DEPARTMENT OF LAND UTILIZATION
89/SMA-59(BWM)
April 3, 1990

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OFC. OF ENVIRON. QUALITY CONT.

SPECIAL MANAGEMENT AREA ORDINANCE
CHAPTER 33, ROH
Environmental Assessment/Determination
Negative Declaration

Recorded Owner/ Applicant	:	Leroy V. Altz, Revocable Living Trust; Ruth E. Altz, Trustee
Agent	:	Robert C. Altz
Location	:	68-474 Crozier Drive, Waialua, Oahu
Tax Map Key	:	6-8-06: 15
Request	:	Removal of eight (8) feet of sand and replacement with soil
Determination	:	Environmental Impact Statement (EIS) Not Required

Attached and incorporated by reference is the environmental assessment prepared by the applicant for the project.

On the basis of the environmental assessment, we have determined that an Environmental Impact Statement is not required.

APPROVED Donald Clegg
DONALD A. CLEGG
Director of Land Utilization
City and County of Honolulu
State of Hawaii

DAC:sl
0335N/7

✓ 1990 : 04-23-OA-FEA

LU 2/900973

~~Lee~~ Removal of 8 ft of sand and replacement w/soil

Altz

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DEPT OF LAND UTILIZATION
HONOLULU

FILE COPY

County and County of Honolulu
Department of Land Utilization
650 South King Street
Honolulu, Hawaii 96813
ATTN: Mr. Bennett Mark

ENVIRONMENTAL ASSESSMENT

I. GENERAL INFORMATION

A. Applicant:
Leroy V. Altz, Jr. Revocable Living Trust
Trustee - Ruth E. Altz
68-482 B Crozier Drive
Waialua, HI 96791
Phone: 808 637-6732

B. Recorded Fee Owner:
Leroy V. Altz, Jr. Revocable Living Trust
68-482 B Crozier Drive
Waialua, HI 96791
Phone: 808 637-6732

C. Agent:
Robert C. Altz
68-482 B Crozier Drive
Waialua, HI 96791
Phone: 808 637-6732

D. Tax Map Key: 6-8-06-15

E. Lot Area: 2.0 Acres - Zoned AG-2

F. Agencies consulted in making assessment:
1. City and County Agencies
a. Department of Land Utilization
b. Board of Water Supply
c. Department of Public Works, Refuse Collection and Disposal Division

2. State Agencies
a. Department of Land and Natural Resources, Historic Sites Section
b. Department of Health, Sanitation Division

3. Other Agencies, private sector:
a. Hawaiian Electric Company
b. North Shore Crane Service
c. Walker-Moody Construction Copmpany, Ltd.
d. Archaeological Consultants of Hawaii, Inc.
e. Waialua Sugar Company
f. University of Hawaii, College of Tropical Agriculture

II. DESCRIPTION OF PROPOSED ACTION

A. General Description

1. The proposed action concerns a two acre parcel along Crozier Drive, situated at Mokuleia, Waialua, City and County of Honolulu, Island of Oahu. The subject property is more particularly identified as Tax Map Key No. 6-8-06-15. It is presently zoned AG-2 and is covered with California grass, haole Koa and few a ironwood trees near the northern (makai) perimeter lines.

An SMP permit is being applied for in order to proceed with improving the property to make it more conducive to growing long term, deep rooted crops. The permit would allow the replacement of the existing sandy soil with good top soil. Approximately twelve other AG-2 lots on Crozier Drive have already completed this process. An accompanying map provided by Walker-Moody Construction Company, Ltd.will verify this.

This top soil will be obtained from Waialua Sugar Company. It will enhance the ability to grow crops that require good soil for optimum fruit production. Presently Walker Moody Construction Company has an agreement with Waialua Sugar Company to obtain top soil when they need it.

2. The parcel in question is entirely within the SMA, however it is not a shoreline property. It is approximately 150 feet or more from the shoreline. It is located on the mauka (southern) side of Crozier Drive approximately 5 miles from Waialua and 10 miles from Haleiwa shopping and employment facilities.

3. A map showing the location of the project site and its relation to the surrounding area is included with the documents of this package.

4. To date no land use approvals have been granted, however the Department of Land Utilization has indicated that an SMP or SMA will need to be obtained, hopefully with a "minor" classification.

A CUP Type I permit may also be required. After meeting with Deputy Director Benjamin Lee and Robin Foster on 8 December 1989 it was advised that a minor classification may be in order. After necessary agency reviews, a minor classification permit may be issued pending the outcome of those reviews.

An archaeological site survey will also be necessary for permit approval.

B. Technical Characteristics

1. Use characteristics: The property is zoned AG-2 and the intent is to use the property for agricultural purposes. Supplemental income will be derived from crops both long and short term.

2. Physical characteristics: As was earlier stated, please see the attached maps and drawings where applicable. The physical charactistics of the property, property lines, lot size, ground elevations and existing structures are clearly marked for easy identification.

3. Construction, removal, or modification of existing structures/terrain: Initially, the property will be cleared and grubbed and then, with proper approvals and permits, will have

the sand extracted and replaced with top soil and back fill. The present grading has already been determined and will be maintained in the soil replacement process. Walker Moody Construction Company will be doing the actual day to day work. The proposal is to extract sand to a depth of 8 feet and the agent for the trustee will comply with obtaining permits for that purpose.

4. Utility requirements: County water will be provided and obtained through the placement of a new water meter on Crozier Drive by the Board of Water Supply. Electricity will be applied for and obtained on an "as needed" basis. Hawaiian Electric Company has acknowledged that overhead wires are permissable and access is easily obtained from existing utility poles and lines along Crozier Drive.

5. Liquid waste disposal: Per the present city, county and state regulations, a cesspool and/or septic tank will be installed to handle liquid waste disposal if and when a home is built. North Shore Crane Service will be contracted for this installation. Approximately 10-12 other lots in the immediate area have also obtained cesspools and/or septic tanks after completing the sand removal/soil replacement process. The Department of Health, Sanitation Division confirmed that TMK 6-8-06-15 is below the UIC line and a cesspool may be approved, following proper application.

6. Solid waste disposal: is currently handled by the City and County with collection service provided on Tuesdays and Fridays. No change in this service is anticipated in the near future.

7. Access to site: Access to the property is easily obtained from Crozier Drive. This is where the driveway will be located. However, during the sand extraction/soil replacement process, Waialua Sugar Company will provide access from their lands. The subject property abuts Waialua Sugar Company lands on the south and east property lines. Therefore, no trucks or machinery will cause a negative impact along Crozier Drive.

C. Economic Characteristics

Estimated cost and time: The estimated cost of the project is contained in the accompanying letter provided by Walker-Moody Construction Company, LTD.

Basically, this is an exchange agreement between the owner and Walker-Moody Construction Company, LTD. In exchange for the sand, back fill and top soil will be received so that agricultural goals can be pursued.

Day to day site work will be performed by Walker-Moody Construction Company, LTD. Truck hauling will be handled by B & C. Trucking. Mr. Nori Fukuda of B & C Trucking commented that much of the sand they obtain is used to maintain city and county golf courses and other projects.

The normal timetable for completing a project of this size is approximately three to five months, working Monday through Friday, 8:00 am to 4:00 pm. As indicated by the accompanying grading maps, no work would be performed on Saturdays, Sundays or holidays.

The other AG-2 lots in the immediate vicinity that have completed this same process have adhered to this timetable. This project would hope to duplicate that process.

D. Environmental Characteristics

1. Soils:

The U.S. Department of Agriculture, Soil Conservation Service (SCS) classifies the soils of the subject property as Jaucus series soils. According to the SCS Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii (August 1972) Jaucus soils are poorly suitable for topsoil and for roadfill, with a low fertility rating and are highly erodible. The capability classification for Jaucus soils is Class IVs if irrigated and Class VIe if non irrigated. Class IV soils have very severe limitations that reduce the choice of plants, require very careful management, or both. Subclass IVs soils have very severe soil limitations because of stoniness, shallowness, unfavorable texture or low water holding capacity. Class VI soils have severe limitations that make them generally unsuited to agriculture and limit their use largely to pasture on range, woodland or wildlife habitat. Subclass VIe soils are further severely limited by the hazard of erosion.

The Land Study Bureau classifies the soils of the subject property as Regosols in its publication Detailed Land Classification - Island of Oahu (L.S.B Bulletin No. 11, December 1972). These are represented on Oahu by Jaucus (catano) coral sands as previously mentioned. They are found primarily along the beaches and a short distance inland. The sands are light brown, coarsely textured, deep, non expanding, excessively drained, machine tillable, variably stony and not suitable for cultivation.

Waialua Sugar Company has never grown sugar cane on its lands directly abutting the subject property on the east end. This land is much the same as the subject property - too sandy for optimum yield. Mr. Milton Agader, field manager, from Waialua Sugar Company verified that this property had too much sand to have high yields. They too, plan to excavate their sand and replace it with top soil so that they can then plant those fields. They will use the sand for concrete flue production and dust control on their field roads. A portion of the strip of land abutting subject property has already had sand removed for that purpose.

The land type classification of the Jaucus soils is E-7. These soils have an overall productivity rating of "E" and Selected Crop Productivity Rating of "e" for all uses except forage and grazing, for which a "d" rating applies. The soil of the subject property is poorly suited for agriculture and was not included within an area designated as agricultural lands of importance by the State Department of Agriculture.

2. Topography:

The subject property is flat, unimproved land approximately 150' from the ocean. The proposed action does not affect any headlands, mountains, valleys streams or marshes.

3. Surface runoff:

The elevation of the subject property is between 5 to 10 feet above sea level with a very low slope of zero to 5 per cent. Annual rainfall averages approximately 20 inches for the general area. As indicated by the accompanying grading maps, the

proposed sand removal/soil replacement process will not alter the existing natural drainage pattern of the area which is in the south/southeast direction. There should be no erosion hazard once the project is completed.

4. Flood plain zone:

The subject property is in the Federal FIRM zone designated XS. Mr. Mario Siu from the Department of Land Utilization provided this information on 12-26-89. Because of this designation, the subject property is not within the LUO Flood Hazard District. Therefore, additional certification is not necessary.

III. AFFECTED ENVIRONMENT

A. Subject Site in Relation to Surrounding Area:

The proposed sand removal/soil replacement process should not affect the immediate environment. The subject property has vacant sugar cane lands on two sides (south and east). The north side of the subject property is adjacent to Crozier Drive with beachfront homes on the opposite side of that street. Those homes are presently zoned R7.5. The west perimeter boundary abuts the property on which agent for the trustee presently resides and the proposed project will not adversely affect day to day routine. Prevailing northeast tradewinds would blow dust away from the residential property on the north side.

No change in existing land use is anticipated. The present General Plan and Development Plan land use designations will be maintained.

The property is zoned AG-2, but the existing soil is not conducive to growing good crops. The sand removal/soil replacement process will allow the land to be used as it was originally intentioned and zoned.

B. Relation to Publicly Owned Resources:

The proposed project will not significantly or adversely affect the environmental ecology of the area. There are no rare or endangered species of flora or fauna on the subject site. Therefore, no habitats, preserves, wetlands, lagoons or tidal areas will be affected.

The project site is across the street from the ocean and proposed project will not result in any loss of recreational facilities or areas. There is a public right of way to the beach approximately one quarter mile away.

C. Relation to Coastal Views:

Coastal views and public viewpoints will not be adversely affected. The subject property does not contain any unique or unusual scenic amenity. The subject property is currently overgrown with California grass, haole koa and other scrub grasses so the proposed project would enhance the areas beauty, not detract from it. Better mauka views would result from the proposed action. The 12 or so other agriculture lots that have completed this same proposed process have improved the general appearance of the area.

D. Relation to Historic, Cultural and Archaeologic Resources:

On the surface the project site does not appear to have

anything of historical or archaeological value. However, Dr. Joyce Bath of the Historic Site Section of the Department of Land and Natural Resources has determined that subsurface site surveys are necessary. This is because there is a possibility or liklihood of human burials and/or human habitation remains.

Therefore, as part of the commitment to acquiring the necessary permits for the project, Joseph Kennedy, an archaeologist with Archaeological Consultants of Hawaii, Inc., has been contracted to perform the necessary work. He has been advised to contact Dr. Joyce Bath to ensure that the work performed satisfies her requirements for a complete and competent survey.

