STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
Honolulu, Hawaii

March 23, 2012

180-Day Exp. Date: May 5, 2012

Board of Land and
Natural Resources
State of Hawaii
Honolulu, Hawaii

REGARDING:	Conservation District Use Application (CDUA) OA-3604 for a Portion of the Kaloi Gulch Drainage Improvements
AGENT:	Dean Uchida of SSFM, International for
APPLICANTs:	Haseko (Ewa) Inc. University of Hawaii-West Oahu Department of Hawaiian Homelands City & County of Honolulu-Department of Planning & Permitting
LANDOWNER:	State of Hawaii
LOCATION:	Oneula Shoreline/Submerged Land, Ewa, Oahu
TMK:	Makai of (1) 9-1-011:007 & (1) 9-1-134:006
USE:	approximately (≈) 21,700 square feet/ 0.5-acres
SUBZONE:	Resource

BACKGROUND:

This project was the subject of a contested case in 2008 that was disapproved by the Board of Land and Natural Resources. It appeared that the applicant, Haseko, was not able to justify the necessity of the drainage improvements at that time. Since then, development within the Kaloi watershed area has increased and storm drainage standards have been revised by the City as the City is responsible for regulating flood control.

An application was resubmitted for the same project with multiple applicants. This application explains why the Kaloi drainage way is necessary.

DESCRIPTION OF AREA AND CURRENT USE (Exhibit 1, 2 & 3)

The project site exists on the Oneula shoreline in the ahupuaa of Honouliuli at the edge of the Ewa plains. The portion of the proposed project within the Conservation District Resource subzone is ≈ 0.5-acres and is located at the east end of the City's Oneula Beach Park along the shoreline on submerged land makai of TMKs: (1) 9-1-011:007 & (1) 9-1-134:006. Currently a temporary emergency channel exists through Oneula Beach Park mauka of this site as the natural berm along the shoreline appears to limit drainage into the ocean.

There is no vegetation found on the gently sloping beach front subject to the wash of the waves. Above the sandy beach, there are mats of native akiaki grass and pohuehue or beach morning glory. No mammals other than pet dogs were observed in the project area. A Monk Seal has been observed on the shoreline. According to the applicant, 11 species of birds were observed in the vicinity. The Wandering Tattler and the Ruddy Turnstone were seen foraging on the low carbonate bench at the shoreline. No species listed as threatened, endangered or proposed for listing under either the Federal or State endangered species programs were detected.

During the archaeological evaluation of the berm, no significant cultural deposits or artifacts including human burials were discovered. Legendarily and historically, sharks are known to frequent off shore.

A narrow sand beach fronts the east end of the 30-acre park, while its west end is a low, rocky limestone point. Fishers, seaweed gatherers, beach walkers, cruisers and surfers were observed. According to the applicant, most of the shoreline within the proposed site has a continuous length of coral outcropping along the water's edge. About 100 feet of shoreline on the west end of the proposed site does not have this outcropping.

The off shore bottom is comprised primarily of sand pockets and smooth limestone covered with algal mats. Few macroinvertebrates are present within the near shore environment. In the offshore environment, bathymetry is characterized by a broad fringing reef with water depths less than 7-meters. Offshore of the proposed outlet, the reef is about 1,000 meters wide. To the east the reef broadens to about 2,000 meters wide. Immediately offshore a broad, shallow channel is present in the reef.

The marine waters off the project site are classified as Class "A" Open Coastal Waters. HASEKO has monitored the waters off of Ocean Pointe for more than a decade. With this proposed addition of an ocean outlet at Oneula Beach Park, the extent of monitoring has been expanded to include the area of the proposed project.

Historically, the 'Ewa and One'ula Beach shorelines have been known for their abundance of edible limu which thrive in nutrient rich waters. In this environment, coral lose their advantage and dense algal mats begin to form, as is the case in the waters fronting the drainage channel. The smooth limestone bottom also provides little shelter for corals and other reef organisms, due to thr constant abrasion from shifting sand, and the concussive force of breaking waves.

Persons familiar with limu in the Ewa Beach area commonly state that there has been an overall decline in the abundance of useful limu in the area over the past 30-40 years. Studies attempted to define the extent and timing of this apparent decline of useful limu, but was frustrated by the lack of historical information. Instead, the study offer several possible causes for the apparent decline. Possible causes include a decrease in nutrients from ground water discharge along the shore due to the cessation of sugar cane production in 1994, and/or the switch from septic to sewers in the 'Ewa Beach area in 1983. It was also suggested that the decline of edible limu deposited as drift along the shore of 'Ewa Beach Park may be related to construction of the Honolulu Airport reef runway in 1973-1977, and/or perhaps dredging to deepen Pearl Harbor. It is conjectured that the former may have altered long shore currents, while the latter could have inhibited drift transport across the harbor entrance and into the beach park. Over-harvesting and perhaps harvesting that removes holdfasts and basal fronds were also suggested.

In order to address the overall decline in useful limu, starting January 1, 2007, a moratorium on harvesting went into effect making it unlawful for any person to take limu from the Ewa Limu Management Area. The limu management area is located along the shoreline of Ewa Beach extending 150 feet seaward from the gunnery range to the boat ramp on Muumuu Street, which is about 1 mile east of the Kaloi Gulch drainage channel.

The proposed drainage improvements are within Flood Zones A and AE on FEMA maps. These zones are associated with rising seas during tsumami rather than with storm-water runoff. There are no structures in the project area. The west side of the proposed drainage channel is bordered by an easement for the sewer outfall from the Honouliuli Wastewater Treatment Plant.

Kaloi Gulch Drainage Basin **(Exhibits 4, 5, 6, 7, 8 & 9)**
The watershed area is fairly flat and then rises northward toward the Waianae Range. The drainage basin comprises 11.7 square miles or about 7,488-acres. The Kaloi Gulch drainage basin originates near the summit of Akupu in the Honouliuli Forest of the Waianae Range between Palikea Ridge and Puu Manawahua at about the 2200-ft elevation. Nine tributaries off of Palikea Ridge, Poulihale Gulch, PuuKapuai enjoin Kaloi mauka of the H1. The topography varies from semi-mountainous agricultural land to mountainous steep terrain. Currently, lands mauka of the H-1 Freeway are undeveloped agricultural lands with the bulk of the area owned by the University of Hawaii. The H-1 runs along the foothills on the north side of the plain at an elevation of about 200-ft where it crosses the gulch.

Tributaries off of Puu Makakilo and from Hunehune Gulch enjoin Kaloi gulch on the makai side of the H-1. Here the topography drops rapidly to Farrington Hwy., then more gently through East Kapolei and through the Ewa Villages. The natural grade of the land becomes even flater in the vicinity of Renton Road, dropping to a grade of less than 1% and remains relatively flat through Ewa by Gentry and to Ocean Pointe.

The Plantation history of the area changed water courses on much of the Ewa plains with wells, aqua ducts, flumes, reservoirs and ponds in the area. Irrigation of the sugar cane fields facilitated recharge of the aquifer. Historical maps of the area illustrate that the

Kaloi drainageway has been modified and ends at about the 15-ft elevation without reaching the shoreline on the surface.

Past Flood Event

In November 1996, an extreme rainfall event caused flooding in Ewa Villages to existing residents, churches, and schools where new infrastructure and drain systems were not yet implemented and within the Ewa Villages Golf Course where the brunt of the runoff from the open watershed above brought in large amounts of sediment and debris from the untended fallow cane fields. It appeared that the drainage basin was constrained by the elevation of the OR&L right of way that impeded storm water runoff.

In response to the 1996 flood, the City reconvened the Kaloi Gulch Technical committee. The committee concluded that the flooding occurred due to the lack of an ocean outlet. The technical committee established an interim drainage plan and a schedule for construction of the required flood control outlet to the ocean to reduce the potential for the recurrence of flooding to Ewa Villages.

The City imposed limiting peak discharge into Kaloi Gulch on developments to either 2,500 cubic feet per second (cfs) or existing discharge rates and required that each developer provide a minimum channelized design flows of 2,500 cfs across their property for temporary flood relief until a permanent channel and ocean outlet could be constructed. This was in addition to detention and retention basins developers had to construction for their developments.

In 2002, a bridge was installed at the old railroad tracks that would eventually allow the full 100 year storm event to pass downstream. However, the width of the channel at the railroad track has been restricted to limit flows to 2,500 cfs. This constricted emergency channel was continued through Ocean Pointe and into the Oneula Beach Park.

A temporary channel was constructed in 2000 and expanded in 2002. This emergency drainage channel is estimated to be able to handle $\approx$ 4,200 cfs. By limiting the flow to 2,500 cfs, Ewa Villages, Ewa by Gentry and Ocean Pointe projects handle drainage within their projects through use of golf courses. The golf courses provide detention of storm waters and meet the City-DPP's drainage requirements for storm water runoff. The runoff could be retained in the golf courses or at the beach park until it infiltrated into the ground or evaporated.

