LINDA LINGLE GOVERNOR



701 08 2016

BRENNON T. MORIOKA DIRECTOR

> Deputy Directors MICHAEL D. FORMBY FRANCIS PAUL KEENO BRIAN H. SEKIGUCHI JIRO A. SUMADA

IN REPLY REFER TO:

HAR-EP 8738.10

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HARBORS DIVISION 79 SOUTH NIMITZ HIGHWAY HONOLULU, HAWAII 96813-4898

June 14, 2010

- TO: KATHERINE KEALOHA, DIRECTOR OFFICE OF ENVIRONMENTAL QUALITY CONTROL STATE DEPARTMENT OF HEALTH
- FROM: MICHAEL D. FORMBY
- SUBJECT: FINAL ENVIRONMENTAL ASSESSMENT (EA) AND FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR AALA SHIP SERVICE WAREHOUSE ADDITION, HONOLULU, OAHU, TAX MAP KEY: (1) 5-035: 007 (PORTION)

The Department of Transportation Harbors Division has reviewed the comments received during the 30-day public comment period for the above EA. We have determined that this project will not have significant environmental impacts and therefore, we are issuing a Finding of No Significant Impact (FONSI).

We respectfully request publication of the above EA in the next available OEQC Environmental Notice. Enclosed please find the following items:

- 1. One hard copy of the Final EA and one electronic copy of the document in PDF format.
- 2. Completed publication form.

Please contact our consultant, Taeyong Kim of Environmental Communications at 528-4661 if there are any questions.

Enc.

FINAL ENVIRONMENTAL ASSESSMENT

for

AALA SHIP SERVICE WAREHOUSE ADDITION Honolulu, Oahu, Hawaii

Prepared Pursuant to Chapter 343, Hawaii Revised Statutes (HRS)

by

Environmental Communications, Inc.

For

Aala Ship Service Department of Transportation, Harbors Division

April 2010

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APPENDIX

Geotechnical Engineering Exploration

PROJECT SUMMARY I.

APPLICANT:	Aala Ship Service 869 N. Nimitz Highway Honolulu, Hawaii 96817
ACCEPTING AGENCY:	State of Hawaii Department of Transportation 869 Punchbowl Street Honolulu, Hawaii 96813
ENVIRONMENTAL CONSULTANT:	Environmental Communications, Inc. 1188 Bishop Street, Suite 2210 Honolulu, Hawaii 96701
PROJECT NAME:	Aala Ship Service Warehouse Building
PROJECT LOCATION:	869 N. Nimitz Highway Honolulu, Hawaii 96817
TAXMAPKEY/ OWNERSHIP:	1-5-035: 007 por. State of Hawaii Department of Transportation Harbors Division
AREA:	52,078 square feet 1.1955 acres
ZONING:	I-3 Waterfront Industrial
STATE LAND USE:	Urban District
CURRENT LAND USE:	The project site presently consists of a vacated industrial lot that was formerly used for refrigerated storage. The lot is paved and structural elements of the former warehouse remain. No industrial uses occur on the property but the warehouse foundation area is used for automobile parking.
PROJECT SCOPE:	The proposed action consists of the construction of a warehouse building for the Aala Ship Service complex. This warehouse structure will consists of a metal building with the dimensions of 60x165 feet for a total of 9,900 square feet of floor area. The structure will feature two roll up doors for access

and a single toilet room. The warehouse is intended for storage and holding of overflow items that cannot be accommodated in the existing Aala Ship Service warehouse.

PROJECT COST/PHASING The total project cost, inclusive of land is approximately \$2,000,0000 and will be privately financed.

The proposed project will be conducted in a single continuous phase.

II. PROPOSED PROJECT AND STATEMENT OF OBJECTIVES

A. Project Location

The proposed action is located on industrial lands owned by the State of Hawaii Department of Transportation Harbors Division. The project site is located within the waterfront industrial complex identified as TMK 1-5-035: por. 007 along the makai side of Nimitz Highway (Figures 1 and 2). Piers 34 and 35 are located to the west, and Piers 29 through 33 are located south of the project site. The Aala Ship Service project site is not located on the waterfront but is centrally located to the aforementioned Piers. Two smaller warehouse structures and an open parcel are located immediately to the north while a large storage tank is located to the east. The western boundary of the site is used as an automobile storage lot.

The site is presently unused except for a few unmarked parking stalls that are located within the framework of the former cold storage facility that used to occupy the site.

B. Project Description

The proposed action consists of the clearing of the existing remnant structure and the construction of an at grade warehouse of approximately 9,900 square feet. This simple metal structure will be located at grade and will not require any significant excavation as the site is already graded and paved. The structure will be 165 feet in length, 60 feet wide and approximately 30 feet high at the ridgeline. The structure will consist of metal supports and metal siding. Two roll up doors and two standard building doors will provide access to the warehouse. The metal roof will include skylights. Interior improvements will be limited to a single toilet room. All improvements will occur at existing grade level and no shipping containers are expected to be off-loaded directly into the new warehouse. Required parking will be located between the new structure and the existing warehouse facility. See Figures 3 through 7.

Aala Ship Service is a ship chandler that supplies marine equipment, durable goods, provisions and supplies and stores bonded stores. The warehouse will be used for the storage of durable goods, provisions and bonded stores. Provisions, durable goods and equipment are delivered to ships in port by trucks and trailers. All equipment, stores and supplies are kept under secured cover in the existing warehouse. These items are delivered and received at a loading dock. The new warehouse facility will provided expanded storage and faster access. No new business activities are anticipated with the construction of the new warehouse building.

Adequate space exists within the property for vehicular circulation. Vehicles

enter and exist the property through a monitored and gated entrance. Received goods are delivered by containers but the volume is delivery does not affect external traffic. All operations are handled completely within the facility. Out going deliveries are not expected to increase as the warehouse is intended for long-term storage.

C. Project Objective and Need for Action

The objective of the proposed action is to create additional covered storage for goods that cannot be accommodated in the existing Aala Ship Service warehouse.

The subject Environmental Assessment is prepared in conformance with Chapter 343 Hawaii Revised Statutes, as the project will involve the use of State lands. The property is owned in fee by the State of Hawaii Department of Transportation Harbors Division. The State Department of Transportation will serve as the accepting authority for the subject Environmental Assessment.



Figure 1: Location Map

Source: US Geological Service Environmental Assessment

Alaa Ship Service Honolulu, Hawaii



Figure 2: Tax Map

Source: City and County of Honolulu Environmental Assessment

Alaa Ship Service Honolulu, Hawaii







Figure 5: Elevations

H-7



Figure 6: Building Section



III. DECRIPTION OF ANTICIPATED IMPACTS

A. Environmental Setting

The project site consists of 52,078 square feet (1.1955 acres) of Waterfront Industrial zoned lands located immediately makai of Nimitz Highway. Piers 34 and 35 are located to the west, and Piers 29 through 33 are located south of the project site. The area is characterized by its heavy industrial uses.

Typical uses in the project vicinity consist of industrial fuel and liquid storage, shipping, packaging and storage warehouses and automobile storage lots. This working environment is not readily accessible to the general public and the project site is subject to monitoring and security measures due to its location near the harbor.

The project site is not a scenic resource nor does it serve as a natural resource. The area is not well suited for residential or retail use nor are these uses allowed by the zoning code. Across Nimitz Highway lie other similar uses and some commercial uses that are more accessible to the public.

B. Surrounding Uses

The area surrounding the project site is characterized by industrial and waterfront uses. Further to the north lie the Iwilei and Kalihi industrial areas. The Kalihi Kai industrial area lies to further to the west beyond the Kapalama Stream. Further south, across the Kapalama Channel lays Sand Island, which also contains industrial, public facilities and recreational uses. Chinatown and downtown Honolulu lie to the east across Nuuanu Stream. The proposed use is consistent with the immediate surroundings as well as the general character of the entire district.

C. Environmental Considerations

1. Geological Characteristics

Topography

The project improvement area is flat and open, as it had been previously improved with a cold storage facility. The majority of the site that will contain the warehouse is covered with a concrete pad. The remaining areas are paved with asphalt. Various weedy species of flora are located along the concrete and asphalt seams. Debris and relatively small amounts of remnant material from the former use remain on site. A steel and concrete structure from the former use is presently used as a parking garage for five automobiles. The steel frame building is topped with a concrete pad but is not used for storage purposes. A concrete block wall is attached at the makai end of the structure.

The eastern boundary of the project site is bounded by a concrete wall approximately 8-feet in height. This wall serves as a containment barrier for the storage tank located on the adjacent parcel. Three wood poles elevate a transformer platform that is located along the northeastern corner of the property. This transformer bank and the attached electrical lines will need to be relocated prior to construction of the warehouse building. See Figure 7.

The proposed warehouse addition will result in the loss of some open space however the structure will not result in the loss of any scenic views from public access points. The site is in industrial use and warehouse structures are normative for this use. The existing open space areas did not serve as a visual resource.

Climate

The geography of the Honolulu District is typically warm and dry in climate. Prevailing trade winds arrive from the northeast. According to the National Weather Service Honolulu Office, over a period of 30 years, normal monthly high temperatures range from 80 degrees in January to a high of 89 degrees in August for an average of 84 degrees. Normal month low temperatures range from a low of 65 degrees in February and a high of 74 degrees in August for a monthly average of 70 degrees. Precipitation typically ranges from 0.44 inches in August to a high of 3.8 inches in December. The annual average rainfall in Honolulu is 70 inches per year.

USDA Soil Survey Report

According to panel 62 of the *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii* by the US Department of Agriculture Soil Conservation Service, the project site is located primarily on soils classified as Fill Lands, Mixed (FL). This land type occurs primarily near Pearl Harbor and Honolulu. It consists of dredged material, garbage and general excess material. This land type is used for urban development including industrial facilities.

Air Quality and Noise Environment

The ambient air quality of the project site is typical of the industrial nature of the site. No point source pollution sources have been identified in the general area and typical trade winds ensure that air quality remains within acceptable standards as recorded by the Department of Health air quality monitors. Fish odors were noted during a site visit and anecdotal reports stated that the odors were caused by

a fish processing plant located immediately north of the project site. The processing plant has subsequently been closed and odors are not expected to continue in the long-term.

Air quality impacts from the construction and operation of the new warehouse are expected to be minimal to insignificant. During the construction period, gasoline or diesel powered heavy equipment will be required to transport and erect the building. Air quality degradation from the operation of this equipment will be negligible and temporary. In the long-term, no additional freight shipments are expected beyond the existing average of two trailer/containers per day. No long-term air quality impacts should occur from the operation of the new warehouse.

The noise environment will be minimally affected by the new warehouse. Storage and moving activities occur primarily indoors or within the confines of the Aala Ship Service complex. The addition of the new warehouse will ensure that noise levels are attenuated even further as the new warehouse will contain the eastern boundary of the site and will prevent any activity noise from traveling further east. All activities will continue to adhere to State Department of Health community noise standards.

2. Water Resources

Hydrologic Hazards and Resources

According to Panel 150001 0115C of the Federal Emergency Management Agency Flood Insurance Rate Map, the entire project area is located in Zone X, an area where flood hazards are undetermined. See Figure 9.

Special Management Area

The project site is not located within the Special Management Area (SMA).

Water Quality

The project will not adversely affect water quality as the purpose of the project is to provide stored goods and equipment with environmental protection. Site drainage will not be affected as the existing site is already completely paved.

3. Archaeological, Cultural, Botanical and Faunal Resources

Archaeological Resources

As stated earlier, the project site is located on mixed fill lands that consist entirely of materials that were brought to the current location. As such no archaeological or historic materials are expected to exist on the project site.

In the unlikely event that any archaeological artifacts are uncovered, all work will cease and the Department of Land and Natural Resources Historic Preservation Division will be notified for appropriate action.

Cultural Resources

The Honolulu Harbor area has historically been a heavily used seaport and trade center. This is well recorded and documented but specific to the project site, no cultural activities are known to have occurred on the subject area. As stated in the preceding paragraph, the site was created by introduced fill material and cultural activities, if any, have not occurred on the site since the time the site was hardened and used for industrial use.

<u>Flora</u>

The majority of the project site is covered with concrete or asphalt paving. Various weedy species were found along the boundary and within cracks in the paved surfaces. These are considered noxious weeds and will be removed prior to any project improvements. No rare, threatened or endangered species of flora were observed within the project site. Invasive species from foreign plants are not expected to be a problem as goods moved and stored at the facility are dry goods that are unlikely to harbor undesirable species.

Fauna

The site does not serve as an endangered wildlife habitat although avifauna, feral cats, and rodents may be found on-site. No fauna was observed during site visits and no rare or endangered species of avifauna were identified.

4. Infrastructure and Utilities

The proposed improvements are not expected to have a significant impact on existing infrastructure and utilities.

Vehicular Access and Traffic Conditions

Vehicular access to the project site is provided through a driveway located off of Nimitz Highway. This driveway serves as the primary interior circulation for the Pier 35 area but is not well marked as a roadway. The area is generally paved and provides easy access for large trailers and trucks that serve the surrounding lots.

The proposed warehouse addition will not alter existing internal circulation nor will it place any additional demand for internal and highway access circulation. The proposed improvement is intended for storage purposes of current shipped goods and is not an expansion of the existing business. Nine parking stalls will be included in the scope of the proposed project. Loading areas for the new warehouse will use existing on-site circulation patterns and will not affect existing operations.

No additional traffic within the Pier 35 area or Nimitz Highway will be generated as a result of the operations of the completed project. Cumulative impacts to the project area are also not expected to increase as a result of the construction of the new warehouse. Limited direct impacts will be experienced during the construction phase of the project as construction vehicles and workers will require access to the site.

Early consultation with the Department of Transportation (DOT) Highways Division indicated that no highway impacts were anticipated. The DOT Highways Division has noted that during the a.m. peak hour, the left outbound lane on Nimitz Highway is coned for inbound traffic and only right-turn in and right-turn out are allowed at the access driveway. This restricted access does not impact the operation of the proposed warehouse.

The proposed project will not cause queuing as the volume of vehicles entering the secure property are very small and most activities occur within the warehouse building.

Water

The proposed improvements will have minimal impact on municipal potable water resources. A single toilet room will be included in the warehouse with a total of two water fixtures.

Wastewater

Wastewater for the project site will be accommodated by the existing municipal wastewater system. The total wastewater demand for the proposed action is limited to the additional two water fixtures included within the scope of the proposed improvements.

Drainage

The majority of the site is paved and is relatively flat. The proposed action will not result in the loss of any permeable surfaces as the site is already paved. Stormwater generally flows from south to north where it is received by an area identified as Easement V which directs flow into the State municipal storm drain system. Drainage is not directed onto other properties.

Solid Waste

Environmental Assessment

Solid waste disposal will be collected by a private hauler and disposed of at an approved County refuse site.

Telephone and Electrical Services

Telephone and electrical services are available for the project via mainlines located along Nimitz Highway. The demand for telephone and electrical service is not expected to be significant for this skylight-illuminated facility.

5. Public Facilities

The proposed project will not have any significant impact on public facilities including schools, police, and fire or emergency medical services.

Kalihi Kai Fire Station Number 31 provides fire protection and first response emergency and rescue service to the project area. The station is located at 1334 Nimitz Highway, approximately one half mile from the project site. Response time to the site is approximately 5 minutes. An engine, ladder and rescue company serve this station.