At the same time, Mr. Benjamin Lee and Mr. Robin Foster of the Department of Land Utilization, informed the agent for the trustee in the meeting of 12-8-89 that this survey could be performed when and if other approvals are granted for the "minor" classification. If granted those approvals, funds will then be made available for this survey.

E. Location Site Maps:

Included in this packet are sufficient drawings and maps to allow examination of the permit request.

IV. PROJECT IMPACTS:

Impacts relative to coastal Zone Management Objectives:

The proposed sand removal/soil replacement process will not adversely affect any coastal zone management objectives. The parcel in question is not a shoreline property. Other lots on both sides (east & west) of the subject property have completed

this process. The present zoning will be enhanced even more because agricultural crops do inherently better when planted in good top soil as opposed to sand.

Development of the subject property will not create any appreciable impact to the employment and economic considerations of the state.

The petitioner would like to use the property for supplemental farming, as it was zoned. Presently, the existing soil will not permit this to be done. Hopefully, the information provided in this environmental assessment provides you with enough data to make a favorable decision. If any other information which may be helpful and/or necessary for this permit is missing please contact the agent for the trustee.

Submitted by:

Robert C. Altz

Robert C. Altz
Agent for:
Leroy V. Altz Jr. Revocable
Living Trust

LU 2/90 0973

AGRICULTURAL USE PLAN

I. GENERAL INFORMATION

A. Intended Use

The subject property will be used primarily for agricultural purposes. Fruit trees, specific crops and ornamental/cut flowers will be grown on approximately one acre of the two acre parcel.

B. Prospective Goals

Supplemental income will be derived from certain specific plantings. Other plantings are intended for home use only and will be planted on an "as needed" basis. The harvest from the supplemental income crops will hopefully be marketed at local establishments in Waialua and Haleiwa.

II. CROP ACREAGE

A. Supplemental Income Crops

1. Papayas - Approximately 1/2 acre will be planted. The Sunrise variety has been recommended for the subject property by Dr. Leng Chia, an extension specialist with the University of Hawaii, College of Tropical Agriculture, Department of Horticulture.

2. Bananas - Approximately 1/4 acre of bananas will be planted. The Williams variety has been recommended as a superior type by Dr. Leng Chia, extension specialist at the University of Hawaii, College of Tropical Agriculture, Department of Horticulture.

3. Lettuce - Approximately 1/8 to 1/4 acre of lettuce will be planted. The Manoa variety was recommended as a proven

product. Also suggested was the newer Anuenue variety which is a tighter, head type of lettuce. Initially, only the Manoa variety will be planted.

This information was obtained from extension specialist Steve Fukuda at the University of Hawaii, College of Tropical Agriculture, Department of Horticulture.

4. Pikake - Approximately 1/8 acre will be planted. Dr. Ken Leonhardt at the University of Hawaii, College of Tropical Agriculture, Department of Horticulture was questioned on information about pikake. He has no definitive information at this time.

Local and neighbor island producers have not been willing to provide information on a statistical basis. Therefore, this will be a trial crop.

B. Home Use Crops

1. Citrus - A variety of certain citrus will be planted. Among them are lemon, orange, tangerine and tangelo. Acreage planted will be limited to two or 3 of each type, intended for family use only.

2. Avocado - Some avocado will be planted, possibly 5 or 6 trees. The Sharwil variety will be used as it is most resistant to fruit fly infestation.

3. Vegetables - A wide range of vegetables will be planted. These will include beans, peas, eggplant, tomatoes, and cucumbers. These too, are to be for family use only, so specific acreage is not applicable.

III. TIME SCHEDULE FOR PLANTING AND HARVESTING

A. SMP Application

1. Any planting that is to take place is conditional upon receiving the request for an SMP.

2. It will take approximately 3 to 5 months to prepare the property (sand extraction/soil replacement process) once the SMP approval is obtained.

3. First planting of supplemental income crops would commence approximately two months after completing the sand extraction/soil replacement process.

B. Supplemental Income Crops

1. Papayas - First planting would begin 2 to 3 months after completing lot preparation. Plants will be spaced approximately 10-12 feet apart with nearly 200 plants on a 1/2 acre plot. Harvest should begin approximately 10-12 months after initial planting. Estimated yield is 10,000 to 15,000 pounds per 1/2 acre per year according to Dr. Leng Chia at the University of Hawaii, College of Tropical Agriculture, Department of Horticulture.

2. Bananas - First planting would begin 3-4 months after completing lot preparation. Plants will be spaced approximately 10 to 15 feet apart with between 50 to 60 plants in a 1/4 acre plot. Harvest should begin approximately 12 months thereafter. Information provided by Dr. Leng Chia, suggests yields of about 35,000 pounds per acre per year. (1/4 acre = 8750 pounds per year). A conservative estimate for the initial crop would be lower than this figure with increased yield as the field grew to maturity.

3. Lettuce - First planting would begin 1 to 2 months after completing lot preparation. Inividual plants will be spaced approximately 8 inches apart, in rows that are 8 inches apart. A conservative estimate for harvest, provided by Mr. Steve Fukuda at the University of Hawaii is 18,000 pounds per acre per crop. He also indicated a possibility of six crops a year with a more realistic goal of 5 crops per year. Growth cycle for the Manoa variety of lettuce is 45 to 50 days.

4. Pikake - First planting would occur approximately 3 to 4 months after lot preparation. Individual plants would be approximately 5 feet apart with approximately 200 plants in an area of 1/8 acre. No definitive figures are available for harvest or yield so this will be an experimental crop to be marketed at local florist shops.

C. Home Use Crops

The home use crops described in Section II of this land use plan will not constitute a major portion of the overall plan. Therefore, no timetable for planting has been established. The supplemental income crops will be a priority before home use crops are planted.

Expected numbers of home use type crops should be a few to several or more. Citrus and avocado are both longer term crops. Harvest from these is expected to take from two to five years. Expected yield from these plants should be adequate for home consumption only.

Vegetables, including beans, peas, eggplant, tomatoes

and cumcumber will be planted for family consumption only. These short term crops will be planted and replanted as needed. Yield from these short term crops should be adequate enough for home use only and will have no commercial value.

Ruth Altz

[redacted]

This document gives Robert C. Cook authorization to act as agent for the Henry V. Cook Living Trust.

Ruth E. Cook
Trustee

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DEPT OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

LU 900973

12-12-89

NO 201

GENERAL ACKNOWLEDGMENT

State of CALIFORNIA }
County of ORANGE } SS.

On this the 12th day of DECEMBER 1989, before me.

MERLYN J. JONES

the undersigned Notary Public, personally appeared

RUTH EMICH ALTZ

OFFICIAL SEAL
MERLYN J. JONES
Notary Public-California
ORANGE COUNTY
My Comm. Exp. July 1, 1991

☐ personally known to me

☒ proved to me on the basis of satisfactory evidence

to be the person(s) whose name(s) IS subscribed to the within instrument, and acknowledged that SHE executed it

WITNESS my hand and official seal

Merlyn J. Jones
Notary's Signature

ATTENTION NOTARY: Although the information requested below is OPTIONAL it could prevent fraudulent attachment of this certificate to another document

THIS CERTIFICATE MUST BE ATTACHED TO THE DOCUMENT DESCRIBED AT RIGHT:

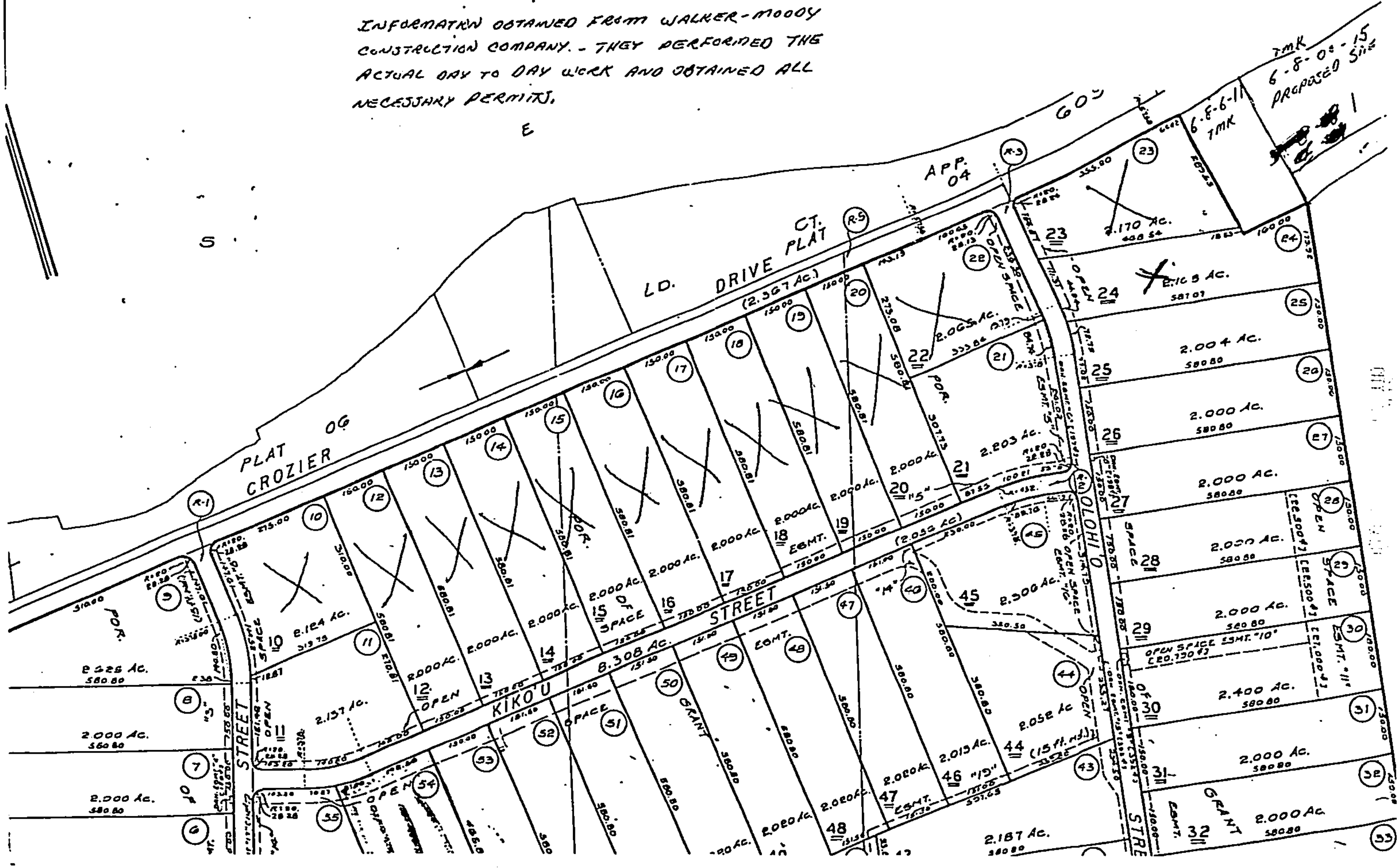
Title or Type of Document Letter of Authorization

Number of Pages ONE Date of Document 12-12-89

Signer(s) Other Than Named Above NONE

X = OTHER AG-2 LOTS WHICH HAVE COMPLETED THE SAND REMOVAL/SOIL REPLACEMENT PROCESS.

INFORMATION OBTAINED FROM WALKER-MOODY CONSTRUCTION COMPANY. - THEY PERFORMED THE ACTUAL DAY TO DAY WORK AND OBTAINED ALL NECESSARY PERMITS.



