land uses must conform to the following criteria:

1. *The proposed land use is consistent with the purpose of the conservation district.*

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

   The proposed action involves beach nourishment of up to 24,000 cubic yards, followed by a second nourishment of about 12,000 cubic yards after approximately 10 years. The beach would initially be restored to its recent historical condition, approximating the 1985 shoreline.

   The proposed action will not alter the existing land use, and would help maintain the long-term sustainability of the public recreational resource and historical ecosystem provided by the sand beach.

   Staff notes that the project is consistent with the purpose of the Conservation District.

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

   The property lies within the Resource subzone. The objective of the Resource subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas.

   The proposed action is an identified land use within the Resource subzone of the Conservation District, according to Chapter 13-5, Hawai'i Administrative Rules (HAR) §13-5-24, R-6, MARINE CONSTRUCTION (D-1) *Marine construction, dredging, filling, or any combination thereof of submerged lands.*

   The proposed action involves the recovery of up to 24,000 cubic yards of sand from deposits located 1,500 to 3,000 feet offshore in a water depth of about 10 to 20 feet; pumping the sand to an onshore dewatering site to be located in an enclosed basin within the east Kūhiō Beach

crib wall; transport of the sand along the shore and placement to the design beach profile; and the removal of two old deteriorated concrete sandbag groin structures located at the east end of the project area.

The proposed action will not alter the existing land use, and would help maintain the long-term sustainability of the public recreational resource and historical ecosystem provided by the sand beach.

Staff notes that the project is consistent with the objective of the Resource subzone.

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

The applicant provided the following assessment regarding objectives of Chapter 205A, HRS and the impacts the proposed action will have:

Recreational Resources: The purpose of the proposed project is to restore and enhance public beach recreational opportunities, lateral access along the shore, and aesthetic enjoyment of the project area by nourishing and maintaining the beach. The project will create approximately 1.4 acres of new dry beach area, a 64% increase over the existing beach area. The objective is to restore and maintain the beach to its recent historical condition - the approximate 1985 shoreline. No enlargement of the beach beyond its historical size or sand stabilizing structures are proposed. The project will also remove two small deteriorated groins located on the east end of the project area, which will further improve recreational use.

The sand recovery operations will occur near to, but seaward of the typical surf zone. Thus, the surf sites would not be directly affected. The work will be scheduled so as to avoid the summer surf season, as well as periods when surfing contests and other surf events are typically scheduled. The sand transport pipeline will be submerged and anchored to the bottom, thus will not interfere with surfers paddling out or riding waves. The removal of sand from the offshore deposits would not change the bottom topography over a large enough area or to a sufficient extent that it would alter the wave breaking patterns. Given the predominant westerly transport of sand along the shore, and its offshore movement by rip currents acting in the deeper channel areas, the sand placement will not affect nearshore surf sites by moving directly offshore and infilling beyond the initial placement profile.

Historic Resources: Implementation of the project does not involve construction on or excavation of land areas that might contain physical remains. Any work on land would take place on areas already transformed by Waikīkī Beach development.

Offshore sand recovery does not involve modification of soft deposits, which could reasonably be expected to have the potential to contain archaeological materials or burials.

There do not appear to be any known traditional cultural practices that would be adversely affected by the proposed project. The proposed beach maintenance would be accomplished in an area which has been substantially altered over more than a century, and which has recently eroded and receded landward. Thus, the project is unlikely to have an adverse effect

on rights customarily and traditionally exercised for subsistence, cultural, and religious purposes.

Scenic and Open Space Resources: The project site is highly-developed with four major hotels bordering the project site in the backshore. Waikīkī Beach itself is a scenic landmark, with millions of tourists each year traveling to see it. The construction aspect of the project is limited to sand placement, which will add to the scenic value of the beach. Additionally, two non-functioning groins near Kūhiō Beach Park will be removed, further adding to the scenic and open space resource.

Coastal Ecosystems: The project involves the recovery of 24,000 cubic yards of sand from offshore deposits, and its placement along the shoreline. The sand will be transported to shore as a sand/water slurry, and de-watered in an enclosed basin located within the eastern portion of the Kūhiō Beach crib wall area. The slurry effluent would be contained first in a basin surrounded by by an impermeable berm, and then overflow water would be contained within a turbidity containment barrier (silt screen) to limit the impact to coastal water quality. A turbidity containment barrier will also surround the work area during dry sand placement along the beach. Impacts on water quality due to the recovery, transport, and placement of sand on the beach are expected to be minor, temporary, and localized to the immediate vicinity of the work activities. No long term impact on water quality is anticipated.

The nearshore area off Waikīkī is frequented by the threatened green sea turtle, which feeds on the algae covered bottom. However, the sand recovery site and the shoreline sand fill areas are not used as foraging areas by turtles due to a lack of algae on the sand bottom. Best Management Practices (BMPs) as typically recommended by the National Marine Fisheries Service will be adhered to during construction to avoid impacts to turtles.

Economic Uses: The proposed project will restore and improve an existing public beach. The economic value of this beach to the commercial success of Waikīkī is extremely significant. A study by Hospitality Advisors, LLC (2008) accomplished for the Waikīkī Improvement Association showed that if Waikīkī Beach is not maintained, and allowed to erode away, it could result in a $2 billion annual loss in overall visitor expenditures, a $150 million annual loss in State tax revenue, and a loss of 6,350 jobs in the hotel industry alone. The project could result in an increase in the level of commercial activity in the area, particularly for the beach concessionaires, and thus would have a significant long-term economic benefit.

Coastal Hazards: Elevations in the backshore adjacent to the project site are typically +7 to +9 feet above MSL. The project involves widening the beach by an average 37 feet, thus reducing the inland flooding and erosion hazard. The hotels in the backshore are separated from the beach by a system of seawalls. Inland retreat by the hotels is not a viable option, and continued erosion would threaten the seawalls and hotels. The Flood Insurance Rate Map (FIRM) designation for the project site is Special Flood Hazard Zone A with a base elevation of 8 feet. This designation corresponds to "areas of 100-year flood: base flood elevations and flood hazard factors determined." The Natural Hazards Atlas (2002) states that a tsunami similar to the 1957 or 1960 tsunamis would have a high probability of causing significant damage to a low-lying developed area like Waikīkī.