In 2004, the City further required developments mauka of Ocean Pointe to retain/detain portions of their runoff. Other proposed urban development projects in the basin, including UH-West Oahu and DHHL East Kapolei project have not yet received approval for their drainage master plans.

The situation in the watershed has changed significantly due to planned, imminent, on-going and completed public and private development projects, such as the UH West Oahu, the DHHL's East Kapolei residential development, Salvation Army Kroc Center, DeBartolo commercial center, State DOT's Kualakai Parkway, Ewa Makai Middle School, Laulani Village, Gentry's Ewa Makai West, Hoakalei Golf Course and the Ocean Pointe residential development.

According to the City's Ewa Development Plan, Ewa is the fastest growing area. By 2025, 13% of Oahu's population is proposed to settle there. There are a number of transportation improvements proposed in the Ewa Highway Master Plan such as various roadway widening, highway extensions, interchanges, new roads and connectors. Rapid Transit requires a 28-ft right of way and a 75-ft right of way for transit stations. It is expected that at a minimum, at least 3 elementary schools, 1 Intermediate and 1 High School needs to be constructed to serve the population. By 2020, UH-West Oahu is projected to accommodate 7600 students. The increased planned urbanization has led to a heightened need for flood control.

PROPOSED USE (Exhibits 10, 11 & 12)

The proposed drainage improvements will consist primarily of lowering the natural berm along the shoreline to allow storm-water flows to reach the ocean, and raising the channel banks to contain the flow. The shoreline berm shall be lowered by ≈ 2-4 feet to an elevation of 4 ft. msl across the 500-foot width of the channel. Excavation of ≈ 21,780 ft² seaward of the shoreline within the Conservation District is proposed. The excavated material shall be utilized to raise the channel banks 4-6 feet higher than the channel bottom to an elevation of 10 ft. msl. The entire site shall be landscaped to merge with the rest of the park.

The proposal is to construct a permanent outlet to the ocean. Construction will enlarge the existing temporary emergency drainage channel in order to provide the required storm water discharge capacity to the ocean. The drainage improvements are intended to provide flood control and address regional drainage needs for all landowners within the ≈ 7,000-acre Kaloi Gulch Watershed. The improvements will benefit all upland landowners whose future development plans are currently constrained by the need to retain surface flows.

The applicants, the University of Hawaii West Oahu, the Department of Hawaiian Homelands, the City Department of Planning and Permitting and Haseko are undertaking this effort to coordinate regional infrastructure development in order to integrate upland development plans. The purpose of the project is to meet the City's 100-year storm flow requirements in accordance with its current Storm Drainage Standards. The lowered berm will allow storm flows to discharge to the ocean at a hydraulic grade that will meet the City and County of Honolulu (City) 100-year storm flow requirements in accordance with their drainage standards. The required 100-year storm peak flow capacity is 8,300 cfs. The current capacity of the shoreline outlet is 4,200 cfs.

The proposed drainage channel will be integrated with the water features of the mauka golf course that will function during storm events as settling basins before runoff flows into the channel and discharges to the ocean. To minimize the impact on park usage, the channel through the park will be wide and shallow with gently sloping banks and should be relatively indistinguishable from the surrounding park areas. The extent of work on the drainage way channel will affect only a part of the shore area and will not extend down into the ocean. Grading to enlarge the channel will occur entirely on shore and will not physically disturb areas where gathered marine resources are found.

Beach access along the shoreline will generally not be affected unless there are safety concerns. Temporary pedestrian routes may be designated to maintain access across the drainage way area throughout the construction period. The wash of the waves may be higher during periods of high tide and heavy surf.

The use of signage and postings will be used to provide information as a notification system to park users to make them aware of the presence and location of the drainage way within the park. Only during infrequent periods of prolonged rainfall when upland runoff exceeds the retention capacity of the watershed and overflows to the ocean through the drainage way shall the proposed area possibly contain storm water runoff.

During construction, environmental controls to protect from erosion and dust shall be implemented. All work shall be performed in accordance with safe construction practices and in compliance with State and City rules and regulations.

No change in topography that would adversely affect coastal processes or littoral sand transport is planned. It is expected that the same wave and runoff forces that formed the berm in the past could reform the berm in the future. Once the berm is lowered and all portions of the project are completed, the berm will be periodically inspected and maintained as needed to ensure that it can function adequately as a storm drainage outlet. Future maintenance of the outlet is expected to include removal of accumulated silt and sediments following major storm events and periodic inspection and maintenance of the shoreline area to ensure that it can function adequately as a storm drainage outlet. Any extraordinary maintenance of the shoreline berm may require further approval by the Department. Haseko has agreed to carry out the above mentioned maintenance duties until such time that it is able to transfer the maintenance responsibility to either the City, State or private parties. It may be necessary to use machinery occasionally to remove accumulated sediment to restore the channel to its original design grades.

SUMMARY OF COMMENTS

The application was referred to the following agencies for their review and comment-the State: Department of Land and Natural Resources Divisions of: Aquatic Resources, Conservation and Resource Enforcement, Engineering, Historic Preservation, and the Oahu District Land Office; the Department of Health; the Office of Hawaiian Affairs; and the Office of Environmental Quality Control. The City: Departments of Planning and Permitting and Parks and Recreation; and the Ewa Neighborhood Board. In addition, this CDUA and the Final Environmental Impact Statement was also sent to the nearest public library, the Ewa Public Library, to make this information readily available to those who may wish to review it.

Comments were received by the following agencies and summarized by Staff as follows:

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

Division of Conservation and Resource Enforcement

No comments

Engineering Division

Please note that the correct Flood Zone Designations for the project site, according to the Flood Insurance Rate Map Revised Panel Number 15003C0317G dated January 19, 2011 are Zones D and VE. The National Flood Insurance Program does not regulate developments within Zone D. However, the National Flood Insurance Program does regulate development in Zone VE.

Oahu District Land Office

In anticipation of future maintenance, such as silt/sediment removal, the applicant is required to obtain a non-exclusive drainage easement for the use of State land.

Office of Conservation and Coastal Lands

The following concerns were relayed to the applicant during the present CDUA process:

- Has a cumulative impact analysis for storm water discharge in this region been initiated or considered?

- Is it necessary for the berm to be lowered for the Kaloi Gulch drainageway to function properly?

- Has other drainage locations or alternatives been investigated?

Applicant's Response

From a regional perspective, there are about 7 storm drains currently in place along Papipi Road, Pohukupuna Road, Fort Weaver and Ewa Beach Road that discharge storm run-off offshore. These storm drains or culverts continuously drain run-off into the off shore environment. The proposed drainage through Kaloi Gulch would not function in the same manner. It is expected that all storm run-off up to a 10 year storm event (≈ 8-inches of rain) would be retained and absorbed into the existing upland facilities (grass lined cannels, golf courses, etc.). Storm events greater than a 10-year storm could potentially top the berm, depending on the frequency and intensity of the event or simultaneous events. The probability of overtopping the berm increase with the increased frequency or intensity of the storm event.

The drainage basin is not a hardened channel but is comprised of a series of golf courses (i.e. Ewa Village Golf Course, Coral Creek Golf Course and Hoakalei Country Club) and grass lined channels that allows for greater retention and percolation than a hardened channel.

Cumulative Impact of Drainage

Existing water quality, projected silt transport from the drainage basin and the plume transport model are included in the EIS appendices. Regarding potential impact on marine biota this was extensively addressed in the contested case hearings.

Water quality data for offshore waters has been collected for years by Marine Research Consultants. Due to the existing conditions, the data reflects ocean water quality based upon the numerous storm drainage outlets. The cumulative impact of adding storm water discharge from this proposal is based upon studying the amount and probable composition of storm water discharge (silt transport) and dispersion of the discharge in the ocean (plume transport) and has been included with appendix B-1 and B-2 of the EIS. The plume transport modeling study prepared by Sea Engineering, Inc. concluded that the Kaloi Gulch discharge site is "characterized by good transport and mixing."

The report further states: The Ocean Pointe storm discharge system has an extremely large inland retention capacity. A 10-year rainfall event represents the threshold for discharge into the ocean; runoff form any lesser rainfall event will be retained inland and will not discharge to the ocean. Due to the large retention capacity, the runoff from a 10-year event is expected to last only 3-hours and results in discharge of only small quantities of water and suspended sediment into the ocean. Calm seas ensuing from no waves or winds result in a poor mixing environment for the plume. With calm conditions, the plume from a 10-year discharge event will meet the State DoH salinity standard of 31.5 ppt within 6 hours after the discharge ends.

In the contested case proceedings, Dr. Michael Foster, an expert in marine macroalgae, reported that based on the study he conducted with UH graduate student, Erin Cox, storm water discharge from the existing storm drains in the Ewa Beach area had no measureable effect on limu or invertebrates. Based on that study, and combined with information of the Kaloi drainage improvements, such as the size and type of area to be drained, discharge frequency and dissipation rates, Dr. Foster concluded that the impacts of storm water discharge from the proposal would be insignificant.

