

Report No. FHWA-HI-EIS-73-05-F

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MUD LANE-MAINEA-KAWAIHAE ROAD

PROJECT NUMBERS F-019-1(2), F-019-1(6) AND S-0270(4)
DISTRICT OF SOUTH KOHALA AND HAKAUA
ISLAND OF HAWAII

ADMINISTRATIVE ACTION

FINAL

ENVIRONMENTAL IMPACT STATEMENT

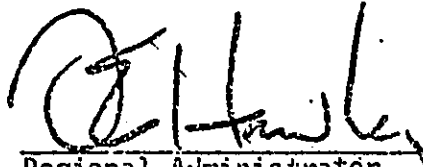
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U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
STATE OF HAWAII, DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Submitted Pursuant to 42 U.S.C. 4332(2)(c)

4-30-76

Date



Regional Administrator
Federal Highway Administration

H1

115

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I. SUMMARY SHEET

A. Administrative Action

This is a Final Environmental Impact Statement with no Section 4(f) statement. Action in accordance with Section 106, 36 C.F.R. Part 800 "Procedures for the Protection of Historic and Cultural Properties" has been completed and results are included herein.

B. Project Description

The Mud Lane-Waimea-Kawaihae Road (Plate 1) is a proposed highway located in the districts of Hamakua and South Kohala, Island of Hawaii, State of Hawaii. The highway consists of two sections; Mud Lane to Waimea (Hawaii Belt Road, Route 19), and Waimea to Kawaihae (Waimea-Kawaihae Road). The Mud Lane to Waimea section of the proposed highway begins at a connection to the improved portion of the Hawaii Belt Road, Route 19, between Mud Lane and Honokaa and extends southwesterly, bypassing the town of Waimea and intersecting Mamalahoa Highway at 0.4 miles north of the entrance to Waimea-Kohala Airport. The Waimea to Kawaihae section of the highway traverses toward the ocean from this point at Mamalahoa Highway, primarily across the State-owned Lalamilo Lands and merges with the existing roadway in the vicinity of Kawaihae Harbor.

The recommended alignment best meets future traffic requirements and at the same time minimizes the social, economic and environmental impact of the population and the resources in the project area. The review comments received at the Corridor Public Hearing, Design Public Hearing, and the comments received on the Draft Environmental Impact Statement from Federal, State and County agencies, private organizations and concerned citizens were considered in determining the recommended alignment.

C. Environmental Impact

The proposed highway will require one family, an individual and a farming operation to be relocated. Relocation assistance will be provided in accordance with Federal and State laws.

Some degradation and/or removal of low priority archaeological features are required; however, salvage operations in accordance with standard procedures will be conducted prior to construction.

Environmental impacts resulting from construction will be minimal. Highway aesthetics will be a prime concern throughout the design and construction.

The highway will provide the means to achieve the economic potential projected for this region. It will provide the basis for a planned development of adjacent lands; enhance the industries that require an improved transportation facility and add to the pleasure of driving on a safe and efficient highway.

D. Alternatives

The various alignments evaluated for the proposed highway are shown on Plate 2. In addition to these alignments, the alternative of no construction and upgrading the existing roadway were considered for both sections of the highway.

E. A list of Federal, State and Local agencies and other organizations from which comments were requested is shown on Appendix A.

F. Persons to be contacted for additional information:

Mr. Ralph T. Segawa	Mr. Tetsuo Harano
Division Administrator	Chief, Highways Division
U. S. Department of Transportation	State Department of Transportation
Federal Highway Administration	
Suite 613, 677 Ala Moana Boulevard	869 Punchbowl Street
Honolulu, Hawaii 96813	Honolulu, Hawaii 96813
Phone No. 546-5150	Phone No. 548-5710

II. PROJECT DESCRIPTION

A. Description of Project

The proposed highway lies in the districts of Hamakua and South Kohala on the Island of Hawaii (Plate 1). The highway will consist of two sections; Mud Lane to Waimea (Hawaii Belt Road, Route 19) and Waimea to Kawaihae (Waimea-Kawaihae Road). The new facility will provide an improved Highway that will begin at a connection with the improved portion of the Hawaii Belt Road, Route 19 near Mud Lane. From this point the new highway will extend southwesterly, bypassing the town of Waimea and junction with Mamalahoa Highway in the vicinity of Kamuela Race Track, 0.4 miles north of the entrance to the Waimea-Kohala Airport (Mud Lane-Waimea section). From the junction at Mamalahoa Highway, the proposed highway will traverse toward the ocean and merge with the existing highway in the vicinity of Kawaihae Harbor (Waimea-Kawaihae section). The present need is for this improved transportation facility from Waimea to Kawaihae Harbor. (The Hapuna Leg, a future connection to Hapuna from the Waimea-Kawaihae Road, will be constructed when warranted by an increase in traffic volume).