Managing Development: All required permits will be obtained prior to project implementation, including Department of the Army Section 10 and Section 404 permits, State of Hawai'i CZM Consistency Determination, State of Hawai'i Department of Health Section 401 Water Quality Certification, and a State Conservation District Use Permit.

An EA scoping meeting with federal, state, and county agencies was conducted on December 2, 2009, and an EA was completed. The project has been presented to the Waikīkī Neighborhood Board, where they voted unanimously in favor of a motion to support the project, and the Waikīkī Improvement Association. Other project coordination/consultation has been conducted with agencies, organizations, and individuals.

Public Participation: The public was informed of the project through the Chapter 343, HRS and CDUA process. An EA scoping meeting with federal, state, and county agencies was conducted on December 2, 2009, and an EA was completed. The project has been presented to the Waikīkī Neighborhood Board, where they voted unanimously in favor of a motion to support the project, and the Waikīkī Improvement Association. Other project coordination/consultation has been conducted with agencies, organizations, and individuals.

Beach Protection: The purpose of the proposed project is to restore and enhance recreational and aesthetic enjoyment of the project area by nourishing and maintaining the beach. The improved beach will enhance recreational opportunities, and facilitate lateral access along the shore. The objective is to restore and maintain the beach to its recent historical condition – the approximate 1985 shoreline. No enlargement of the beach beyond its historical size or sand stabilizing structures are proposed.

Marine Resources: Based on detailed site investigations and analysis, no significant short term (during construction) or long term impacts to marine resources are anticipated to result from the proposed project. Environmental construction specifications and BMPs will be formulated to protect marine resources, including water quality, benthic flora and fauna, corals, fishes, and endangered species. The project is being coordinated with marine resource agencies, including the NOAA National Marine Fisheries Service, the U.S. Fish & Wildlife Service, The Environmental Protection Agency, the U.S. Army Corps of Engineers, and the Division of Aquatic Resources.

Staff notes the State Department of Business, Economic Development and Tourism, Office of Planning, Hawai'i CZM Program reviewed the proposed project for CZM federal consistency, and on October 13, 2010, concurred with the project's consistency with CZM provisions and guidelines as identified in Chapter 205A, HRS (**Exhibit 9**).

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

Nourishment and maintenance of the existing sandy beach resource will contribute to the preservation and continuation of this natural resource. The offshore sand to be used to nourish the beach is essentially a sustainable resource in the context of the scope and scale of the proposed project. The offshore sand in large part is believed to have come from the shore

through natural processes of offshore sand transport by waves and currents, and these processes are expected to continue. The proposed project would periodically, manually recycle the sand from offshore back onto the beach.

Other than temporary, short-term environmental impacts during construction, and which are generally not considered significant, the proposed project would not result in impacts which can be expected to degrade the environmental quality in the project area. Rather, the project would restore and maintain a valuable coastal resource.

Staff notes that the proposed project will not have substantial adverse impact to existing natural resources within the surrounding area, community, or region.

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

   The project is maintenance of an existing public sand beach. No new beach stabilization structures will be constructed, and the beach size will not exceed its 1985 limits. The sand to be used for maintenance has the same characteristics as the sand currently on the beach.

   Staff notes the proposed project is compatible with the locality, and surrounding area, and is appropriate to the physical condition and capabilities of the subject parcel.

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

   The proposed project will not alter or change the present naturalness and open space provided by the beach, and it will improve the attractiveness of the beach. Both residents and the tourist industry depend on Waikīkī's scenic resources. The beauty of its coastline draws millions of tourists to its sights and beaches each year. Due to its low elevation and profile, the proposed project does not have the potential to affect any significant views.

   Construction equipment, material stockpiles, and construction activities will be present within the project area for several months during the construction of the project. Additionally, the dredging equipment will be visible for a period of about two months while it is moored about one-half mile offshore. All of these impacts are temporary and will not be present once the construction phase of the project is completed.

   Staff feels that the proposed action will preserve and improve on existing physical and environmental aspects of the land.

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

   The proposed project does not include subdivision.

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

The proposed project will provide improved beach recreation opportunities for residents and visitors alike, and this may well result in an increase in the number of beach users. However, the approximately 65,000 square feet of dry beach area to be created by the project will accommodate 600-800 more beach users, and is expected to ease the present crowded conditions in the project area. An increase in beach usage would increase the demand on lifeguards; however, the project would not increase the beach area beyond its historical (1985) size and the water safety issues that were adequately dealt with at that time. In addition, the project has been coordinated with the C&C Department of Emergency Services, Ocean Safety.

The economic value of Waikīkī Beach to Hawai'i's visitor industry and the economic success of Waikīkī as a visitor destination is extremely significant. The estimated socio-economic loss to the State would be quite high if Waikīkī Beach is not maintained and is allowed to erode away – a $2 billion loss in overall visitor expenditures, a $150 million loss in tax revenue, and a job loss of 6,350 people. The proposed project will help maintain this very valuable socio-economic resource.

The proposed project will have some impact on air, noise and water quality during construction; however, these will be mitigated to the maximum extent practicable by BMPs and monitoring procedures. The project will not result in any post-construction or long-term effects on public health.

The project will not alter the existing land use pattern shoreward of the beach restoration area. The improved beach is likely to attract beach users who do not presently use this area; however, this increase will be consistent with the current recreational use of the area. The project could result in an increase in the general level of commercial activity in the area, and thus would have a long-term benefit. The proposed project has little or no potential to affect public infrastructure and services. Once completed, it will require no water, power, sanitary wastewater collection, or additional emergency services.

Staff notes that the proposed project will not be materially detrimental to the public's health, safety, and welfare.

DISCUSSION:

The project is an identified land use within the Resource subzone of the Conservation District, pursuant to Chapter 13-5, Hawai'i Administrative Rules (HAR) §13-5-24, R-6, MARINE CONSTRUCTION (D-1) *Marine construction, dredging, filling, or any combination thereof of submerged lands.* The CDUA requires Board approval. It is staff's opinion that this proposed action meets the definition of the above cited identified use.