Is it necessary for the berm to be lowered for the Kaloi drainage way to function properly?

If all future upland development stopped, there would not be a need, from a public health and safety standpoint, to proceed with the drainage improvements. Lowering the berm will allow for full build out of the Ewa Plains as planned for in the City's General And Development Plans.

It should be noted that the 2008 Decision and Order for the Contested Case proceedings found that:

- Developments mauka of Ewa Villages (UH-West Oahu and DHHL projects) do not include plans for golf courses so they must develop other ways to take care of their drainage needs. These developments may significantly increase the amount of runoff that reaches the ocean if sufficient retention facilities are not provided.
- It is not known whether the mauka landowners' development plans are constrained due to the need to retain surface flows.

- Developments could, by making some improvements, keep runoff generated by their own developments on their own land.

In the contested case, Haseko failed to meet its burden of showing need for the ocean outlet because there was no evidence that full development of the Ewa Plains would be constrained if the shoreline berm was left at its current height. Since then, UH West Oahu, DHHL, and DOT have identified particular and significant benefits to their developments plans if the shoreline berm is lowered.

Other Drainage Alternatives or Locations

Drainage alternative options were discussed in the project's EIS. Since then, the City has revised its peak discharge calculations for this region and the anticipated new peak discharge for the Kaloi Gulch Drainage Basin is 8,100 cfs. Even at this reduced discharge rate, however, the City's analysis still supports the need for the ocean outlet for Kaloi Gulch in order to alleviate, what they calculate, as potential flooding on the lower Kaloi Gulch Drainage basin.

Notwithstanding the Board's 2008 decision, the City is still concerned about potential flooding at full build out based on their peak discharge calculations for the area. New information shows that future development within the Kaloi Gulch drainage basin will be significantly restricted without the proposed drainage improvements at Oneula Beach Park.

Another option suggested in the EIS was to direct flows from mauka of the railroad bed westward toward Kalaeloa and Pearl Harbor, thereby reducing the amount of flows through the Kaloi drainage channel east of the outfall.

As stated in the EIS, the reason this alternative was not explored further was based on the time and uncertainty of when other developments might progress because of different landowners and developers. To be clear, the area being referred to in the EIS mauka of the railroad bed would be the dry well drainage ditch located directly mauka of the Kalaeloa fence line on the former Campbell Estate property (i.e. the area between Renton Road and Roosevelt Ave.). The drainage toward Pearl Harbor would have to be done in conjunction with future proposed drainage developments for Hoopili. The proposed outlet in West Loch would have followed approximately along the existing Mango Tree Road, directly mauka of Ewa Village golf course toward West Loch.

The EIS is not specific in the exact alignment or route of how the Kaloi Gulch drainage would be rerouted toward Kalaeloa or Pearl Harbor because at the time the EIS was being prepared, these drainage options were still being planned by various other landowners. Even at the present time, directing flows to a different drainage basin would require coordination with landowners outside of the Kaloi Gulch drainage basin and with future developments proposed within those other drainage basins. Such coordination cannot be accomplished in a timely manner, it at all, for the projects being currently developed by the applicants.

HAWAII HOUSING FINANCE AND DEVELOPMENT CORPORATION (HHFDC)

The HHFDC supports the proposed drainage improvements as it will address regional drainage needs for landowners within the drainage basin.

We are in active discussions to acquire all or a portion of land mauka of the UH-West Oahu Campus between Farrington Hwy and H-1. While no commitments have been made to date, any resolution of the long-term Kaloi Gulch drainage situation would benefit the mauka properties, especially those that have yet to be developed.

We understand that both DOT and UHWO were required to provide interim flood control measures (i.e. retention/detention facilities) to accommodate flood flows within the basin. These interim measures have been required for all developments, both private and public, within the Kaloi Gulch drainage basin pending the construction of the ocean outlet for Kaloi Gulch.

HHFDC supports the proposed drainage improvements as it will decrease the risk of potential flooding of lands within the Kaloi Gulch watershed and reduce the need for interim flood control measures.

DEPARTMENT OF TRANSPORTATION (DOT)

The State DOT supports the proposed drainage improvements as it will reduce interim flood control requirements imposed on developments within the Kaloi Gulch Drainage basin. The City is responsible to regulate flood control, and based on the City's hydraulic analysis, improving the ocean outlet is necessary to alleviate potential flooding to properties with the basin.

The DOT has constructed the Kualakai Parkway (North-South Road) that will service the UH-West Oahu campus and the Department of Hawaiian Home Lands Kapolei East I and II developments. As a part of the construction, the DOT was required to install an interim flood control measure (detention pond) to accommodate the City's peak discharges within the basin including the additional flow increases due to the newly constructed Parkway.

The proposed improvements will allow the DOT as well as other government and private land owners to reduce the size, operation and maintenance costs of their respective flood control measures. Reducing the size of control measures such as detention ponds will lessen the potential safety hazards to the public and free up land that can be put to better use.

CITY AND COUNTY OF HONOLULU

Department of Planning & Permitting

As a co-applicant, the Department of Planning and Permitting strongly supports the project. The construction of a permanent ocean outlet will enhance regional flood control, promote public health and safety and protect properties within the Kaloi Gulch Drainage Basin.

Department of Parks & Recreation

No objections

NATIVE HAWAIIAN LEGAL CORPORATION

As you may recall, Haseko previously applied for a CDUA to make "improvements" to Kaloi Gulch (CDUA OA-3412). That permit was the subject of a contested case hearing. The Hearing Officer recommended that the CDUA be denied and the Board agreed.

Please refer specifically to the entire contents of the files for that contested case hearing OA 08-03. In particular, the report by Dr. Brian Lapointe is informative.

ANALYSIS

After reviewing the application, by correspondence dated November 7, 2011, the Department has found that:

1. The proposed use is an identified land use in the Resource subzone of the Conservation District, pursuant to §13-5-22, Hawaii Administrative Rules (HAR), P-6, PUBLIC PURPOSE USES, D-2, Transportation systems, transmission facilities for public utilities, water systems, energy generation facilities utilizing the renewable resources of the area and communication systems and other such land uses which are undertaken by non-governmental entities which benefit the public and are consistent with the purpose of the conservation district. Please be advised, however, that this finding does not constitute approval of the proposal;

2. Pursuant to §13-5-40 of the Hawaii Administrative Rules, a Public Hearing will not be required;

3. In conformance with Chapter 343, Hawaii Revised Statutes (HRS), as amended, and Chapter 11-200, HAR, the Final Environmental Impact Statement has been reviewed and accepted by the City and County of Honolulu, Department of Planning and Permitting on December 23, 2005 and notice was published in the January 08, 2006 Environmental Notice.

4. This portion of the proposed improvements is makai of the certified shoreline and as such, is outside the Special Management Area.

CONSERVATION CRITERIA

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

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

   The objective of the Conservation District is to conserve, protect and preserve the important natural resources of the State through appropriate management and use

to promote their long-term sustainability and the public health, safety, and welfare.

The project is considered an identified land use in the Conservation District; as such, it is subject to the regulatory process established in Chapter 183C, HRS and detailed further in Chapter 13-5, HAR. This process provides for the application of appropriate management tools to protect the relevant resources, including objective analysis and thoughtful decision-making by the Department and Board of Land and Natural Resources.

The project is intended to provide flood control and address regional drainage needs within the Kaloi Gulch watershed to prevent flooding of properties within the drainage basin. Implementation of the proposal promotes protection of the public health, safety and welfare.

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

The objective of the Resource subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas. The proposed drainage way to the ocean is an identified land use pursuant to §13-5-22, P-5, Public Purpose Use.

The drainageway as a whole would implement management practices such as retention basins for water percolation/recharge, landscaping and use of grass lined channels to reduce non-point source pollution and sediment introduction. Implementation of this flood mitigation measure may act to protect public welfare and property.

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

The City Council approved the SMA/SSV application on June 6, 2007 for the portion of the project immediately mauka of the shoreline and within the Special Management Area. Staff believes the proposed project complies with Chapter 205A, HRS and is consistent with its policies regarding recreational resources; scenic and open space resources; coastal hazards; managing development; improving technical basis studies of coastal ecosystems; indirectly assists growth and the economy; and reduces coastal flooding.

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

Staff believes the proposed land use will not cause substantial adverse impacts to existing natural resources within the surrounding area, community or region. The proposed land use does not substantially change the existing use of the area. Littoral processes may restore the shoreline to a similar prior condition.

There is the potential for storm water discharge to impact the marine environment during and after construction. Best Management Practices that shall be implemented during construction will include: phased grading; soil stabilization using sheets or fabric; vegetative controls; and proper vehicle maintenance.

When the drainage improvements are complete, potential impact to corals and other macro-invertebrates, algae, and reef fish is possible during large storm events if the storm water runoff reduces salinity levels or contributes large concentrations of sediment that cannot be quickly dispersed.

