

RELEASE DATE: September 1, 2015

REQUEST FOR PROPOSALS No. RFP-015-HHL-003 Addendum A

SEALED OFFERS TO

FURNISH, DELIVER, INSTALL, OPERATE, MAINTAIN, and OWN A CARPORT SOLAR PHOTOVOLTAIC SYSTEM SELLING RENEWABLE ENERGY SERVICES TO THE DEPARTMENT OF HAWAIIAN HOME LANDS UNDER A POWER PURCHASE AGREEMENT (PPA)

WILL BE RECEIVED UP TO 2:00 P.M. (HST) ON

OCTOBER 2, 2015

IN THE DEPARTMENT OF HAWAIIAN HOME LANDS, 91-5420 KAPOLEI PARKWAY, KAPOLEI, HAWAII 96707. DIRECT QUESTIONS RELATING TO THIS SOLICITATION TO ALLEN G. YANOS, TELEPHONE (808) 620-9460, FACSIMILE (808) 629-9479 OR E-MAIL AT ALLEN.G.YANOS@HAWAII.GOV

RFP-15-HHL-003 Addendum A

ADDENDUM A FOR IFB-15-HHL-003

Companies that attended the 10:00 am Pre-Proposal Conference held September 14, 2015 and signed in:

- Rising Sun Solar Electric
- Sandwich Isles Communications
- Greenpath Technologies
- O&E Matias Electric
- Island Pacific Energy
- Hawaii Pacific Solar
- Haleakala Solar

A printed Agenda was available for the attendees. See attached copy.

Questions and Clarifications to RFP-015-HHL-003:

- A. The following questions were asked during the Questions/Answers portion of the pre-proposal conference on September 14, 2015:
- 1. Do you have an estimated size of what the fleet for EV (Electric Vehicles) would be?

Answer: Not more than 5.

2. Do you have any load profile data available to better determine the time of day load?

Answer: Most of the energy is used during the day; at night, there is generally low usage. However, the conference building is used often during the evenings for DHHL functions and community meetings.

- 3. Have you considered any storage options? Answer: No at this time. In our assessment, it's too expensive and the night time activity isn't that much.
- 4. I couldn't help but notice, as I pulled up this morning, you had what appeared to be a good roof on the property. What are the plans on putting the solar panels on the buildings?

Answer: We did not plan to put them on the buildings as they are not intended to carry heavy loads.

- 5. Would you want to take the whole leaf out (concrete section on the ground) to build a trench to the electrical room? Answer: It's a possibility as we understand you would need a trench but maybe a direct route to the electrical room would be more sufficient and less expensive.
- 6. Do you have a soils report?

Answer: We have an old soils report that was done to support the construction of the Headquarters complex, which may or may not be applicable to the parking lot area. We would think that the selected Offeror would perform some type of study or core samples to confirm the soil characteristic prior to designing the foundations. (See partial copy from a 2006 Foundation Investigation Report accompanying this Addendum).

- 7. The meter report consists of which buildings? Answer: It covers the Department of Hawaiian Home Lands' (DHHL) Hale Pono'i (conference building) and Hale Kalanianaole (main office building).
- 8. What's your take on adding running conduits from the electrical room by the reserved parking area? Answer: Essentially as long as it looks pleasing to the eye, it could be a possibility, and it meets all Building Department regulations.
- 9. Can we do a breaker tap out? *Answer: Yes.*
- 10. For the parking carports, the light structure, and the trees, are we allowed to remove them?

Answer: The trees will have to go because you will need somewhere to put the footings. In terms of the lights, you will have to work around them or provide alternate lighting. If you need the trees removed, just make sure you are abiding by state laws and county ordinances.

- 11. Are there any specific height requirements? Answer: High enough for handicap vans. We don't see anything larger entering our parking lots. Also be aware of the overhangs, because we have large trash disposal trucks that come into the reserved parking area to pick up trash.
- 12. Can you use the existing SIC (Sandwich Isles Communications) link in the building or will they have to put in a new link themselves for data? *Answer: This matter can be negotiated with the selected offeror depending on how much bandwidth is needed.*

- 13. Does the property line extend to the area by the bushes? Answer: For the property line adjacent to the golf course, it goes right behind the bushes. Further, we will provide the site survey to the selected Offeror, prior to finalizing the design, so it may ensure that it complies with all of the required setbacks and easements that are recorded on the survey.
- 14. When it comes to trench work will there be an archaeological assessment during the digging?

Answer: We are unable to make a determination at this time. However, see the section discussing archaeological and historic resources in the area from the Final Environmental Assessment accompanying this Addendum. It should be noted that this is not a virgin construction site. The area has been disturbed during the construction of the Headquarters complex.

B. The following question was submitted by Ergonbluenergy:

1. Could you be so kind to tell us the power (in MW) of the plant? Answer: We are expecting the Offerors to determine how much power should be generated by the solar system (plant) pursuant to Section 2.2.1 in the Scope of Work, on Page 4 of the RFP. Copies of the electric bills showing the monthly KWH for approximately a year are found in the Appendix to the RFP.

C. The following questions were submitted by Island Pacific Energy:

- 1. Are there any height requirements for the carports? Answer: In addition to compliance with any county ordinances or state laws, they must be able to accommodate the usual mix of vehicles including handicap vans and trucks found in a parking lot for a state agency's employees and for the public.
- 2. Are there any aisle width requirements between canopies? Answer: See Question 1 above.
- 3. Are canopies required for "Reserved" fleet parking area, or are EV chargers the only requirement at the location? Answer: There is no requirement for parking canopies over the reserved parking area but it would be desirable. There should be at least one EV charging station in the reserved parking area for our future fleet of EVs.

4. Would you be able to provide Hawaiian Electric Company's (HECO) "15-minute increment usage" data?

Answer: This data is currently unavailable. The selected Offeror will be allowed to install a meter to collect the data and optimize the final design of the project.