The Waikīkī Beach maintenance project will restore and maintain the 1,700-foot-long segment of Waikīkī Beach between the Kūhiō Beach crib wall and the Royal Hawaiian groin. Up to 24,000 cubic yards of sand will be recovered from offshore deposits located 1,500 to 3,000 feet

offshore in a water depth of about 10 to 20 feet. The project will widen the beach by an average of 37 feet, restoring the beach to its approximate 1985 width.

The purpose of the project is to restore and enhance the recreational and aesthetic benefits provided by the beach, as well as maintaining lateral access along the shore, and provide a first line of defense to the backshore area in the event of storm wave attack.

As discussed in the "Summary of Comments" section, concern was brought up regarding the project's impact to the surfbreaks and the sandbar in front of the project area from the amount of sand to be replenished and the placement of the replenished sand on the shoreline.

The applicant notes that the project will not alter the existing coastal processes or transport patterns; sand will continue to erode from the beach as it has in the past and move alongshore and offshore. Without the project, the beach will continue to erode and sand will move until the point that there is simply no sand left. The project should not result in any change to the nearshore conditions for the foreseeable future, except that instead of continuing to erode the sand currently on the beach, the new sand placed there will erode instead.

Regarding concerns about sandbar build-up, the applicant states that there is no more likelihood that the replenishment sand will end up building a sandbar out to Canoes than there is that the continuing erosion of the existing beach will do so. No impact to existing catamaran operations is anticipated, other than that they will travel a few feet less to reach the beach. The beach shape and slope will be the same as it currently is.

Regarding concern about the placement of the replenished sand on the beach, the applicant has prepared detailed construction drawings and specifications which delineate exactly where the sand will be placed, and how much will be placed at various location along the project shoreline. There is not a "movable criterion" for this project. The increase in beach width will vary from about 10 feet to almost 50 feet at various locations along the beach, depending on how much sand is needed where. The average width increase of 37 feet is simply used to help people understand the relatively modest scale of the project.

Staff notes that since 1985, the project area shoreline has been chronically eroding and receding, and today, at high tide, along much of it there is barely sufficient dry beach width for a row of beach mats. Given the history of chronic erosion, simply importing sand is not a sustainable or desirable solution for this area. Instead, the strategy of regular beach maintenance using offshore sand, portions of which originated from past beach fill efforts, as a means for periodic beach nourishment appears to be a more sustainable, desirable solution. This would include periodic identification, mapping, and analysis of offshore sand deposits, and recovery of this sand and its placement on the beach. This "recycling" strategy may be an efficient method of maintaining a recreational beach as well as mitigating some of the environmental effects of sand imported to the Waikīkī ecosystem over the past 60+ years.

Staff notes that in 2006, the DLNR conducted a similar beach maintenance project in which approximately 10,000 cubic yards of sand was recovered from the sea bottom seaward of Kūhiō Beach and pumped onto the shore within the confines of the Kūhiō Beach crib walls. No significant environmental, economic, or recreational impacts were observed during this project.

It is also expected that the proposed action will not create significant environmental, economic, or recreational impacts. The proposed project is expected to restore and enhance the recreational and aesthetic benefits of Waikīkī Beach, as well as maintaining lateral access along the shore, and provide a first line of defense to the backshore area in the event of storm wave attack. The proposed project will not alter or affect presently on-going sand transport and shoreline processes, wave-driven currents, circulation patterns, overall water quality, or offshore wave breaking.

As such, Staff recommends the following:

RECOMMENDATION:

Staff recommends that the Board of Land and Natural Resources **APPROVE CDUA OA-3558** for the Waikīkī Beach Maintenance project, subject to the following terms and conditions:

1. The applicant shall comply with all applicable statutes, ordinances, rules, and regulations of the Federal, State, and County governments, and applicable parts of Chapter 13-5, HAR;

2. The applicant shall comply with all applicable Department of Health administrative rules;

3. Any work or construction to be done on the land shall be initiated within one (1) year of the approval of such use, in accordance with construction plans that have been signed by the Chairperson, and, unless otherwise authorized, shall be completed within three (3) years of the approval of such use;

4. The project will also include an option for a second beach nourishment after approximately 10 years, involving approximately 12,000 cubic yards of sand recovered from the same offshore deposits;

5. All representations relative to mitigation set forth in the accepted environmental assessment for the proposed use are incorporated as conditions of the permit;

6. The applicant understands and agrees that the permit does not convey any vested right(s) or exclusive privilege;

7. Work shall be conducted during calm weather periods 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. 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 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.

9. Sand used for beach maintenance shall be screened of course material (rocks) and any non beach compatible material;

10. The applicant shall implement Best Management Practices (BMPs) and an approved monitoring and assessment plan to minimize dirt and silt from entering the ocean through silt containment devices or barriers, and to contain and clean up fuel, fluid, or oil spills immediately for this project. Any spill(s) or other contamination(s) that occur at the project site will be reported immediately to the Department of Health and other appropriate agencies;

11. 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;

12. 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;

13. Where any interference, nuisance, or harm may be caused, or hazard established by the use, the applicant shall be required to take measures to minimize or eliminate the interference, nuisance, harm, or hazard within a time frame and manner prescribed by the Chairperson;

14. The applicant acknowledges that the approved work shall not hamper, impede or otherwise limit the exercise of traditional, customary or religious practices in the immediate area, to the extent such practices are provided for by the Constitution of the State of Hawai'i, and by Hawai'i statutory and case law;

15. 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 SHPD (808-692-8015), which will assess the significance of the find and recommend an appropriate mitigation measure, if necessary;

16. At the conclusion of work, the applicant shall clean and restore the site to a condition acceptable to the Chairperson;