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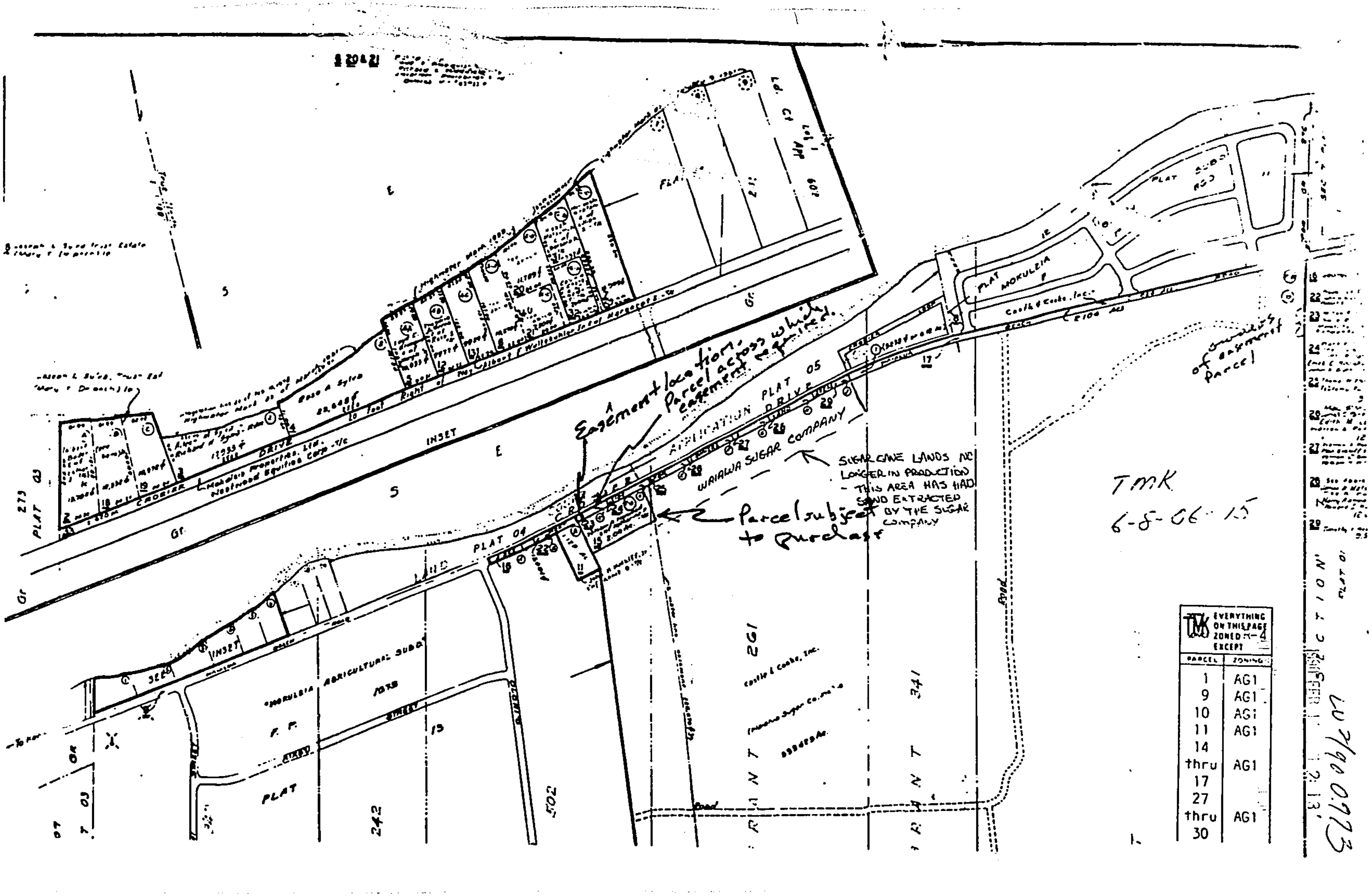

TMK PARCEL	ZONING
1	AG1
9	AG1
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27 thru 30	AG1

EVERYTHING ON THIS PAGE ZONED R-4 EXCEPT

LU 7/90 09.73

WALKER-MOODY CONSTRUCTION COMPANY, LTD.

Engineers • Contractors • Builders

2927 Mokumoa Street, Honolulu, Hawaii 96819
Telephone (808) 839-2781 - Fax (808) 839-2092

January 15, 1990

Mr. Robert Altz
68-474 Crozier Drive
Waialua, HI 96791

Re: Grading and Excavation of Agricultural Lot
T.M.K.: 6-8-06-15 Lot 2A

COST ESTIMATE

Gentlemen:

As you have requested, the following is a cost estimate of the work to be performed on your lot:

1.	Clearing and grubbing of lot	$ 2,500.00
2.	Stockpile existing soil for reuse	3,000.00
3.	Remove and replace approximately 15,173 c.y. of sand	38,500.00
4.	Finish grade lot using existing soil	5,000.00
	TOTAL ESTIMATED COST	$ 49,000.00

If you have any questions regarding the above or if we can be of further service, please do not hesitate to contact us.

Sincerely,

WALKER-MOODY CONSTRUCTION CO., LTD.

By
Lyle R. Moody, Vice President

LRM:tcw

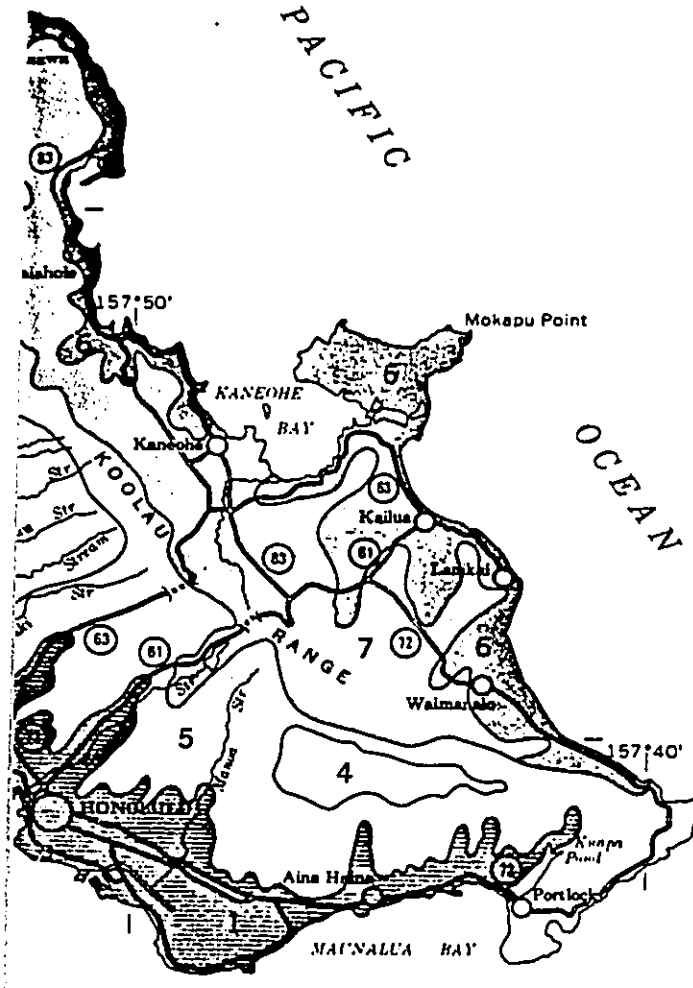
LU 2/90 0973

GENERAL SOIL MAP

OAHU ISLAND, HAWAII

Scale 1:253,440

1 0 1 2 3 4 Miles



SOIL ASSOCIATIONS

1 Lualualei-Fill land-Ewa association: Deep, nearly level to ately sloping, well-drained soils that have a fine textured or moderately fine textured subsoil or underlying material, and of fill land; on coastal plains

2 Helemano-Wahiawa association: Deep, nearly level to mode ly sloping, well-drained soils that have a fine-textured subs on uplands

3 Tropohumults-Dystrandepts association: Gently sloping to steep, well-drained soils that are underlain by soft weathere rock, volcanic ash, or colluvium; on narrow ridges and side

4 Rough mountainous land-Kapaa association: Very steep lan broken by numerous drainageways and deep, well-drained so that have a fine textured or moderately fine textured subsoil gulches and on narrow ridges

5 Rock land-Stony steep land association: Steep to precipitou well-drained to excessively drained, rocky and stony land

6 Kaena-Waialua association: Deep, mainly nearly level and sloping, poorly drained to excessively drained soils that ha fine-textured to coarse-textured subsoil or underlying materi on coastal plains and talus slopes and in drainageways

7 Lolekaa-Waikane association: Deep, nearly level to very st well-drained soils that have a dominantly fine-textured subs on fans, terraces, and uplands

January 1971

NOTE—

This map is intended
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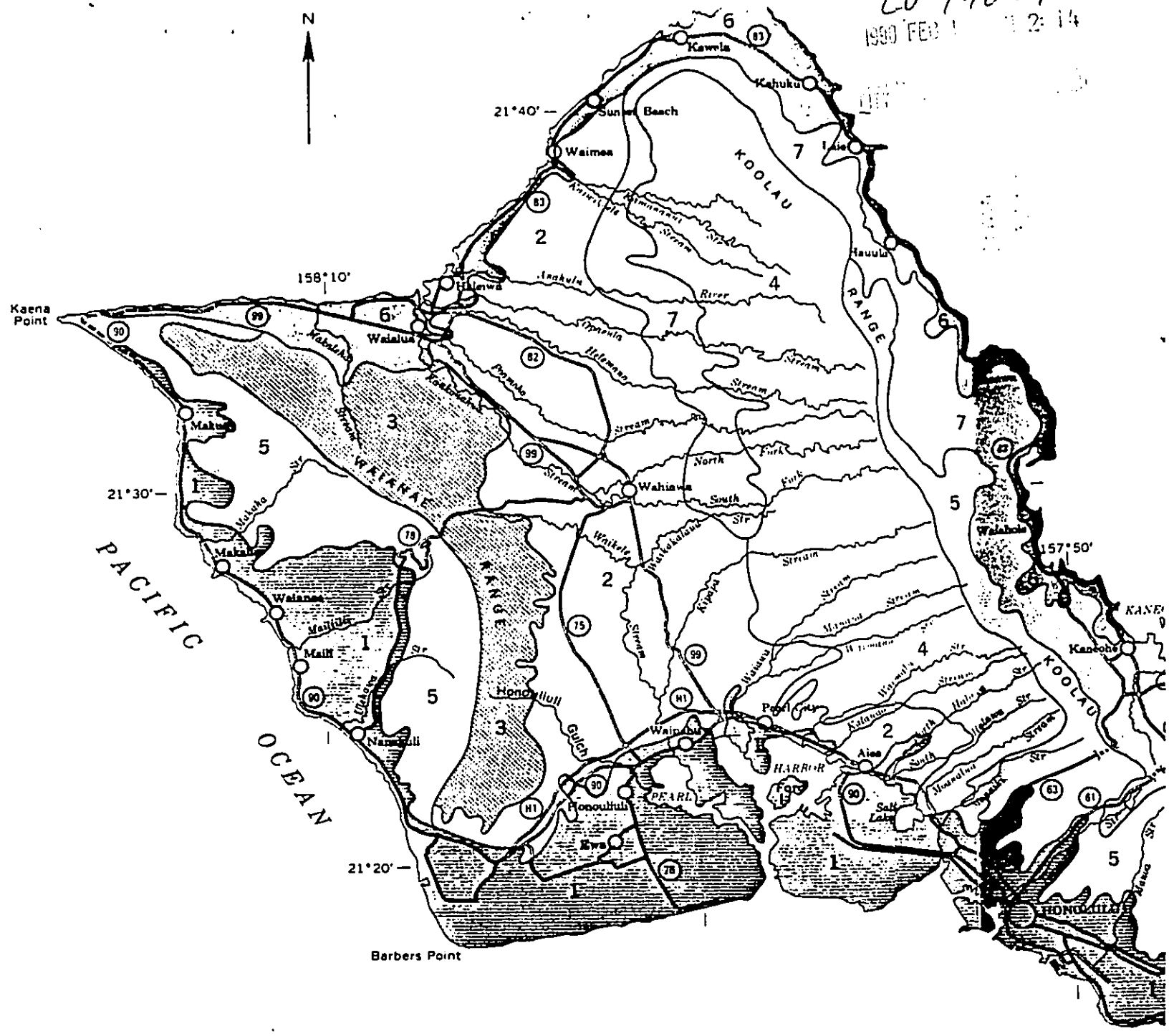
Use detailed soil map



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Kauaihuput Reservoir

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KaeC

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Dillingham Ranch

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amount ranges from 70 inches at the lowest elevations to 250 inches near the mountain summit. The mean annual soil temperature is between 60° and 71° F. The natural vegetation is ohio lehua, koa, treefern, false staghorn fern, hilograss, and sedges.

Rough mountainous land makes up about 80 percent of the association and Kapaa soils about 15 percent. Rock land and Rock outcrop make up the rest.

Rough mountainous land consists of very steep gulches and narrow ridges. The soil material is very shallow, very dark grayish-brown, smeary silty clay. Kapaa soils are in very steep gulches and on narrow ridges at the northern end of the island. They have a surface layer and subsoil of dark reddish-brown silty clay that contains gibbsite nodules.

This association is inaccessible except for a few trails used by hunters and hikers. It is used for watershed and wildlife habitat. Gently sloping areas of Kapaa soils are suited to timber. The heavy rainfall is an important factor in recharging the supply of ground water. The most important wildlife species is wild pigs.