D. The following questions were submitted by Haleakala Solar:

- 1. Car Chargers
- a. Does DHHL have a preference on the charging level? 1 vs 2 vs 3? *Answer: Level 2.*
- b. Does DHHL have a preference on single vs. dual port chargers? Answer: Dual port chargers would give flexibility. DHHL is seeking the most effective solution that will provide this service through up to four EV charging stations that complies with all county ordinances and state laws.
- 2. Power Purchase Agreement (PPA)
- a. The pre-proposal conference agenda that was issued to the Offerors Monday, September 14th elaborated on the PPA requirements under section III, bullet point 3. Can DHHL either add this information into the original RPF or provide a digital copy of this additional information? *Answer: DHHL may be able to provide a \$600,000 payment, either as an upfront prepayment or at the purchase option date, or not at all. All three scenarios should be considered when providing DHHL with PPA pricing.*
- 3. System Size and Carports
- a. In order to properly size the PV system so as not to export power into the grid, offerors need to know what the property's minimum day time load is. This information should be obtainable through HECO. It would be ideal to have demand data in 15-minute intervals. Can DHHL please procure and provide us with this information? *Answer: DHHL does not participate in this program with HECO so the data is*

not currently available. The selected Offeror will be allowed to install a meter to collect the data and optimize the final design of the project.

b. Standard PV carport structures have spaces between the modules which allow water to pass through, will this be acceptable for DHHL's project? Answer: DHHL understands this fact and the requirement for the carport structure to qualify for federal tax credit purposes. However; such spaces in the canopy should strategically placed to maximize cover when it is raining. Further, DHHL expects the proper drainage will be a consideration in the final design.

- c. Please confirm the minimum carport structure height necessary to meet DHHL's needs. Answer: In addition to compliance with any county ordinances or state laws, they must be able to accommodate the usual mix of vehicles including handicap vans and trucks found in a parking lot for a state agency's employees and for the public.
- d. Should the required system size not cover the entire parking area are there preferred locations for the carports? The system will probably not be large enough to cover the entire parking area. *Answer: Clearly, the areas closest to the headquarters building would be preferred. Ideally, however, the system should cover most of the entire parking area.*
- e. Can DHHL provide a soil report? Answer: A soils report is contained within a partial copy of the Foundation Investigation Report accompanying this Addendum. DHHL has provided this for your information only and makes no representation regarding its accuracy or reliability. The Foundation Investigation Report was issued prior to construction of DHHL headquarters complex.
- f. Can DHHL provide plans identifying the location of underground services (water, sewage, communications, etc.)? Answer: These plans will be made available to the selected Offeror.
- g. Please confirm that DHHL will approve the removal of trees to facilitate for the installation of carport structures. Answer. That is correct provided there is compliance with any county ordinances and state laws regarding the removal of trees.

E. The following questions were submitted by Buenavista Renewables:

- 1. What percentage of the power consumption are you expecting to supply with the solar carport? Answer: The Offeror should make this determination based on our requirement of "no export to HECO."
- 2. Are all three parking areas available for solar carport canopy? *Answer: Yes*
- 3. Where is the electrical equipment located (the DHHL can indicate on Google Earth or on *.DWG format document), and what are the electrical specifications of that point of interconnection and its main electrical board? *Answer: The electrical room with the main switches are on ground floor side of the main building, adjacent to the reserved parking area. This was pointed out to the attendees during the on-site visit.*

- a. What is the existing electrical equipment voltage and main breaker size? *Answer: That information is unavailable at this time.*
- b. What is the bus capacity of existing equipment in amperes? *Answer: That information is unavailable at this time.*
- Can we obtain the document on page 27 of the RFP-015-DHHL-003 in *.DWG format?
 Answer: We do not have that site plan drawing in *.DWG format at this time but we may be able to provide one later to the selected Offeror.
- Can we obtain an updated electrical drawing, which includes the lighting structures? Answer: We do not have those drawings available to share at this time but we may be able to provide them later to the selected Offeror. Drawings we share with the Offerors are provided for information only and should be confirmed before relying on them.
- Complementary to the solar carport, can additional modules be installed on the roof? Answer: No.
- 7. Can we obtain the daytime/hourly consumption measured in kWh? We do not have that information. Answer: DHHL does not participate in this data collection program with HECO so the data is not currently available. The selected Offeror will be allowed to install a meter to collect the data and optimize the final design of the project.
- 8. Can we obtain any or all geotechnical studies performed on the premises? Answer: Accompanying this Addendum is part of a Foundation Investigation Report and the portion of the Final Environmental Assessment covering archaeological resources in the area (East Kapolei, Parcel B) of our headquarters complex.
- 9. Can the DHHL share any or all wind information (including speed and direction) it might have? Answer: We have no information about wind speed or direction.

F. The following questions were submitted by Rising Sun Solar:

1. Who will be responsible for alterations to the existing site to accommodate the carport structures? Will the Department of Hawaiian Home Lands remove the existing trees in the parking lot that may interfere with the carport structures? Will the DHHL remove the existing parking lights that may interfere with the carport structures?

Answer: The selected Offeror will be required to make all required alterations

and modifications to the physical site. Further, such alterations and modifications to the physical site shall be in accordance with all local, state and federal requirements.

- 2. Is a soils report available to determine the size of footings appropriate for the carport structures? If not, is there a soils report from a nearby construction site that can be made available? Answer: No, there isn't a recent soils report available for the parking lot area. There is an old soils report available from prior to construction of the headquarters complex which accompanies this Addendum. These reports are provided for information only and DHHL makes no representation regarding its accuracy or applicability for the parking lot.
- 3. Will load profile data become available during the RFP discovery process, within 48 hours of the RFP submission deadline? This information is necessary to accurately determine the most appropriate PV system design. *Answer: If selected, you will be allowed to install a monitoring meter to determine the load profile and optimize your final design. We do not have load profile data available at this time.*
- 4. What wattage and type of light bulbs are located in the existing parking lights? I want to make some assumptions regarding night time energy usage. *Answer: We do not have that information available at this time.*
- 5. On Page 5 of the RFP Paragraph 3, it states, "The offeror will transfer the ownership and warranties of the charging stations when the solar PV system is capable of production and delivering power from the project to the power grid. The costs associated with purchase of the installation of the EV charging stations shall either be paid directly by DHHL or capitalized as project expense, at its sole option". Does the customer expect a separate quote for the charging stations in order to determine the EV charging station total expense at the time of the RFP submission?

Answer: Yes, DHHL expects the capital expenditure schedule for the EV charging stations and it also expects that it will get the benefit of exploiting the synergies of installing the EV charging stations during the construction of the project.