Ambulance service for the project vicinity is provided by City and County of Honolulu Emergency Medical Service Charlie 1 unit operating out of St. Francis Hospital in Liliha or the Aiea unit located at Pali Momi Hospital. Response time to the project area is approximately 5 to 10 minutes.

Police service in the project area is part of the Honolulu Police Department's District 5. The district's administrative offices are located at the Kalihi Police Station.

D. Social and Economic Characteristics

The proposed action will not have significant social impact to the surrounding area. The project consists of a simple warehouse building that will be used for the safe keeping of transported goods in a dry and secure location.

The project will have some beneficial economic impacts. The construction of the facility will create short-term employment, the purchase of goods and services, the generation of excise and income taxes, and other secondary and tertiary effects as a result of the project expenditures.

The long-term operations of the facility will provide a safe and secure area to store goods awaiting transport to their final destination. The warehouse is critical in maintain the value of the goods in a dry, controlled facility.

Environmental Assessment

E. Relationship to Plans, Codes and Ordinances

The project site is also zoned I-3 waterfront industrial use as specified under the City and County of Honolulu Zoning Map. Under the prevailing industrial and port related uses are permitted.

The proposed action is consistent with Sections II. Economic Activity and Section V. Transportation and Utilities of the City and County of Honolulu *General Plan*. The proposed warehouse addition will allow the continued operation of ship chandelling by a local company supporting the local economy. The services provided by the applicant also ensure that ship transit times are keep efficient and timely.

The project site is also located within the City and County of Honolulu *Primary Urban Center Development Plan.* Within this plan, Chapter 3. Land Use and Transportation, is specifically relevant to the proposed project. Sub-section 3.4.2.4 Military, Airport, Harbor, and Industrial Areas, supports the development of warehousing facilities to support increased economic activity. This section states that warehousing space should be supported to prevent shortages and support growing businesses. The proposed project fully supports this objective.

The State Land Use Boundary Maps show the project locations to be in Urban use. The project is not located within the Special Management Area (SMA).

The project is also consistent with the objectives of the Hawaii State Plan particularly with respect to the objectives and policies of the economy. The provided services support trade, visitor and transportation industries and are a critical service to Hawaii.

The State of Hawaii Department of Transportation Oahu 2020 Master Plan is a plan for Oahu's commercial harbors. In this regard, the proposed action fully supports the Plan's objectives of meeting the future operational requirements of Honolulu's commercial harbor users. The proposed action will enhance harbor capacity and will provide a safe and secure environment. The proposed action will also promote Hawaii's economy through support of cargo and tourism operations as well as support maritime commercial operations in an efficient and productive manner.

The proposed improvements will require a number of County permits.

- Demolition Permit for the removal of the existing structure
- Building, Electrical and Plumbing Permits

Work on the proposed improvements will not commence until the demolition and building permits and the environmental assessment process are completed.

Environmental Assessment

F. Probable Impact on the Environment

The proposed improvements will result in a more intensive use of the existing unused space. While the proposed use is greater than its current non-use, the subject property is zoned for industrial development and is also designated as an urban site on the State Land Use Map. As such, reasonable development of the site must be expected.

Construction and operation of the new warehouse facility will improve the general character of the area through its continued use and maintenance. In its current unused condition, the site is not well maintained and provides little value to the State or businesses operating in the project area.

Other offsetting impacts are the creation of short-term and long-term employment both on property and off-property, the generation of additional revenues to the State of Hawaii and the lessee and the resultant secondary and tertiary spending and tax collections that will likely be experienced in the community.

G. Adverse Impacts Which Cannot be Avoided

Adverse impacts that cannot be avoided are generally related to short-term construction activities. These impacts can be minimized by sound construction practices, adherence to applicable construction regulations as prescribed by the Department of Health, and coordination with applicable State and County agencies.

Minor grading will be required for the construction of the project improvements. This work will create dust, noise and a minor traffic nuisance during the course of construction. Paving of the roadways will also require the use of heavy machines that will enter the project site. Traffic control measures will be used to minimize the disruption of traffic during the construction period.

The harbor port area is industrial in nature and there remains a possibility that some contaminated soils remain within the project site. No significant excavation is required for the project however in the event that any contaminated materials are discovered during the course of construction, work will cease, the Department of Transportation Harbors Division will be notified, and appropriate assessment and remediation measures will be taken.

H. Alternatives to the Proposed Action

Alternatives considered for the project were limited to uses allowed in the limited industrial zoning district which could be more disruptive and less visually appealing than the proposed project. Under I-3 zoning uses as intensive as

automobile sales and repair, construction material storage, light manufacturing and warehousing are permissible. These uses were generally not consistent with the intent of the applicant and were therefore dismissed from further consideration.

The no-action alternative was not considered as non-action would not provide any value to the owner or with the owner's objectives of creating protected storage for ship stores.

I. Mitigation Measures

Long-term impacts resulting from the proposed improvements are expected to be minimal or non-existent based upon the subject environmental assessment. Longterm air and noise impacts are not expected to change significantly after improvements are completed. Traffic conditions will not change, as there will not be any new demand for access to the project site. Short-term construction-related noise and air quality impact mitigation measures include general good housekeeping practices and scheduled maintenance to avoid a prolonged construction period. The contractor will be directed to use best management practices (BMP) wherever applicable.

Examples of BMPs that may be implemented include watering during demolition and clearing and the containment of any runoff during the construction period. All waste materials will be securely contained and appropriately disposed.

J. Irreversible and Irretrievable Commitment of Resources

Implementation of the proposed project will result in the irreversible and irretrievable commitment of resources in the use of non-recyclable energy expenditure and labor. Materials used for new construction may have salvage value; however, it is unlikely that such efforts will be cost-effective. The expenditure of these resources is offset by gains in construction-related wages, increased tax base and tertiary spending.



Figure 8: Soil Survey Map

Source: USDA Soil Conservation Service Environmental Assessment

III-10

Alaa Ship Service Honolulu, Hawaii



Figure 9: FIRM Map

Source: FEMA

Environmental Assessment

Alaa Ship Service Honolulu, Hawaii

IV. REASONS SUPPORTING FINDING OF NO SIGNIFICANT IMPACT

As stated in Section 11-200-12, EIS Rules, Significance Criteria: in determining whether an action may have a significant effort on the environment, every phase of a proposed action shall be considered. The expected consequences of an action, both primary and secondary, and the cumulative as well as the short-term and long-term effects must be assessed in determining if an action shall have significant effect on the environment. Each of the significance criteria is listed below and is followed by the means of compliance or conflict (if extant).

• Involves the loss or destruction of any natural or cultural resource.

The proposed action will not involve the loss or destruction of any natural or cultural resource. The project site was previously completely developed and is devoid of any natural or cultural resources.

• Curtails the range of beneficial uses of the environment.

The proposed installation will not curtail any beneficial uses of the environment. The project area is not generally used by the public nor is it used as a recreational or cultural resource. Public access to the site is, in fact, restricted for safety and security reasons.

• Conflicts with the State's long-term goals or guidelines as expressed in Chapter 343, Hawaii Revised Statutes.

The proposed action is consistent with the goals and guidelines expressed in Chapter 343, Hawaii Revised Statutes. The proposed action is triggered by the use of State of Hawaii lands owned by the Department of Transportation. The subject Environmental Assessment has been developed in compliance with the Chapter 343.

• Substantially affects the economic or social welfare of the community or state.

The proposed action will make a positive contribution to the welfare of the County and State by creating employment during the construction period and will also benefit the State through increased tax revenue.

• Substantially affects public health.

The proposed improvements will not have a significant effect on public health. The project may promote health indirectly by providing a safe and secure area to store goods which may include consumables.

• Involves substantial or adverse secondary impacts, such as population changes or effect on public facilities.

The proposed action will not produce substantial secondary impacts resulting in population changes or significantly increase use of public facilities.

• Involves substantial degradation of environmental quality.

The proposed improvements will not involve the substantial degradation of environmental quality. The improvements proposed will have short-term impact on the environment; however, this is temporary in nature.

• Cumulatively have a considerable effect upon the environment or involve a commitment for larger actions.

The proposed action is not a first phase of any larger action nor will it have a considerable effect on the environment. The project is expected to remain for the long-term and is not designed for larger expansion or other related development.

• Affect rare, threatened or endangered species, or their habitats.

The proposed action will not affect any rare, threatened or endangered species of flora or fauna. The project site is not located near any wildlife refuge or sensitive environmental area.

• Detrimentally affect air or water quality or ambient noise levels.

The proposed action is not expected to impact air or water quality. Long-term noise levels may increase slightly due to the increased level of activity on the site. This impact is expected to be within acceptable levels of the surrounding industrial area.

Minimal impacts on air quality and noise are anticipated during construction. These impacts will be limited by normal construction practices and compliance with Department of Health construction mitigation standards.

Water quality will not be affected by the proposed action.

 Affect scenic vistas and viewplanes identified in County or State plans or studies. The proposed action will not affect any scenic vistas or view planes identified by the County or State.

• Require substantial energy consumption.

The project will not increase energy consumption. Energy utilization during the construction phase will increase through the use of fossil fuels used by construction vehicles. Operations of the facility will have minimal energy consumption. Skylights will provide lighting for the building and roof vents will be used for temperature control.

• Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.

The project is not located in an area that will be adversely affected by hydrological hazards nor is the project anticipated to create any hazards to surrounding lands. Best Management Practices will be implemented to minimize or prevent erosion.

Finding of No Significant Impact

Based on the above stated criteria, the Department of Transportation (DOT) has determined that the proposed project will not have any significant adverse environmental impacts and that an Environmental Impact Statement will not be required for the proposed action. This Final Environmental Assessment will be subject to public review and prescribed by Chapter 343 Hawaii Revised Statutes.

V. LIST OF PARTIES CONSULTED PRIOR TO DEVELOPMENT OF THE DRAFT ENVIRONMENTAL ASSESSMENT

Agencies with ministerial or specific interests regarding the proposed project were contacted for their early comments regarding the proposed project.

Department of Transportation Harbors Division State of Hawaii

Department of Transportation Highways Division State of Hawaii

Department of Planning and Permitting City and County of Honolulu

Fire Department City and County of Honolulu

Planning Department City and County of Honolulu

Police Department City and County of Honolulu

VI. LIST OF AGENCIES, ORGANIZATIONS AND INDIVIDUALS CONSULTED DURING THE DRAFT ENVIRONMENTAL ASSESSMENT PROCESS

Date of Response

State of Hawaii Agencies

1.	Dept. of Agriculture	
2.	Dept of Business, Economic Development	
	and Tourism. Office of Planning	
3.	Dept of Health. Environmental Planning Office	
4.	Dept of Health, Clean Air Branch	
5.	Dept of Health, Clean Water Branch	October 29, 2009
6.	Dept of Health, Noise, Radiation and Indoor Noise Branch	October 28, 2009
7.	Dept. of Health, Office of Hazard Evaluation and	
	Emergency Response	
8.	Dept of Land and Natural Resources	November 24, 2009
	Historic Preservation Division	
9.	Dept of Land and Natural Resources	November 19, 2009
	District Land Office	
10	. Dept. of Transportation, Harbors Division	
11	. Dept. of Transportation, Highways Division	December 4, 2009
12	. Office of Environmental Quality Control	
13	. Office of Hawaiian Affairs	
14	. University of Hawaii, Environmental Center	
City a	nd County of Honolulu Agencies	
1.	Board of Water Supply	November 6, 2009
2.	Department of Environmental Services	
3.	Department of Planning and Permitting	November 27, 2009
4.	Department of Transportation Services	November 19, 2009
5.	Fire Department	November 9, 2009
6.	Police Department	October 27, 2009

Libraries

1.	Hawaii	State	Library
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2. Kalihi Public Library

Other

1. URS Corporation, Iwilei District Project Coordinator

10.0381

CHIYOME L. FUKINO, M.D. DIRECTOR OF HEALTH



109 NOV -3 P2:12

HARBORS DIVISIO

STATE OF HAWAII DEPARTMENT OF HEALTH P.O. BOX 3378 HONOLULU, HAWAII 96801-3378

In reply, please refer to: EMD / CWB

10068PDCL.09

October 29, 2009

Mr. Dean Watase Department of Transportation Harbors Division 79 South Nimitz Highway Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment (DEA) for the Aala Ship Service Warehouse Addition Honolulu, Island of Oahu, Hawaii

The Department of Health, Clean Water Branch (CWB), has reviewed the subject document and offers these comments on your project. Please note that our review is based solely on the information provided in the subject document and its compliance with Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at

http://www.hawaii.gov/health/environmental/env-planning/landuse/CWB-standardcomment.pdf.

- 1. Any project and its potential impacts to State waters must meet the following criteria:
 - a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.
 - b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.
 - c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).
- You may be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). For the following types of discharges into Class A or Class 2 State waters, you may apply for NPDES general permit coverage by submitting a Notice of Intent (NOI) form:

LINDA LINGLE GOVERNOR OF HAWAII

Mr. Dean Watase October 29, 2009 Page 2

- a. Storm water associated with construction activities, including excavation, grading, clearing, demolition, uprooting of vegetation, equipment staging, and storage areas that result in the disturbance of one (1) acre or more of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. An NPDES permit is required before the start of the construction activities.
- b. Construction activity dewatering.
- c. Storm water associated with industrial activities.

You must submit a separate NOI form for each type of discharge at least 30 calendar days prior to the start of the discharge activity, except when applying for coverage for discharges of storm water associated with construction activity. For this type of discharge, the NOI must be submitted 30 calendar days before the start of construction activities. The NOI forms may be picked up at our office or downloaded from our website at http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html.

- 3. For types of wastewater not listed in Item 2 above or wastewater discharging into Class 1 or Class AA waters, you must obtain an NPDES individual permit. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. The NPDES application forms may be picked up at our office or downloaded from our website at http://www.hawaii.gov/health/environmental/water/cleanwater/forms/indiv-index.html.
- 4. The DEA indicates that storm water from the project site flows into the State municipal storm drain system. The Department of Transportation (DOT) shall ensure that all discharges related to the construction and operation of the proposed facility will comply with the Notice of General Permit Coverage (File No. HI 03KB482) for the Honolulu Harbor Small Municipal Separate Storm Sewer System (MS4) and the NPDES permit (Permit No. S000001) for the DOT-Highways MS4.
- 5. The DEA indicates that the project site is located primarily on soils classified as dredged material, garbage and general excess material. The appendix to the DEA contains a Geotechnical Engineering Exploration Report which indicates that a petroleum odor was detected in some of the soil borings. Please ensure that Best Management Practices (BMPs) are utilized in the handling and disposal of any contaminated dewatering effluent from the excavations for the utility line installations.

NPDES permit coverage is required for any discharges of dewatering effluent to State surface waters.

10068PDCL.09

Mr. Dean Watase October 29, 2009 Page 3

- 6. The DEA indicates that appropriate assessment and remediation measure will be taken if contaminated soil is discovered during construction. If contaminated soil is discovered during construction, please ensure that containment BMPs are utilized to prevent a discharge of contaminated sediment/storm water runoff to State waters.
- Please determine the Aala Ship Service Warehouse facility North American Industrial Classification System (NAICS) United States Structure Codes (four- to six-digit industry code) and the corresponding U.S. Standard Industrial Classification (SIC) Codes. Please see <u>http://www.census.gov/epcd/www/naics.html</u> to determine the NAICS code(s) and description(s) for your facility.