17. Other terms and conditions as prescribed by the Board; and

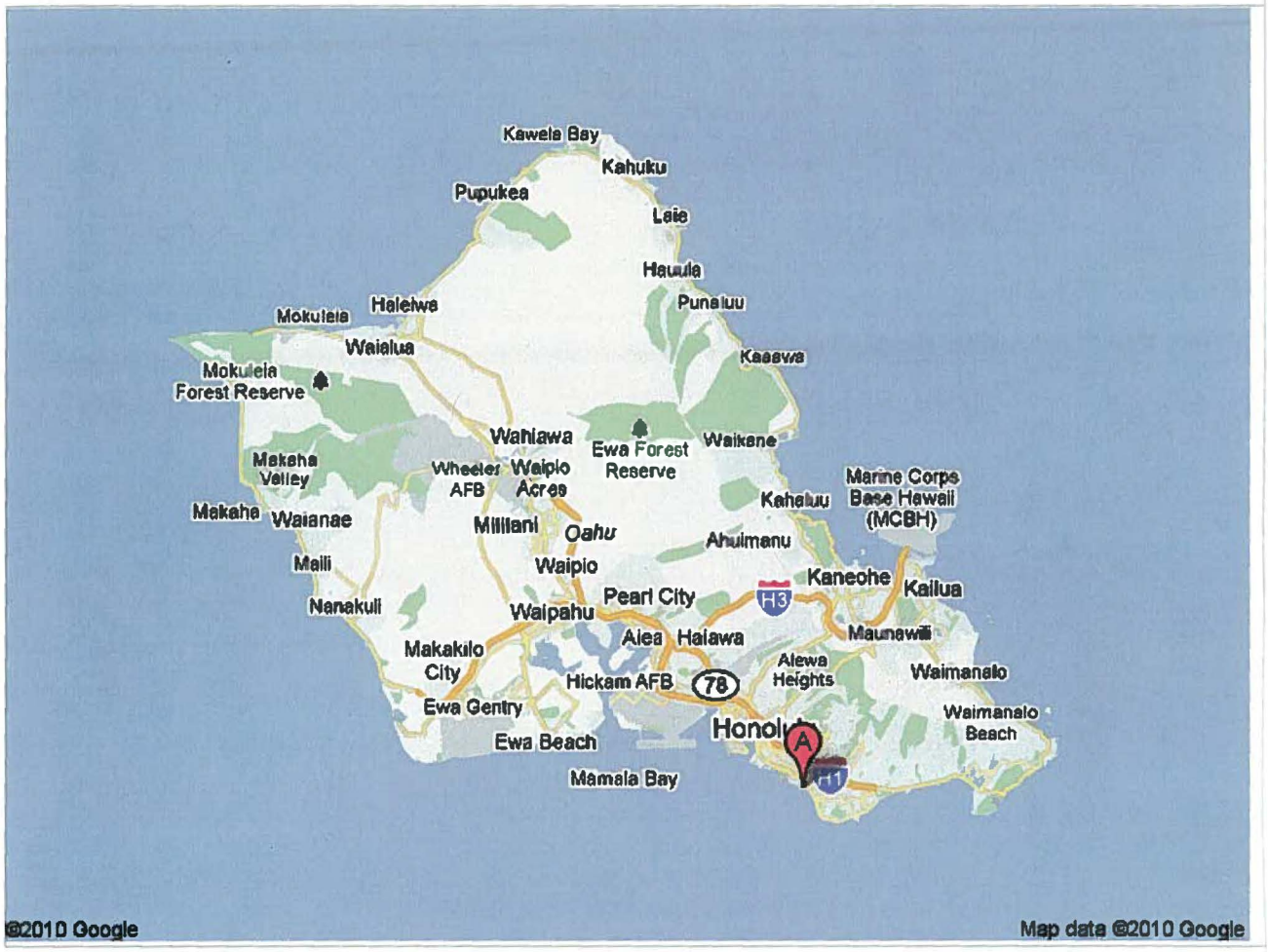
18. Failure to comply with any of these conditions shall render this Conservation District Use Permit void.

Respectfully Submitted,

Audrey Barker, Staff Planner
Office of Conservation and Coastal Lands

Approved for Submittal:

By: _____
LAURA H. THIELEN, Chairperson
Board of Land and Natural Resources



PROJECT LOCATION

EXHIBIT 1

EXHIBIT 2

2 - 6 - 1 IST. DIST.

PLAT 23 | LILIUOKALANI AVE. | KEALOHELANI AVE. | PLAT 26 | OHUA AVE.

KALAKAUA AVENUE

City & County of Honolulu (Department of Parks & Recreation) 48,181 sf

POA. KUHIO BEACH PARK

City & County of Honolulu (Department of Parks & Recreation) 0.5 Ac.

POA. KUHIO BEACH PARK EXEC. ORD. 880

City & County of Honolulu (Departmental Parks & Recreation)

POA. KUHIO BEACH PARK 4908 sf or 0.112 Ac.

James Steiner

High Water Mark January 3, 1923

Low Water Mark March 10, 1923

True North 1" = 40'

PLAT 22 | KNULANI AVENUE | PLAT 23 | ULUNIU AVENUE

KALAKAUA AVENUE

Ld. Ct. App. 1071

Kokusai Kogyo Kabushiki Kaisha

(Kyo-Ya Company, Ltd.)

MOANA HOTEL 1077

Kokusai Kogyo Kabushiki Kaisha (Kyo-Ya Company Ltd.) 120,804 sf

App. Ct. (61,006 sf)

Ld. Ct. App. 1274 (88,804 sf)

State of Hawaii (City & County of Hon., Dept. of Parks & Rec.) Exec. Order No. 2089 "KUHIO PARK & BEACH ADDN."

Ld. Ct. App. 7

City & County of Honolulu

Ld. Ct. App. 1686 65,450 sf

Easement "B" in favor of S.H. for Beach Purposes (10,015 sf)

Highwater Mark as of February 26, 1986

PLAT 02

51,574 sf (61,383 sf)

LINE

Easement "A" in favor of S.H. for Beach Purposes

(10,151 sf) (11,869 sf) (9,804 sf)

State of Hawaii (City & County of Honolulu, Dept. of Parks & Rec.) Exec. Order No. 2089 "KUHIO PARK & BEACH ADDN." (Pacific Construction, Inc.) 1182 sf

True North 1" = 40'

Parcels Dropped - 5, 6, 7, 14, 11, 9, 10.