- 6. Are you capable of providing audited financial statements after the time of selection, within 30 days notice, to verify credit worthiness? Answer: DHHL is a State agency and therefore, is backed by the State of Hawaii.
- 7. Is a performance guarantee expected or required as a component of the PPA? Answer: Yes, we expect that the system you design meets its design specifications.
- 8. How large do you expect your future fleet of Electric Vehicles to be?

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Answer: DHHL expects the EV fleet to be no more than 5 and likely about 3 vehicles. Most of our trips are long-distance.

- 9. Is there a project completion deadline? Please provide a preferred date you expect the PV system to be fully operational. Answer: DHHL expects a reasonable construction schedule subject to permit approval timelines.
- 10. Do you want to see a PPA boiler plate in addition to the PPA proposal? *Answer: Yes, and we will provide comments if you are selected.*
- 11. Due to lack of sufficient time available to analyze quality [and] volume of load profile data, we plan to design the system as a Standard Interconnect Agreement by filling up the available parking space with PV carports. In order to validate that the system will not export energy, we will need to further analyze usage data. Will the client accept that the initial PPA proposal, including design and PPA rate be subject to verification by actual site data after award? We recommend you allow the selected bidder a minimum period of 4 weeks to analyze usage data to make this verification of PV system design. *Answer: Yes, that sounds like a reasonable accommodation.*

G. The following questions were submitted by Greenpath Technologies:

- 1. Could DHHL please provide Utility Site Plan for Parking Area Carports and Office Building? Answer: We do not have this plan available at this time. They will be made available to the selected Offeror.
- 2. Could DHHL please provide Electrical Site Plan for Parking Area Carports and Office Building? Answer: We do not have this plan available at this time. They will be made available to the selected Offeror.
- 3. Could DHHL please provide Electrical One-Line and Three-Line Diagrams of the electrical system? Answer: We do not have these diagrams available at this time. They will be made available to the selected Offeror.
- 4. Since the proposed system is not intended to export any electricity to HECO is a Powertrax report available from HECO? This report is needed to determine system size for this RFP, if DHHL does not want to export any electricity to HECO.

Answer: DHHL does not participate in this data collection program with HECO so the data is not currently available. The selected Offeror will be allowed to install a meter to collect the data and optimize the final design of the project.

- 5. Please clarify under "2.3 DEPARTMENT OF HAWAIIAN HOME LANDS RESPONSIBILITIES" - DHHL will provide the Offers with a license with all of the necessary provisions that are mutually acceptable to DHHL, for the development to the proposed project". What license will DHHL provide? *Answer: DHHL will provide a roof lease and right-of-entry to do the work. It will be up to the selected Offeror to provide the interconnection agreement with HECO and handle any other HECO-required issues.*
- 6. With the understanding that there are several options that the offeror needs to provide e.g. \$600k payment by DHHL 1) at the time the system is energized 2) at the end of six years or 3) not at all, does the Offeror also need to provide for the EV charging stations being paid by DHHL and capitalized as a project expense for each of the three options? This would require six different quotations. *Answer: We require only three different quotations. Assume that the EV charging stations will be a part of each of the bid options.*
- 7. How will these be evaluated?

Answer: The proposals will be evaluated by a panel chosen by DHHL. There will be an evaluation matrix with each item given a point score. The proposals will be scored by each member of the panel. The highest score will be chosen to begin negotiations with DHHL.

End of Questions

PRE-PROPOSAL CONFERENCE AGENDA DEPARTMENT OF HAWAIIAN HOME LANDS' KAPOLEI SOLAR PV PROJECT Monday, September 14, 2015 at 10:00 am / Hale Ponoi

I. INTRODUCTIONS

- Department of Hawaiian Home Lands (DHHL)
- SPS Energy & Financial
- Sandwich Isles Communications

II. PURPOSE OF CONFERENCE

- Brief Description of RFP
- Important dates
- Questions & Answers
- Onsite visit of electrical switch rooms and parking lot
- III. BRIEF DESCRIPTION OF RFP
 - Solar PV system on top of parking canopies to be built by the Offeror either alone or as part of a consortium
 - DHHL wants a 20-year Power Purchase Agreement with an option to buy the system at the end of six years
 - Pricing structure to take into consideration the following scenarios that DHHL may, at its sole option exercise: 1) make a payment of \$600,000 at the time the system is energized or 2) make a payment of \$600,000 as part of the buyout at the end of six years. The \$600,000 may also not be available at that time so proposals need to include this possibility in all three scenarios.
 - The solar PV system is not intended to export any electricity to HECO
 - DHHL's headquarters complex covers Main Office building (Hale Kalanianaole) and conference building (Hale Ponoi)
 - Sandwich Isles Communication (SIC) owns the small building by the parking lot which should not be included in the proposal
 - If there's a grounding system that will be installed for the solar project, it should not be located close to SIC's building
 - Requesting a minimum of two but up to four electronic vehicle charging stations, at least one of them to be stationed in the reserve parking area. The stations should be back-fed to be available 24/7.
 - DHHL will leave it up to the Offerors to design what type of parking canopy structures would be appropriate and meet its needs
 - Ideally, the parking canopies should cover most of the parking lot
 - Offerors must comply with all local requirements, codes, compliance with Chapter 343, HRS, setbacks, handicap access, etc.
 - Offerors must have had experience in providing these types of services in the past; no first time Offerors will be selected.

(continued on reverse)

IV. IMPORTANT DATES

- Friday, September 18th, at the end of the business day, is due date to submit written questions to DHHL, to <u>allen.g.yanos@hawaii.gov</u>.
- By Friday, September 25th, DHHL's response to submitted questions will be posted on DHHL's procurement web page.
- <u>http://dhhl.hawaii.gov/procurement/</u> and the State of Hawaii procurement website at <u>http://spo.hawaii.gov/for-vendors/bidding-opportunities/</u>.
- Proposals are due on Friday, October 2nd at 2:00 pm Hawaii Standard Time addressed as shown in Section 1.7 of RFP
- Four duplicate originals of the proposal and one copy in PDF format on a CD, DVD or flash drive in a sealed package required
- V. QUESTIONS/ANSWERS
 - Will be included as part of Addendum posted by September 25th on both State procurement website and DHHL procurement webpage
- VI. SITE VISIT
 - Electric switch rooms in main building
 - Prospective offerors will have opportunity to walk the grounds

5.0 ASSESSMENT OF THE EXISTING HUMAN ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATION MEASURES

This section presents summary background information applicable to the existing human environment. Subject areas addressed include archaeology, transportation, air quality, noise, the socio-economic environment, and visual conditions. Technical studies and analyses have been undertaken to address the potential impacts of the project and to identify appropriate mitigation measures to minimize the identified short- and long-term impacts.