NPDES permit coverage is required for discharges composed entirely of storm water runoff associated with an industrial activity(ies), as categorized in 40 CFR §122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi).

8. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 Water Quality Certification (WQC) are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of \$25,000 per day per violation.

If you have any questions, please visit our website at <u>http://www.hawaii.gov/health/environmental/water/cleanwater/index.html</u>, or contact the Engineering Section, CWB, at 586-4309.

Sincerely,

ALEC WONG, P.E., CHIEF Clean Water Branch

DCL:ml

c: Mr. Taeyong Kim, Environmental Communications, Inc.

HAR-EP 8507.10

January 28, 2010

TO: ALEC WONG, P. E., CHIEF CLEAN WATER BRANCH DEPARTMENT OF HEALTH

Munanta MICHAEL D. FORMBY FROM: DEPUTY DIRECTOR - HARBOR

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA) FOR THE AALA SHIP SERVICE WAREHOUSE ADDITION, HONOLULU

Thank you for your letter dated October 29, 2009 concerning the subject document. We have the following in response to your comments:

- 1-3. Thank you for the information provided, and in particular the applicability of the Department of Health, Clean Water Branch requirements. We stand advised and will seek further assistance from your department if necessary.
- 4. We will ensure that any runoff into the State municipal storm drain system will be in compliance with Notice of General Permit Coverage for the Honolulu Harbor Small Municipal Separate Strom Sewer System and NPDES permit for the Department of Transportation, Highways Division's MS4.
- 5-6. Best Management Practices will be implemented during the construction of the project for the appropriate handling of and disposal of any contaminated dewatering effluent, if encountered.
- 7. The NAICS code for the proposed use is 424990 Nondurable Goods Merchant Wholesalers. The SIC code is 4225.
- 8. It is our understanding that all discharge activities related to project construction or operation must comply with the State's Water Quality Standards.

Alec Wong Page 2 January 28, 2010

HAR-EP 8507.10

We appreciate the time you have taken to review the DEA. Should there be any additional comments, please call Mr. Dean Watase of our Harbors Division Engineering Planning Section at 587-1883.

bc: Mr. Taeyong Kim, Environmental Communications, Inc. HAR-EE, HAR-PM

DW:lm


CHIYOME L. FUKINO, M.D. DIRECTOR OF HEALTH

STATE OF HAWAII DEPARTMENT OF HEALTH P. O. BOX 3378 HONOLULU, HAWAII 96801-3378

In reply, please refer to: File:

October 28, 2009

TO:	Mr. Taeyong Kim Environmental Communications, Inc.
FROM:	Russell S. Takata, Program Manager

SUBJECT: Draft Environmental Assessment for Project Aala Ship Service Warehouse Addition

Our comments should be printed as follows:

"Project activities shall comply with the Administrative Rules of the Department of Health:

• Chapter 11-46 Community Noise Control.

Should there be any questions, please contact me at 586-4701.

c: Mr. Dean Watase, Department of Transportation Harbors Division

HAR-EP 8508.10

January 28, 2010

TO: RUSSELL S. TAKATA, PROGRAM MANAGER INDOOR RADIOLOGICAL HEALTH BRANCH DEPARTMENT OF HEALTH

Murantzy MICHAEL D. FORMBY FROM: DEPUTY DIRECTOR - HARBORS

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA) FOR THE AALA SHIP SERVICE WAREHOUSE ADDITION, HONOLULU

Thank you for your letter dated October 28, 2009 concerning the subject document. We have the following in response to your comment:

We stand advised that the project activities shall comply with Chapter 11-46, Community Noise Control, of the Administrative Rules of the Department of Health.

We appreciate the time you have taken to review the DEA. Should there be any additional comments, please call Dean Watase of our Engineering Planning Section at 587-1883.

bc: √Taeyong Kim, Environmental Communications, Inc. HAR-PM



LAURA H. THIELEN CHARPERSON BOARD OF LAND AND NATURAL RESOURCES COMMISSION ON WATER RESOURCE MANAGEMENT



STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES LAND DIVISION

POST OFFICE BOX 621 HONOLULU, HAWAII 96809

November 19, 2009

Department of Transportation Harbors Division 79 South Nimitz Highway Honolulu, Hawaii 96813-4898

Attention: Mr. Dean Watase

Ladies and Gentlemen:

Subject: Draft Environmental Assessment for Aala Ship Service Warehouse Addition

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Division of Aquatic Resources, Land Division-Oahu District, Division of Boating & Ocean Recreation, Engineering Division, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Historic Preservation will be submitting comments through a separate letter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Mailere E. Under

Morris M. Atta Administrator

Cc: Environmental Communications, Inc.



LAURA H. THIELEN CHARPERSON BOARD OF LAND AND NATURAL RESOURCES COMMISSION ON WATEP RESOURCE MANAGEMENT



STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES LAND DIVISION

POST OFFICE BOX 621 HONOLULU, HAWAII 96809

October 26, 2009

MEMORANDUM



DLNR Agencies:
Div. of Aquatic Resources
Div. of Boating & Ocean Recreation
Engineering Division
Div. of Forestry & Wildlife
Div. of State Parks
Commission on Water Resource Management
Office of Conservation & Coastal Lands
Land Division – Oahu District

DIRECTOR	
COMM. FISH.	T
AQ RES/ENV	
AQ REC	
PLANNER	T
STAFF SVCS	T
RCUH/UH	T
STATISTICS	Τ
AFRC/FED AID	T
EDUCATION	Τ
SECRETARY	T
OFFICE SVCS	
TECH ASST	P
Return to:	1
No. Copies	
Copies to:	

FROM: Morris M. Atta Mallene SUBJECT: Draft Environmental Assessment for Aala Ship Service Warehouse Addition LOCATION: Island of Oahu APPLICANT: Aala Ship Service

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by November 20, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

We have no objections.We have no comments.

) Comments are attached.

Signed Date: 13



LAURA H. THIELEN CHAIRPERSON BOARJ OF LAND AND, ATURAL RESOURCES COMMISSION ON WATER RESOURCE MANAGEMENT

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STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES LAND DIVISION

POST OFFICE BOX 621 HONOLULU, HAWAII 96809

October 26, 2009

MEMORANDUM

TO:

DLNR Agencies: X Div. of Aquatic Resources Div. of Boating & Ocean Recreation Engineering Division Div. of Forestry & Wildlife

Div. of State Parks

Commission on Water Resource Management

Office of Conservation & Coastal Lands

Land Division – Oahu District Morris M. Atta *Malace* ECT: Draft Environmental Assessment for Aala Ship Service Warehouse Addition TION: Island of Oahu CANT: Aala Ship Service Transmitted for your review and comment on the above referenced document. We would iste your comments on this document. Please submit any comments by November 20 FROM: SUBJECT: LOCATION: Island of Oahu **APPLICANT:** Aala Ship Service

appreciate your comments on this document. Please submit any comments by November 20, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

We have no objections. We have no comments. Comments are attached. Signed

DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION

LD/MorrisAtta Ref.:DEAAalaShipWarehouseAddition Oahu.729

COMMENTS

- () We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone
- (X) Please take note that based on the map that you have provided the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone X. The Flood Insurance Program does not have any regulations for developments within Flood Zone X.
- () Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is
- () Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- () Mr. Robert Sumitomo at (808) 768-8097 or Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.
- () Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.
- () Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
- () Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.
- (X) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.
- (X) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

Additional C	omments:	
Other:		

Should you have any questions, please call Ms. Suzie S. Agraan of the Planning Branch at 587-0258.

Signed:	
CARTY CHANG, ACTING CHIEF ENGINEER	
Date: 11/10/09	



LAURA H. THIELEN CHAIRPERSON BOARD OF LAND AND NATURAL RESOURCES COMMISSION ON WATER RESOURCE MANAGEMENT



STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES LAND DIVISION

> POST OFFICE BOX 621 HONOLULU, HAWAII 96809

> > October 26, 2009

MEMORANDUM

TO:

DLNR Agencies:

Div. of Aquatic Resources

X Div. of Boating & Ocean Recreation.

Engineering Division

___Div. of Forestry & Wildlife

_Div. of State Parks

___Commission on Water Resource Management

_Office of Conservation & Coastal Lands

[★]Land Division – Oahu District

FROM: Morris M. Atta Malere

SUBJECT: U Draft Environmental Assessment for Aala Ship Service Warehouse Addition LOCATION: Island of Oahu APPLICANT: Aala Ship Service

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by November 20, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

) We have no objections.

X) We have no comments.

) Comments are attached.

Signed Date:

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LAURA H. THIELEN CHAIRPERSON BOARD OF LAND AND NATURAL RESOURCES COMMISSION ON WATER RESOURCE MANAGEMENT



STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES LAND DIVISION

POST OFFICE BOX 621 HONOLULU, HAWAII 96809

October 26, 2009

MEMORANDUM

TO:

DLNR Agencies: X Div. of Aquatic Resources

____Div. of Boating & Ocean Recreation

Engineering Division

_____Div. of Forestry & Wildlife

___Div. of State Parks

Commission on Water Resource Management

Office of Conservation & Coastal Lands

Land Division – Oahu District

FROM: Morris M. Atta Mallene SUBJECT: Draft Environmental Assessment for Aala Ship Service Warehouse Addition LOCATION: Island of Oahu APPLICANT: Aala Ship Service

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by November 20, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

We have no objections.
We have no comments.
Comments are attached.

Signed: Date: Br

January 28, 2010

- TO: MORRIS M. ATTA, ADMINISTRATOR LAND DIVISION DEPARTMENT OF LAND AND NATURAL RESOURCES
- FROM: MICHAEL D. FORMBY DEPUTY DIRECTOR HARBORS
- SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA) FOR THE AALA SHIP SERVICE WAREHOUSE ADDITION, HONOLULU

Thank you for your letter dated November 19, 2009 concerning the subject document. We have the following in response to your comments submitted by the Engineering Division:

- 1. We understand that the project site is located in FIRM Zone X.
- 2. Water demand and infrastructure for the proposed improvements are limited to a single toilet and sink. The Board of Water Supply has indicated that supply for these fixtures is available.
- 3. Water demand is minimal, however, this quantity will be provided to the Harbors Division Engineering Branch for inclusion in the State Water Projects Plan Update.

We appreciate the time you have taken to review the DEA. Should there be any additional comments, please call Dean Watase of our Harbors Division Engineering Planning Section at 587-1883.

bc: Taeyong Kim, Environmental Communications, Inc. HAR-PM





STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES LAURA H. THIELEN CHAIRPERSON BOARD OF LAND AND NATURAL RESOURCES COMMISSION ON WATER RESOURCE MANAGEMEN

> KEN C. KAWAHARA DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES BOATING AND OCEAN RECREATION BUREAU OF CONVEY ANCES COMMISSION ON WATER RESOURCE MANAGEMENT CONSERVATION AND COSTAL LANDS CONSERVATION AND RESOURCES ENFORCEMENT ENGENEERING FORESTRY AND WILDLIFE HISTORIC PRESERVATION KAHOOLAWE ISLAND RESERVE COMMISSION LAND STATE PARKS

STATE HISTORIC PRESERVATION DIVISION 601 KAMOKILA BOULEVARD, ROOM 555 KAPOLEI, HAWAII 96707

DATE:	November 24, 2009	LOG:	2009.4536
TO:	Environmental Communications, Inc. 1188 Bishop Street, Unit 2210 Honolulu, HI 96813	DOC:	0911RS16
SUBJECT:	Chapter 6E-42 Historic Preservation Review / Draft Env Permit # (None) Building Owner: Aala Ship Service / Property Owner: State Location: 869 N. Nimitz Highway Tax Map Key: (1) 1-5-035:007	ironmen e of Haw	tal Assessment aii

This letter is in response to your submission for a *Draft Environmental Assessment for the Aala Ship Service Warehouse Addition, Honolulu, Oahu, Hawaii* submitted pursuant to Chapter 343, HRS and 11-200, HAR. The document is dated October 2009 and was received by this office November 6. 2009.

The project under discussion is a construction of a new metal warehouse 60 feet by 165 feet (total area 9,900 square feet) to be located on the Diamond Head side of the property. Excavation will be required for building supports and utility lines. The area of potential effect would be the building footprint and the area immediately adjacent during construction.

While the document acknowledges that the height of the property has already been raised by fill, no detailed history of the property prior to filling has been provided, and what filling process that was undertaken is also missing. It is possible that the fill used was from commercial dredging operations to create the adjacent channel to the Kapalama Basin, but it is also possible that the fill was obtained from nearby settled areas and thus may contain artifacts. An examination of historic records should help answer this question. We ask that such research be undertaken.

If you have any questions, please contact Ross W. Stephenson at (808) 692-8028 or ross.w.stephenson@hawaii.gov.

Mahalo for the opportunity to comment.

Pua Aiu, Administrator, Hawaii State Historic Preservation Division

In the event that historic resources, including human skeletal remains, lava tubes, and lava blisters/bubbles are identified during construction activities, all work should cease in the immediate vicinity of the find, the find should be protected from additional disturbance, and the State Historic Preservation Division should be contacted immediately at (808) 692-8015.

I INDA LINGLE GOVERNOR

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HARBORS DIVISION 79 SOUTH NIMITZ HIGHWAY HONOLULU, HAWAII 96813-4898

February 2, 2010

TO: PUA AIU, ADMINISTRATOR HAWAII STATE HISTORIC PRESERVATION DIVISION DEPARTMENT OF LAND AND NATURAL RESOURCES MICHAEL D. FORMBY DEPUTY DIRECTOR – HARBORS FROM:

DRAFT ENVIRONMENTAL ASSESSMENT (DEA) FOR THE AALA SHIP SUBJECT: SERVICE WAREHOUSE ADDITION, PIER 34, HONOLULU

Thank you for your letter to the environmental consultant dated November 24, 2009 concerning the subject document. We have the following in response to your comment:

Thank you for your concurrence that the soils beneath the project area consist of fill material. We have researched the project area and found that the site is in the vicinity of the former Ananoho Fish Pond. A study entitled Ananoho Fishpond, Kalihi Kai, Honolulu, Oahu: Paleoenvironmental Study, May 2007 by International Archaeological Research Institute, Inc. surveyed the area. No conclusive information regarding the source of fill material on the site was provided, however, the study concluded that Harbors redevelopment in the area will not adversely affect archaeological resources and that further archaeological investigations or mitigation measures were not recommended.

We appreciate the time you have taken to review the DEA. Should there be any additional comments, please call Dean Watase of our Harbors Division Engineering Planning Section at 587-1883.

bc: √Mr. Taeyong Kim, Environmental Communications, Inc. HAR-PM

DW:1m

BRENNON T MORIOKA DIRECTOR

> **Deputy Directors** MICHAEL D. FORMBY FRANCIS PAUL KEENO BRIAN H. SEKIGUCHI JIRO A. SUMADA

IN REPLY REFER TO:

HAR-EP 8513.10



LINDA LINGLE GOVERNOR BRENNON T. MORIOKA DIRECTOR



STATE OF HAWAII DEPARTMENT OF TRANSPORTATION 869 PUNCHBOWL STREET HONOLULU, HAWAII 96813-5097

December 4, 2009

Deputy Directors MICHAEL D. FORMBY FRANCIS PAUL KEENO BRIAN H. SEKIGUCHI JIRO A. SUMADA

IN REPLY REFER TO: HWY-PS 2.3931

Mr. Taeyong M. Kim Principal Planner Environmental Communications, Inc. 1188 Bishop Street, Suite 2210 Honolulu, Hawaii 96813

Dear Mr. Kim:

Subject: Draft Environmental Assessment Aala Ship Service Warehouse Addition, Aala Ship Service Oahu, Honolulu, TMK: (1) 1-5-035:007 por.