5. *Rock land-Stony steep land association*

Steep to precipitous, well-drained to excessively drained, rocky and stony land

This association consists of stony and rocky, steep to precipitous slopes. It occurs on Oahu and makes up about 15 percent of the island.

The elevation ranges from sea level to 2,800 feet. The annual rainfall is 15 to 50 inches in most areas but is as much as 200 inches along the windward cliffs of the Koolau Range. The mean annual soil temperature is between 67° and 75° F. Kiawe, buffelgrass, and fingergrasses grow in the drier areas, and ohia lehua, ferns, and sedges in the wetter areas.

Rock land makes up about 60 percent of the association, and Stony steep land 15 percent. Rock outcrop, Stony land, and areas of Kawaihapai, Lualualei, and Pulehu soils make up the rest.

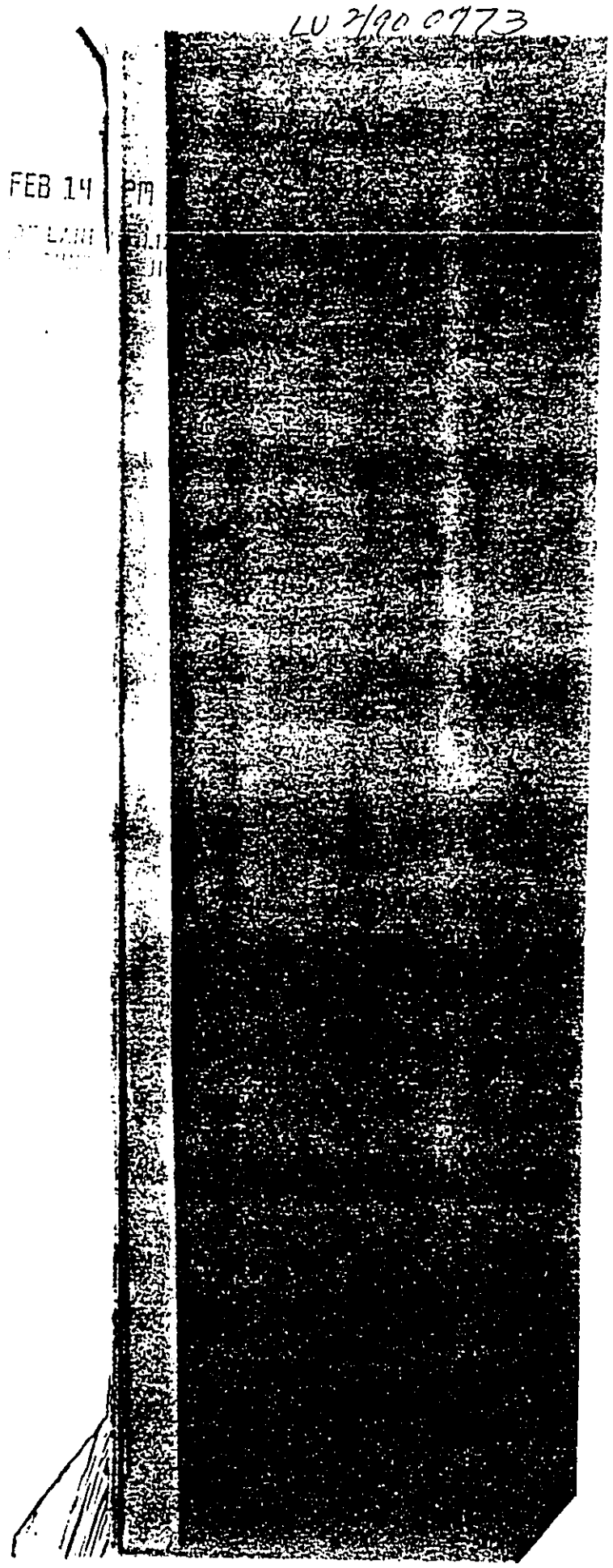
Rock land is 25 to 90 percent rock outcrop. It is very steep and occurs in gulches and on mountainsides. The soil material is very shallow. Stony steep land is a mass of boulders and stones deposited by water or gravity in valley bottoms or on side slopes of drainageways. Slopes are very steep.

This association is used mainly for pasture, wildlife habitat, and recreation. Some areas are used for homesites. Upland game birds and wild pigs are the principal kinds of wildlife.

6. *Kaena-Waialua association*

Deep, mainly nearly level and gently sloping, poorly drained to excessively drained soils that have a fine-textured to coarse-textured subsoil or underlying material; on coastal plains and talus slopes and in drainageways

This association occurs as a narrow band along the northern and eastern coastline on the island of Oahu. The soils occur in drainageways, on coastal plains, and on talus slopes. They are nearly level and gently sloping for the most part but are steeper on talus slopes. They formed in alluvium and vary widely in texture and



drainage. The association makes up about 10 percent of the island.

The elevation ranges from sea level to 200 feet. The annual rainfall is generally 30 to 45 inches but ranges from 20 to 80 inches. Most of the rain falls in winter. Summer showers are common. The mean annual soil temperature is about 74° F. Kiawe, koa haole, and fingergrasses grow in the drier areas, and guava, java plum, and californiagrass in the wetter areas.

Kaena and Waialua soils make up about 50 percent of the association. Hanalei, Kawaihapai, Jaucas, Haleiwa, Kaloko, Keaau, Mokuleia, Pearl Harbor, and Pulehu soils, and areas of Coral outcrop and Marsh make up the rest.

Kaena soils are poorly drained, dark-colored silty clays or clays underlain by alluvium. Waialua soils are moderately well drained, dark reddish-brown silty clays or clays underlain by alluvium.

This association is used for sugarcane, truck crops, pasture, orchard, recreation, and urban development. Kaena soils need to be drained before they can be cultivated.

7. Lolekaa-Waikane association

Deep, nearly level to very steep, well-drained soils that have a dominantly fine-textured subsoil; on fans, terraces, and uplands

This association consists of well-drained, fine textured and moderately fine textured soils on uplands, fans, and terraces on the island of Oahu. These soils are nearly level to very steep. They formed in old alluvium and material weathered from basic igneous rock. The association makes up about 15 percent of the island.

The elevation ranges from near sea level to 1,500 feet. Rainfall is fairly well distributed throughout the year. The annual amount is 40 to 90 inches. The mean annual soil temperature is between 70° and 73° F. The natural vegetation is guava, java plum, hilograss, and ricegrass.

Lolekaa soils make up 20 percent of the association and Waikane soils about 20 percent. Paumalu, Kemoo, Leilehua, Alaeloa, Kaneohe, Paaloa, Pohakupu, and Manana soils make up the rest.

Lolekaa soils have a surface layer of dark-brown silty clay and a dominantly silty clay subsoil. Their substratum is gravelly alluvium. Waikane soils have a surface layer of dark-brown silty clay and a subsoil of dark reddish-brown silty clay. Their substratum is gravelly alluvium.

This association is used mainly for pasture. Small areas are used for homesites, truck crops, and orchard crops. Areas of the minor soils in the association are used for sugarcane and pineapple. The potential for timber is high.

Island of Maui

Maui, the second largest island in the State, is 48 miles long and 26 miles wide. The land area is 465,920 acres, or 728 square miles. The island formed through the merging of two volcanoes—the East Maui volcano, or Haleakala, and the West Maui volcano. It is divided into three main areas—West Maui, East Maui, and Central Maui, or the isthmus.

West Maui is a deeply dissected volcano that rises to 5,788 feet at Puu Kukui. The central part of West consists of canyons and steep ridges and is not accessible. It is surrounded by a moderately slo smooth narrow belt. There are a few gulches.

East Maui is dominated by the 10,025-foot Hale volcano. The volcano is dormant. The last eruptio about 1790 (*8*). Near the summit and on the easter southwestern slopes, the land is rough and rocky. western and northern slopes are relatively smooth b sloping to moderately steep.

Central Maui, the isthmus that connects West and Maui, is smooth and nearly level. It is used mainl sugarcane. Much of the isthmus is covered with allu

Rainfall is heavy in the mountainous areas. ground water occurs at the eastern end of East Mau across the isthmus and along the coast of West Perched water also occurs on East Maui.

The business activity, the population, and the se government are centered in Wailuku and Kahului hului has an airport and a deep-water harbor.

1. Pulehu-Ewa-Jaucas association

Deep, nearly level to moderately sloping, well-dr and excessively drained soils that have a moderatel textured to coarse-textured subsoil or underlying rial; on alluvial fans and in basins

This association consists of well-drained and sively drained, medium-textured, moderately fine tured, and coarse-textured soils on alluvial fans a basins on the island of Maui, mainly Central Maui. soils are nearly level to moderately sloping. The veloped in alluvium weathered from basic igneous coral, and seashells. The association makes up ab percent of the island.

The elevation ranges from near sea level to 600 The annual rainfall is 10 to 30 inches. The mean a soil temperature is about 75° F. The natural veget is bermudagrass, bristly foxtailgrass, kiawe, and lan

Pulehu soils make up about 40 percent of the as tion, Ewa soils about 15 percent, and Jaucas soils 1 cent. Alae, Iao, Kealia, and Puuone soils make u rest.

Pulehu soils have a surface layer of dark-brown able silt loam. Their substratum is dark-brown and yellowish-brown alluvium weathered from basic ig rock. Ewa soils have a surface layer and subsoil of reddish-brown, friable silty clay loam. Their substr is alluvium weathered from basic igneous rock. J soils have a pale-brown calcareous sand surface Their substratum is yellowish-brown sand weat from coral and seashells.

This association is used for sugarcane, truck pasture, wildlife habitat, and homesites. Most o sugarcane is grown on Ewa, Jaucas, and Pulehu Upland game birds and native water birds are the p pal kinds of wildlife.

2. Waiakoa-Keahua-Molokai association

Moderately deep and deep, nearly level to moder steep, well-drained soils that have a moderately fine tured subsoil; on low uplands

This association consists of well-drained, moder fine textured soils on low uplands on Central Maui.

This soil is used for sugarcane, pasture, pineapple, orchards, and truck crops. (Capability classification IIe, irrigated or nonirrigated; sugarcane group 1; pineapple group 5; pasture group 6; woodland group 6)

Ioleau silty clay loam, 12 to 20 percent slopes, eroded (IoD2).—This soil is similar to Ioleau silty clay loam, 6 to 12 percent slopes, except that it is moderately steep and part of the surface layer has been removed by erosion. Runoff is rapid, and the erosion hazard is moderate to severe.

This soil is used for sugarcane, pineapple, and pasture. (Capability classification IVe, irrigated or nonirrigated; sugarcane group 1; pineapple group 6; pasture group 6; woodland group 6)

Ioleau silty clay loam, 20 to 35 percent slopes, eroded (IoE2).—This soil is similar to Ioleau silty clay loam, 6 to 12 percent slopes, except that it is steep and most of the surface layer has been removed by erosion. Runoff is rapid, and the erosion hazard is severe.

This soil is used for pasture, woodland, sugarcane, pineapple, and water supply. (Capability classification VIe, nonirrigated; pasture group 6; woodland group 6)

Jaucas Series

This series consists of excessively drained, calcareous soils that occur as narrow strips on coastal plains, adjacent to the ocean. These soils occur on all the islands of this survey area. They developed in wind- and water-deposited sand from coral and seashells. They are nearly level to strongly sloping. Elevations range from sea level to 100 feet; but locally on West Molokai, the elevation is as high as 650 feet. The annual rainfall amounts to 10 to 40 inches. The mean annual soil temperature is 75° F. Jaucas soils are geographically associated with Pulehu, Mokuleia, Kaloko, and Lualualei soils.

In this survey area a dark variant of the Jaucas series was mapped. This soil, Jaucas loamy fine sand, dark variant, 0 to 8 percent slopes, is described in alphabetical order, along with other mapping units of this series.

These soils are used for pasture, sugarcane, truck crops, alfalfa, recreational areas, wildlife habitat, and urban development. The natural vegetation consists of kiawe, koa haole, bristly foxtail, bermudagrass, fingergrass, and Australian saltbush.

Jaucas sand, 0 to 15 percent slopes (JoC).—The slope range of this soil is 0 to 15 percent, but in most places the slope does not exceed 7 percent. Included in mapping were narrow strips of Beaches and areas of Pulehu, Mokuleia, and Keaau soils.