According to the applicants, the Ocean Pointe/Hoakalei storm discharge retention capacity is quite large at full build-out, and it has been calculated that runoff from any rainfall event less than the 8-inch (10-year) rainfall would be retained on land and is not expected to enter the drainage-way through the park except under 10-year storm conditions. When potential discharges do occur, the distribution of fresh water and sediment plume is expected to be limited and of short duration with salinity returning to ambient conditions in approximately 12 hours, and dissipation of the sediment plume within approximately one day.

Of all the marine communities, only macro-invertebrates are most likely to be impacted by a temporary introduction of sediment. However, few macro-invertebrates are present within the near-shore environment; instead, the near-shore environment is dominated by algal species that are better adapted to the nutrient rich and normally turbulent conditions in front of the drainage channel site. This is likely due in part to higher nutrient values in the near-shore zone.

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

Staff believes the drainage channel shall be compatible with the locality and surrounding areas. To minimize the impact on park usage, the channel through the park will be wide and shallow with gently sloping banks and should be relatively indistinguishable from the surrounding park areas.

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

Staff believes the natural beauty of the shoreline and the open space characteristics will not be affected, as the use of the project site will maintain the site in open space. Makai of the certified shoreline, the beach will be lowered but otherwise retained for shoreline access.

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

There will be no subdivision of land for this proposed project.

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

The purpose of the proposed land use is to mitigate and control storm water runoff during high rainfall events. The implementation of the proposed land use will act to protect both public and private properties and contributes to ensure the public's health safety and welfare.

DISCUSSION

The project is intended to provide flood control and address regional drainage needs within the Kaloi Gulch watershed. Future upland development plans are currently constrained due to the retention of surface flows. To prevent flooding of downstream properties, runoff is to be directed into drainage channels and an outlet to the ocean needs to be provided. The applicants are undertaking this effort to integrate and coordinate upland development infrastructure with regional infrastructure development. Improvements to the existing drainage channel will be designed to meet the City and County of Honolulu's 100-year storm flow requirements in accordance with current Drainage Standards.

The proposal is to modify and enlarge an existing, temporary emergency drainage channel in order to increase storm water discharge capacity to the ocean. The project will allow runoff to flow into the ocean instead of being retained in Oneula Beach Park and adjacent lands. Within the drainage basin corridor outside of the Conservation District, unlined vegetated drainage ways and onsite storm water retention basins will be utilized for on-site storm water retention basins for water recharge and control of non-point source pollution.

Haseko has been tasked to keep the outlet free of large debris that may impede storm water flows through the channel; removal of silt and other debris as needed following storm events; and maintaining the shoreline berm at an elevation that enables it to function adequately as a storm drainage outlet. No change in topography that would adversely affect coastal processes or littoral sand transport is planned.

The drainage channel shall be compatible with the locality and adjacent park. To minimize the impact on park usage, the channel through the park will be wide and shallow with gently sloping banks and should be relatively indistinguishable from the surrounding areas.

There is a potential for storm water discharge to impact the marine environment during and after construction. Best Management Practices shall be adhered to. Upon completion potential impacts to corals and other macroinvertebrates, algae, and reef fish is possible during large storm events as runoff is not expected to enter the drainage way through the park except under 10-year storm conditions. When potential discharges do occur, the distribution of freshwater and sediment plume is expected to be limited and have a short duration with salinity returning to ambient conditions in $\approx$ 12 hours and dissipation of the sediment plume within $\approx$ 1 day. Previous studies done in the vicinity of the offshore area

indicated that only macroinvertebrates are most likely to be impacted by a temporary introduction of sediment and this particular area has very few macroinvertebrates.

Developments are presently required to provide retention basins for the storage of storm water runoff within their respective projects. During times of heavy storms, the volume of the storm water runoff may exceed the storage capacity of the retention basins and cause flooding in the area and below the basin due to the lack of an outlet in the area. To provide a degree of flood protection for the existing development, runoff should be directed to the ocean.

The Ewa Development Plan (EDP) Maps **(Exhibits 8 & 9)** identify existing and expansion of urban areas. According to the EDP, Ewa is the fastest growing area. By 2025, 13% of Oahu's population is proposed to settle there. There are a number of transportation improvements proposed in the Ewa Highway Master Plan such as various roadway widening, highway extensions, interchanges, new roads and connectors. Rapid Transit requires a 28-ft right of way and a 75-ft right of way for transit stations. It is expected that at a minimum, at least 3 Elementary, 1 Intermediate and 1 High School needs to be constructed to serve the population. By 2020, UH-West Oahu is projected to accommodate 7,600 students. Many of these improvements are public goods.

According to the EDP, low-lying parts of the Ewa Plain are subject to flooding during intense rainstorms. Undeveloped mountain areas generate a disproportionately large share of the total storm flow and no party appears to be responsible for mitigating the potential affects downstream. However, the City has a responsibility to regulate flood control. Drainage improvements are necessary to handle storm water runoff from existing and proposed projects located in the basin.

The EDP has a specific guideline for development within the Kaloi Drainage Basin that states: *Insure that solutions to handling drainage problems on lands above Ewa Villages are compatible with the drainage design of the Ewa Villages Master Plan and other developments in the Kaloi Gulch drainage basin which have already been approved. The Ewa Villages drainage design assumes that runoff will not exceed levels previously received from sugarcane fields north of the golf course, will enter the Ewa Villages golf course water retention areas through a number of dispersed channels, and will not be at velocities which would scour out the golf course water retention areas.*

As weather is dynamic, unpredictable and uncontrollable, there is no way to insure a solution to control drainage to prevent flooding without an ocean outlet. Drainage would occur at the outlet for a 10-year storm or a higher rainfall event. Should such an event occur, sheet flows to the ocean; brown water advisory and pollution are already occurring and impacting the ocean. Low lying properties may be experiencing flooding.

Discharge of stormwater to the ocean is a major source of non-point source pollution of near shore waters, negatively affecting aquatic life and use of the shoreline for swimming, surfing and other types of ocean recreation. The past use of concrete-lined drainage channels can have other negative environmental impacts such as disruption of lateral shoreline access, beach erosion, and visual blight. The proposed drainageway as a whole would address storm water quality through implementation of best management

practices such as retention basins for water percolation/recharge, landscaping and use of grass lined channels to reduce non-point source pollution and sediment introduction.

RECOMMENDATION:

Based on the preceding analysis, Staff recommends that the Board of Land and Natural Resources APPROVE this application for the Kaloi Gulch Drainage Improvements located on submerged land makai of TMKs:(1) 9-1-011:007 & (1) 9-1-134:006 subject to the following conditions:

1. The permittees shall comply with all applicable statutes, ordinances, rules, and regulations of the federal, state, and county governments, and applicable parts of Title 13-5 of the Hawaii Administrative Rules (HAR);

2. The permittees, 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;

3. The permittees shall obtain appropriate authorization from the department for the occupancy of state lands;

4. The permittees shall comply with all applicable department of health administrative rules;

5. The permittees shall observe guidelines and implement policies and principles of the Ewa Development Plan;

6. Before proceeding with any work authorized by the department or the board, the permittees shall submit four copies of the construction plans and specifications to the chairperson or an authorized representative for approval for consistency with the conditions of the permit and the declarations set forth in the permit application. Three of the copies will be returned to the permittees. Plan approval by the chairperson does not constitute approval required from other agencies;

7. Unless otherwise authorized, any work or construction to be done on the land shall be initiated within one year of the approval of such use, in accordance with construction plans that have been signed by the chairperson, and shall be completed within three years of the approval of such use.

8. The permittees shall notify the department in writing when construction activity is initiated and when it is completed;

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

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

11. In issuing the permit, the department and board have relied on the information and data that the permittees 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;

12. Where any interference, nuisance, or harm may be caused, or hazard established by the use, the permittees shall be required to take measures to minimize or eliminate the interference, nuisance, harm, or hazard;

13. During construction, appropriate mitigation measures shall be implemented to minimize impacts to off-site roadways, utilities, and public facilities;

14. The permittees 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; and

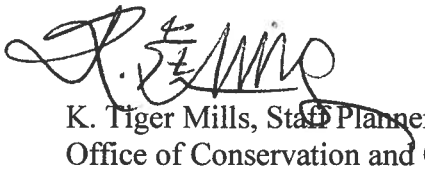
15. Should historic remains such as artifacts, burials or concentration of charcoal be encountered during construction activities, work shall cease immediately in the vicinity of the find, and the find shall be protected from further damage. The contractor shall immediately contact SHPD (808-692-8015), which will assess the significance of the find and recommend an appropriate mitigation measure, if necessary;

16. The applicant shall plan to minimize the amount of dust generating materials and activities. Material transfer points and on-site vehicular traffic routes shall be centralized. Dusty equipment shall be located in areas of least impact. Dust control measures shall be provided during weekends, after hours and prior to daily start-up of project activities. Dust from debris being hauled away from the project site shall be controlled. Landscaping and dust control of cleared areas will be initiated promptly;