WAIKIKI, HONOLULU, OAHU

ADVANCE SHEET SUBJECT TO CHANGE

FIRST DIVISION		
ZONE	SEC.	PLAT
2	6	01
CONTAINING PARCELS		

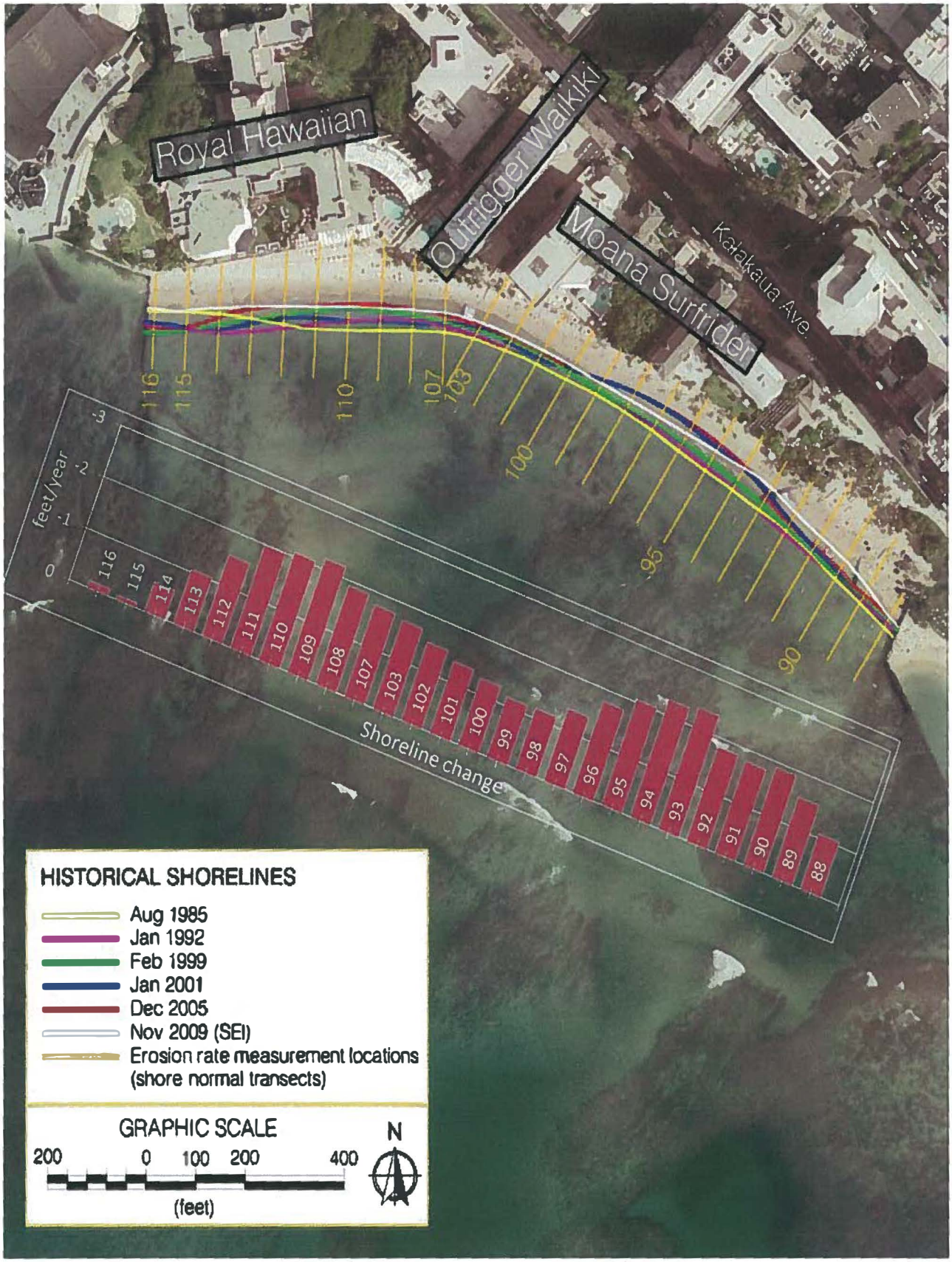
Scale: 1 in = 40 ft.