In a representative profile the soil is single grain, pale brown to very pale brown, sandy, and more than 60 inches deep. In many places the surface layer is dark brown as a result of accumulation of organic matter and alluvium. The soil is neutral to moderately alkaline throughout the profile.

Permeability is rapid, and runoff is very slow to slow. The hazard of water erosion is slight, but wind erosion is a severe hazard where vegetation has been removed. The available water capacity is 0.5 to 1.0 inch per foot of soil. In places roots penetrate to a depth of 5 feet or more. Workability is slightly difficult because the soil is loose and lacks stability for use of equipment.

Representative profile: Island of Molokai, lat. 21°05'38" N. and long. 157°13'03" W.

C1—0 to 13 inches, pale-brown (10YR 6/3) sand, light yellowish brown (10YR 6/4) when dry; single grain; loose, nonsticky and nonplastic; plentiful roots; violent effervescence with dilute hydrochloric acid; neutral; gradual, wavy boundary. 3 to 15 inches thick.

C2—13 to 22 inches, light yellowish-brown (10YR 6/4) sand, very pale brown (10YR 7/4) when dry; single grain; loose, nonsticky and nonplastic; few roots; violent effervescence with dilute hydrochloric acid; mildly alkaline; gradual, wavy boundary. 6 to 30 inches thick.

C3—22 to 60 inches, very pale brown (10YR 7/4) sand; single grain; loose, nonsticky and nonplastic; violent effervescence with dilute hydrochloric acid; neutral.

The texture of the surface layer is dominantly sand, but in a few places it is fine sand or loamy sand. In some places there is an A horizon, a few inches thick, that is darkened by organic matter and alluvium. The profile is 10YR in hue. It ranges from 6 to 7 in value, and, in chroma, from 2 to 4 when moist. Pebble-size fragments of coral and seashell are common in the profile.

This soil is used for pasture, sugarcane, truck crops, and urban development. (Capability classification IVs if irrigated, VIe if nonirrigated; sugarcane group 1; pasture group 1)

Jaucas sand, saline, 0 to 12 percent slopes (JcC).—This soil occurs near the ocean in areas where the water table is near the surface and salts have accumulated. It is somewhat poorly drained in depressions but excessively drained on knolls. In the depressions there is normally a layer of silty alluvial material flocculated by the high concentration of soluble salts. The water table is normally within a depth of 30 inches.

This soil is used for pasture, wildlife habitat, and urban development. Vegetation on the salty soil in the depressions consists of salt-tolerant plants. Kiawe grows profusely on the better drained soils on knolls. (Capability classification VIIs, nonirrigated: pasture group 1)

Jaucas loamy fine sand, 0 to 8 percent slopes (JfB).—This soil occurs on old beaches and on windblown sand deposits in the western and southern parts of Kauai. It has a profile like that of Jaucas sand, 0 to 15 percent slopes, except for the texture of the surface layer.

This soil is used for pasture, recreational areas, wildlife habitat, sugarcane, and alfalfa. (Capability classification IVs if irrigated, VIe if nonirrigated; sugarcane group 1; pasture group 1)

Jaucas loamy fine sand, dark variant, 0 to 8 percent slopes (JkB).—This soil occurs on Kauai near the town of Waimea. Unlike other soils of the Jaucas series, sand and coral sand are mixed throughout the profile. The basaltic sand gives this soil a dark-brown to black color.

This soil is used for sugarcane, pasture, and homesites. (Capability classification IVs if irrigated, VIe if nonirrigated; sugarcane group 1; pasture group 1)

Jaucas-Blown-out land complex (JL).—This complex occurs as a long, nearly level to moderately sloping strip in the northwestern part of the island of Molokai. It is inland where strong prevailing winds have lifted and carried coral sand from sea level to elevations of about 650 feet. The Jaucas soil, which makes up 25 to 70 percent of the acreage, occurs as small dunes. In many places it is mixed with fine material from Blown-out land, and the texture is loamy sand. Blown-out land consists of

LU 2/90.0973

JOHN WAIHEE
GOVERNOR OF HAWAII

WILLIAM W. PATY, CHAIRPERSON
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STATE PARKS
WATER AND LAND DEVELOPMENT

14 PM 2 15

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 621
HONOLULU, HAWAII 96809

January 12, 1990

Mr. Robert Altz
68-482B Crozier Drive
Waialua, Hawaii 96791

Dear Mr. Altz:

SUBJECT: Archaeological subsurface testing on TMK 6-8-06: 15
Mokuleia, Waialua, O'ahu

This letter is in response to your phone call requesting a scope of work for subsurface testing on your two-acre lot in Mokuleia.

We believe that approximately 10 backhoe trenches, each about 20 feet long by a minimum of 6' deep, randomly distributed on the property will be sufficient to indicate the presence or absence of subsurface archaeological deposits and/or burials.

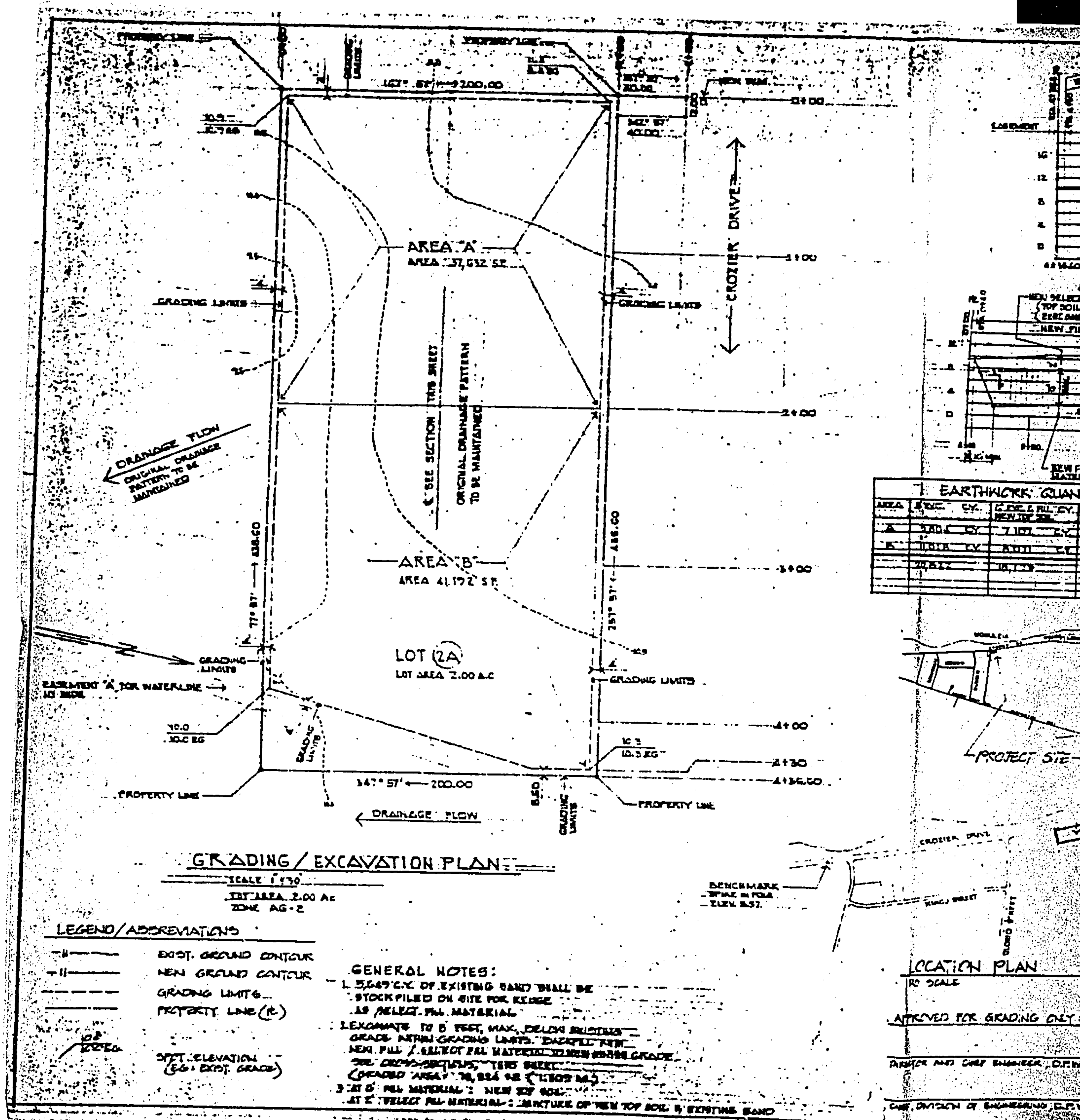
We recognize that keeping the sand deposits clean is a valid concern for you, but from our perspective, grubbing prior to testing is not acceptable. We have talked to Joseph Kennedy, whom you have designated as your archaeological consultant, about this problem. He assures us that he can mechanically clear as testing proceeds, and thus meet this concern.

Thank you for your cooperation in this matter.

Sincerely,

DON HIBBARD, Director
Historic Preservation Program

cc: Robin Foster, Department of Land Utilization
City & County of Honolulu

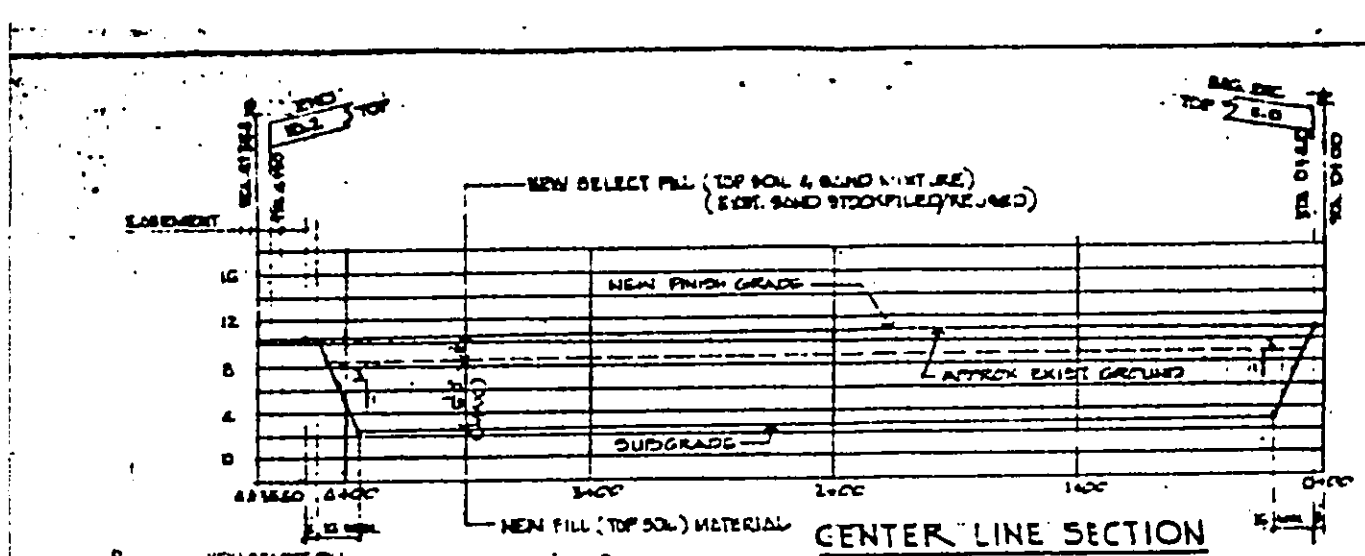


PROPERTY LINE
GRADING LIMITS
CROZIER DRIVE
AREA "A"
AREA 37,632 S.F.
AREA "B"
AREA 41,172 S.F.
LOT (2A)
LOT AREA 2.00 AC
SEE SECTION THIS SHEET
ORIGINAL DRAINAGE PATTERN TO BE MAINTAINED
DRAINAGE FLOW
ORIGINAL DRAINAGE PATTERN TO BE MAINTAINED
EASEMENT "A" FOR WATERLINE
347° 57' — 200.00
438.60
1+00
2+00
3+00
4+00
4+30
4+36.60
EARTHWORK QUANTITIES
PROJECT SITE
CROZIER DRIVE
BENCHMARK
SPIKE IN POLE
ELEV. 8.57
GRADING / EXCAVATION PLAN
SCALE 1"=30'
LOT AREA 2.00 Ac
ZONE AG-2
LEGEND/ABBREVIATIONS
EXIST. GROUND CONTOUR
NEW GROUND CONTOUR
GRADING LIMITS
PROPERTY LINE (PL)
SPOT ELEVATION (EG: EXIST. GRADE)
GENERAL NOTES:
1. 5,649 C.Y. OF EXISTING SAND SHALL BE STOCKPILED ON SITE FOR REUSE AS SELECT FILL MATERIAL.
2. EXCAVATE TO 5 FEET, MAX. BELOW EXISTING GRADE WITHIN GRADING LIMITS. BACKFILL WITH NEW FILL / SELECT FILL MATERIAL TO NEW GRADE. SEE CROSS-SECTIONS, THIS SHEET. (GRADED AREA = 78,824 SF (1.809 AC.))
3. AT 6" FILL MATERIAL: NEW TOP SOIL. AT 2' SELECT FILL MATERIAL: MIXTURE OF NEW TOP SOIL & EXISTING SAND
LOCATION PLAN
NO SCALE
APPROVED FOR GRADING ONLY
DIRECTOR AND CHIEF ENGINEER, D.P.W.
CHIEF, DIVISION OF ENGINEERING, D.P.W.