Thank you for the opportunity to review the subject Draft Environmental Assessment (DEA) for construction of a warehouse in the waterfront industrial complex on the makai side of Nimitz Highway east of Piers 34 and 35 and north of Piers 29 through 33. We understand that it will provide shelter from the elements for goods that are currently stored in the open at the same location. We also understand that the post-construction traffic entering and exiting the existing driveway at Nimitz Highway is not expected to increase because the business is not expanding.

We have the following comments:

- 1. The EA should note that during the a.m. peak hour, the left outbound lane on Nimitz Highway is coned for inbound traffic and only right-turn in and right-turn out are allowed at the access driveway;
- 2. The internal circulation should be designed to prevent queuing back on Nimitz Highway;
- 3. The driveway curve radius must accommodate WB-50 vehicles;
- 4. A site plan that shows Nimitz Highway, the access driveway, the warehouse site, parking areas, access roads/driveways from Nimitz Highway to Piers 29 through 35 should be included;

Mr. Taeyong M. Kim Page 2 HWY-PS 2.3931

- 5. Figures 2, Tax Map, Figure 7, Topographic Survey Map and Figure 9, FIRM Map should be legible. The copies we printed from the compact disc provide almost no useful information due to the faintness of the lines and miniscule text;
- 6. The access driveway and the adequacy of its improvements for the type and size of vehicles entering the site should be more fully assessed and described in the text;
- 7. It should also be noted that a permit is required for all work within the State highway right-of-way. Construction plans must comply with current State requirements and be submitted to the Highways Division for review and approval; a traffic control plan for the construction stage must be submitted to State Highways Division for review and approval; the applicant shall comply with the National Pollutant Discharge Elimination System (NPDES) permit requirements for construction activity disturbing one (1) or more acres of total land area; and no additional storm water runoff will be permitted in the State highway right-of-way.

If you have any questions, please contact Ken Tatsuguchi, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours,

GLENN M. YASUI Administrator Highways Division

January 28, 2010

TO: GLENN M. YASUI, ADMINISTRATOR DEPARTMENT OF TRANSPORTATION, HIGHWAYS DIVISION

THROUGH: JIRO A. SUMADA Sent to DEP-HY 2/3/10 DEPUTY DIRECTOR - HIGHWAYS

MICHAEL D. FORMBY DEPUTY DIRECTOR - HARBORS FROM:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE AALA SHIP SERVICE WAREHOUSE ADDITION, HONOLULU

Thank you for your letter dated December 4, 2009 concerning the subject document. We have the following in response to your comments:

- 1. As requested, the Final Environmental Assessment will be revised to state that traffic movements are altered during peak a.m. hours.
- 2. The proposed action will have no impact on traffic queuing as no additional traffic generation will result from the proposed action.
- 3. Entry into the exiting driveway is adequate for WB-50 vehicles as they are already utilizing the site.
- 4. No scale plan is available that shows the level of detail requested, however, Figure 2 shows the site location in relation to Nimitz Highway and Pier 34. Figure 3 provides a detailed drawing of the site entry and location of the proposed improvements.
- 5. Figures 2, 7 and 9 will be rescanned for better legibility.
- 6. Additional discussion regarding the access driveway and vehicular traffic will be elaborated in the project description.
- 7. No work will be conducted within the State highway right of way. We stand advised that construction plans must comply with State requirements and that the project may require NPDES permits.

Glenn M. Yasui Page 2 January 28, 2010

HAR-EP 8506.10

Should there be any additional comments, please call Dean Watase of our Harbors Division Engineering Planning Section at 587-1883.

bc: √Taeyong Kim, Environmental Communications, Inc. HAR-PM

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HI 96843



November 6, 2009

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman SAMUEL T. HATA ALLY J. PARK ROBERT K. CUNDIFF WILLIAM K. MAHOE

JEOFFREY S. CUDIAMAT, Ex-Officio BRENNON T. MORIOKA, Ex-Officio

WAYNE M. HASHIRO, P.E. Manager and Chief Engineer

DEAN A. NAKANO Deputy Manager and Chief Engineer

Mr. Dean Watase Department of Transportation Harbors Division State of Hawaii 79 South Nimitz Highway Honolulu, Hawaii 96813-4898

Subject: Letter Dated November 2, 2009 Requesting Comment on the Aala Ship Service Warehouse Addition Draft Environmental Assessment (DEA), <u>TMK 1-5-35:7</u>

The existing water system is presently adequate to accommodate the proposed warehouse addition. However, please be advised that this information is based upon current data and, therefore, the Board of Water Supply reserves the right to change any position or information stated herein up until the final approval of your building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval.

When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

If you have any questions, please contact Robert Chun at 748-5443.

Very truly yours,

KEITH S_SHIDA for

Program Administrator Customer Care Division

Cc: Mr. Taeyong Kim, Environmental Communications, Inc.

January 28, 2010

Mr. Keith S. Shida Program Administrator Board of Water Supply 630 South Beretania Street Honolulu, Hawaii 96813

Dear Mr. Shida:

Subject: Draft Environmental Assessment (DEA) for the Aala Ship Service Warehouse Addition, Honolulu

Thank you for your letter dated November 6, 2009 concerning the subject document. We have the following in response to your comments:

- 1. We understand that based on current data, water supply will be available for the proposed project.
- 2. We also understand that when water is made available, the applicant will be required to pay Water System Facilities Charges.
- 3. The Honolulu Fire Department has been included in the review process and has provided comments regarding the subject project.

We appreciate the time you have taken to review the DEA. Should there be any additional comments, please call Mr. Dean Watase of our Harbors Division Engineering Planning Section at 587-1883.

Very truly yours,

Murans Teg

MICHAEL D. FORMBY Deputy Director, Department of Transportation Harbors Division

bc: Mr. Taeyong Kim, Environmental Communications, Inc. HAR-PM

DEPARTMENT OF PLANNING AND PERMITTING

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813 TELEPHONE: (808) 768-8000 • FAX: (808) 768-6041 DEPT. WEB SITE: www.honoluludpp.org • CITY WEB SITE: www.honolulu.gov

MUFI HANNEMANN MAYOR



DAVID K. TANOUE DIRECTOR

ROBERT M. SUMITOMO DEPUTY DIRECTOR

2009/ELOG-2537(MH)

November 27, 2009

Mr. Taeyong Kim Environmental Communications, Inc. 1188 Bishop Street, Suite 2210 Honolulu, Hawaii 96813

Dear Mr. Kim:

Subject: Draft Environmental Assessment (DEA) for Aala Ship Service Warehouse Addition, Former Tax Map Key (TMK) 1-5-035:007

In response to your request for comments of October 23, 2009 regarding the DEA for the subject project, we have the following comments:

- The Final Environmental Assessment (FEA) should include a discussion of how the proposed project is consistent with the objectives and policies of the City and County of Honolulu's General Plan. Refer to Section II. Economic Activity, Objective G, Policies 1 and 3, and Section VII. Physical Development and Urban Design, Objective B, Policy 8 of the City and County of Honolulu's General Plan.
- 2. The FEA should also discuss how the proposed project is consistent with Section 3.4.2.4 Military, Airport, Harbor, and Industrial Areas of the Primary Urban Center Development Plan dated June 2004. Refer to the 4th and 7th bullet points on page 3-48 of the Primary Urban Center Development Plan.
- 3. The subject project is not in the Special Management Area (SMA).
- 4. The FEA should note that TMK 1-5-035:007 is not current. According to subdivision file 2007/SUB-170, this former parcel was consolidated with TMK 1-5-035:012 and resubdivided into lot 36-A-1 and lot 35-A-1 (see attached). Based on the site plan in Figure 3 of the DEA, the new warehouse building is proposed to be located within lot 35-A-1. According to the Real Property Assessment Division of the Department of Budget and Fiscal Services, this lot does not have an updated TMK at this time.
- 5. According to page III-1 of the DEA, the project site consists of 0.873 acres. This area is not consistent with the area of 1.237 acres listed in the project summary on page I-1 of the DEA. Therefore, the FEA should disclose an area that is consistent in both of these referenced pages.
- 6. The FEA should further include a complete listing of required permits and approvals.

Mr. Taeyong Kim Environmental Communications, Inc. November 27, 2009 Page 2

Should you have any questions, please contact Matt Higashida of our staff at 768-8045.

Very truly yours,

6

David K. Tanoue, Director Department of Planning and Permitting

DKT:js

Attachment

cc: Office of Environmental Quality Control Harbors Division, Department of Transportation Aala Ship Service

Aala Ship

HAR-EP 8510.10

January 28, 2010

Mr. David K. Tanoue, Director Department of Planning and Permitting City and County of Honolulu 650 South Street, Seventh Floor Honolulu, Hawaii 96813

Dear Mr. Tanoue:

Subject: Draft Environmental Assessment (DEA) for the Aala Ship Service Warehouse Addition, Honolulu

Thank you for your letter dated November 27, 2009 concerning the subject document. We have the following in response to your comments:

- 1. The Final EA has been revised to include discussion regarding the *Honolulu General Plan.*
- 2. The Final EA has been revised to include discussion regarding Section 3.4.2.4 of the *Primary Urban Center Development Plan.*
- 3. Thank you for your verification that the project is not located within the Special Management Area (SMA).
- 4. Thank you for your comment regarding the Tax Map Key (TMK) for the project site. We understand that an updated TMK is not yet available for the site but the lot consolidation action will be referenced.
- 5. The area on pages I-1 and III-1 will be revised to 52,078 square feet (1.1955 acres) in accordance with the new consolidation action as referenced in comment 4.
- 6. Permits and approvals required for the project are listed on page II-7.

Mr. David K. Tanoue Page 2 January 28, 2010

HAR-EP 8510.10

We appreciate the time you have taken to review the DEA. Should there be any additional comments, please call Mr. Dean Watase of our Harbors Division Engineering Planning Section at 587-1883.

Very truly yours,

Maran Stan

MICHAEL D. FORMBY Deputy Director, Department of Transportation Harbors Division

bc: Mr. Taeyong Kim, Environmental Communications, Inc. HAR-PM

HONOLULU FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

636 South Street Honolulu, Hawaii 96813-5007 Internet: www.honolulu.gov/hfd Fax: 808-723-7111 Phone: 808-723-7139



KENNETH G. SILVA FIRE CHIEF

ALVIN K. TOMITA DEPUTY FIRE CHIEF

MUFI HANNEMANN MAYOR

November 9, 2009

Mr. Taevong Kim Environmental Communications, Inc. 1188 Bishop Street, Suite 2210 Honolulu, Hawaii 96813

Dear Mr. Kim:

Subject: Aala Ship Service Warehouse Addition Honolulu, Oahu Tax Map Key: 1-5-035: 007 portion

In response to your letter received on October 26, 2009, regarding the above-mentioned subject, the Honolulu Fire Department (HFD) reviewed the material provided and requires that the following be complied with:

- 1. Provide a fire apparatus access road for every facility, building, or portion of a building hereafter constructed or moved into or within the jurisdiction when any portion of the facility or any portion of an exterior wall of the first story of the building is located more than 150 feet (45 720 mm) from a fire apparatus access road as measured by an approved route around the exterior of the building or facility. (1997 Uniform Fire Code, Section 902.2.1.)
- 2. Provide a water supply, approved by the county, capable of supplying the required fire flow for fire protection to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed or moved into or within the county.

On-site fire hydrants and mains capable of supplying the required fire flow shall be provided when any portion of the facility or building is in excess of 150 feet (45 720 mm) from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building. (1997 Uniform Fire Code, Section 903.2, as amended.)

Mr. Taeyong Kim Page 2 November 9, 2009

3. Submit civil drawings to the HFD for review and approval.

Should you have any questions, please call Battalion Chief Socrates Bratakos of our Fire Prevention Bureau at 723-7151.

Sincerely, church s. Set

KENNETH G. SILVA Fire Chief

KGS/SY:jl

cc: Dean Watase, Department of Transportation, Harbors Division

HAR-EP 8503.10

January 28, 2010

Chief Kenneth G. Silva Honolulu Fire Department City and County of Honolulu 636 South Street Honolulu, Hawaii 96813-5007

Dear Chief Silva:

Subject: Draft Environmental Assessment (DEA) for the Aala Ship Service Warehouse Addition, Honolulu

Thank you for your letter dated November 9, 2009 concerning the subject document. We have the following in response to your comments:

- 1. The proposed warehouse structure is readily accessible for fire apparatus from the entry into the project property.
- 2. An approved Honolulu Fire Department (HFD) water source connection is located at the adjacent existing warehouse building. This source is expected to handle any fire protection requirements for the new warehouse addition.
- 3. Civil engineering drawings will be submitted to the HFD for review and approval.

We appreciate the time you have taken to review the DEA. Should there be any additional comments, please call Mr. Dean Watase of our Harbors Division Engineering Planning Section at 587-1883.

Very truly yours,

minante

MICHAEL D. FORMBY ^{*} Deputy Director, Department of Transportation Harbors Division

bc: Mr. Taeyong Kim, Environmental Communications, Inc. HAR-PM

DEPARTMENT OF TRANSPORTATION SERVICES CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR HONOLULU, HAWAII 96813 Phone: (808) 768-8305 • Fax: (808) 523-4730 • Internet: www.honolulu.gov

COUNTY OF THE

WAYNE YOSHIOKA DIRECTOR

SHARON ANN THOM DEPUTY DIRECTOR

TP10/09-338821R

MUFI HANNEMANN MAYOR

November 19, 2009

Mr. Taeyong Kim Environmental Communications, Inc. 1188 Bishop Street, Suite 2210 Honolulu, Hawaii 96813

Dear Mr. Kim:

Subject: Aala Ship Service Warehouse Addition DEA

This responds to your October, 2009, letter requesting consultation and comments on a Draft Environmental Assessment for the subject project. We have no comments to offer at this time.

Thank you for the opportunity to review this matter. Should you have any further questions on the matter, you may contact Mr. Brian Suzuki of my staff at 768-8349.

Very tryly yours,

WAYNE Y. YOSHIOKA Director

cc: Hawaii Department of Transportation, Harbors Division Office of Environmental Quality Control

HAR-EP 8504.10

January 28, 2010

Mr. Wayne Y. Yoshioka, Director Department of Transportation Services City and County of Honolulu 650 South King Street, Third Floor Honolulu, Hawaii 96813

Dear Mr. Yoshioka:

Subject: Draft Environmental Assessment (DEA) for the Aala Ship Service Warehouse Addition, Honolulu

Thank you for your letter dated November 19, 2009 concerning the subject document. We understand that you have no comments at this time regarding the subject project.

We appreciate the time you have taken to review the DEA. Should there be any additional comments, please call Mr. Dean Watase of our Harbors Division Engineering Planning Section at 587-1883.