PRINTER

Dwg. No. 740
By: Td - J.A.K. Rev. 9-
Source: Tax Map Bureau And Survey Office

EXHIBIT 3

Overview of project site



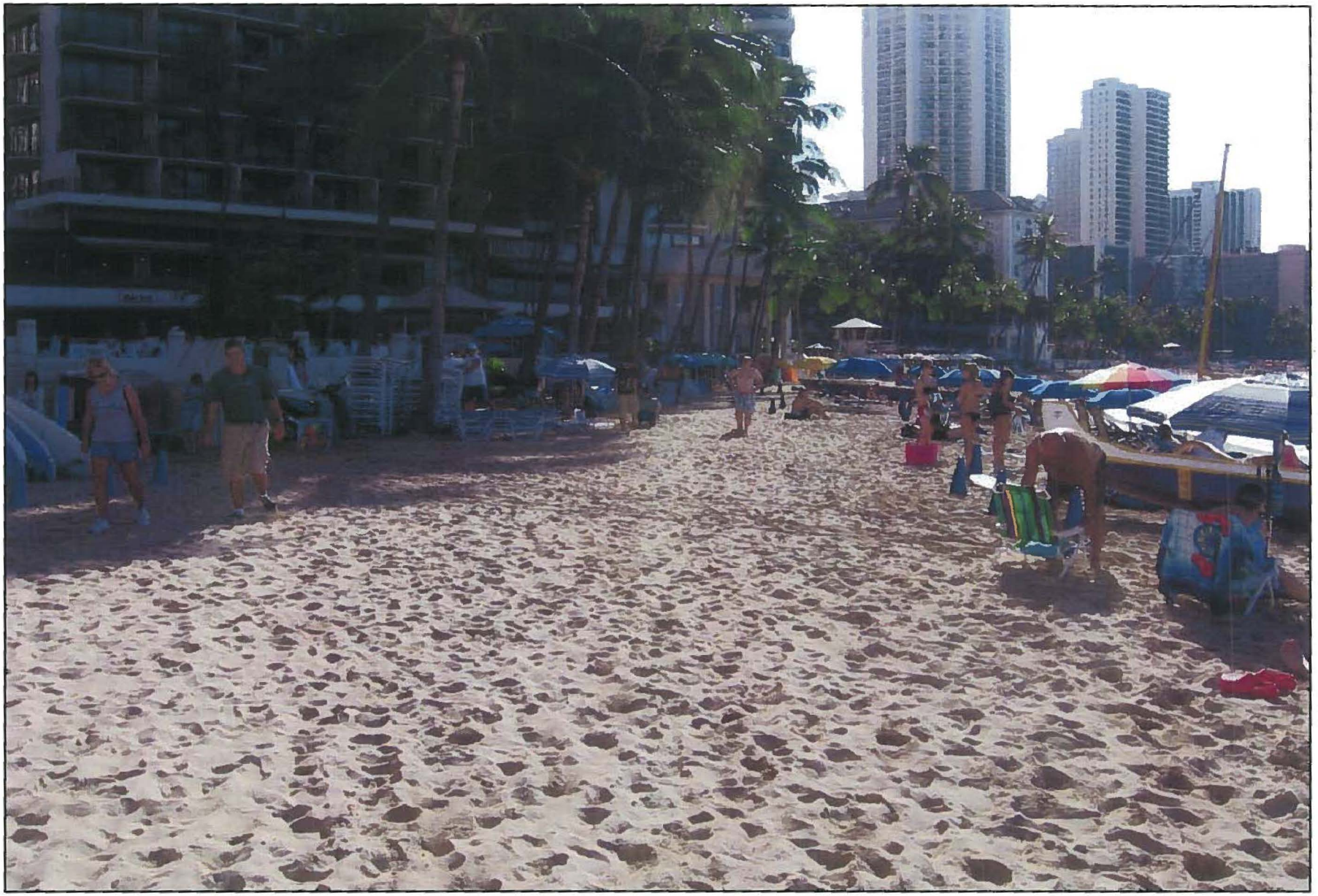
Historical shoreline positions, 1985-2009