5.1 ARCHAEOLOGICAL AND HISTORIC RESOURCES

The earliest detailed map of the area shows no habitation closer than the western edge of West Loch in the vicinity of Papapapuhi Point. The M.D. Monsarrat Surveyors 1878 Map of Honouliuli Taro Land documents substantial settlement at Honolulu Taro Lands (1.7 miles northeast of Parcel B) in the Papapapuhi Point area, which appears to have been the focus of population in the Honouliuli ahupua'a. Fishponds, taro lo'i, shellfish collecting, and salt drying in the area would have focused population here in prehistoric times, and the place name must have secondarily come to apply to the entire ahupua'a. The richness of the coastal Papapapuhi area is a contrast to the dry 'Ewa Plain.

While very little prehistory is known about the area in the immediate vicinity of the proposed project site, there is no indication of human occupation or any other utilization. There is also no indication of existing remains of any prehistory activity. Furthermore, no sites that are listed on the Hawai'i or National Register of Historic Places are found on the property.

The presence of any significant archaeological sites on the surface or subsurface of the property is unlikely due to the disruption caused by continuous sugarcane cultivation for nearly 70 years. This was confirmed by the Archaeological Reconnaissance and Assessment of the HFDC – East Kapolei Development Project (Scientific Consultant Services, Inc., November 1996) and a review of historic records, maps, and archaeological research previously conducted in the project area. A memorandum to the Hawaii Agricultural and Rural Development Program from the State DLNR Historic Preservation Division (SHPD) regarding the HCDCH East Kapolei Master Plan stated:

A review of our records shows that there are no known historic sites on these 1,300 acres of state lands. These lands were used for commercial sugar cane cultivation for many years and this would have destroyed any historic sites that might have been present. We believe that reclassification of these lands and their future development will have "no effect" on historic sites.

This letter was included in the archaeological report for the HCDCH East Kapolei Master Plan FEIS.

Potential Impacts and Mitigation Measures

The proposed project site was part of the 1,300 acres of land on which no known historic sites

were found. According to the Archaeological Reconnaissance and Assessment of the HFDC – East Kapolei Development Project, the literature review, and the SHPD, there are no significant archaeological or cultural resources associated with the subject property. During the preconsultation process for this EA, the SHPD confirmed that this project has already gone through the historic preservation review process (Appendix A-2). The SHPD stated:

SHPD commented on the East Kapolei Master Plan Development and on the Villages of Kapolei Nonpotable Water System Improvements which includes this parcel. Our previous comments stated that these lands were commercially cultivated with sugar cane for many years which extensively altered the land. The depth of cane cultivation exceeded the expected depth of historic sites in the area, based on site patterns in similar environmental contexts. Thus, it is unlikely that significant historic sites will be found in the project area.

No mitigation measures are proposed as the SHPD believes that no historic properties will be affected by the project. However, should any unknown sites be uncovered during project construction, work in the area of the site will stop and the SHPD will be notified in accordance with applicable state regulations.

5.2 CULTURAL RESOURCES

As discussed in Section 5.1 Archaeological and Historic Resources, there is no indication that any remains from prehistory activities exist. The SHPD stated that there are no significant archaeological or cultural resources associated with the subject property. ..

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A cultural impact assessment was prepared by PBR Hawaii in December 2004 to identify cultural resources and practices associated with the proposed project site. The assessment stated that sugar production would have destroyed any historic properties related to Hawaiian culture, and there should be minimal direct impact upon native Hawaiian cultural practices and beliefs. The assessment (included below in its entirety) noted that special care should be observed in the event a Hawaiian burial is discovered.

Cultural Impacts

Fragments of History of Honouliuli

The proposed Department of Hawaiian Home Lands East Kapolei project area is located in the *ahupua*'a of Honouliuli, in the 'Ewa District of O'ahu. Honouliuli includes the lands from the western boundary of Pu'uloa (Pearl Harbor) westward to the 'Ewa/Wai'anae District boundary. The coastline includes twelve miles of shallow reef, offering rich marine resources. For years, this coastline was used as an air station for the U.S. Navy. The area once known as Kalaeloa, was renamed Barber's Point.

During the late 1700's Captain Henry Barber, for whom Barbers Point was named, frequently visited O'ahu and docked at Kalaeloa. In 1795, Captain Barber had his first encounter with Kamehameha I. An account of this incident is found in *Sites of O'ahu* (Sterling and Summers, 1978):

In October 1795 Captain Henry Barber made one of several trips to Oahu. At this

time Kamehameha I was on Oahu and he and Captain Barber became very friendly. When Barber departed he gave Kamehameha gifts. He intended giving him a keg of brandy but after thinking it over decided to that to give the heathen king a whole keg of brandy which he wouldn't appreciate was a great waste. He therefore had the keg half drained and filled up with water and sent this watered brandy to the king.

On leaving Oahu he ran aground at Kalaeloa and when the natives saw the ship's plight they swarmed out to it taking everything they could lay their hands on. In the meantime, Kamehameha had left for Kona and Barber seeking his help to recover the stolen goods went to Kona to see him. There he was treated cordially and a large feast was prepared. When the awa was passed around Barber was surprised that his awa cup held nothing but watered awa, thus did Kamehameha remind Barber that he was not a fool. In spite of Barber's treatment of Kamehameha the king sent him back with kapu sticks and orders that the Hawaiians must return all which had been stolen. When the Hawaiians saw that Barber came with authority they immediately returned all that had been taken.

Another noted area of settlement is Pu'u Ku'ua, the inland region of Honouliuli. In 1899, a Hawaiian Newspaper, Ka Loea Kalaiaina, claimed this land was "thickly populated," and a place where chiefs resided. It also states that the land was once a battlefield. The following is a story published in Ka Loea Kalaiaina, of how Pu'u Ku'ua has a connection to the kauwā, the lowest class of Hawaiians:

The two gods (Kāne and Kanaloa) looked down on the hollow and saw how thickly populated it was. The mode of living here was so that chiefs and commoners mixed freely and they were so like the lowest of people (Kauwā). That was what these gods said and that was the time when the term kauwā was first used, and was used for many years afterwards.