LU 2/90 0973

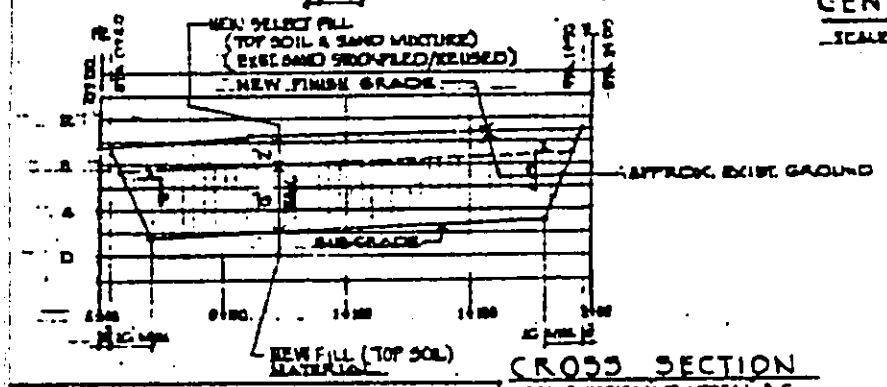
'90 FEB 14 PM 2 16

CITY & COUNTY OF HONOLULU
DEPT. OF LAND UTILIZATION



CENTER LINE SECTION

SCALE HORIZ: 1"=40' VERT: 1"=8.0'

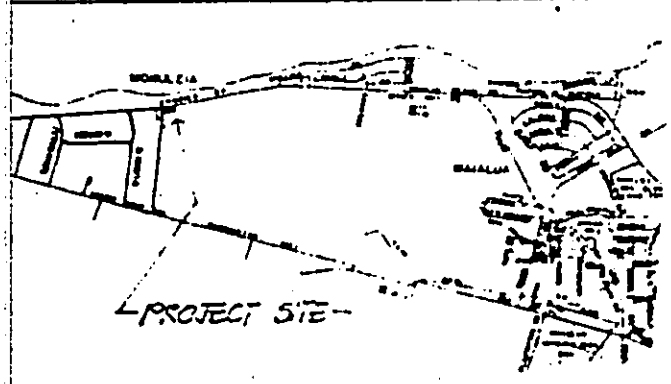


CROSS SECTION

SCALE HORIZ: 1"=40' VERT: 1"=8.0'

EARTHWORK QUANTITIES

EXC. C.Y.	C. EXC. & FILL C.Y. NEW TOP SOIL	Z EXC. & FILL C.Y. NEW TOP SOIL & NATURAL	AREA TO BE GRADED (S.F.)
5180 C.Y.	7,102 C.Y.	2,702 C.Y.	57,137 S.F.
11,018 C.Y.	4,071 C.Y.	2,947 C.Y.	41,192 S.F.
0 C.Y.	18,173 C.Y.	5646 C.Y.	78,674 S.F.
			176,003 S.F.



LOCATION PLAN

NO SCALE

GRADING NOTES

GRADING:

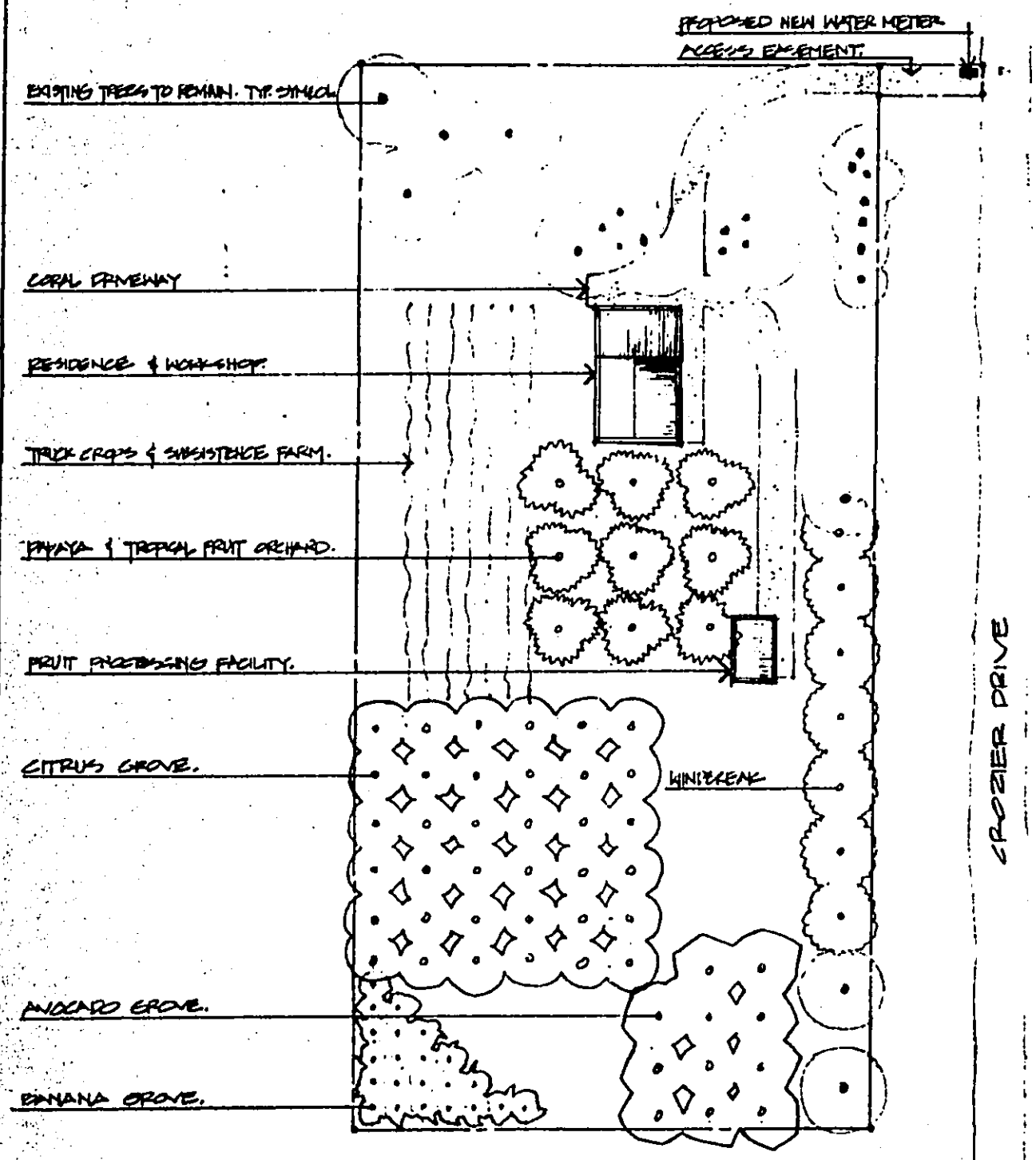
1. ALL WORK SHALL BE DONE IN ACCORDANCE W/ CHAPTER 23, GRADING, SOIL EROSION AND SEDIMENT CONTROL, OF THE REVISED ORDINANCES OF HONOLULU 1978, AS AMENDED (ORDINANCE NO. 81-19).
2. THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS RESULTING FROM HIS WORK AND DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS. THE COST INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE CHIEF ENGINEER SHALL BE PAYABLE BY THE CONTRACTOR.
3. THE CONTRACTOR AT HIS OWN EXPENSE SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH.
4. ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE W/ THE APPLICABLE PROVISIONS OF CHAPTER 54 WATER QUALITY STANDARDS AND CHAPTER 55, WATER POLLUTION CONTROL, OF TITLE 11, ADMINISTRATIVE RULES OF THE STATE DEPARTMENT OF HEALTH
5. THE CITY SHALL BE NOTIFIED OF THE LOCATION OF THE BORROW AND DISPOSAL SITES FOR THE PROJECT WHEN THE APPLICATION FOR A GRADING PERMIT IS MADE. THE BORROW AND DISPOSAL SITES MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE
6. TEMPORARY EROSION CONTROL PROCEDURES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO APPLICATION FOR A GRADING PERMIT
7. FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYED
8. NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS AND HOLIDAYS AT ANY TIME WITHOUT PRIOR NOTICE TO THE CHIEF ENGINEER.
9. THE LIMITS OF THE GRADED AREA SHALL BE FLAGGED BEFORE THE COMMENCEMENT OF GRADING WORK
10. ALL SLOPES AND EXPOSED AREAS SHALL BE SODDED OR PLANTED AS SOON AS FINAL GRADING HAVE BEEN ESTABLISHED. PLANTING SHALL NOT BE DELAYED UNTIL ALL GRADING WORK HAS BEEN COMPLETED. GRADING TO FINAL GRADE SHALL BE CONTINUOUS, AND ANY AREA, WITHIN WHICH WORK HAS BEEN INTERRUPTED OR DELAYED, SHALL BE REPLANTED
11. TEMPORARY EROSION CONTROLS SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN PLACE AND ESTABLISHED
12. EROSION CONTROL PLAN SIMILAR.
SEE ATTACHMENT FOR PROCEDURES AND SEQUENCE OF OPERATIONS.

APPROVED FOR GRADING ONLY:

DIRECTOR AND CHIEF ENGINEER, D.P.W. DATE

BY: DIVISION OF ENGINEERING, D.P.W. DATE

REV.	DATE	DESCRIPTION
		GRADING / EXCAVATION OF AGRICULTURAL LOT 22
		CROZIER, STREET OF 44
		KAHUKULUA, WAIALUA, OAHU, HAWAII
		TAX MAP KEY: 6-8-3 PARCEL 22
		OWNERS: ROBERT ALTZ
		ATTENDED BY: DRAWN BY:



PROPOSED LAND USE PLAN SCALE 1"=30'

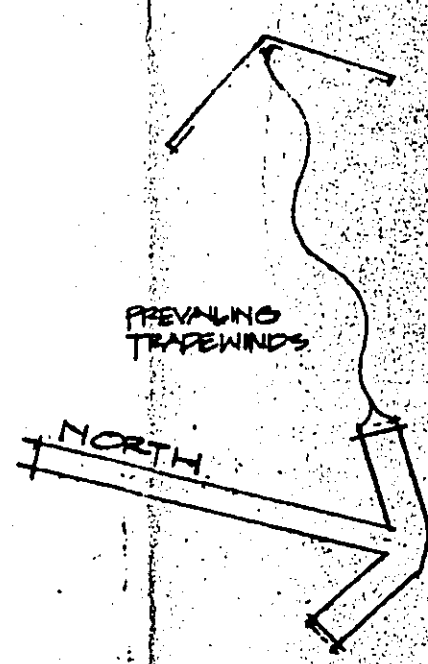
SUBSISTENCE HOMESTEAD DESCRIPTI

OAHU NORTH SHORE AGRICULTURAL SUBDIVI
IN MOKULEIA IS THE LOCATION FOR THIS COMPACT
HIGHLY INTENSIVE PLANTED FARM. IMMEDIATE PLANTI
OF VEGETABLE CROPS, BANANA & PAPAYA ALONG
WITH PHASE-IN ORCHARDS FOR EDIBLE TROPICAL
FRUITS WITHIN 2 YEARS WOULD DEDICATE THE
LAND TO BE USEFUL & PRODUCTIVE FOR RESIDENT
& GUESTS WHILE ALSO BENEFITING THE LOCAL
COMMUNITY AND OAHU AGRIBUSINESS. CONSTA
HARDY VARIETIES OF AVOCADO, CITRUS, PAPAYA,
BREADFRUIT, SOURSOP, GUAVA & OTHERS WILL BE
CAREFULLY PLANTED AMONG WINDBREAKS & PROPER
SOLAR EXPOSURE TO BRING ABOUT BEST RESULTS.