Very truly yours,

Muransta

MICHAEL D. FORMBY Deputy Director, Department of Transportation Harbors Division

bc: Mr. Taeyong Kim, Environmental Communications, Inc. HAR-PM

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813 TELEPHONE: (808) 529-3111 · INTERNET: www.honolulupd.org

MUFI HANNEMANN MAYOR



PAUL D. PUTZULU ACTING CHIEF

KARL A. GODSEY DEPUTY CHIEF

OUR REFERENCE BS-DK

October 27, 2009

Mr. Dean Watase, Harbors Division State Department of Transportation 79 South Nimitz Highway Honolulu, Hawaii 96813-4898

Dear Mr. Watase:

This is in response to a letter from Environmental Communications, Inc. (ECI), requesting comments on a Draft Environmental Assessment for the Aala Ship Service Warehouse Addition project.

The Honolulu Police Department has no comments to offer at this time.

If there are any questions, please call Major William Chur of District 5 at 529-3156 or Mr. Brandon Stone of the Executive Bureau at 529-3644.

PAUL PUTZULU Acting Chief of Police

F. ANOMPSON, ACTING ASSISTANT CHIEF -

By

DEBORA A. TANDAL Assistant Chief of Police Support Services Bureau

cc: Mr. Taeyong Kim, ECI

January 28, 2010

Chief Louis M. Kealoha Honolulu Police Department City and County of Honolulu 801 South Beretania Street Honolulu, Hawaii 96813

Dear Chief Kealoha:

Subject: Draft Environmental Assessment (DEA) for the Aala Ship Service Warehouse Addition, Honolulu

Thank you for your letter dated October 27, 2009 concerning the subject document. We understand that you have no comments at this time regarding the subject project.

We appreciate the time you have taken to review the DEA. Should there be any additional comments, please call Mr. Dean Watase of our Engineering Planning Section at 587-1883.

Very truly yours,

Marant

MICHAEL D. FORMBY Deputy Director, Department of Transportation Harbors Division

bc:/Mr. Taeyong Kim, Environmental Communications, Inc. HAR-PM

GEOTECHNICAL ENGINEERING EXPLORATION NEW WAREHOUSE BUILDING FOR A'ALA SHIP SERVICE 869 NORTH NIMITZ HIGHWAY HONOLULU, OAHU, HAWAII

W.O. 6045-00 OCTOBER 1, 2008

Prepared for

A'ALA SHIP SERVICE



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

lodde EXPIRATION DATE OF THE LICENSE



GEOLABS, INC. Geotechnical Engineering and Drilling Services 2006 Kalihi Street • Honolulu, HI 96819

Hawaii • California

GEOTECHNICAL ENGINEERING EXPLORATION NEW WAREHOUSE BUILDING FOR A`ALA SHIP SERVICE 869 NORTH NIMITZ HIGHWAY HONOLULU, OAHU, HAWAII

OCTOBER 1, 2008

Prepared for A`ALA SHIP SERVICE



Geotechnical Engineering and Drilling Services

W.O. 6045-00

GEOTECHNICAL ENGINEERING EXPLORATION NEW WAREHOUSE BUILDING FOR A'ALA SHIP SERVICE 869 NORTH NIMITZ HIGHWAY HONOLULU, OAHU, HAWAII W.O. 6045-00 OCTOBER 1, 2008

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GEOLABS, INC. Geolechnical Engineering and Drilling Services

> October 1, 2008 W.O. 6045-00

Mr. Rodney Tamamoto A`ala Ship Service 869 N. Nimitz Highway Honolulu, HI 96817

Dear Mr. Tamamoto:

Geolabs, Inc. is pleased to submit our report entitled "Geotechnical Engineering Exploration, New Warehouse Building for A'ala Ship Service, 869 North Nimitz Highway, Honolulu, Oahu, Hawaii" prepared in support of the design of the new warehouse project.

Our work was performed in general accordance with the scope of services outlined in our fee proposal dated March 13, 2008.

Please note that the soil samples recovered during our field exploration (remaining after testing) will be stored for a period of two months from the date of this report. The samples will be discarded after that date unless arrangements are made for a longer sample storage period. Please contact our office for alternative sample storage requirements, if appropriate.

Detailed discussion and specific design recommendations for the project are contained in the body of this report. If there is any point that is not clear, please contact our office.

Very truly yours,

GEOLABS, INC.

Clayton S. Mimura, P.E. President

CSM:TK:mj

(h:\6000Series\6045-00.tk1 - p2)

2006 Kalihi Street • Honolulu, Hawaii 96819 Phone: (808) 841-5064 • Facsimile: (808) 847-1749 • E-mail: hawaii@geolabs.net

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GEOLABS, INC. Hawaii · California

GEOTECHNICAL ENGINEERING EXPLORATION NEW WAREHOUSE BUILDING FOR A'ALA SHIP SERVICE 869 NORTH NIMITZ HIGHWAY HONOLULU, OAHU, HAWAII

W.O. 6045-00 OCTOBER 1, 2008

SUMMARY OF FINDINGS AND RECOMMENDATIONS

Based on our field exploration, the subsurface conditions at the project site generally consist of relatively thin surface fills, on the order of about 2.5 to 4 feet thick, placed over soft and/or loose lagoonal deposits extending to depths of about 7 to 8 feet below the existing pavement surface. Below the lagoonal deposits, the borings encountered hard coral formation starting at depths of about 9 to 11.5 feet and extending to the maximum depth explored of approximately 53 feet below the existing pavement surface. Petroleum odor was detected based on olfactory method (smell) between depths of about 4 and 8 feet below the pavement surface in some of the borings drilled. At the time of our field exploration, we encountered groundwater levels at depths varying from approximately 4.1 to 4.5 feet below the existing pavement surface.

Based on the subsurface conditions encountered and the moderately high building loads anticipated for the warehouse structure, we believe that the relatively thin fill crust and the soft and/or loose lagoonal deposits encountered at the project site would not provide adequate foundation support for the warehouse structure supported on a shallow foundation system (such as spread footings and/or a mat foundation) without appreciable settlements. Therefore, we recommend supporting the new warehouse structure on a deep foundation system.

Due to the space constraint at the new warehouse location and the relatively shallow depths of the bearing stratum, we believe that the use of driven pile or drilled shaft foundations would not be practical and economical for the project development. Therefore, we recommend utilizing micropiles to support the new warehouse structure. We believe that a cased micropile system with a minimum grout bulb diameter of 7.5 inches and a pile length of 30 feet (minimum 20 feet embedment into the hard coral formation) may be used to develop an allowable compressive load capacity of up to 80 kips per pile. In addition, a permanent casing extending to the top of the coral formation should be provided, and the permanent casing should have an outside diameter (OD) of about 7.5 inches (same as the grout bulb size).

The text of this report should be referred to for detailed discussion and specific design recommendations.

END OF SUMMARY OF FINDINGS AND RECOMMENDATIONS

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SECTION 1 - GENERAL

overlying soft and/or loose lagoonal deposits. We anticipated that the lagoonal deposits would be underlain by coralline detritus and/or formation at greater depths. Based on our experience at the site, special attention was given to the following areas for the foundation design of the new warehouse building at the site:

- Quality and thickness of the surface fill crust. .
- Vertical extent and compressibility of the soft/loose lagoonal deposits. .
- Quality, depth, and thickness of the coralline detritus and/or formation. •

1.3 Purpose and Scope

The purpose of our field exploration was to obtain an overview of the surface and subsurface conditions to develop a generalized subsurface data set to formulate geotechnical recommendations for design of the new warehouse building project. In order to accomplish this, we conducted an exploration program consisting of the following tasks and efforts:

- 1. Research and review of available in-house geologic and soils information in the project vicinity.
- 2. Mobilization and demobilization of a truck-mounted drill rig and operators to and from the project site.
- 3. Drilling and sampling of three borings extending to depths ranging from about 47.5 to 53 feet below the existing pavement surface for a total of about 150.5 lineal feet of exploration.
- 4. Coordination of the field exploration and logging of the borings by our geologist.
- Laboratory testing of selected soil samples obtained during our field 5 exploration as an aid in classifying the materials encountered and evaluating their engineering properties.
- 6. Engineering analyses of the field and laboratory data to formulate geotechnical recommendations for the design of the foundations, slabs-on-grade, and site preparation for the project.
- 7. Preparation of this report summarizing our work on the project and presenting our findings and recommendations.

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GEOLABS, INC. Hawaii · California

Page 2

SECTION 1.0 - GENERAL

1.1 Introduction

This report presents the results of our geotechnical engineering exploration performed for the New Warehouse Building for A'ala Ship Service project in Honolulu on the Island of Oahu, Hawaii. The project location and general vicinity are shown on the Project Location Map, Plate 1.

This report summarizes our findings and geotechnical recommendations derived from our field exploration, laboratory testing, and engineering analyses. The recommendations provided herein are intended for the design of foundations. slabs-on-grade, and site preparation only. In addition, discussions on dewatering requirements are included in this report for information purposes. The findings and recommendations presented herein are subject to the limitations noted at the end of this report.

Project Considerations 1.2

Based on the information provided, the proposed project will involve the construction of a new warehouse building within the A'ala Ship Service property at 869 North Nimitz Highway in Honolulu on the Island of Oahu, Hawaii. The proposed warehouse site is presently occupied by a two-level storage rack.

The new warehouse building will be a single-story structure measuring 165 feet long and 60 feet wide with a total floor area of approximately 10,000 square feet. Based on information provided by the project structural engineer, the maximum column loads will be on the order of about 300 kips with wall loads of up to about 8.5 kips per lineal foot. Based on the existing topography at the project site, we anticipate that the finish floor elevation for the warehouse building will be set at or close to the existing grades. Detailed information for the proposed warehouse building development was not available at the time this report was prepared.

Based on our experience in the project vicinity, we anticipated that the subsurface conditions at the project site would consist of near-surface fill materials

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GEOLABS, INC.

Page 1

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SECTION 2.0 - SITE CHARACTERIZATION

2.1 Regional Geology

The Island of Oahu is composed largely of the weathered remnants of the Waianae and Koolau shield volcanoes. The older Waianae Volcano forms the bulk of the western third of the island while the younger Koolau Volcano forms the majority of the eastern two-thirds of the island. It is believed that Waianae Volcano became extinct while Koolau Volcano was still active, and its eastern flank is partially buried below Koolau lava in Central Oahu. When the building of the Waianae and Koolau Shield Volcanoes came to an end, only a slight embayment existed on the southern coast of Oahu.

The project site is generally on the coastal plain of Southern Oahu. The coastal plain was built on the eroded flanks of the Koolau Volcano, which forms the eastern two-thirds of the Island of Oahu. The coastal plain was built by extensive accumulation of alluvium derived from erosion of the volcano, interbedded with coral reefs and associated deposits.

During the Pleistocene Epoch (Ice Age), sea levels fluctuated in response to the cycles of continental glaciation. Most of the coastal plains were developed during the Pleistocene Epoch when the sea levels fluctuated significantly. As the glaciers grew and advanced, less water was available to fill the oceanic basins such that sea levels fell below the present stands of the sea. When the glaciers melted and receded, an excess of water became available such that the sea levels rose to above its present level.

The processes of erosion and deposition caused the top of the basaltic lava flows to be highly weathered and mantled by residual soils. During the Kaena stand of the sea (at approximately +90 feet MSL) of the Pleistocene Epoch, a delta of silt, sand, and gravel built out into the embayment near the project site. Therefore, the project site is generally underlain by deposits consisting of calcareous sediments and lagoonal deposits. Land development and reclamation projects within the last century have brought the project site to its present form.

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GEOLABS, INC. Hawaii · California Page 4

- 8. Coordination of our overall work on the project by our senior engineer.
- Quality assurance of our work and client/design team consultation by our principal engineer.
- 10. Miscellaneous work efforts such as drafting, word processing, and clerical support.

Detailed descriptions of our field exploration methodology and the Logs of Borings are presented in Appendix A. The results of the laboratory tests performed on selected soil samples retrieved from our field exploration are presented in Appendix B.

END OF GENERAL

GEOLABS, INC.

Hawaii · California

Page 3
SECTION 2 - SITE CHARACTERIZATION

2.3 Seismic Design Considerations

Based on the International Building Code, 2003 Edition (IBC 2003), the project site may be subject to seismic activity and seismic design considerations will need to be addressed. The following sections provide discussions on the seismicity and soil profile for seismic design at the project site.

2.3.1 Earthquakes and Seismicity

In general, earthquakes that occur throughout the world are caused by shifts in the tectonic plates. In contrast, earthquake activity in Hawaii is linked primarily to volcanic activity. Therefore, earthquake activity in Hawaii generally occurs before or during volcanic eruptions. In addition, earthquakes may result from the underground movement of magma that comes close to the surface but does not erupt. The Island of Hawaii experiences thousands of earthquakes each year, but most are so small that they can only be detected by sensitive instruments. However, some of the earthquakes are strong enough to be felt, and a few cause minor to moderate damage.

In general, earthquakes associated with volcanic activity are most common on the Island of Hawaii. Earthquakes that are directly associated with the movement of magma are concentrated beneath the active Kilauea and Mauna Loa Volcanoes on the Island of Hawaii. Because the majority of the earthquakes in Hawaii (over 90 percent) are related to volcanic activity, the risk of high seismic activity and degree of ground shaking diminishes with increased distance from the Island of Hawaii. The Island of Hawaii has experienced numerous earthquakes greater than Magnitude 5 (M5+); however, earthquakes are not confined only to the Island of Hawaii.

To a lesser degree, the Island of Maui has experienced numerous earthquakes greater than Magnitude 5. Therefore, moderate to strong earthquakes have occurred in the County of Maui. The effects of earthquakes occurring on the Islands of Hawaii and Maui may be felt on the Island of Oahu. For example, several small landslides occurred on the Island of Oahu as a result of the Maui Earthquake of

W.O. 6045-00

GEOLABS, INC. Hawaii · California Page 6

2.2 Subsurface Conditions

Our field exploration program at the project site consisted of drilling and sampling three borings, designated as Boring Nos. 1 through 3, extending to depths of about 47.5 to 53 feet below the existing pavement surface. The approximate boring locations are shown on the Site Plan, Plate 2.

Based on our field exploration, the subsurface conditions at the project site generally consist of relatively thin surface fills placed over lagoonal deposits. The surface fills generally consist of medium dense silty gravel extending down to about 2.5 to 4 feet below the existing pavement surface. The lagoonal deposits below the relatively thin surface fills encountered in the borings drilled generally consist of soft organic clays and loose silty coralline gravel. The lagoonal deposits extended to depths of about 7 to 8 feet below the existing pavement surface.

Below the lagoonal deposits, the borings encountered a thin layer of medium dense cinder sands and coralline detritus materials overlying hard coral formation (starting at depths of about 9 to 11.5 feet) extending to the maximum depth explored of approximately 53 feet below the existing pavement surface. In addition, we wish to point out that petroleum odor was detected based on olfactory method (smell) between depths of about 4 and 8 feet below the pavement surface in some of the borings drilled at the project site. Therefore, special treatment may likely be required for the handling and disposal of excavated contaminated soils during the project construction.

At the time of our field exploration, we encountered groundwater in all of the borings drilled at depths varying from approximately 4.1 to 4.5 feet below the existing pavement surface. It should be noted that groundwater levels could fluctuate depending on tidal fluctuations (due to the proximity of the project site to the Pacific Ocean), seasonal precipitation, groundwater withdrawal and/or injection, and other factors.

Detailed descriptions of the materials encountered and water levels observed in the borings drilled are presented on the Logs of Borings in Appendix A. The results of the laboratory tests performed on selected soil samples are presented in Appendix B.