17. Other terms and conditions as may be prescribed by the Chairperson; and

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

Respectfully submitted,



K. Tiger Mills, Staff Planner
Office of Conservation and Coastal Lands

Approved for submittal:

Chairperson
Board of Land and Natural Resources

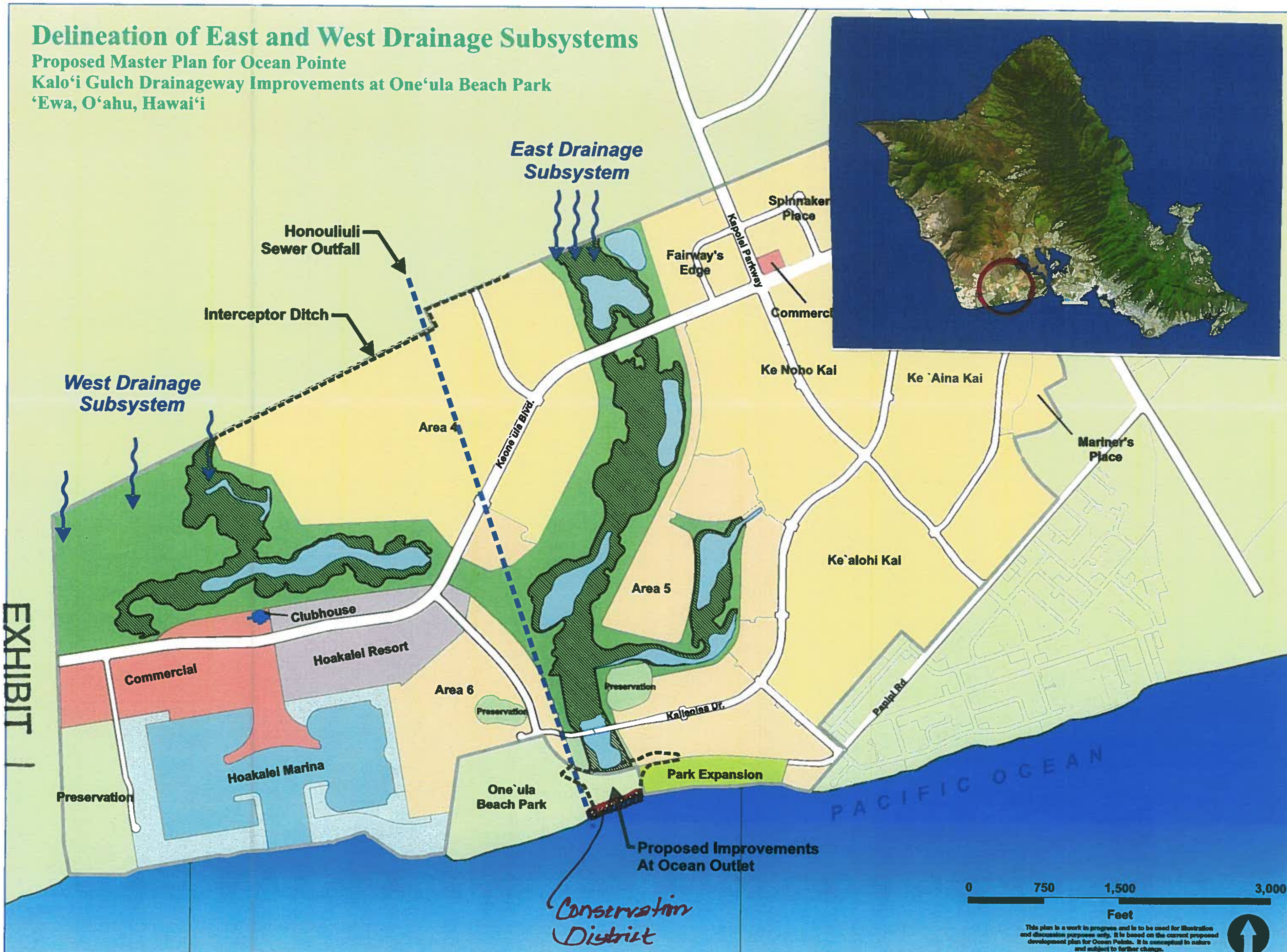
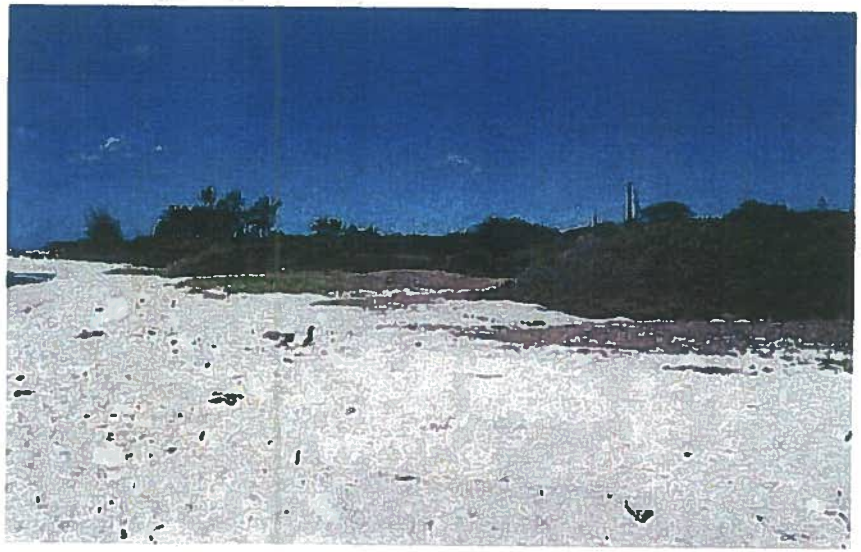

Delineation of East and West Drainage Subsystems
Proposed Master Plan for Ocean Pointe
Kalo'i Gulch Drainageway Improvements at One'ula Beach Park
'Ewa, O'ahu, Hawai'i
East Drainage Subsystem
West Drainage Subsystem
Honouliuli Sewer Outfall
Interceptor Ditch
Spinnaker Place
Fairway's Edge
Kapolei Parkway
Commercial
Ke Nobo Kai
Ke `Aina Kai
Mariner's Place
Ke`alohi Kai
Keone`ula Blvd.
Area 4
Area 5
Area 6
Clubhouse
Hoakalei Resort
Commercial
Hoakalei Marina
Preservation
Preservation
Preservation
Kaileolea Dr.
Papipi Rd
One`ula Beach Park
Park Expansion
Proposed Improvements At Ocean Outlet
Conservation District
PACIFIC OCEAN
0
750
1,500
3,000
Feet

EXHIBIT I

East-facing view from the approximate west boundary of the drainage channel. Note the low rock shelf which fronts almost the entire drainageway.

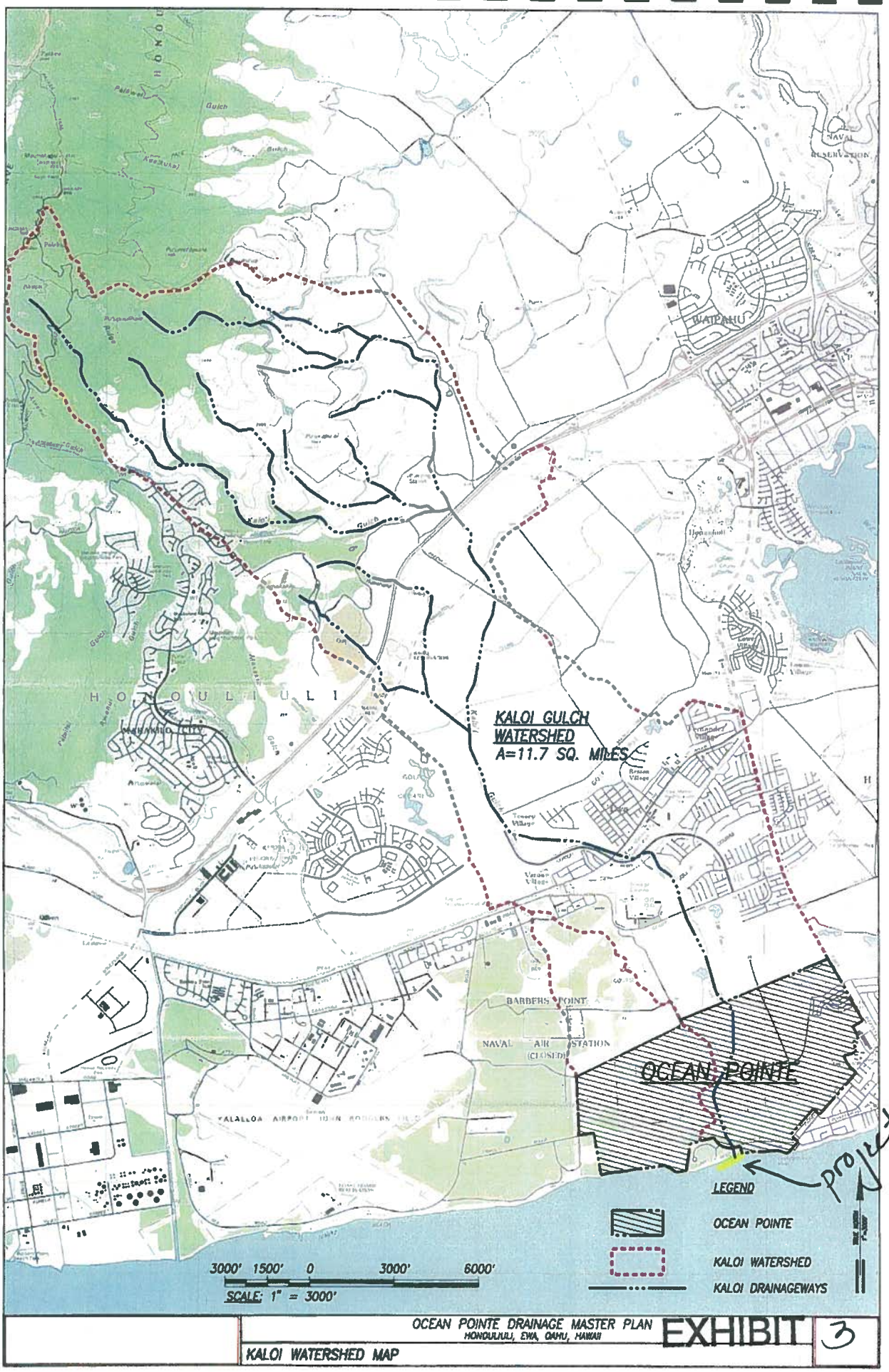
View looking west from the approximate eastern boundary of the drainage channel.