HAVING HIGHLY ALKALINE UNDERSOIL, IT IS PROPO
TO EXCAVATE THE EXISTING 12-24" DEEP AND REPL
WITH TOPSOIL ALONG WITH
ORGANIC AMENDMENTS FOR OPTIMUM SOIL TEST.

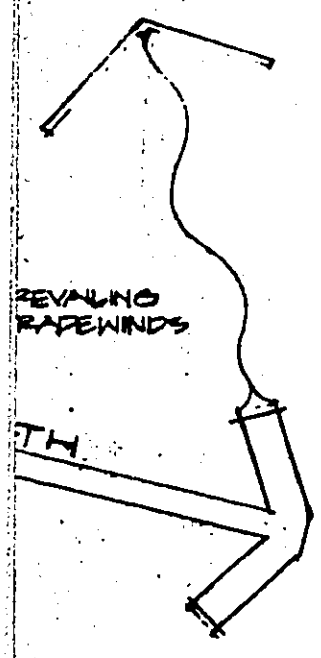
IRRIGATION WOULD BE A COMBINATION OF DRIP
SYSTEMS ALONG WITH OVERHEAD SPRAY IN
ORDER TO LEACH AWAY SALT TOXICITY. A FRUIT
PROCESSING FACILITY WOULD REQUIRE MAXIMUM
FLOW POSSIBLE DURING PEAK HARVEST SEASONS

THE RESIDENCE AND GROUNDS WOULD BE
INSTALLED AND MAINTAINED BY THE OWNER
SO AS TO PROVIDE A HEALTHY LIVING ENVIRONME
ALONG WITH BEING AESTHETICALLY PLEASING.



MESTEAD DESCRIPTION

- AGRICULTURAL SUBDIVISION
CATION FOR THIS COMPACT
ED FARM. IMMEDIATE PLANTINGS
BANANA & PAPAYA ALONG
S FOR EDIBLE TROPICAL
S WOULD DEDICATE THE
PRODUCTIVE FOR RESIDENTS
BENEFITING THE LOCAL
AGRIBUSINESS. COASTAL
AVOCADO, CITRUS, PAPAYA,
SUAVA & OTHERS WILL BE
NG WINDBREAKS & PROPER
G ABOUT BEST RESULTS.
HE UNIVERSAL, IT IS PROPOSED
NG 20-FT DEEP AND REPLACE
TOPSOIL ALONG WITH
FOR OPTIMUM SOIL TEST.
A COMBINATION OF DRIP
OVERHEAD SPRAY IN
SALT TOXICITY. A FRUIT
OULD REQUIRE MAXIMUM
PEAK HARVEST SEASONS.
GROUNDS WOULD BE
INED BY THE OWNER
HEALTHY LIVING ENVIRONMENT
STHETICALLY PLEASING.



REV.	DATE	DESCRIPTION
		LAND USE PLAN
		AGRICULTURAL LOT 2A.
		CROCODILE DRIVE - 3.
		MOKULEIA, WAIALUA, OAHU, HAWAII.
		TAX MAP KEY 6-8-06-15 LOT 2A.
		OWNER: ROBERT ALTZ PH. 677 6732
		DATE:
		DRAWING NO.
		SHEET

Lot 22 | Lot 23 | Lot 24 | Lot 25 William R. Norwood, Jr. & wf. Katherine F. (Owners) | Lot 26 | Lot 27 | Lot 28

to Olohio Street — 8M

CROZIER
257° 57' — 300.00

605.50 ft. N.
5963.66 ft. E.
"MOKULEIA" △

12.0
40.00
167° 57'
347.57'
and
40.00
12.0

288.00

PARCEL C

Gross Are
less Easement
Net Area
40

Parcel B

Oahu Railway

Land

Company

288.00

257° 57' —

566.40 ft. N.
5972.07 ft. E.
"MOKULEIA" △

1½ inch pipe (Found)

EASEMENT "1" (12.0 FT. WIDE) 480 SQ. FT. In Favor of Lot 2-A

502 Emerson

LOT 2.00

167° 57' — 200.00

Lot A

Grant

77° 57' —

1½ inch pipe (set)

DESIGNATI
EASEMENT "1" (
FOR INGRESS AND
AFFECTING

Being a Portion of Oahu Railw
Railroad Right
Being, also, a portion of Grant

AND IN FAVOR

'90 FEB 14 PM 2 16
DEPT OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

LU 7/90 0973

27 | Lot 28 | Lot 29 | Lot 30 | Lot 31 | Lot 32

ER DRIVE
300.00

288.00
C
ompany
Gross Area = 12,000 Sq. Ft.
less Easement "1" = (-) 480 Sq. Ft.
Net Area = 11,520 Sq. Ft.
40 ft.
40.00
347°57'—
Railroad
Parcel D
Right

288.00

257°57' — 435.60 (Overall)

502
Emerson

1/2 inch pipe (found)

1/2 inch pipe (found)

purposes

LOT 2-A
2.00 ACS.

Easement "1" for Waterline (10.00 ft. wide)

347°57' — 200.00

Kealiihuluh

to

1/2 inch pipe (found bent)

77°57' — 435.60

Lot 2

261

Grant

DESIGNATION OF
EASEMENT "1" (12 FT. WIDE)
INGRESS AND EGRESS PURPOSES
AFFECTING PARCEL C
Portion of Oahu Railway and Land Company 40 ft.
Railroad Right of Way
a portion of Grant 502 to J. S. Emerson

ND IN FAVOR OF LOT 2-A

DEN

W 2/90 1181

ARCHAEOLOGICAL CONSULTANTS
of
HAWAII

59-624 Pupukea Rd.
Haleiwa, Hawaii 96712
(808) 638-7442

JOSEPH KENNEDY
Archaeologist

'90 FEB 22 PM 3 05

DEPT OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

Mr. Robert Altz
68-482B Crozier Dr,
Waialua, Hawaii

February 15, 1990

At the request of your office, Archaeological Consultants of Hawaii, Inc. has conducted a subsurface testing program at Lot 2C, Crozier Dr. located at Waialua, Island of Oahu. The subject property, approximately two acres, is located immediately south (mauka) of Crozier Drive and the former ORLC 40 foot right-of-way.

Access is by way of an easement in the northwest corner of the parcel crossing the right-of-way (see map). The ocean is 75-100 meters north of the property line, prevailing winds are consistently onshore. Predominant vegetation is thick grass and scrub brush, the property having been cleared at least once within the last year. The landowner intends to mine and fill the property to remove sand down to the basal layer of coral limestone aggregate, which would result in the destruction of any historical remains on or below the surface. The purpose of this survey is to determine the presence or absence of cultural remains on the property and what, if any, mitigative measures might be necessary in accordance HRS6E considerations.

The USDA Soil Survey (1972) indicates the two main soil series found in this area are Jaucus Sand (JaC), and Fill dirt (Fd) from agricultural sources in areas where sand-mining has already occurred. Both types of prcfiles are represented in our survey. Jaucus Sand is a carbonatic isohyperthermic typic ustipssamment entisol normally appearing in 2-3 layers above the coral/limestone gravel base rock. In some places there is an A horizon, 5-15 cm thick, that is darkened by organic matter and alluvium; pebble-size fragments of coral and seashell are common.

A total of 9 trenches were excavated with a backhoe at various points to test for burials, midden deposits, or other evidence of human occupation.

These trenches are marked T-1 through T-9 on the site map. Average size of each trench was 7 meters x .75 meters, carried to sterile sand. A three meter section of each trench was drawn and a representative sample, profiles T-1, T-3, T-6, and T-9, are included with this report.

About one quarter of the area was reported to have been previously mined and filled, and trenches T-3 and T-5 in the southeast quadrant confirm this. Up to 2.5m of dark reddish brown (5 YR 3/2) agricultural fill directly overlies the hard packed base of coral gravel in this area (see map & section drawing, T-5). The stratigraphic profile of the seven remaining trenches is consistent with natural deposits of the above mentioned Jaucus Sand formation.

Top to bottom, the three basic layers include a pale brown (10 YR 6/3) sandy topsoil 10-20cm. thick, a slightly darker brown (10 YR 7/2) mix of sandy topsoil and leached organics 5-15cm. thick, and a very pale brown (10 YR 7/4) calcareous sand with lenses of coarser sand and shell 2 to 3 meters thick. This lowest layer is sterile sand, composed of broken down coral and shell, and extends to the gravel base rock.

Our survey produced no evidence of ancient human occupation on the subject property. Trench T-6 and T-7 exhibited anomolies in the form of a lense of very dark brown (10 YR 7/1) sandy soil, contiguous and mixed with the second layer and organic horizon. Two marine shells (1 turbo and 1 tellina) were recovered from the face of trench T-6, raising at least the possibility of a nearby midden deposit. This is considered unlikely, given the intermittent nature of this layer, its physical connection with the upper topsoil and lack of clear boundary definition. A more plausible explanation would be the recent grubbing of vegetation, tree molds, and the proximity of the site to the ocean to explain shell material.

The base rock of coral and limestone gravel was reached at a depth of 2.5m in one trench (T-5). Excavation in the other trenches was limited to 2.0m or less because of the instability and depth of the clean, apparently sterile third sand layer. For this reason, and because of the nature of statistical sampling methods, there is always a remote possibility of encountering undisturbed cultural remains during sand mining operations.

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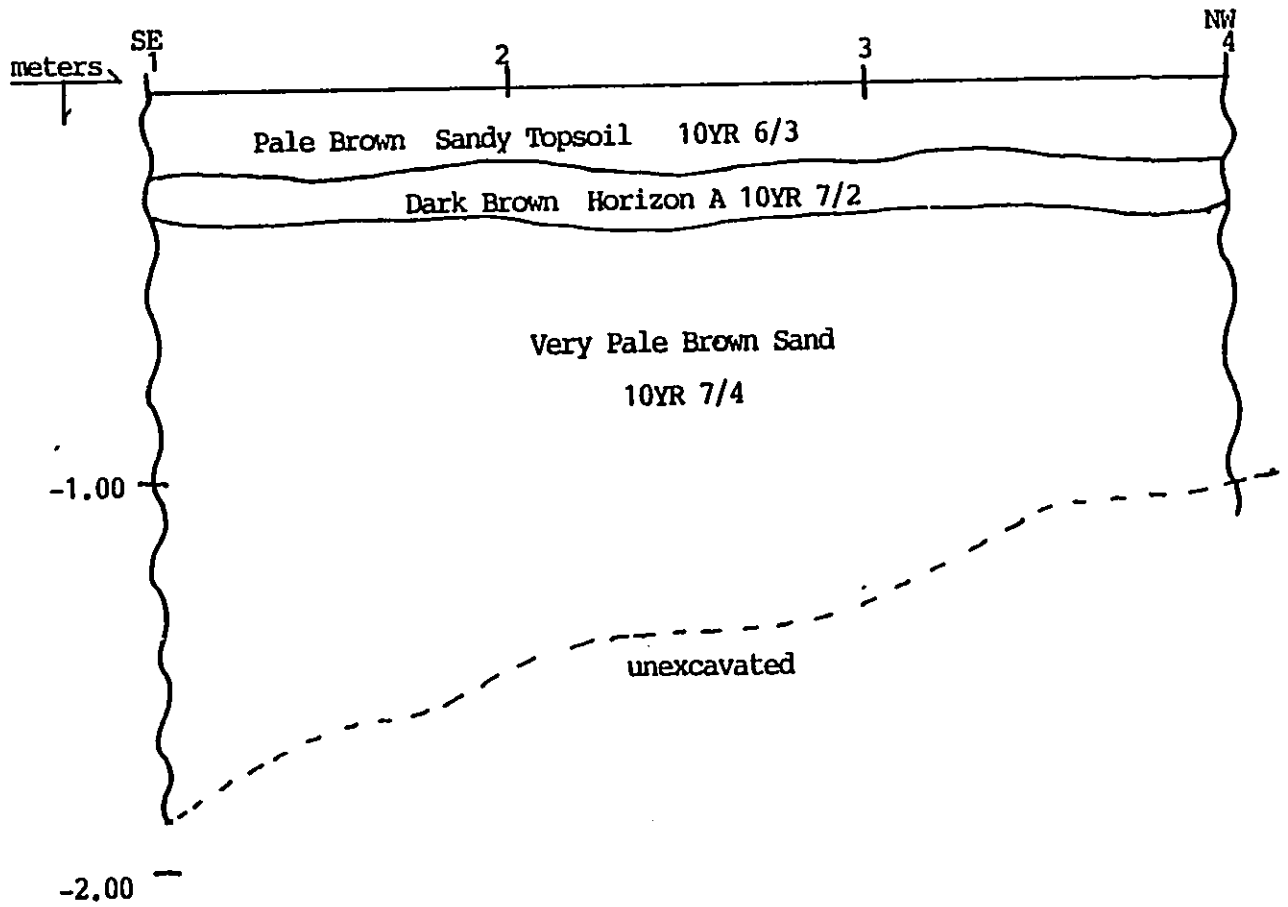
Haleiwa, Hawaii 96712