In 1877, most of the lands in Honouliuli were purchased by James Campbell in the amount of \$95,000. Mr. Campbell purchased the lands from the *ali'i* (high chiefess) Miriam Keahikuni Kekau'ōnohi, who was granted the land during the *māhele*, land division in 1845 and 1846, when Hawai'i was first introduced to private property and land ownership. Until 1889, the majority of Campbell's lands were used for cattle grazing, resulting in open and sparsely vegetated plains in the 'Ewa region. At one point the land was so dry and full of bottomless fissures that water would be lost and an irrigation system would seem nearly impossible.

The first crop, 2,849 tons of sugar, was harvested in 1892, Ewa was the first allartesian plantation and, in spite of of early troubles...it gave an impressive demonstration of the part artesian wells were to play in the subsequent industry of Hawaiian sugar industry (Kukendall 1967:69).

There are many oral traditions about this land that was once a very sacred area to Hawaiians. The following Hawaiian historians and culture preservationists were asked if they were aware of any current cultural practices in the project area: Ms. Momi Kamahele, Mr. Shad Käne, and Mr. Poni Kamau'u. Both Mr. Käne and Ms. Kamahele

were unavailable for comment. Poni Kamau'u provided the following comments about the project site.

When asked about the area of study, Poni Kamau'u, a recognized historian, shared many experiences about the area of Pu'u Ku'ua. According to Mr. Kamau'u, many burial sites exist at Pu'u Ku'ua as well as areas that have already been developed such as Ko Olina and Kapolei. Most of Kalaeloa and Kapolei were once heavily populated and were prime spots for the Hawaiian spirits to "lele" or leap to the next world, which may explain why so many burial sites can be found on this side of the island. A few Hawaiians today still go out to the leeward coast to speak to their $k\bar{n}puna$ (elders).

Kamukila Campbell, the wife of Mr. James Campbell told Mr. Kamau'u many stories about Honouliuli as well as Pu'u Makakilo, a hill located just north of the project site. Mrs. Campbell informed Mr. Kamau'u of the many $ki'i p\bar{o}haku$ (petroglyphs) that point the way to the *kilo* (stargazing sites, also a reader of omens). The kilo site provides a way for the people on earth to communicate with the heaven and the sky above. When the stones are aligned properly, four winds are said to appear over the site. As Mr. Kamau'u stood there near the stones, he noticed the alignment of the stones acted as a compass. Makakilo has been a common place for Hawaiian astronomy, hence, the name Makakilo (the observing eyes). Makakilo, is also believed to be closely watched and guarded by the eyes of a demigod that takes the form of a *pueo* (owl).

Shad Kāne is a noted cultural preservationist and has recently recommended some appropriate street names for the area of Kapolei. While Pu'uokapolei was not one of his recommended street names, he mentions that this practice of *kilo* was also observed on another hill known as Pu'uokapolei. The sun, the moon, stars and constellations with reference to geographical features, were used to determine the time of year. Pu'uokapolei is now in the center, the "piko," of the new city of Kapolei.

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Honouliuli is often mentioned in the epic story of Kamapua'a. There are many references to Kamapua'a, his grandmother Kamaunuaniho (who resides at Puuokapolei), as well as his lover/enemy Pele and her sister Kapo.

Pu'u Ku'ua is also said to be where Kapo once left her *lele kohe* (flying vagina). Pele was attacked by Kamapua'a in Puna, Hawai'i, in an area known as Pua'akanu. Kapolelema'i sent her vagina to divert Kamapua'a's attention elsewhere. It landed on O'ahu and formed Kohe-lepelepe, now known as Koko Crater.

Along the highway from Pu'u Ku'ua through Nānākuli, Mr. Kamau'u recounts a story of a white dog with reddish eyes (said to be Poki, the pet dog of Pele), whose size is comparable to an automobile. In times of danger, Poki would block the pathway to restrict people from entering the danger zone. When Pele's sister, Kapo would visit O'ahu, this white dog would take the form of clouds adorning Pele's beloved sister in the shape of a lei, which is how Kapolei acquired its name.

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Existing Conditions and Potential Impacts

A field inspection was conducted for the North-South Road and the Kapolei Parkway extension in April 2004 and in June 1996. Both surveys were done by Cultural Surveys Hawai'i. Findings show that most of the project area comprises of land that was used for sugar cultivation. Since the cessation of sugar production, various development has taken place including: 'Ewa Villages (located south-west of the project site), the Villages of Kapolei (located east of the project site), and the University of Hawai'i's West O'ahu campus (planned just north of the project area). According to the surveys there were no properties related to traditional Hawaiian culture. Two plantation-era structures, however, were observed (Chiojioji et al, 2004).

Most of the project area has been deserted and no longer produces commercial sugar. Sugar production would have destroyed any historic properties related to Hawaiian culture. There should be minimal direct impact upon native Hawaiian cultural practices and beliefs. Based on the statement of Mr. Poni Kamau'u, that Kapolei was once very heavily populated, and perhaps once a battlefield, special care should be observed in the event a Hawaiian burial is discovered.

5.3 NOISE

According to the Environmental Noise Assessment Study (1998) prepared by D.L. Adams Associates, Ltd. for the HCDCH East Kapolei Master Plan FEIS, the existing acoustical environment of the 1,300-acre HCDCH sile, which includes the proposed Parcel B, is exposed to daytime ambient noise levels of 41 to 46 decibels (dBA). Noise in this area is generated by traffic, wind in foliage, and occasional aircraft flybys or flyovers. Within nearby residential areas, including the Villages of Kapolei and 'Ewa Villages, ambient noise levels range from 44 to 47 dBA.

Ambient noise conditions of the project area were described in the North-South Road and Kapolei Parkway Project Noise Technical Report, prepared for the North South Road and Kapolei Parkway Final Environmental Assessment (September 2004) (Appendix C). Noise levels were sampled for a 15-minute period at the future intersection of North-South Road and Kapolei Parkway (near the Ewa Villages Golf Course) on March 19, 2004 at 12:30 p.m. The measured noise level was 44 Leq. The adjusted peak hour noise level (based on comparing the 15-minute measured noise level with the noise level measured at closest 24-hour monitoring location in the same hour) was 54 Leq.