W.O. 6045-00

GEOLABS, INC. Hawall · California

SECTION 2 - SITE CHARACTERIZATION

SECTION 3.0 - DISCUSSION AND RECOMMENDATIONS

Based on our field exploration, the subsurface conditions at the project site generally consist of relatively thin surface fills, on the order of about 2.5 to 4 feet thick, placed over lagoonal deposits of soft organic clays and loose silty gravel extending to depths of about 7 to 8 feet below the existing pavement surface. Below the lagoonal deposits, the borings encountered hard coral formation starting at depths of about 9 to 11.5 feet and extending to the maximum depth explored of approximately 53 feet below the existing pavement surface. Petroleum odor was detected based on olfactory method (smell) between depths of about 4 and 8 feet below the pavement surface in some of the borings drilled at the project site. Therefore, special treatment may likely be required for the handling and disposal of excavated contaminated soils during the project construction. At the time of our field exploration, we encountered groundwater in all of the borings drilled at depths varying from approximately 4.1 to 4.5 feet below the existing pavement surface.

Based on the subsurface conditions encountered and the moderately high building loads anticipated for the warehouse structure, we believe that the relatively thin fill crust and the soft and/or loose lagoonal deposits encountered at the project site would not provide adequate foundation support for the warehouse structure supported on a shallow foundation system (such as spread footings and/or a mat foundation) without appreciable settlements (on the order of about 3 to 4 inches). Consideration was given to the removal of the soft and/or loose lagoonal deposits below the shallow footing foundations and replacement with compacted select granular fill materials to provide a bearing/stabilization layer for the building loads. However, this would entail substantial foundation work below the groundwater table as well as removal of the contaminated soils that require special treatment and disposal, which may not be viable from an economical standpoint. Therefore, we recommend supporting the new warehouse structure on a deep foundation system as discussed below.

Due to the space constraint at the new warehouse building location and the relatively shallow depths of the bearing stratum, we believe that the use of driven pile or drilled shaft foundations would not be practical and economical for the project

W.O. 6045-00

GEOLABS, INC. Hawail · California Page 8

1938 (M6.8). In addition, some houses on the Island of Oahu were reportedly damaged as a result of the Lanai Earthquake of 1871 (M7+).

Due to the relatively short period of documented earthquake monitoring in the State of Hawaii, information pertaining to earthquakes that were felt on the Island of Oahu may not be complete. In general, we are not aware of reported earthquakes greater than Magnitude 6 occurring on the Island of Oahu over the last 150 years of recorded history. Based on available information, we understand that an earthquake of about Magnitude 5.6 occurred on June 28, 1948 in the vicinity of the Island of Oahu, possibly along the hypothesized and controversial Diamond Head Fault feature.

The Diamond Head Fault feature is believed to extend northeasterly away from the southeastern tip of the Island of Oahu. The Diamond Head Fault feature may be related to the widely documented Molokai Fracture Zone located on the sea floor in the vicinity of the Hawaiian Islands. Despite only the moderate tremor intensity, the resulting damage was reportedly widespread and included broken windows, ruptured masonry building walls, and a broken underground water main. In addition, some areas on the Island of Oahu, including the Tantalus, Iwilei, and Tripler areas, reported more intense ground shaking, severe enough to have cracked reinforced concrete.

2.3.2 Soil Profile

Our field exploration generally encountered surface fills and lagoonal deposits overlying hard coral formation extending to the maximum depth explored of approximately 53 feet below the existing pavement surface. Based on the average penetration resistance (N-values) of the subsurface materials encountered below the foundation subgrade level and the geology of the area, we believe that the project site may be classified as a "Stiff Soil Profile." Therefore, we believe that the seismic design of the warehouse structure may be designed based on a Site Class D soil profile type based on the International Building Code (Table No. 1615.1.1), 2003 Edition.

END OF SITE CHARACTERIZATION

W.O. 6045-00

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Based on the subsurface conditions encountered at the project site, we recommend utilizing a micropile system with a grout bulb diameter of 7.5 inches to support the new structural elements. Based on the subsurface conditions encountered at the project site, we recommend designing each micropile based on an allowable compressive load capacity of 40 tons (80 kips). The allowable compressive load capacity of the micropiles is for supporting dead-plus-live loads and may be increased by one-third (1/3) for transient loads, such as wind or seismic forces. To provide an allowable compressive load capacity of 40 tons (80 kips), we recommend embedding the micropiles a minimum of 20 feet into the hard coral formation. The micropiles would derive its vertical support primarily from skin friction between the grout and the surrounding hard coral formation starting at depths of about 10 to 12 feet below the existing pavement surface.

Based on the subsurface conditions at the project site, we recommend casing the micropiles (permanent casing) at the top. The permanent casing should have an outside diameter (OD) of about 7.5 inches (same as the grout bulb size), and the permanent casing should extend to the top of the coral formation starting at depths of about 10 to 12 feet below the existing pavement surface. The load supporting capacity of micropiles is highly dependent on the installation procedures of the micropiles. Therefore, the actual production micropile lengths should be established after completion of a load test program. Due to possible variation in the length of the micropiles, unit prices should be obtained during bidding for add-ons, shorter micropiles, etc.

3.1.1 Micropile Load Test Program

It should be noted that the compressive load capacity of the micropiles is highly dependent on the drilling procedures and the grouting methods employed by the contractor to install the micropile. Therefore, the compressive load capacity of the micropile may vary considerably between different contractors and micropile foundation systems. In order to determine whether the contractor's methods of micropile installation are adequate and to determine the ultimate compressive load capacity, we recommend performing one pre-production compressive load test on a

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development. Therefore, we recommend utilizing micropiles to support the new warehouse building. We believe that a cased micropile system with a minimum grout bulb diameter of 7.5 inches and a pile length of about 30 feet (minimum 20 feet embedment into the hard coral formation) may be used to develop an allowable compressive load capacity of up to 80 kips per pile. In addition, a permanent casing extending to the top of the coral formation (about 10 to 12 feet below the existing pavement surface) should be provided, and the permanent casing should have an outside diameter (OD) of about 7.5 inches (same as the grout bulb size).

Detailed discussion and our geotechnical recommendations for design of the project are presented in the following sections.

3.1 Micropile Foundations

Based on the anticipated building loads and the subsurface conditions encountered at the project site, we believe that appreciable foundation settlements, on the order of about 3 to 4 inches, would occur if the new warehouse structure is supported on a shallow foundation system. Therefore, we recommend utilizing a deep foundation system to support the new warehouse structure planned. Considering the space constraints and the relatively shallow depths of the bearing stratum, we believe that the use of driven pile or drilled shaft foundations would not be practical and economical for the project development. Therefore, we recommend using cased micropile foundations to support the new warehouse structure planned.

In general, the cased micropile foundation system consists of a small diameter (usually less than 12 inches), drilled and grouted, pile with steel reinforcing. The micropile foundation typically is constructed by drilling a hole (with or without casing), placing reinforcing steel in the hole, and grouting the hole. Micropiles are desirable because they can be installed readily in access restrictive environments and in numerous soil types and ground conditions. In addition, the micropile installation generally causes minimal disturbance to adjacent structures, the adjacent soils, and the environment.

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3.1.2 Lateral Load Resistance

It should be noted that the micropile foundation system provides low lateral load resistance due to the relatively small diameter of the micropile. Therefore, the lateral load resistance contributed by the vertical micropiles should be neglected. Lateral loads imposed on the new structure foundations may be resisted primarily by passive pressure resistance against the vertical faces of the pile cap and grade beams and by shear acting along the sides of the pile caps and grade beams.

Passive pressure resistance against the vertical faces of the pile cap and grade beams may be estimated using an equivalent fluid pressure of 350 pounds per square foot per foot of depth (pcf) above the groundwater level and 175 pcf below the groundwater level. Additional resistance to lateral loads may be provided by shear resistance between the sides of the pile caps and grade beams and the adjacent soils. A side shear resistance of up to 150 pounds per square foot (psf) may be used for transient loads such as wind or seismic forces only.

3.1.3 Micropile Foundation Settlements

Settlements of the micropile foundations will result primarily from elastic compression of the pile member and subgrade response. We estimate the total settlement of the pile-supported foundations to be 0.5 inches or less with differential settlements between columns supported on micropiles not exceeding about one-half of the total settlement. We believe that these settlements are essentially elastic and should occur as the loads are applied.

3.1.4 Construction Considerations

A specialty subcontractor, experienced in the construction of a cased micropile foundation system, should perform the micropile installation. Based on the subsurface conditions at the project site, it should be noted that hard drilling into the coral formation will be encountered.

Due to the specialized nature of the micropile foundation construction, observation of the micropile foundation installation system and testing of the micropiles should be designated a "Special Inspection" item. Therefore, observation of the micropile

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sacrificial micropile. In general, the purpose of the pre-production load test on a micropile is to fulfill the following objectives:

- To examine the adequacy of the methods and equipment proposed by the contractor to install the micropiles to the depths required
- To assess the contractor's method of drilling and grout injection

In general, the pre-production load test should be performed in accordance with ASTM D 1143 (Standard Loading Procedure). Based on experience, we believe that the load test should be conducted no earlier than 7 days after completion of the micropile installation to allow the grout adequate time to cure. Two additional micropiles may be used for reaction during the compressive load testing of the pre-production load test micropile. The reaction micropiles may be installed to depths as deep as the load test micropile to provide adequate reaction in uplift (to be determined by the contractor).

The load test micropile should be loaded gradually to at least 200 percent of the allowable design load in compression. We recommend holding the maximum test load (200 percent of the design load) for a minimum of 4 to 8 hours depending on the recorded movements of the load test micropile. The pre-production load test is an integral part of the design of the micropile foundation system. Therefore, a Geolabs representative should observe the pre-production load test.

In addition to the pre-production load test, we also recommend performing pullout tests (proof tests) on selected micropiles during construction to confirm the load carrying capacity of the installed micropiles. We recommend testing a minimum of 10 percent of the total number of micropiles (or minimum of four micropiles) for pullout. The pullout tests should consist of subjecting the micropile to at least 150 percent of the design loads, and the maximum test load should be held for at least 10 or 60 minutes. Pullout tests on the micropiles also are integral parts of the design of the micropile foundation system.

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subjected to vehicular traffic. The aggregate subbase should consist of crushed basaltic aggregates compacted to a minimum of 95 percent relative compaction.

For the design of structural slabs supported on 6 inches of aggregate subbase, a modulus of subgrade reaction of about 200 pounds per square inch per inch of deflection (pci) may be used for the compacted aggregate subbase. Where slabs are intended to function as rigid pavements for forklift traffic, a minimum slab thickness of 6 inches may be used for preliminary design purposes. In addition, provisions should be made for proper load transfer across the slab joints that will be subjected to vehicular traffic.

The thickened edges of slabs adjacent to unpaved areas should be embedded at least 12 inches below the lowest adjacent grade. It should be emphasized that the areas adjacent to the slabs should be backfilled tightly against the edges of the slabs with low expansion, relatively impervious soils. These areas also should be graded to divert water away from the slabs and to reduce the potential for water ponding around the slabs.

3.3 Site Preparation

Based on the anticipated finished floor elevation for the new warehouse building, we envision that minimal site grading work will be required to attain the finished floor elevation. As previously indicated, placement of new fills at the project site will induce consolidation of the soft and/or loose lagoonal deposits underlying the site. Therefore, it is important that the new fills, if needed, be placed as soon as practical to allow the majority of the estimated ground settlements to occur prior to construction of improvements, such as the utility line and ground floor slab construction, to reduce the potential for adverse effects resulting from ground settlements. In addition, the following recommendations are intended to provide guidelines for the site preparation work.

At the on-set of earthwork, the area within the contract grading limits should be thoroughly cleared. Construction debris and other deleterious materials should be removed and disposed properly off-site. Soft and/or yielding areas encountered during clearing below areas designated to receive fills should be over-excavated to expose firm

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installation operations by Geolabs (Special Inspector) is necessary to confirm our design assumptions and should be designated a "Special Inspection" item in accordance with Section 1704 of IBC 2003.

3.2 Slabs-On-Grade

Based on the existing topography and the anticipated finished floor elevation, we envision the concrete slabs-on-grade required for the project will be supported on the existing ground conditions. In general, the subgrades for the concrete slabs-on-grade should be properly prepared prior to the placement of reinforcing steel and concrete. Therefore, we recommend scarifying the subgrades for the warehouse slab to a depth of about 8 inches, moisture-conditioning to above the optimum moisture content, and recompacting to a minimum of 95 percent relative compaction. New fills, if needed, should be placed in general accordance with the recommendations provided in the "Site Preparation" section herein. New fills needed to raise the site to the finished subgrades will induce ground settlements as a result of consolidation of the underlying compressible lagoonal deposits. Therefore, we recommend placing the new fills as soon as practical to allow the anticipated ground settlements to occur prior to slab-on-grade construction.

For support of the interior building slabs (not subjected to vehicular traffic), we recommend providing a minimum 4-inch thick layer of cushion fill consisting of open-graded gravel (ASTM C 33, No. 67 gradation) below the slabs. The open-graded gravel cushion fill would serve as a capillary moisture break and would provide uniform support of the slabs. To reduce the potential for future moisture infiltration through the slab and subsequent damage to floor coverings, an impervious moisture barrier is recommended on top of the cushion fill layer. It also is recommended the interior wall design incorporate some flexibility to accommodate a small amount of possible ground movements.

Where the building slabs will be subjected to vehicular traffic, such as forklifts, we recommend providing a 6-inch layer of aggregate subbase below the slabs in lieu of the 4-inch thick gravel cushion fill layer. The moisture barrier may also be omitted for slabs

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optimum moisture content, and compacted to a minimum of 95 percent relative compaction. Fill or backfill below the water level should consist of free-draining granular materials, such as open-graded gravel (ASTM C 33, No. 67 gradation), up to a minimum of 12 inches above the groundwater level. If fill or backfill below the water level is placed on clayey materials, we recommend wrapping the open-graded gravel in a non-woven filter fabric, such as Mirafi 180N or equivalent. Imported fill materials should be tested by Geolabs for conformance with these recommendations prior to delivery to the project site for the intended use.

A Geolabs representative should monitor site preparation operations to observe whether undesirable materials are encountered during the scarification process and to confirm whether the exposed soil conditions are similar to those encountered in our field exploration.

3.4 Dewatering

Based on our field exploration, groundwater was encountered at depths of about 4.1 to 4.5 feet below the existing pavement surface across the project site. Due to the relatively shallow groundwater levels encountered at the project site, we anticipate that some of the underground utility lines to be installed likely will extend below the groundwater table. Therefore, dewatering of some of the excavations will be necessary for the utility line installations.

In general, the dewatering operation should be conducted in such a manner that dewatering will not cause areal ground subsidence, which may cause potential damage to the nearby existing structures. As previously indicated, we wish to point out that petroleum odor was detected in some of the borings drilled at the project site between depths of about 4 and 8 feet below the pavement surface. Therefore, special treatment will likely be required for the handling and disposal of the dewatered effluent during the project construction. Therefore, consideration should be given to a dewatering system that includes a deep cut-off wall to reduce the volume of water to be removed within the excavation and to reduce the areal extent of groundwater drawdown outside of the trench excavation.

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and/or dense materials, and the resulting excavation should be backfilled with well-compacted fills. The excavated soft and/or organic soils should be properly disposed off-site and/or used in landscape areas, where appropriate. Contract documents should include additive and deductive unit prices for over-excavation and compacted fill placement to account for variations in the over-excavation quantities.