Shoreline vegetation includes low-lying aki aki and pohuehue, pluchea shrubs, and wind-swept kiawe.

Mauka of the shoreline vegetation, the site is barren soil. The park access road is visible at right.

EXHIBIT 2



OCEAN POINTE DRAINAGE MASTER PLAN
HONOLULU, EWA, OAHU, HAWAII

EXHIBIT 3

KALOI WATERSHED MAP

EWA, OAHU 1976

http://magis.manoa.hawaii.edu/viewer/map.php?layer9=oahu020

EWA, OAHU 1993

http://magis.manoa.hawaii.edu/viewer/map.php?layer9=oahu020

EXHIBIT 4

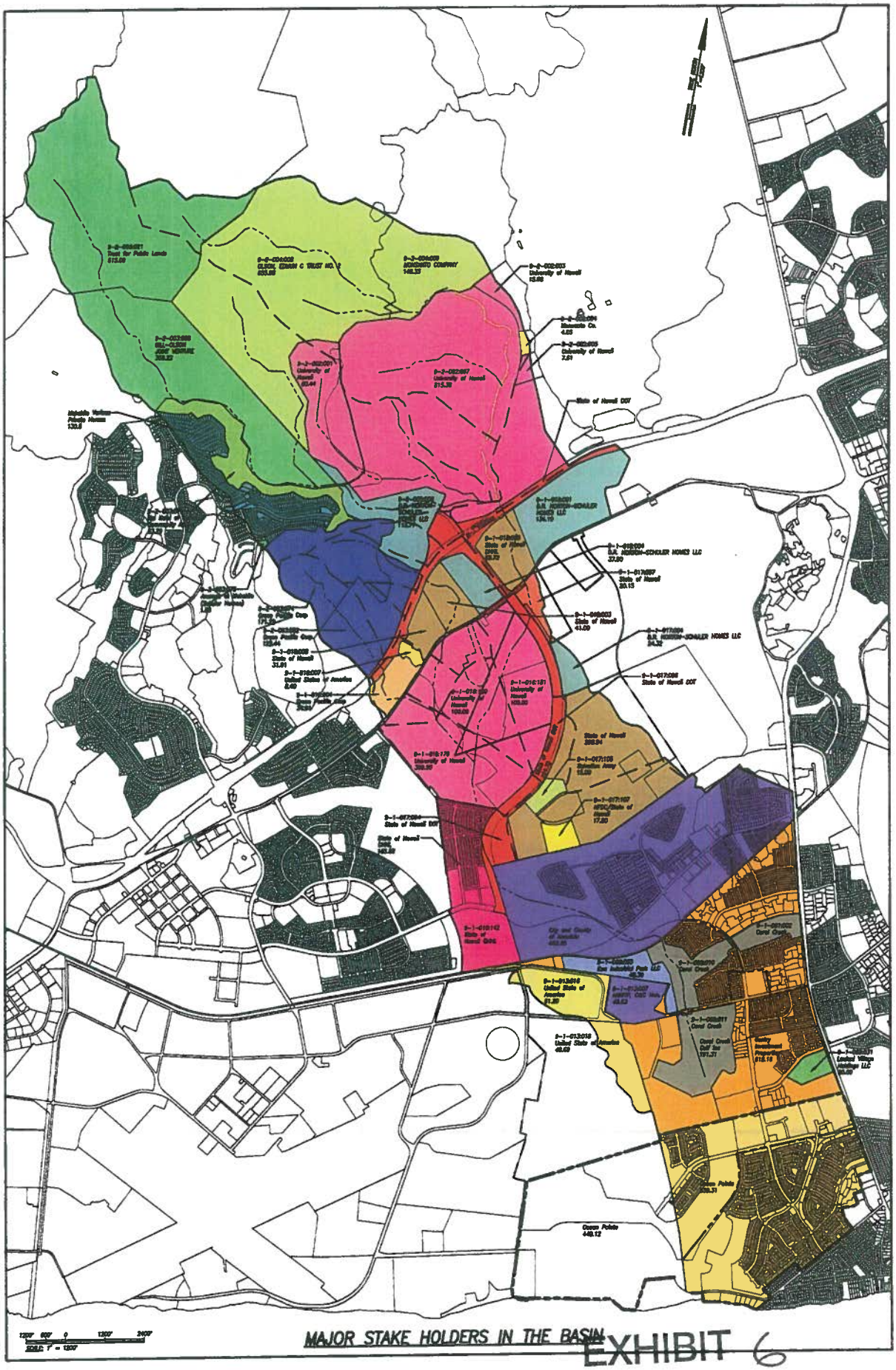
EXHIBIT 5

EWA, OAHU 2000

http://magis.manoa.hawaii.edu/viewer/map.php?layer9=oahu020

EWA, OAHU 2012

http://gis.hicentral.com/FastMaps/ParcelZoning/