Within the project area, the day-night equivalent sound level due specifically to aircraft operations is less than 60 dBA and compatible with the SDOT residential guidelines for noise. There are no direct flyovers associated with the Honolulu International Airport, and day-night equivalent sound levels due to air traffic will be less than 60 dBA, although some overflights will be audible. This is also true for the general aviation reliever airport at Kalaeloa (formerly Naval Air Station Barbers Point). According to the master plan prepared for the reliever airport, the project area will continue to have aircraft noise levels less than 60 dBA for all alternatives considered. In addition, the noise corridors previously associated with NAS Barbers Point aircraft operations no longer apply since the Naval Air Station closed. Wind through vegetation

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February 14, 2006 W.O. 05-4186

Mr. Michael Okamoto Next Design LLC 1132 Bishop Street, Suite 145 Honolulu, Hawaii 96813

Dear Mr. Okamoto,

Hirata & Associates

Geotechnical Engineering

Hirata & Associates, Inc. 99-1433 Koaha Pl Aica, HI 96701 1cl 808.486.0787 Far 808.486.0870

Our report, "Foundation Investigation, Department of Hawaiian Home Lands, Office Facility, Kapolei, Oahu, Hawaii, TMK: 9-1-016: Portion of 108" dated February 14, 2006, our Work Order 05-4186 is enclosed. This investigation was conducted in general conformance with the scope of services presented in our proposal dated March 25, 2005, and our proposal for additional work dated November 17, 2005.

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The surface soil was classified as mottled dark brown, dark brown, dark reddish brown, and dark grayish brown silty clay in a stiff condition. The silty clay extended to depths ranging from about 3 to 16.5 feet, and was underlain by tan to brownish tan cemented silty coralline sand. The silty coralline sand was in a medium dense to medium hard condition and extended to the maximum depths drilled, except in boring B9, which did not encounter the silty coralline sand. Laboratory testing indicated that the silty clay has a moderate expansion potential. Neither groundwater nor seepage water was encountered in our exploratory borings.

Conventional spread footings underlain by a minimum 12 inches of imported granular fill may be used to support the proposed structures. Building slabs-on-grade should be underlain by a minimum 18 inches of imported granular fill, with the upper 4 inches of the granular fill consisting of a clean gravel cushion. The remainder of the imported granular fill section should consist of granular structural fill. A vapor barrier is also recommended below all building slabs-on-grade.

The following is a summary of our geotechnical recommendations. This summary is not intended to be a substitute for our report, which includes more detailed explanations of our recommendations, as well as additional requirements.

- Allowable bearing value = 3,500 psf
- Coefficient of friction = 0.4
- Passive earth pressure = 300 pcf

We appreciate this opportunity to be of service. Should you have any questions concerning this report, please feel free to call on us.

Very truly yours,

HIRATA & ASSOCIATES, INC.

Paul S. Morimoto

Vice President

PSM:EHS

FOUNDATION INVESTIGATION DEPARTMENT OF HAWAIIAN HOME LANDS OFFICE FACILITY KAPOLEI, OAHU, HAWAII TMK: 9-1-016: PORTION OF 108

INTRODUCTION

This report presents the results of our foundation investigation performed for the proposed office facility for the Department of Hawaiian Home Lands in Kapolei, Oahu, Hawaii. Our services for this study included the following:

- A visual reconnaissance of the site and its vicinity to observe existing conditions which may affect the project. The general location of the project site is shown on the enclosed Location Map, Plate A2.1.
- A review of available in-house soils information pertinent to the site and the proposed project.
- Drilling and sampling 15 exploratory borings to depths ranging from about 9.5 to 20.5 feet. A description of our field investigation is summarized in Plates A1.1 and A1.2. The approximate exploratory boring locations are shown on the enclosed Boring Location Plan, Plate A2.2, and the soils encountered in the borings are described on the Boring Logs, Plates A4.1 through A4.15.
- Laboratory testing of selected soil samples. Testing procedures are presented in the Description of Laboratory Testing, Plates B1.1 through B1.3. Test results are presented on the Unified Soil Classification System chart (Plate A3.2), Boring Logs (Plates A4.1 through A4.15), Description of Laboratory Testing (Plates B1.1 through B1.3), Consolidation Test reports (Plates B2.1 through B2.4), Direct Shear Test reports (Plates B3.1 through B3.5), Modified Proctor Curve report (Plate B4.1), and CBR Stress Penetration Test Curve report (Plate B5.1).
- Engineering analyses of the field and laboratory data.
- Preparation of this report presenting geotechnical recommendations for the design of foundations, seismic considerations, slabs-on-grade, resistance to lateral pressures, flexible pavement, and site grading.

PROJECT CONSIDERATIONS

The proposed office facility will include one and two-story structures, at-grade parking, and a future development area. Based on preliminary site plans, the proposed structures will be situated in the southern portion of the site, in an area about 300 by 400 feet in plan dimensions. We understand that the structures will be of concrete tilt-up wall construction with concrete slabs-on-grade. Maximum interior column loads on the order of 150 kips are anticipated, while maximum exterior column loads are expected to be on the order of 190 kips. Maximum wall loads will be on the order of 4 kips per foot.

Mass grading for the proposed office facility will be performed as part of site grading for the adjacent residential development. We understand that a finish pad elevation of about +62.8 is planned, and as a result, site grading for the project in the building areas is expected to consist primarily of fill operations, with maximum fill heights on the order of about 3 to 4 feet.

The at-grade parking lot will be located in the area north of the proposed office building. The parking lot will be approximately 260 by 340 feet in plan dimensions, and will be paved with AC pavement. Traffic information was not provided, but we assume that the lot will be utilized primarily by passenger vehicles with occasional truck traffic. Finish elevations for the parking area were not available, but we assume that finish grades will generally match the existing.

The area north of the proposed parking lot is slated for future development. The area has plan dimensions on the order of 340 by 390 feet. Plans for future development were not available at the time of this report.

SITE CONDITIONS

The subject property is located at the east end of Kapolei Parkway in Kapolei, Hawaii. The site is a rectangular shaped parcel, with plan dimensions on the order of 1,200 by 350 feet, and is bordered on the south by an unpaved construction access road that generally follows the proposed alignment of the Kapolei Parkway extension. A concrete lined drainage canal is located to the west, with residential neighborhoods located further west, beyond the drainage way. Kapolei Golf Course is located to the northwest, while the lands bordering the site on the north and east are undeveloped and covered by moderate to heavy vegetation.