After clearing, existing structures and pavements that are to be demolished should be completely removed. Over-excavations resulting from demolition should be backfilled with compacted general fill materials. Existing utilities to be abandoned should be removed, and the resulting excavation should be properly backfilled with general fill material placed in 8-inch loose lifts and compacted to a minimum of 90 percent relative compaction. Utilities to be abandoned in-place under the proposed improvements should be backfilled by pumping lean concrete (or controlled low strength materials) under low pressure.

After clearing and demolition, areas at grade or areas designated to receive fills should be scarified to a depth of about 8 inches, moisture-conditioned to above the optimum moisture content, and compacted to a minimum of 95 percent relative compaction. Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density as determined by ASTM D 1557. Optimum moisture is the water content (percentage by weight) corresponding to the maximum dry density.

Imported materials required for site filling should consist of select granular fill materials, such as crushed coral and/or basaltic gravel. The materials should be well graded from coarse to fine with particles no greater than 3 inches in largest dimension. In addition, the materials also should contain between 10 and 30 percent particles passing the No. 200 sieve. The materials should have a California Bearing Ratio (CBR) value of 20 or higher and a swell value of 1 percent or less when tested in accordance with ASTM D 1883.

Fill and backfill materials required for the project construction should be placed in level lifts not exceeding 8 inches in loose thickness, moisture-conditioned to above the

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It is our opinion that the definition of "Dewatering" in the contract documents should be written to include all works or systems required to lower the natural groundwater table and/or to exclude the water from the excavations to allow construction of the proposed structures under safe and dry conditions. These works or systems may include, but are not limited to, grouting, cut-off walls, tremie concrete plugs or any combination of the above and/or other possible methods.

It should be noted that the subsurface conditions within the excavation depths at the site consist of loose silty coralline gravel, which are considered to be moderately permeable soils. Because the project is in a developed area, the dewatering operation should be conducted in such a manner that the dewatering will not cause areal ground subsidence, which may cause potential damage to the existing structures and underground utilities (adjacent utility easement). Therefore, consideration should be given to a dewatering system that includes a cut-off wall.

3.4.3 Dewatering Considerations

We suggest considering the following three basic criteria in selection of a suitable method of dewatering.

- a. The dewatering method should result in the least disturbance or damage to existing structures, utilities, roads, and environment.
- The dewatering method should maintain stability of, and provide safe and dry working conditions in, the excavation.
- c. The dewatering method should be sufficiently flexible to allow modifications to accommodate various ground conditions.

3.4.4 Dewatering Precaution and Monitoring

The potential impact of the dewatering system selected on depressing the natural groundwater table must be carefully evaluated by the contractor prior to dewatering. The contractor should retain a qualified geotechnical engineer to design and evaluate the dewatering system used.

The contractor should be solely responsible for the impact and safety of the dewatering operations. His/her qualified representative, who should be required to

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Because the excavation dewatering may involve discharge of groundwater from the dewatering operation into adjacent drainage systems, a National Pollutant Discharge Elimination System (NPDES) permit may be necessary. It should be noted that it is likely not possible to dispose of the dewatered effluent with a petroleum odor into the municipal drainage system. The contractor should consult their independent consultant or the State of Hawaii, Department of Health for the latest regulations and information pertaining to the NPDES permit application.

3.4.1 Subsurface Soil Permeability

Based on our borings, the near-surface fills generally consist of medium dense silty gravel extending to about 2.5 to 4 feet below the existing pavement surface. The surface fills were underlain by soft and/or loose lagoonal deposits consisting of soft organic clays and loose silty coralline gravel. It should be noted that in-situ permeability tests were not conducted for this project.

The permeability of the subsoils at the site may be considered moderately permeable based on the materials encountered. However, the actual subsurface soil permeability may range broadly and also vary locally in terms of orders of magnitude. Therefore, the contractor should pay special attention to the site-specific dewatering plan for the proposed excavations (especially excavations extending more than 5 feet below the groundwater level).

3.4.2 Dewatering Method

Dewatering for construction is the responsibility of the contractor. The selection of equipment and methods of dewatering should be left up to the contractor, and he/she should be aware that modifications to the dewatering system may be required during construction depending on the conditions encountered. The dewatering method selected should have minimal impact on the groundwater level surrounding the proposed excavation. As previously indicated, the underlying lagoonal deposit at the project site may be moderately permeable and capable of transmitting moderate quantities of water.

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used for the initial trench backfill up to about 12 inches above the pipes or about 12 inches above the groundwater level to provide adequate support around the pipes. It is critical to use the free-draining materials to reduce the potential for formation of voids below the haunches of pipes and to provide adequate support around the sides of the pipes.

The upper portion of the trench backfill from the level 12 inches above the pipes or groundwater level to the top of the subgrade may consist of the excavated on-site soils, provided that they are free of deleterious materials and free of particles larger than 6 inches in maximum dimension. Due to the relatively shallow groundwater table, the excavated on-site soils may require aeration to reduce the moisture content of the soils prior to being re-used as backfill materials.

The trench backfill should be moisture-conditioned to above the optimum moisture, placed in maximum 8-inch level loose lifts, and mechanically compacted to a minimum of 90 percent relative compaction to reduce the potential for appreciable future ground subsidence. Where trenches will be located below areas subjected to vehicular traffic, the upper 3 feet of the trench backfill below the pavement grade should be compacted to a minimum of 95 percent relative compaction.

3.6 Drainage

The finished grades outside the new warehouse structure should be sloped to shed water away from the slabs and foundations and to reduce the potential for ponding. In addition, it is advised to install gutter systems around the structures and to divert discharge away from the foundation, slabs, and pavement areas. Excessive landscape watering near the foundations and slabs should be avoided. Planters next to foundations and slabs should also be avoided or have concrete bottoms and drains to reduce the potential for excessive water infiltration into the subsurface.

These drainage requirements are essential for the proper performance of the above foundation and slab recommendations because ponded water could cause subsurface soil saturation and subsequent heaving or loss of strength. In addition, the foundation excavations should be backfilled properly against the walls or slab edges

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be continuously present on-site during dewatering activities, will have the best opportunity to promptly observe the effects of dewatering during construction and to implement, as soon as possible, necessary precautionary or remedial measures including, but not limited to, slowing down or stopping the dewatering operations.

Where encountered at the bottom of excavations, permeable granular soils may be susceptible to piping and "quick" conditions. The dewatering operations should be carried-out without creating a "quick" condition or softening at the excavation bottoms. Therefore, the project dewatering operations should be performed without pumping out soil fines (pumping clear water only) and should be coordinated with the shoring installation such that the excavation stability is not adversely affected. Excessive pumping, which removes soil fines, may result in a "blowing" or heaving of the excavation bottom or sides.

Special caution also should be taken to avoid dewatering utility trenches connected to excavations. If this occurs, the granular bedding and/or backfill in the utility trenches could act as subdrains and cause significant areal groundwater drawdown resulting in settlements and potential damage to utility lines and/or other adjacent existing structures.

3.5 Underground Utility Trenches

We envision that some new utility lines and connections will be installed for the proposed project. Due to the anticipated depths of the excavations for the utility lines, some of the utility line trenches will likely extend below the groundwater table and will likely encounter soft and/or loose soils at the bottom of the trenches. In general, we recommend providing granular bedding consisting of 6 inches of open-graded gravel (ASTM C 33, No. 67 gradation) for uniform support below the pipes underlain by firm and/or stiff subsurface conditions.

Where soft and/or loose soils are encountered at or near the invert of the pipes, an additional 18 to 24 inches of open-graded gravel wrapped in a non-woven filter fabric (Mirafi 180N or equivalent) should be provided below the bedding layer for more uniform support. Free-draining granular materials, such as open-graded gravel, also should be

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If the actual exposed subsurface conditions encountered during construction are different from those assumed or considered in this report, then appropriate design ' modifications should be made.

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immediately after setting of the concrete to reduce the potential for significant water infiltration into the subsurface.

In addition, drainage swales should be provided as soon as possible and should be maintained to drain surface water runoff away from the foundations and slabs.

3.7 Design Review

Preliminary and final drawings and specifications for the project should be forwarded to Geolabs for review and written comments prior to bid solicitation. This review is necessary to evaluate conformance of the plans and specifications with the intent of the foundations and earthwork recommendations provided herein. If this review is not made, Geolabs cannot be responsible for misinterpretation of our recommendations.

3.8 Construction Monitoring

Geolabs should be retained to provide geotechnical engineering services during construction. The critical items of construction monitoring that require "Special Inspection" include the following:

- Review of micropile installation submittals
- Observation of the micropile load testing
- Observation of the production micropile installation
- Observation of the subgrade preparation and earthwork operations

A Geolabs representative also should monitor other aspects of the earthwork construction to observe compliance with the design concepts, specifications, or recommendations and to expedite suggestions for design changes that may be required in the event that subsurface conditions differ from those anticipated at the time this report was prepared. The recommendations provided herein are contingent upon such observations.

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CLOSURE

The following plates and appendices are attached and complete this report:

Plate 1	17.1	Project Location Map
Plate 2	-	Site Plan
Appendix A	-	Field Exploration
Plate A	-	Log Legend
Plates A-1 thru A-3	-	Logs of Borings
Appendix B	-	Laboratory Testing
Plates B-1 thru B-3	-	Laboratory Test Data

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Respectfully submitted,

GEOLABS, INC.

Teddy STKuck Teddy S.T. Kwok, P.E. Senior Project Engineer

Clayton S. Mimura, P.E.

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SECTION 4.0 - LIMITATIONS

The analyses and recommendations submitted in this report are based, in part, upon information obtained from the field borings. Variations of subsurface conditions between and beyond the borings may occur, and the nature and extent of these variations may not become evident until construction is underway. If variations then appear evident, it will be necessary to re-evaluate the recommendations provided herein.

The boring locations indicated herein are approximate, having been taped from features shown on the Site Plan transmitted by Ushijima Architects, Inc. on September 23, 2008. The physical locations of the borings should be considered accurate only to the degree implied by the method used.

The stratification lines shown on the graphic representations of the borings depict the approximate boundaries between soil and/or rock types and, as such, may denote a gradual transition. Water level data from the borings were measured at the times shown on the graphic representations and/or presented in the text of this report. These data have been reviewed and interpretations made in the formulation of this report. However, it must be noted that fluctuation may occur due to variation in tides, rainfall, temperature, and other factors.

This geotechnical engineering exploration report has been prepared for the exclusive use of A'ala Ship Service for specific application to the New Warehouse Building for A'ala Ship Service project in accordance with generally accepted geotechnical engineering principles and practices. No warranty is expressed or implied.

This report has been prepared solely for the purpose of assisting the architect and engineers in the design of the project. Therefore, this report may not contain sufficient data, or the proper information, to serve as a basis for construction cost estimates. A contractor wishing to bid on this project is urged to retain a competent geotechnical engineer to assist in the interpretation of this report and/or in the performance of additional site-specific exploration for bid estimating purposes.

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PLATES



APPENDIX A

Field Exploration

The Rock Quality Designation (RQD) is also a subjective guide to the relative quality of rock masses. RQD is defined as the percentage of the core run that is sound material in excess of 4 inches in length without discontinuities, discounting drilling induced fractures or breaks. If 2.5 feet of sound material is recovered from a 5.0-foot core run, the RQD would be 50 percent and would be shown on the Logs of Borings as RQD = 50%. Generally, the following is used to describe the relative quality of the rock, based on the "Practical Handbook of Physical Properties of Rocks and Minerals."

Rock Quality	RQD (%)	
Very Poor	0 - 25	
Poor	25 - 50	
Fair	50 – 75	
 Good	75 – 90	
Excellent	90 – 100	

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APPENDIX A

Field Exploration

We explored the subsurface conditions at the project site by drilling and sampling three borings, designated as Boring Nos. 1 through 3, extending to depths ranging from about 47.5 to 53 feet below the existing pavement surface. The borings were drilled using a truck-mounted drill rig equipped with continuous flight augers and rotary coring tools. The approximate boring locations are shown on the Site Plan, Plate 2.

Our geologist classified the materials encountered in the borings by visual and textural examination in the field and monitored the drilling operations on a near-continuous basis. Soils were classified in general conformance with the Unified Soil Classification System, as shown on Log Legend, Plate A. Graphic representations of the materials encountered are presented on the Logs of Borings, Plates A-1 through A-3.

Relatively "undisturbed" soil samples were obtained from the borings drilled in general accordance with ASTM D 3550, Ring-Lined Barrel Sampling of Soils, by driving a 3-inch OD Modified California sampler with a 140-pound hammer falling 30 inches. In addition, some samples were obtained from the borings drilled in general accordance with ASTM D 1586, Penetration Test and Split-Barrel Sampling of Soils, by driving 2-inch OD standard penetration sampler using the same hammer and drop. The blow counts needed to drive the sampler the second and third 6 inches of an 18-inch drive are shown as the "Penetration Resistance" on the Logs of Borings at the appropriate sample depths.

Pocket penetrometer tests were performed on selected cohesive soil samples retrieved in the field. The pocket penetrometer test provides an indication of the unconfined compressive strength of the soil sample. Pocket penetrometer test results are presented on the Logs of Borings at the appropriate sample depths.

Core samples of the basalt/coral/volcanic tuff formations encountered at the site were obtained using diamond core drilling techniques in general accordance with ASTM D 2113, Diamond Core Drilling for Site Investigation. Core drilling is a rotary drilling method that uses a hollow bit to cut into the formation. The material left in the hollow core of the bit is mechanically recovered for examination and description.

Recovery (REC) is used as a subjective guide to the interpretation of the relative quality of rock masses. Recovery is defined as the actual length of material recovered from a coring attempt versus the length of the core attempt. For example, if 3.7 feet of material is recovered from a 5.0-foot core run, the recovery would be 74 percent and would be shown on the Logs of Borings as REC = 74%.