MAJOR STAKE HOLDERS IN THE BASIN

EXHIBIT 6

Kaloi Region Stakeholders

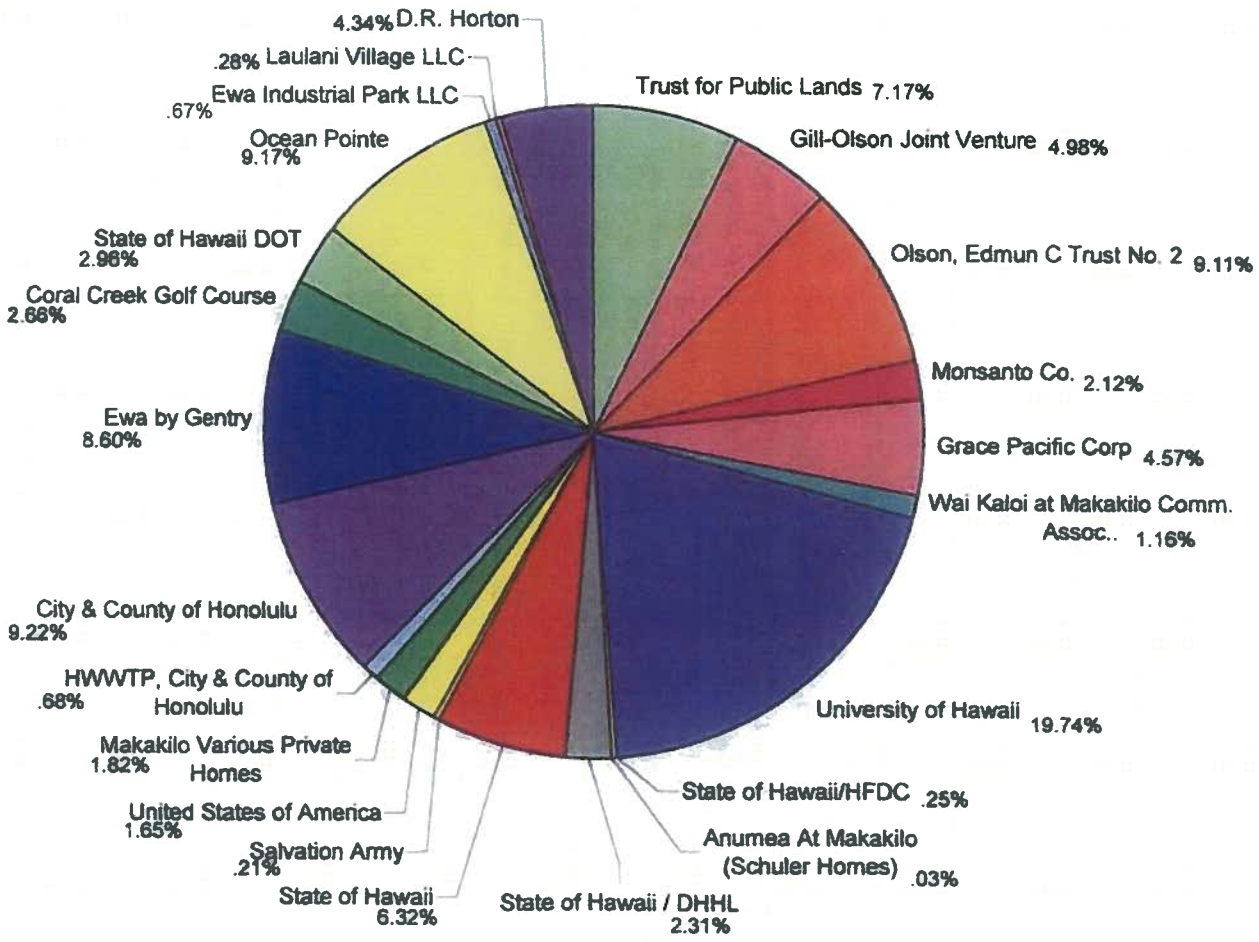
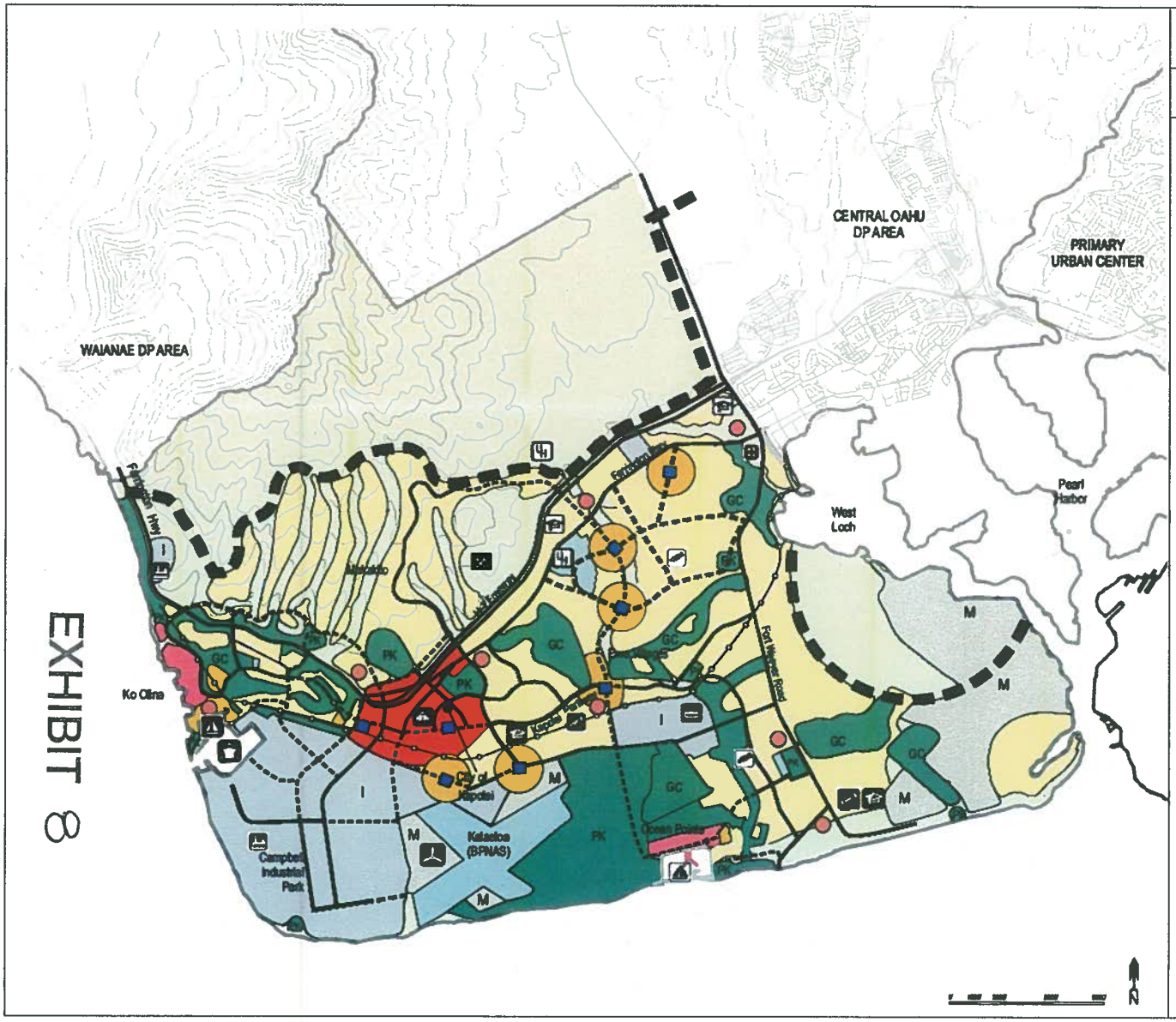


EXHIBIT 7

EXHIBIT 8



EWA DEVELOPMENT PLAN

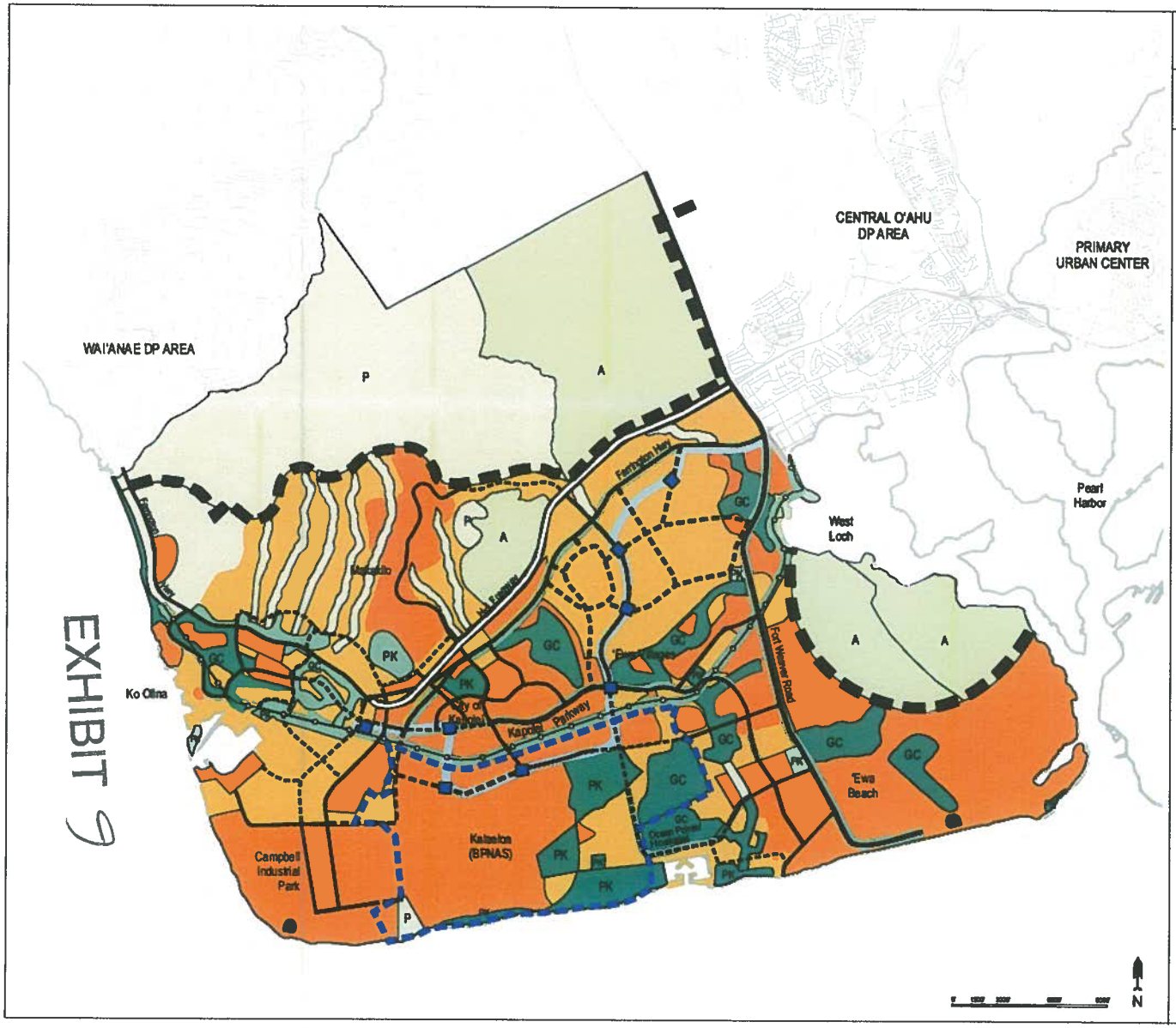
Urban Land Use Map

- Residential and Low Density Apartment
- Medium Density Apartment/Commercial Mixed Use
- Community Commercial Center
- City of Kapolei (Medium and High Density Residential and Commercial)
- Resort/Recreation Area
- Industrial
- Military
- Public Institution
- Agricultural and Preservation Area
- Parks and Golf Courses
- Transit Node (Medium Density Residential and Commercial)
- Urban Growth Boundary