The project site is generally undeveloped and covered by moderate to heavy vegetation. However, an AC paved construction access road extends from the drainage canal and through the central portion of the site in a northeast-southwest alignment. Berms of stockpiled soil and debris, approximately 2 to 3 feet in height, are located in the southern portion of the site.

The project site is relatively level, with drainage over the site generally flowing towards the center of the property. Ground elevations range from about +64 at the north end, to about +60 at the south end, and approximately +56 in the central portion of the site.

SOIL CONDITIONS

Based on our boring logs, available soils information, and our past experience in the project vicinity, the site is underlain by two distinct soil units within the upper 20.5 feet: silty clay and silty coralline sand.

Silty Clay - The soil covering the site was classified as mottled dark brown, dark brown, dark reddish brown, and dark grayish brown silty clay. The surface silty clay was in a stiff condition, with blow counts ranging from 19 to 88 blows per foot of penetration, to depths ranging from about 3 to 16.5 feet below existing grade. Coralline sand and gravel were occasionally encountered in the silty clay layer.

Laboratory testing on selected samples of the surface silty clay indicated a moderate expansion potential.

Silty Sand - Tan to mottled brownish tan silty coralline sand with weak to strong cementation was encountered below the surface silty clay in all borings except boring B9. The silty sand was in a medium dense to medium hard condition, and was mixed with coralline gravel, down to the maximum depths drilled. Sampling in the silty sand layer generally resulted in blow counts ranging from 10 to 50 blows per foot of penetration. However, numerous sample attempts resulted in refusal prior to 12 inches of penetration.

Groundwater - Neither groundwater nor seepage water was encountered in our borings.

CONCLUSIONS AND RECOMMENDATIONS

Based on our exploratory fieldwork and laboratory testing, we believe that from a geotechnical viewpoint, the site can generally be developed as planned. Conventional spread footings may be used to support the proposed structures. However, to reduce the potential effects of the moderately expansive silty clay on the proposed structures, we recommend that all footings and slabs-on-grade be underlain by a minimum 12 and 18 inches of imported granular structural fill, respectively. The standard gravel cushion recommended below building slabs-on-grade may be considered part of the granular fill section.

To reduce the expansion potential of the onsite soils, the exposed subgrade in building and pavement areas should be scarified to a minimum depth of 6 inches, moisture conditioned to slightly above the optimum moisture content, and compacted to between 90 and 95 percent compaction as determined by ASTM D 1557. Our laboratory testing and past experience in the Kapolei area indicate that the expansion potential of the onsite silty clay can increase significantly when moisture conditions are reduced. Therefore, the relatively moist condition of the prepared subgrade should be maintained, and the soils should not be allowed to dry significantly, prior to placement of granular fill, reinforcing steel, and concrete.

The two borings drilled in the future development area were intended to provide the general subsurface soil conditions in the area. Soil conditions encountered in our borings throughout the site were relatively consistent, and as a result, recommendations presented in this report may be applicable for preliminary planning of the future development area. We assume that a separate geotechnical report will be prepared for the future development site during design.

Foundations

Conventional spread footings founded directly on a minimum 12 inches of imported granular structural fill may be used to support the proposed office buildings.

Granular structural fill should conform to and be placed in accordance with recommendations in the *Site Grading* section of this report. The granular structural fill section should also extend laterally, a minimum 6 inches beyond the edge of footings.

Footings may be designed for an allowable bearing value of 3,500 pounds per square foot. The allowable bearing value is for the total of dead and frequently applied live loads, and may be increased by one-third for short duration loading which includes the effect of wind and seismic forces.

Footings should be a minimum 16 inches in width, and embedded a minimum 18 inches below existing grade. The bottom of all footing excavations should be thoroughly tamped and cleaned of loose and deleterious material prior to placement of reinforcing steel and concrete.

Footings located on, or near the top of slopes, should be embedded such that a minimum horizontal distance of 5 feet is maintained between the bottom edge of footing and slope face.

In areas where the granular fill is placed outside the building area, and is open to the environment, the material should be capped with 12 inches of low permeability soil, such as the onsite silty clay. The soil used for the capping layer should be moisture conditioned to slightly above the optimum moisture content and compacted in horizontal lifts limited to 8 inches in loose thickness to a minimum 90 percent compaction as determined by ASTM D 1557. The capping layer should be placed as soon as practical upon construction of the building foundations and slabs. The area directly adjacent to structures should also be graded to allow drainage to flow away from the building. The intent of these measures is to reduce the potential for surface water to enter and collect in the granular fill section underlying the building.

Seismic Design

Based on the 1997 Uniform Building Code, the site is located within Seismic Zone 2A. Within this zone, a seismic zone factor (Z) equal to 0.15 is recommended (97 UBC Table 16-I) for calculation of shear and lateral load imparted on structures during an earthquake. Based on borings drilled as part of this study and our knowledge of the deep soil conditions in the area, the subsurface soils can be characterized as a stiff soil profile. Therefore, soil profile type S_D is recommended for this site.

Lateral Design

Resistance to lateral loading may be provided by friction acting at the base of foundations and by passive earth pressure acting on the buried portions of foundations.

A coefficient of friction of 0.4 may be used with the dead load forces. Passive earth pressure may be computed as an equivalent fluid having a density of 300 pounds per cubic foot with a maximum earth pressure of 3,000 pounds per square foot. Unless covered by pavement or concrete slabs, the upper 12 inches of soil should not be considered in computing lateral resistance.

For active earth pressure considerations, equivalent fluid pressures of 40 and 55 pounds per cubic foot may be used for unrestrained and restrained conditions, respectively. To prevent buildup of hydrostatic pressures, all retaining structures should be well-drained. Weepholes or subdrains should be included in the design of all retaining structures.

Foundation Settlement

Settlement analyses were performed based on the structural loads provided, our laboratory test results, and the recommendations presented above. Total and differential settlements of less than 1/2 inch were computed.

Slabs-on-Grade

Building slabs-on-grade should be underlain by a minimum 18 inches of imported granular fill. To provide uniform support, the upper 4 inches of the granular fill layer should consist of clean gravel, such as #3 Fine (ASTM C33, Size No. 67). The remainder of the granular fill layer should consist of granular structural fill material conforming to the *Site Grading* section of this report. All building slabs should also be protected by a vapor barrier.