The total length of the proposed highway will consist of 19.9 miles; 7.1 miles for the Mud Lane-Waimea section and 12.8 miles for the Waimea-Kawaihae section. The new highway will traverse land composed of old lava flows and classified as agricultural zone. The lands within the highway limits vary in terrain and climatic conditions. Waimea, elevation 2,900 feet, is relatively flat, cool and wet, with rich soil that supports valuable farm and pasture land. Approximately 12 miles down slope at sea level is Kawaihae. Kawaihae is arid with a warm desert-like atmosphere and vegetation that consists of a limited array of annual grass, hardy shrubs and a

few long rooted trees. The land between Waimea and Kawaihae is primarily composed of old lava flows with rugged topography and sparse vegetation limited to Kikuyu grass and Kiawe trees.

The proposed new highway will be a two-lane highway with provisions and right-of-way acquisition for expansion to a four-lane divided highway. Additional design features for the Waimea-Kawaihae section will include a truck climbing lane and escape ramps which are necessary due to the steep slopes.

The Waimea-Kawaihae section of the proposed highway will be constructed in three phases, each phase dependent on the availability of funding and/or the disruption of smooth traffic flow on the highway caused by the development of the Puukohola Heiau National Historic Site; and increase in truck traffic from Kawaihae Harbor (Plate 11).

Phase I (Alternate "A" + "A-1") - Extends from Mamalahoa Highway to the intersection of Queen Kaahumanu Highway and the existing road.

Phase II (Alternate "A") - Extends from the end of Phase I on a tangent to the existing roadway immediately south of the Hilo Electric Light Company's substation, skirt the northern limits of the designated Puukohola Heiau National Historic site, bypass the ruins of John Young's House and connect to the existing Kawaihae Road to provide an access to the harbor.

Phase III (Alternate "A") - Extends from the end of Phase II in the vicinity of the ruins of John Young's House, bypass is the town of Kawaihae to the northeast and connects to the Kawaihae-Mahukona Road in the vicinity of the proposed Hilo Electric Light Company power plant site.

The proposed highway will utilize an entirely new highway rights-of-way with partial access control. The Mud Lane-Waimea section provides for a right-of-way with a minimum width of 200 feet. This is adequate for four 12-foot lanes and a 40-foot median (Plate 8). Phase I of the Waimea-Kawaihae section will include a 300-foot right-of-way. This is adequate for the ultimate roadway requirement of four 12-foot lanes, a 12-foot truck-climbing lane and a 60-foot median (Plate 7). In sections of high cut or fill, additional rights-of-way may be necessary to provide for adequate side slopes. For the segment of this section which is north of the Queen Kaahumanu Highway (Phase II and III), a lesser right-of-way requirement is considered due to the low anticipated traffic volume, the historical value of the designated National Park site, and existing Hawaiian Homes dwellings in the vicinity of the harbor (Plate 7B). In accordance with the standards set forth in A Policy on Geometric Design of Rural Highways, AASHO, 1965, a minimum 112-foot right-of-way will allow for the construction of two 12-foot lanes and a 12-foot truck-climbing lane. Due to hilly conditions and possible expansion to a four-lane highway in the future, a 200-foot corridor is proposed for the lower segment of this section.

The portions of the rights-of-way which are not required for the initial construction will continue to be available to adjacent property owners for productive use until the ultimate development of the highway.

The proposed highway conforms with the County of Hawaii General Plan prepared in January 1971 and will provide a vital link in the island highway network (Plate 10). At the Mud Lane terminus, the highway will connect to the improved FAP 19, two-lane Hawaii Belt Road to Honokaa. Near

the Waimea-Kohala Airport the highway will junction with the two-lane FAS 190, Mamalahoa Highway, for travel to Waimea and Kailua. At the Kawaihae terminus, the highway will connect to the improved two-lane FAS 270, Kawaihae-Mahukona Road servicing the Kawaihae Harbor and the northwestern region of the island. From Kawaihae, travel to Kailua is available via the recently constructed two-lane wide Queen Kaahumanu Highway, FAP 19.

1. Mud Lane-Waimea Section

The present roadway which passes through the town of Waimea is not compatible for uninterrupted traffic flow and will not accommodate future traffic demands. Any attempt to upgrade the present roadway will result in adverse socio-economic impact on the community of Waimea. The concept of the bypass is to designate the alignment as the urban boundary of Waimea and at the same time provide a safe and efficient transportation facility that will meet future traffic demands.