EXHIBIT 4

Shoreline on east side of Royal Hawaiian groin

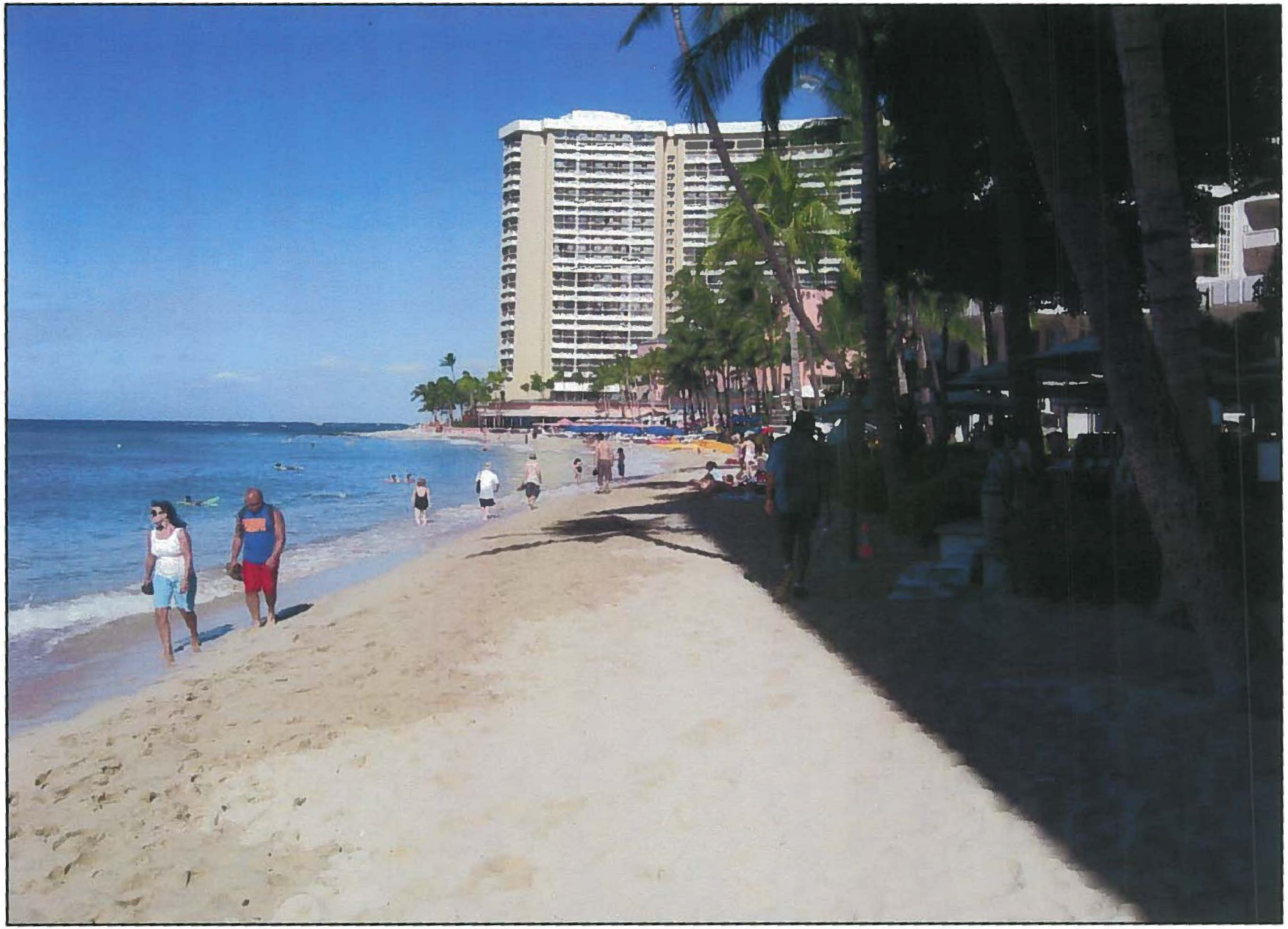
EXHIBIT 5

EXHIBIT 5



View of beach fronting the Outrigger Waikiki

EXHIBIT 5



View of beach fronting the Moana Surfrider and Outrigger Waikiki

EXHIBIT 5

EXHIBIT 5

EXHIBIT 5

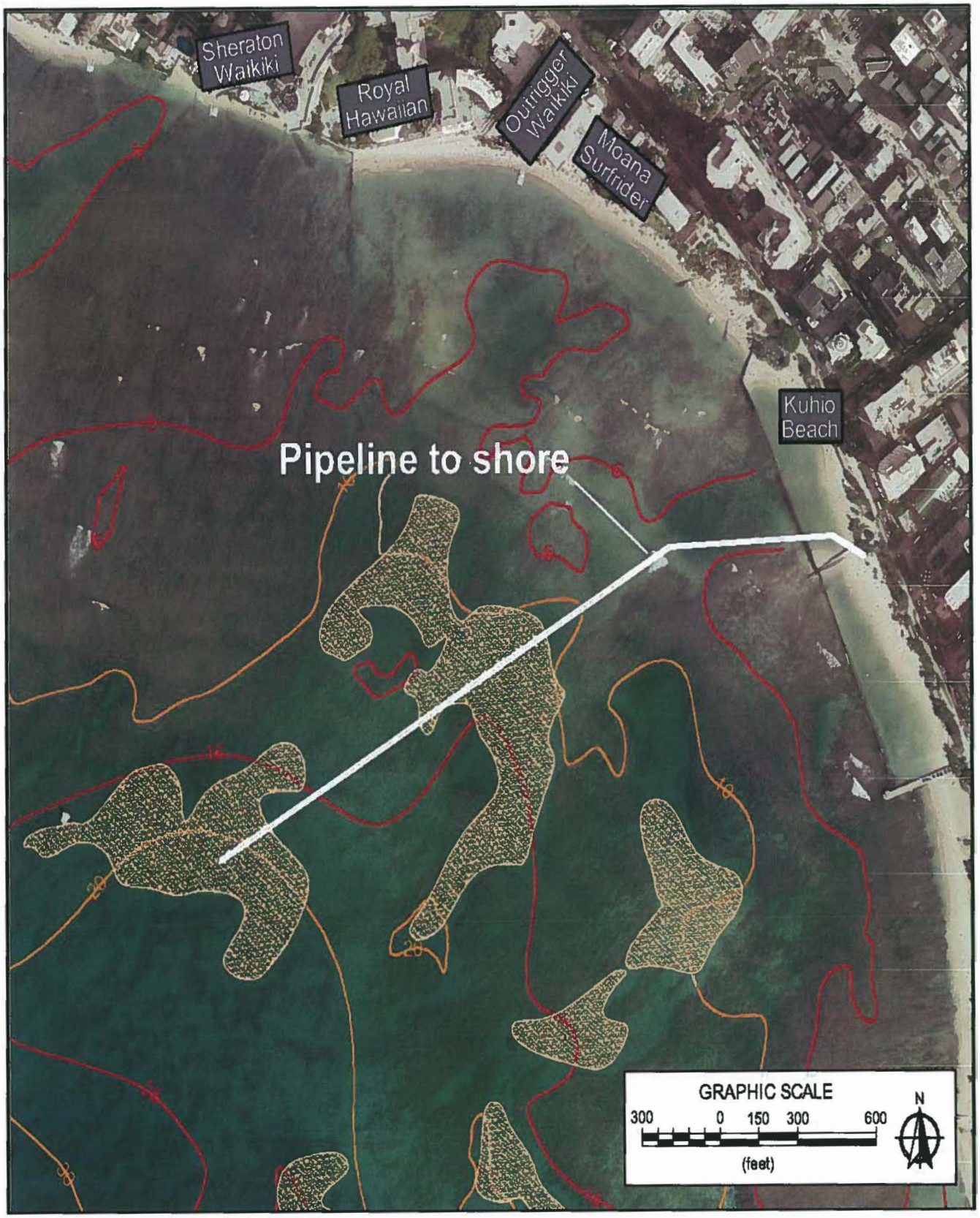
EXHIBIT 5

Surfboard rental and other concessions between Moana Surfrider and Kuhio Beach

EXHIBIT 5

Location of Waikiki sand deposits

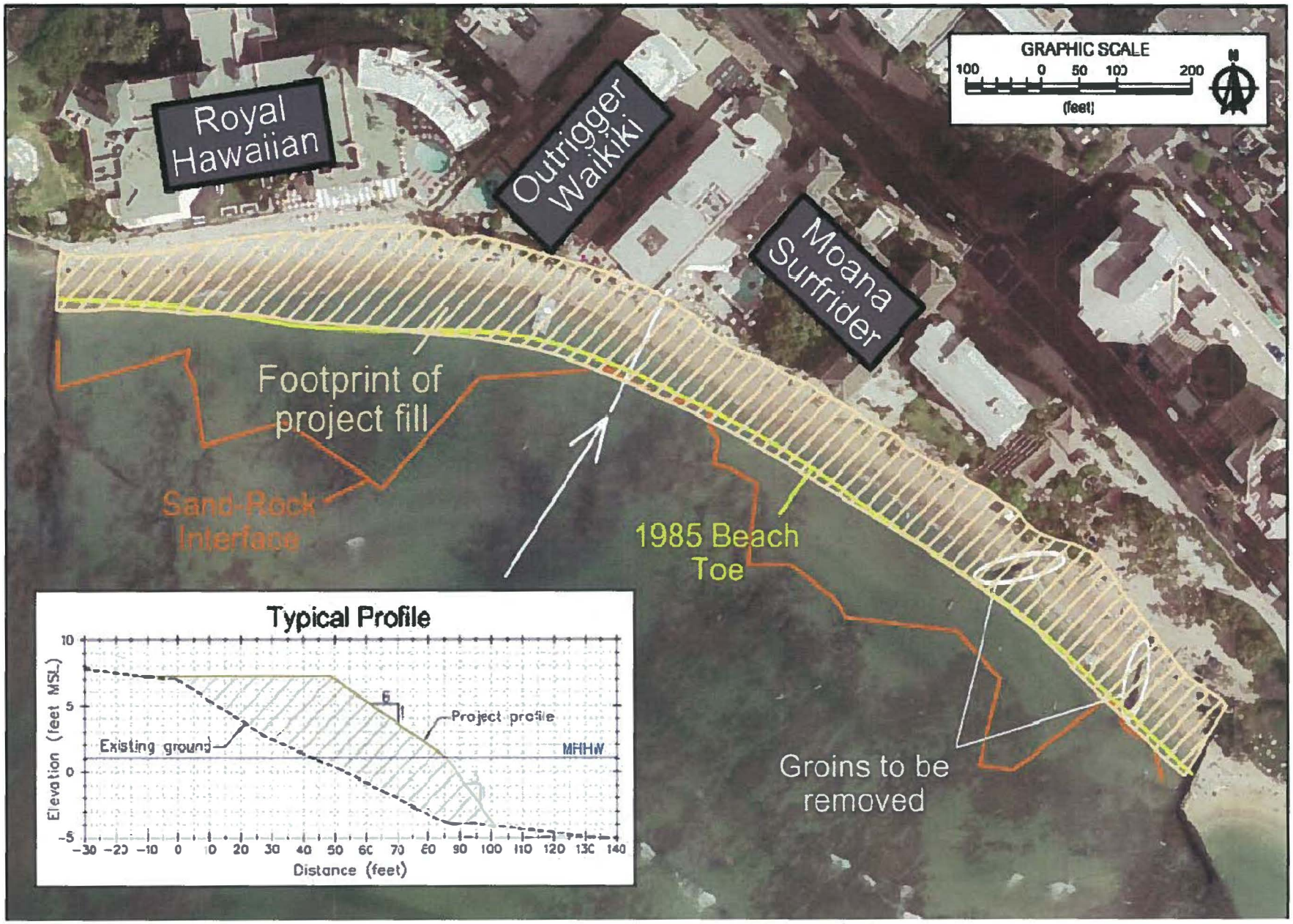
EXHIBIT 6



Pipeline route from sand deposits to shore

EXHIBIT 7

EXHIBIT 8



Beach Restoration layout and typical cross-section

LINDA LINGLE
GOVERNOR
THEODORE E. LIU
DIRECTOR
ABBEY SETH MAYER
DIRECTOR
OFFICE OF PLANNING

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

OFFICE OF PLANNING

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824

Ref. No. P-13132

October 13, 2010

To: Laura H. Thielen, Chairperson
Department of Land and Natural Resources

From: Abbey Seth Mayer, Director

Subject: Hawaii Coastal Zone Management (CZM) Program Federal Consistency Review for the Waikiki Beach Maintenance Project, Oahu;
Department of Army Permit File No. POH-2009-0345

The proposed Waikiki Beach Maintenance Project has been reviewed for consistency with the Hawaii CZM Program. This CZM federal consistency review covers the proposed restoration of Waikiki Beach by placing 24,000 cubic yards (cy) of sand, pumped from offshore sand deposits, along the shore, and the removal of two deteriorated groin structures, followed by a second nourishment of 14, 000 cy after approximately ten years. We concur with your certification that the proposed activity is consistent with the enforceable policies of the Hawaii CZM Program, based on the following conditions:

1. The project shall comply with State of Hawaii water quality standards and requirements, including obtaining a Section 401 Water Quality Certification, as specified in Hawaii Administrative Rules, Chapter 11-54, and Hawaii Revised Statutes, Chapter 342D, which are federally-approved enforceable policies of the Hawaii CZM Program.

2. Mitigation measures to protect endangered species and to minimize adverse impacts to coastal water quality and the marine ecosystem, which are proposed in Section 7 of the Draft Environmental Assessment (EA) (February 2010), shall be fully implemented.

3. To protect corals during sand extraction activities, the following mitigation measures proposed in the EA (p. 79-80) shall be fully implemented:

   a. Locating and marking significant corals in the vicinity of the areas to be dredged.
   b. Identifying a specific pipeline route corridor which minimizes the potential for damage to coral and other benthic fauna.
   c. Transplanting corals as necessary and where practicable to relocate them from the construction site, particularly along the pipeline route.

EXHIBIT 9

4. As represented in the EA (p. 111 and Appendix C), a water quality monitoring and assessment program will be carried out, and is intended to conduct water quality sampling and analysis to monitor potential impacts caused by in-water work of the project, including dredging, dewatering, and sand placement work. Data collected will be used to assess the adequacy of best management practices (BMPs). The BMPs shall be modified during construction to protect water quality if the monitoring data indicates that it is necessary.

5. The marine environmental monitoring plan presented in the EA (p. 112 and Appendix D) shall be implemented and will quantify the impacts of beach nourishment of the nearshore reef flat. In addition to monitoring responses to beach nourishment on the reef flat, coral colonies growing in proximity to dredging operations at the sand deposits and the pipeline corridor will be monitored, and the sand deposits will be monitored for benthic infauna.

6. The beach monitoring program shall be carried out as detailed in the EA (p. 112-113), and will monitor and evaluate post-construction project performance of the nourished beach.

7. Any changes to the proposal, including design, mitigation measures and monitoring, shall be submitted to the Hawaii CZM Program.

8. Failure to comply with the conditions prescribed above shall render this CZM federal consistency concurrence void.

CZM consistency concurrence is not an endorsement of the project nor does it convey approval with any other regulations administered by any State or County agency. Thank you for your cooperation in complying with Hawaii's CZM Program. If you have any questions, please call John Nakagawa of our CZM Program at 587-2878.

c: Mr. Scott Sullivan, Sea Engineering, Inc.
U.S. Army Corps of Engineers, Regulatory Branch
U.S. National Marine Fisheries Service, Pacific Islands Regional Office
U.S. Fish and Wildlife Service, Pacific Islands Ecoregion
Dr. Wendy Wiltse, U.S. Environmental Protection Agency
Department of Health, Clean Water Branch
Department of Land and Natural Resources,
Office of Conservation and Coastal Lands
Department of Planning and Permitting, City and County of Honolulu

EXHIBIT 9