Prior to placement of fill, the exposed subgrade soil should be scarified to a minimum depth of 6 inches, moisture conditioned to slightly above the optimum moisture content, and compacted to between 90 and 95 percent compaction as determined by ASTM D 1557. The overlying granular structural fill should be compacted in lifts to a minimum 95 percent compaction as determined by ASTM D 1557. The cushion of clean gravel should be compacted to a level surface using vibratory equipment.

Slabs-on-grade which will receive floor covering, especially "hard" floor covering such as slate or marble, should include control joints saw-cut into the concrete slab. The purpose of this is to help reduce the potential for reflective cracking of the floor covering due to shrinkage cracks in the concrete slab. Proper curing of the concrete slabs will help reduce shrinkage cracking.

Concrete slabs that will be subjected to vibrations from equipment or vehicle/forklift loading should be underlain by a minimum 6 inches of compacted aggregate base course. The base course is in lieu of the gravel cushion and should be compacted to a minimum 95 percent compaction as determined by ASTM D 1557.

Concrete walkways should be underlain by a minimum 9 inches of imported granular structural fill conforming to and placed in accordance with the *Site Grading* section of this report.

Pavement Design

Our pavement design was based on the results of our exploratory fieldwork and laboratory testing, and on the assumption that traffic will consist primarily of passenger vehicles and occasional light trucks. Flexible pavement for driveways and parking areas may be designed based on the following section.

2.0"	Asphaltic Concrete
6.0"	Base Course (CBR = 85 minimum)
6.0"	Select Borrow (CBR = 25 minimum)
14.0"	Total Thickness

The silty clay subgrade, select borrow, and base course should be compacted to a minimum 95 percent compaction, as determined by ASTM D1557.

Site Grading

Site Preparation - The project site should be cleared of all vegetation, AC pavement, and other deleterious matter. Prior to placement of fill, the exposed subgrade should be scarified to a minimum depth of 6 inches, moisture conditioned to slightly above the optimum moisture content, and recompacted to between 90 and 95 percent compaction as determined by ASTM D 1557. The relatively moist condition of the prepared subgrade should be maintained, and should not be allowed to dry significantly, prior to placement of structural fill, reinforcing steel, or concrete.

Onsite Fill Materials - The onsite silty clay will be acceptable for reuse in structural fills and backfills, except in the imported, granular fill section recommended below footings and slabs-on-grade. The silty clay should be free from deleterious material and all rock fragments larger than 3 inches in maximum dimension.

Imported Fill Materials - Imported structural fill should be well-graded, nonexpansive granular material. Specifications for imported structural fill should indicate a maximum particle size of 3 inches, and state that between 8 and 20 percent of soil by weight shall pass the #200 sieve. In addition, the plasticity index (P.I.) of that portion of the soil passing the #40 sieve shall not be greater than 10. Granular structural fill should also have a minimum CBR value of 12 and a CBR expansion value less than 1.0 percent when tested in accordance with ASTM D 1883.

Placement - Structural fill and backfill consisting of cohesive soils, such as the onsite silty clay, should be placed in horizontal lifts restricted to eight inches in loose thickness, and compacted to between 90 and 95 percent compaction as determined by ASTM D 1557. Structural fill and backfill consisting of granular material should also be placed in horizontal lifts limited to 8 inches in loose thickness, but should be compacted to a minimum 95 percent compaction as determined by ASTM D 1557.

Fill placed in areas which slope steeper than 5H:1V should be continually benched as the fill is brought up in lifts.

Structural Excavations - Based on our exploratory borings, we believe that excavations into the onsite silty clay can be accomplished using conventional excavating equipment. However, pneumatic equipment may be required, especially in confined excavations, for excavation into the harder sections of the underlying cemented silty coralline sand.

Temporary cuts into the onsite soils should be stable at slope gradients of 1H:1V or flatter. However, it should be the Contractor's responsibility to conform to all OSHA safety standards for excavations.

Slope Gradients - Permanent cut and fill slopes may be designed for gradients of 2H:1V or flatter. Slopes exceeding 15 feet in height should include benches at least 8 feet in width. The benches should be constructed at intervals not exceeding 15 feet

in vertical height. All slopes should be planted as soon as practical to reduce the effects of erosion and weathering.

ADDITIONAL SERVICES

We recommend that we perform a general review of the final design plans and specifications. This will allow us to verify that the foundation design and earthwork recommendations have been properly interpreted and implemented in the design plans and construction specifications.

For continuity, we recommend that we be retained during construction to (1) check structural excavations prior to placement of structural fill, reinforcing steel, and concrete, (2) review and/or perform laboratory testing on import borrow to determine its acceptability for use in compacted fills, (3) observe structural fill placement and perform compaction testing, and (4) provide geotechnical consultation as required. Our services during construction will allow us to verify that our recommendations are properly interpreted and included in construction, and if necessary, to make modifications to those recommendations, thereby reducing construction delays in the event subsurface conditions differ from those anticipated.

LIMITATIONS

The boring logs indicate the approximate subsurface soil conditions encountered only at those times and locations where our borings were made, and may not represent conditions at other times and locations.

This report was prepared specifically for Next Design LLC and their sub-consultants for design of the proposed Dept. of Hawaiian Home Lands office facility in Kapolei, Hawaii. The boring logs, laboratory test results, and recommendations presented in this report are for design purposes only, and are not intended for use in developing cost estimates by the contractor.

During construction, should subsurface conditions differ from those encountered in our borings, we should be advised immediately in order to re-evaluate our recommendations, and to revise or verify them in writing before proceeding with construction.

Our recommendations and conclusions are based upon the site materials observed, the preliminary design information made available, the data obtained from our site exploration, our engineering analyses, and our experience and engineering judgement. The conclusions and recommendations in this report are professional opinions which we have strived to develop in a manner consistent with that level of care, skill, and competence ordinarily exercised by members of the profession in good standing, currently practicing under similar conditions in the same locality. We will be responsible for those recommendations and conclusions, but will not be responsible for the interpretation by others of the information developed. No warranty is made regarding the services performed under this agreement, either express or implied.

Respectfully submitted,

HIRATA & ASSOCIATES, INC. Edwin H. Sniffen, J.E.

Pauls. Morimoto, Project Manager

H. SN LICENSED PROFESSIONAL ENGINEER No. 10825-0 WAIL. U.S

This work was prepared by me or under my supervision Expiration Date of License: April 30, 2006