EXISTING	FUTURE	
		Civic Center
		Electric Power Plant
		Wastewater Treatment Plant
		Intermediate School
		High School
		U.H. West Oahu
		Hospital
		Small Boat Marina
		Commercial Harbor
		Airfield
		Quarry
		Highways, Arterial & Major Streets
		Historic Railway

Department of Planning and Permitting
City & County of Honolulu
October 2008

EXHIBIT 9



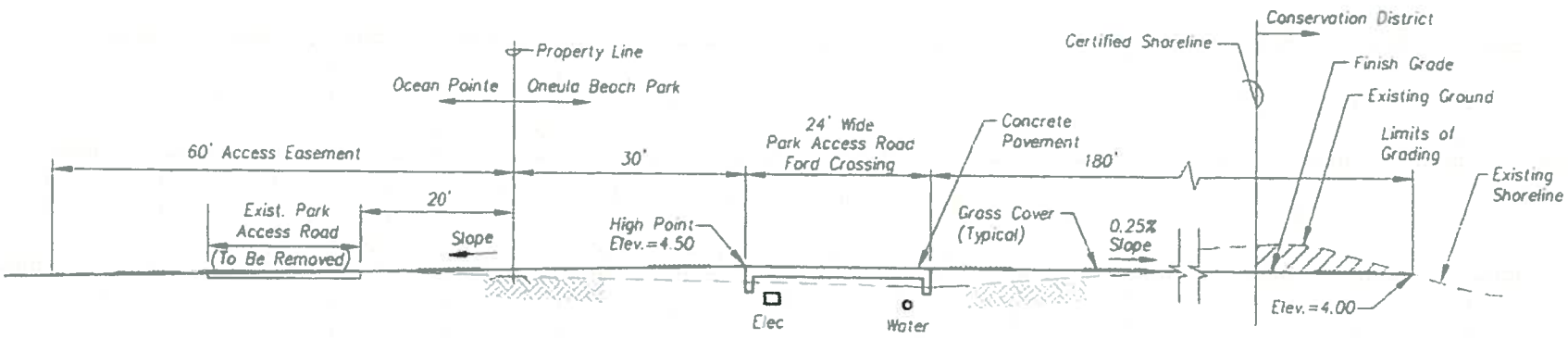
'EWA DEVELOPMENT PLAN

Phasing Map

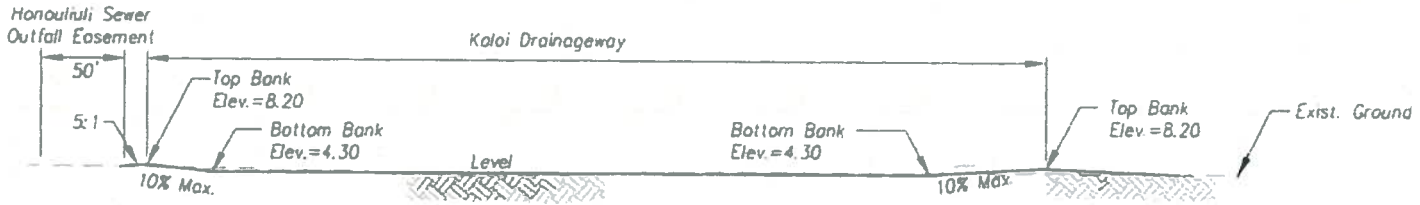
- P — Preservation Areas
- A — Agricultural Areas
- Existing Urban Areas
- Urban Expansion Areas
- Kalaeloa Special Area
- Community Growth Boundary
- Transit Corridor
- Transit Node
- Historic Railway

EXISTING	FUTURE	
PK	PK	Parks
GC	GC	Golf Courses
		Highways, Arterial and Major Collector Streets
		Landscaped Boulevard/ Greenway

Department of Planning and Permitting
City & County of Honolulu



PROFILE – ALONG CENTERLINE OF KALOI DRAINAGEWAY



TYPICAL SECTION – KALOI DRAINAGEWAY

EXHIBIT 10


Relocated Park Access Road
Future Roadway
Existing Park Access Road (Relocated Portion to be Removed)
Connect to Exist. Road
Construction Detour
Bridge
Exist. Sewer Easement
Kaloi Drainageway
Conservation District
Connect to Exist. Road
Emergency Access Road (Approx Location)
SMA Line
Scale in Feet

EXHIBIT 11

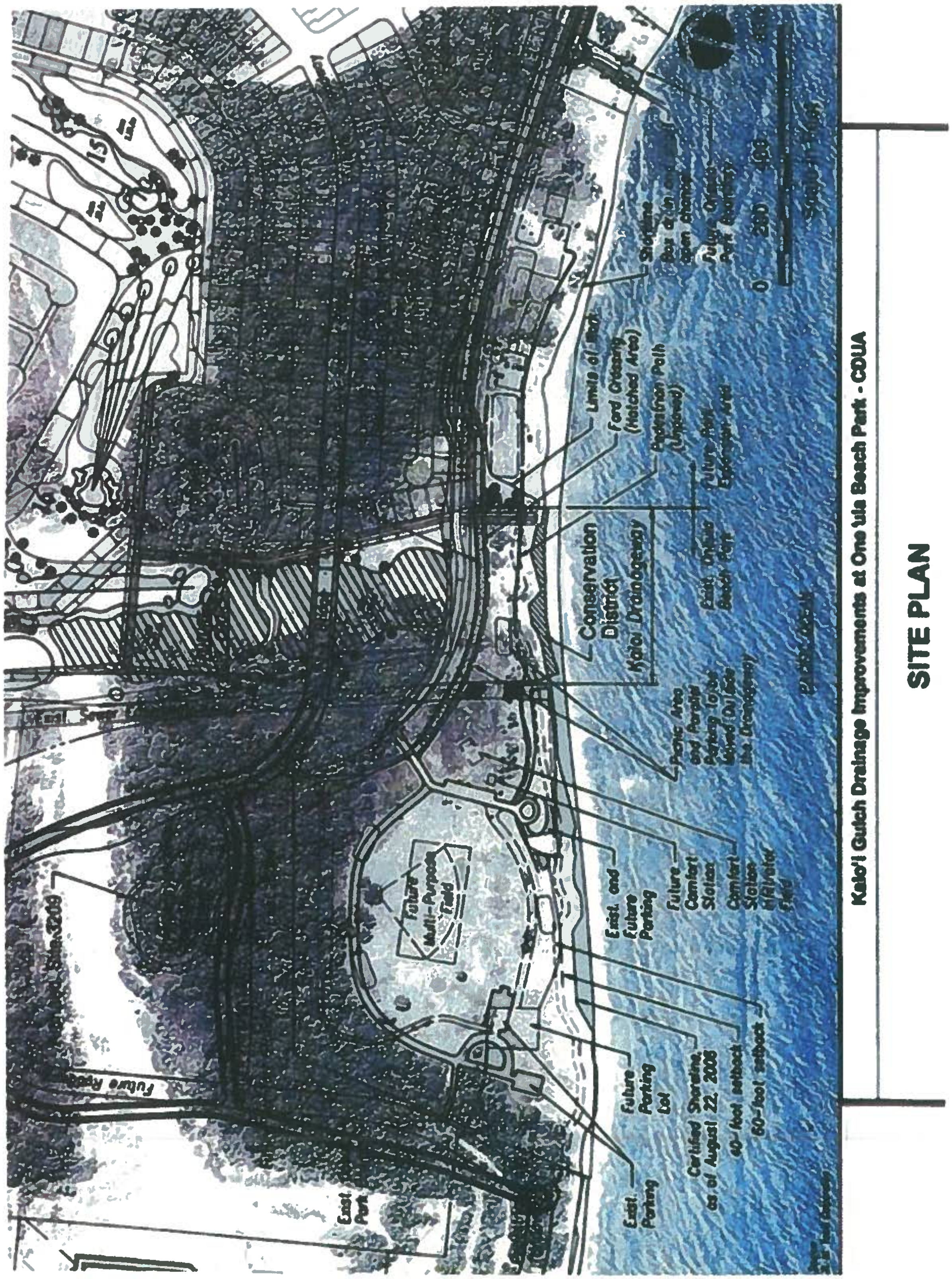

Kalo'i Gulch Drainage Improvements at One'ula Beach Park - CDUA
SITE PLAN

EXHIBIT 12