For: Robert Altz, Lot 2C, Crozier Dr., Waialua, Hawaii 96791

T-1 WEST FACE 7m x .75m scale -- 1:20



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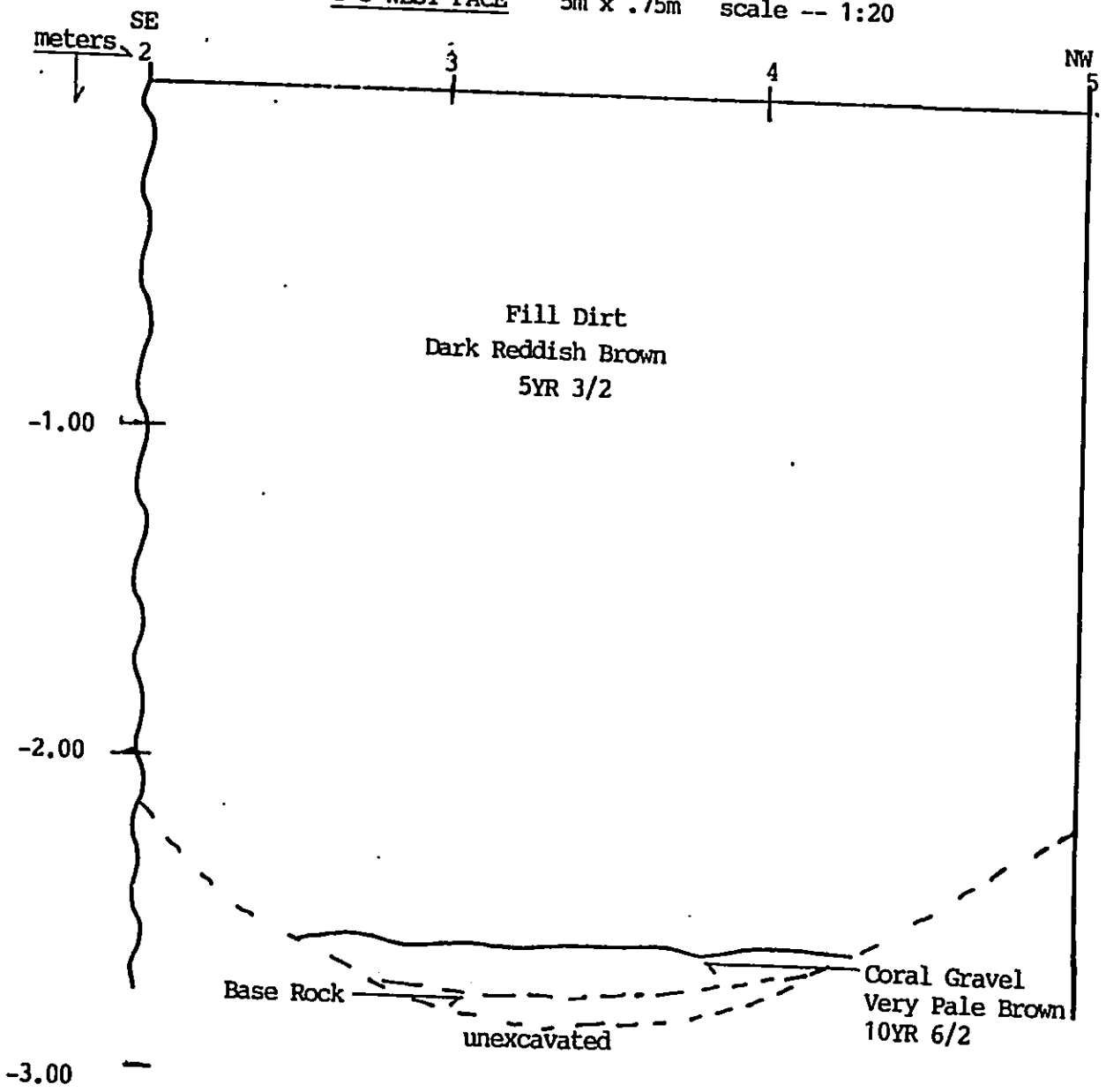
T-3 WEST FACE 5m x .75m scale -- 1:20



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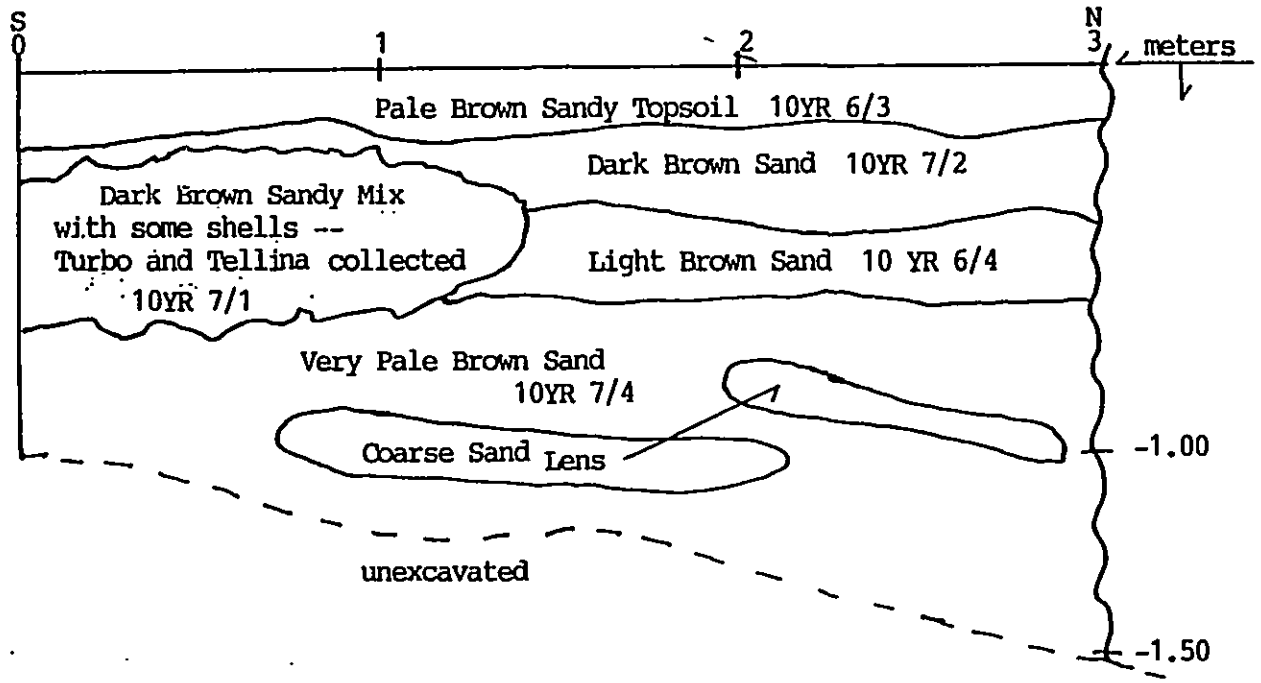
T-6 WEST FACE 7m x .75m scale -- 1:20



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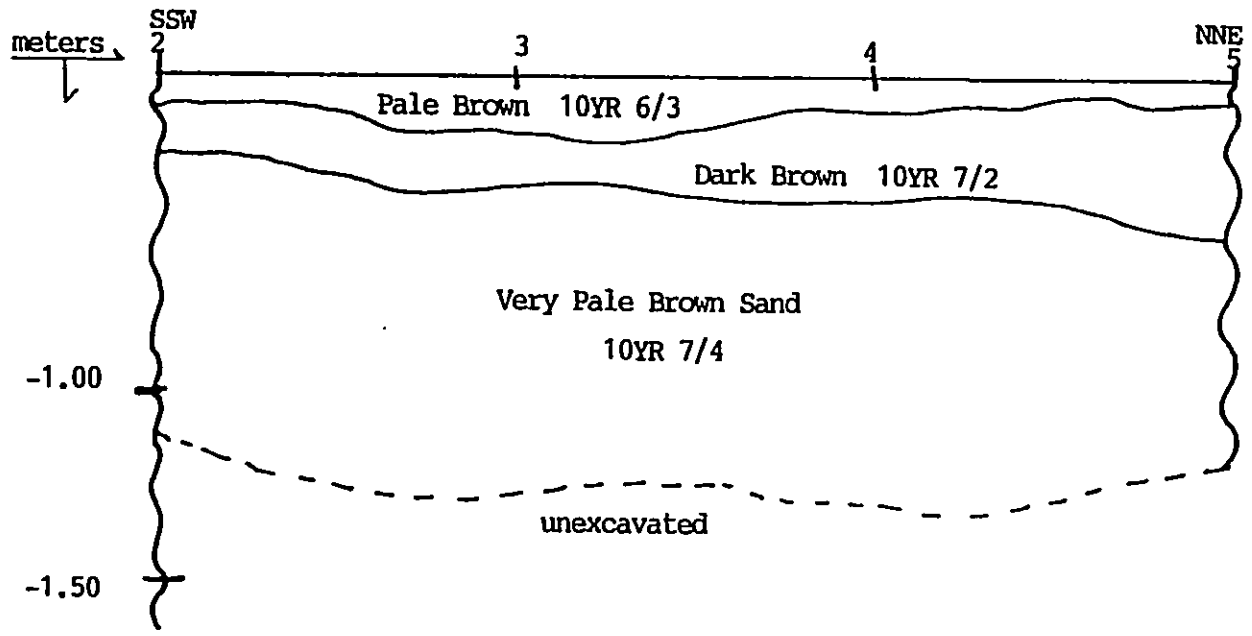
T-9 NW FACE 7m x .75m scale -- 1:20



Along with the negative finding of adverse impact on archaeological resources, therefore, we recommend the developer contact an archaeologist and provide notification of excavation schedules to enable spot checks as the work proceeds.

If there are any questions regarding this report, please feel free to contact me.

Aloha,

Joseph Kennedy
Consulting Archaeologist

William R. Norwood, Jr.
& wf. Katherine F.
(Owners)

to Olohio Street - 81¢

CROZIER DRIVE

257° 57' — 300.00

605.50 ft. N.
5963.66 ft. E.
"MOKULEIA" A

Parcel B

Former Oahu Railway and Land Company

PARCEL C

288.00

Gross Area = 18,000 Sq. Ft.
less Easement "1" = 6,480 Sq. Ft.
Net Area = 11,520 Sq. Ft.
40 ft.

Parcel D

Railroad Right

566.40 ft. N.
5972.07 ft. E.
"MOKULEIA" A

1½ inch Pipe (Found)

EASEMENT "1" (12 FT. WIDE)
(12,480 SQ. FT.)
For Access in Favor of Lot 2-A

257° 57' — 435.60 (Overall)

502 Emerson

1½ inch Pipe (Found)

1½ inch Pipe (Found)

Purposes

Easement "A" for Waterline (10.00 Ft. Wide)

Kealiihuluhulu

T-1
T-2
T-9
T-4
T-6
T-5
T-7
T-3
T-8

LOT 2-A
2.00 ACS.

Mined and Filled Previously

Lot A

Grant

1½ inch pipe (Set)

77° 57' — 435.60

347° 57' — 200.00

1½ inch pipe (Found bent)

Lot 2-

Grant 261

DESIGNATION OF EASEMENT "1" (12 FT. WIDE) FOR INGRESS AND EGRESS PURPOSES AFFECTING PARCEL C

Being a Portion of Oahu Railway and Land Company 40 ft. Railroad Right of Way
Being, also, a portion of Grant 502 to J. S. Emerson.

AND IN FAVOR OF LOT 2-A

DENNIS