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79 53 4 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	1		13				10					20	GM	3-inch CONCRETE SLAB	A
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50 20 0 20 0 20 0 20 0 24 84 11 50/5* 24 84 11 50/5* 100 43 25 0 26 0 100 43 25 0 26 0 100 43 25 0 26 0 27 0 28 11 29 0 100 43 100 43 26 0 27 0 28 15 100 43 29 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 <			79	53			4		4			20	OH	Tannish grav-black OBGANIC CLAN	/ with cilt
30 20 0 4 Light gray SLTY GRAVEL (CORALLINE), loose ligational deposit) 20 0 Black pooling graded SAND, medium dense (cinder) Black pooling graded SAND, medium dense (coralline detritus) 24 84 11 50/5" GM Light gray SLTY GRAVEL (CORALLINE) with cobbles, medium dense (coralline detritus) 24 84 11 50/5" Grayish white to white CORAL, closely fractured, slightly weathered, hard 24 84 11 50/5" Grayish white to white CORAL, closely fractured, slightly weathered, hard 40 7 25 0 Grayish white to moderately fractured locally 68 15 25 0 Grayish white to moderately fractured locally 68 15 0 0 0 0 68 15 0 0 0 0 68 15 0 0 0 0 50 0 0 0 0 0 68 15 0 0 0 0 50 0 0 0 0 0 0 68 15			50						T	5-	Δ	IA)		soft, wet (swamp deposit)	with Sitt, -
20 0 24 84 11 50/5° Ref. 24 84 11 50/5° Ref. 6 40 7 7 7 20 0 6 15 6 100 43 7 7 6 100 43 7 7 7 100 43 7 7 7 100 43 7 7 7 100 43 7 7 7 100 43 7 7 7 100 43 7 7 7 100 43 7 7 7 100 43 7 7 7 100 43 7 7 7 7 100 43 7 7 7 7 100 43 7 7 7 7 100 43 7 7 7 7 100 45 0 7 7 7 <td></td> <td></td> <td>50</td> <td></td> <td></td> <td></td> <td>4</td> <td></td> <td></td> <td>-</td> <td>T</td> <td>00</td> <td>GM</td> <td>Light gray SILTY GRAVEL (CORALI</td> <td>LINE), loose</td>			50				4			-	T	00	GM	Light gray SILTY GRAVEL (CORALI	LINE), loose
24 84 11 50/5" GM Light gray SILTY GRAVEL (CORALLINE) with cobles, medium dense (coralline detritus) 24 84 11 50/5" GM Grayish white to white CORAL, closely Iractured, slightly weathered, hard 40 7 9 9 9 9 40 7 9 9 9 9 100 43 9 9 9 9 100 43 9 9 9 9 100 43 9 9 9 9 100 43 9 9 9 9 100 43 9 9 9 9 100 43 9 9 9 9 100 43 9 9 9 9 100 43 9 9 9 9 9 100 43 9 9 9 9 9 100 43 9 9 9 9 9 100 45 0 9					20	0				+		14	SP	Black poorly graded SAND, medium	n dense
24 B4 11 50/5" Icon 1 Icon 2 Ic					20	0				1		36	GM	(cinder)	7
24 84 11 50/5* Ref. Grayish white to white CORAL, closely tractured, slightly weathered, hard 40 7 15 0 100 43 20 0 20 0 0 0 0 0 100 43 20 20 0 0 0 0 0 0 0 100 43 25 0 26 0 26 0 27 0 28 0 29 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 25 0 30 0 30 0 30 0 30 0 30 0 30 0 30 0 30 0 30 0 30 0 30 0 30 0 <										10-		0000		Light gray SILTY GRAVEL (CORALI cobbles, medium dense (coralline	LINE) with detritus)
40 7 100 43 20 30 30 30 45 0 25 30 30 30 30 30 45 0 Date Started: July 9, 2008 Logged By: S. Latronic Total Depth: 47.5 feet Drill Rig: MOBILE B-80 Poide Fearger, 140 lb, wit, 200 ib, dreg.			24		84	11	50/5" Rel.			- - 15				Grayish white to white CORAL, clos slightly weathered, hard	ely fractured, - - - -
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68 15 $30 - \frac{1}{9} $					100	43								grades to moderately fractured loca	
Date Started: July 9, 2008 Water Level: ¥ 4.1 ft. 7/9/08 0945 HRS Date Completed: July 9, 2008 Plate Logged By: S. Latronic Drill Rig: MOBILE B-80 Total Depth: 47.5 feet Drilling Method: 4" Auger & HQ Coring A - 1.1 Work Order: 6045-00 Drilling Method: 4" Auger & HQ Coring A - 1.1	5.GDT 9/24/08				68	15				30					-
Date Started: July 9, 2008 Water Level: ⊻ 4.1 ft. 7/9/08 0945 HRS Plate Date Completed: July 9, 2008 Plate Plate Logged By: S. Latronic Drill Rig: MOBILE B-80 Total Depth: 47.5 feet Drilling Method: 4" Auger & HQ Coring A - 1.1 Work Order: 6045-00 Drilling method: 140 lb. wt. 40 in drop A - 1.1	3EOLAB!				43	0				-					-
Date Started: July 9, 2008 Water Level: ¥ 4.1 ft. 7/9/08 0945 HRS Plate Date Completed: July 9, 2008 Plate Plate Logged By: S. Latronic Drill Rig: MOBILE B-80 Total Depth: 47.5 feet Drilling Method: 4* Auger & HQ Coring A - 1.1 Work Order: 6045-00 Drilling method: 140 lb. wt. 20 is done A - 1.1	21							_		35	u			l	
Late Completed: July 9, 2008 Plate Logged By: S. Latronic Drill Rig: MOBILE B-80 Total Depth: 47.5 feet Drilling Method: 4" Auger & HQ Coring Work Order: 6045-00 Driving Energy: 140 lb. wt. 40 in dom	5-00.0	Date Star		Wat	ter L	evel:	: 1	2 4	4.1 ft.	7/9/08 0945 HRS					
Logged By: S. Latronic Drill Rig: MOBILE B-80 2 Total Depth: 47.5 feet Drilling Method: 4" Auger & HQ Coring A - 1.1 Work Order: 6045-00 Driving Energy: 140 lb wit -00 in drop A - 1.1	202	Date Com	pletec	d: July	3					_				Plate	
Work Order: 6045-00 Driving Energy: 140 lb wit 20 in drag A - 1.1	2	Logged B	y:	S. La	atronic			Drill	Rig	:		1	MOB	ILE B-80	
	OHING	Work Ord	er:	6045	1eet			Driv	ing I	Fner	00		Au	ger & HQ Coring	A - 1.1



GEOLABS, INC.

Log Legend

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

				_		100
	MAJOR DIVISION	IS	USC	CS	TYPICAL DESCRIPTIONS	
	CDAVELS	CLEAN GRAVELS	0000	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	
COARSE-	GRAVELS	LESS THAN 5% FINES	0000	GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	
SOILS	MORE THAN 50% OF COARSE	GRAVELS WITH FINES	0000	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES	
	RETAINED ON NO. 4 SIEVE	MORE THAN 12% FINES	2000	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES	
	044150	CLEAN SANDS	0	sw	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
MORE THAN 50% OF MATERIAL	SANDS	LESS THAN 5% FINES		SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
RETAINED ON NO. 200 SIEVE	50% OR MORE OF COARSE FRACTION PASSING	SANDS WITH FINES		SM	SILTY SANDS, SAND-SILT MIXTURES	
	SIEVE	MORE THAN 12% FINES	ID	sc	CLAYEY SANDS, SAND-CLAY MIXTURES	
	011 70			ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
FINE- GRAINED SOILS	AND	LIQUID LIMIT LESS THAN 50		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
				OL.	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
				мн	INORGANIC SILT, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
50% OR MORE OF MATERIAL PASSING THROUGH NO. 200 SIEVE	AND CLAYS	LIQUID LIMIT 50 OR MORE		сн	INORGANIC CLAYS OF HIGH PLASTICITY	
				он	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
н	IGHLY ORGANIC S	OILS	で <u>示</u> で (1)、(1)、(1)、(1)、(1)、(1)、(1)、(1)、(1)、(1)、	РТ	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	
NOTE: DUAL SY	MBOLS ARE USE	D TO INDICATE	BORD	ERLIN	JE SOIL CLASSIFICATIONS	
LEGEND						
(2-INCH) O.(D. STANDARD PENET	RATION TEST		LL	LIQUID LIMIT	
(3-INCH) O.	D. MODIFIED CALIFO	RNIA SAMPLE		PI	PLASTICITY INDEX	
S SHELBY TU	BE SAMPLE			TV	TORVANE SHEAR (tsf)	
G GRAB SAME	PLE		1	PEN	POCKET PENETROMETER (tsf)	
CORE SAME	ч.Е			UC	UNCONFINED COMPRESSION (psi)	DI
				Ā	WATER LEVEL OBSERVED IN BORING	Pla
						A

		Ge o	EOL#	ABS; al Enç	, INC.	g		N 86	EW V FOR 59 NO	WAREHOUSE BUILDING A'ALA SHIP SERVICE DRTH NIMITZ HIGHWAY DLULU, OAHU, HAWAII	Log of Boring 2		er.
ŝ	Laborator	у		F	ield			T	1				
	ther Tests oisture	y Density	ore ecovery (%)	2D (%)	enetration esistance lows/foot)	ocket Pen.	spth (feet)	aphic	scs	Approximate Ground Sur Elevation : N/A	face		Other Tests
JLABS.GDT \$724/08	E 90 LL=0 19 PI=0 11 34 90 48	95 48	3 m² 50 73 78 57 17 10	0 37 17 8 0 0	25/0" Ref.	0.3			S GW GW GW GW GW GW SP	Description 8-inch CONCRETE SLAB 4-inch BASE COURSE Tan SILTY GRAVEL with sand, mec moist (fill) Tan to gray SILTY GRAVEL (CORAI loose, wet (coralline detritus) Tannish gray to black ORGANIC CL soft (swamp/estuarine deposit) grades with gravel, hydrocarbon col observed Black poorly graded SAND, medium (cinder) White CORAL, closely fractured, slip weathered, hard grades with weakly cemented sand (coralline) seams	LLINE), AY with silt, ntamination dense ghtly stone	Co.est.cort. Pravids	
GE							25	Þ.K	2			0	
6045-00.GPJ	Date Started: Date Complet	July ed: July	8, 200 8, 200	3		Water	Level:	: ¥	4.5 ft	1. 7/8/08 1000 HRS	Plate	3 5045-00.GP	Date Date
00	Logged By:	S.L	atronic			Drill Ri	g:		MOB	ILE B-80		100	Logo
NG_L	Total Depth:	53 f	eet			Drilling	Meth	od:	4" AL	Jaer & HQ Corina	1 1 2 1	ING	Iota
BORN	Work Order:	604	5-00			Driving	Ener	qv:	1401	b. wt. 30 in. drop	A-2.1	BOH	Worl

	GE Geot	EOLA	INC.	1			Log of Boring 1				
Laborator	y		F	ield							
Other Tests Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	USCS	(Continued from previous pla Description	tø)
		87	45					0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		locally interbedded with weakly cerr sandstone (coralline) Boring terminated at 47.5 feet	iented
Date Started:	1	Water	Level	: 🔽	4	.1 ft.	7/9/08 0945 HRS				
Date Complete							1	Plate			
Logged By:	(Drill Ri	g:	_	٨	IOB	LE B-80				
Total Depth:	47.5	feet		[Drilling	Meth	nod:	4	" Au	ger & HQ Coring	A - 1.2
Work Order:	6045	-00		1	Driving	Ener	gy:	1	40 1	p. wt., 30 in. drop	

			Geot	EOLA echnic	ABS.	, INC. gineering	3		۹ ع	VEW FOF 369 N HON	WAREHOUSE BUILDING I A'ALA SHIP SERVICE ORTH NIMITZ HIGHWAY OLULU, OAHU, HAWAII	Log of Boring 3	
	Labo	ratory		-	F	ield		1	T	T	1		
	ner Tests	isture ntent (%)	r Density f)	e covery (%)	D (%)	netration sistance ws/foot)	ket Pen.	oth (feet)	nple	S	Approximate Ground Su Elevation : N/A	rface	
	Off	8°0 N	E G	Hec Co	ВŐ	Per Res (blo	Poc (tst)	Dep	Gra	nsi n	Description		
	LL=68	19 102				16	0.3			GM	3-inch ASPHALTIC CONCRETE Tan SILTY GRAVEL with sand, med moist (fill)	dium dense,	
	PI=42	14.000,000				-	0.0	↓ .		E OH	Tannish gray to black ORGANIC CL soft, moist to wet (swamp/estuari	AY with silt,	
		75	46			13		5	N. P	MH GM	Light gray CLAYEY SILT with grave medium stiff, strong hydrocarbon (estuarine deposit)	I, soft to -	
		55		100	11	5		10	****	SP	Light gray SILTY GRAVEL (CORAL slight hydrocarbon presence (lago Black poorly graded SAND, medium (cinder) White CORAL, closely fractured, sli	LINE), loose, bonal deposit) / n dense	
				40	0		1			-	weathered, hard		
GD1 3/24/08		34		53 100 57	21 37 17	50/2" Ref.		15- - - 20- - - - - - - - - - - - - - - -		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	grades to moderately fractured loca	ally	80/50 LOD:
10000000				55	0			35-		0		-	PJ GEOLABS.
	Date Starte	d:	July 7	, 2008		V	Vater	Leve	l: ⊻	4.2 ft	. 7/7/08 1030 HRS	· · · · · · · · · · · · · · · · · · ·	0
2	Date Comp	leted:	July 8	3, 2008								Plate	6045
	Logged By:		S. La	tronic		E	Drill Ri	g:	-	МОВ	ILE B-80	, nuto	106
	Total Depth	n:	50 fe	et		0	Drilling	Meth	nod:	4" Aı	iger, 3" Casing, & HQ Coring	A-31	BING
3	Work Orde	r:	6045	.00			Driving	Ene	rgy:	1401	b. wt., 30 in, drop		O B

	Gen	EOL/	ABS ,	INC.	3		Log of Boring 2				
Laborat	ory		F	ield		T	Π				
Other Tests Moisture	Content (%) Dry Density	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	uscs	(Continued from previous pte Description	ite)
	20	44 68 83	0 30 33	28				2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2	grades to severely fractured Boring terminated at 53 feet	
etc							11				12
Date Started		N//	70-								
Date Comple	tod: July	5	· ·	Nater	Leve	1: ⊉	4	.5 ft.	7/8/08 1000 HRS		
logged Bur	rea: July	8, 2008	5								Plate
Logged By:	5.1	aironic			Jrill Ri	g:		٨	IOBI	LE B-80	
I otal Depth:			Drilling	Meth	nod	: 4	" Aug	ger & HQ Coring	A-2.2		
Work Order:	604	5-00		1	Driving	Ene	rgy	: 1	40 lb	. wt., 30 in. drop	

		ABS, al Eng	, INC. Jineering			1	WAREHOUSE BUILDING 3 A'ALA SHIP SERVICE ORTH NIMITZ HIGHWAY OLULU, OAHU, HAWAII	Log of Boring 3			
Lab	Laboratory Fiel							T	T		
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	ROD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	USCS	(Continued from previous pl Description	ate)
			57 40	0 7			40	, , , , , , , , , , , , , , , , , , ,	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~		
N GEOLARS GOT Reades			58	0						Boring lerminated at 50 feet	
Date Star	Date Started: July 7, 2008 Date Completed: July 8, 2008						evel:	Ā	4.2 ft	7/7/08 1030 HRS	
8 Logged B g Total Dep	Logged By: S. Latronic Total Depth: 50 feet							od:	MOB 4" Au	ILE B-80 ger, 3" Casing, & HO Coring	Plate
Work Ord	er:	6045-	00		Di	riving	Energ	gy:	140 1	p. wt., 30 in. drop	A - 3.2

APPENDIX B

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Laboratory Testing



APPENDIX B

Laboratory Testing

Moisture Content (ASTM D 2216) and Unit Weight (ASTM D 2937) determinations were performed on selected soil samples as an aid in the classification and evaluation of soil properties. The test results are presented on the Logs of Borings at the appropriate sample depths.

One Atterberg Limits test (ASTM D 4318) was performed on a selected soil sample to evaluate the liquid and plastic limits. The test results are summarized on the Logs of Borings at the appropriate sample depth. Graphic presentations of the test results are provided on Plate B-1.

One Sieve Analysis test (ASTM C 117 & C 136) was performed on a selected soil sample to evaluate the gradation characteristics of the soils and to aid in soil classification. Graphic presentation of the grain size distribution is provided on Plate B-2.

One Consolidation test (ASTM D 2435) with time rates of consolidation was performed on a soil sample to evaluate the compressibility characteristics of the soft materials encountered. The consolidation test results are presented on Plate B-3.

(h:\6000Series.\6045-00.tk1-p36)

W.O. 6045-00

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