2. Waimea-Kawaihae Section

a. The existing two-lane highway which was constructed in 1934 has sharp curves, steep grades, poor sight distance and pavement that is narrow. The pavement has been resurfaced recently, however, existing deficiencies cannot be corrected to meet safety and traffic demands of the future. The high volume of truck traffic increases the hazards to motorists and further restricts the capacity of the roadway. The proposed highway will provide an improved transportation facility which would improve traffic safety with better design features.

b. The harbor at Kawaihae is a major deep water port and serves the western half of the island. The harbor is vital for the out-shipment of sugar from the Hamakua Coast Plantations, cattle and produce from Waimea and the district of Kohala, and in-shipment of

petroleum and other commodities to and from this area. The State has planned for future expansion of the harbor facilities (Plate 6) which will include an inter-island ferry system for the movement of cargo, particularly chassis-mounted containers, automobiles, trucks and wheeled equipment, a small boat harbor for recreational use, warehouses and storage facilities. Although the present highway connections in the immediate port area are adequate, highway links between the harbor and the population centers to the east and south are inadequate. The Waimea-Kawaihae section of the highway will provide an improved transportation facility to connect Kawaihae and Waimea and beyond, and will reduce the operating expenses for trucking merchandise.

c. In the Kawaihae, Hapuna, Puako and Waikoloa areas along the new Queen Kaahumanu Highway, major residential, resort and recreational facilities have been planned for development. Developments such as the Mauna Kea Beach Hotel, Hapuna Beach State Park, Spencer Park, Puako Beach Lots, and the expansion of Kawaihae Harbor, will generate an increased volume of traffic which will require a new highway to improve accessibility, safety, travel time and to reduce transportation cost.

Vehicular traffic will increase as the area develops. Traffic counts conducted in 1968 along segments of the existing road system, were used to determine the 1973, 1979 and 1995 average daily traffic (ADT) projected in this area. The basic method applied to project the traffic is in accordance with the procedures as prescribed in AASHO's 1965 publication A Policy On Geometric Design of Rural Highways (Chapter II, Design Controls and Criteria). Special trip generators such as Keahole

Airport and proposed developments of major significance with adequate data were incorporated independently. The 1968 projection trendline was verified by checking all traffic count stations within the project area for the years 1970-1972. The reanalysis substantiates the original growth rate and no adjustment to the original traffic assignment is necessary. Plate 9 shows the 1973, 1979 and 1995 projections. It should be noted that the traffic volume for 1995 is anticipated to more than double the existing ADT in the Waimea and Kawaihae areas. In the Hapuna area, due to planned developments along the new Queen Kaahumanu Highway, the traffic increase for 1995 will almost triple the existing ADT.

The estimated project costs of both sections of the highway are listed below:

1. Mud Lane-Waimea Section

<u>Engineering</u>	\$ 268,000
<u>Construction</u>	4,076,000
<u>Rights-of-Way</u>	<u>378,000</u>
Estimated Total Project Cost	\$4,722,000

2. The estimated project cost for the recommended alignment and the alternative alignments of the Waimea-Kawaihae section of the highway are as follows:

<u>Engineering</u>	\$ 600,000
<u>Construction</u>	
Recommended Alignment	
Phase I (Alternate "A" + "A-1")	12,912,000
Phase II (Alternate "A")	1,464,000
Phase III (Alternate "A")	1,337,000

Alternate Alignments

Station 0+00 to 515+00

Alternate "A"	\$ 9,762,000
Alternate "A" + "A-1"	11,289,000
Alternate "A" + "A-2"	11,092,000

Station 515+00 to End-of-Project

Alternate "A"	4,424,000
Alternate "A-3"	8,157,000
Alternate "A-4"	6,576,000
Alternate "A-5"	3,075,000

<u>Right-of-Way</u>	<u>Condition I¹</u>	<u>Condition II²</u>
Recommended Alignment		
Phase I	\$686,000	\$ ---
Phase II	100,000	54,000
Phase III	40,500	---
Alternate "A"	540,000	54,000
Alternate "A-1"	418,000	---
Alternate "A-2" ³	---	---
Alternate "A-3"	315,000	---
Alternate "A-4"	452,200	144,400
Alternate "A-5"	307,800	---

¹"Condition I" assumes all private land required for the right-of-way will be purchased.

²"Condition II" assumes that the land owners are willing to donate their land for a token fee.

³There is no cost for right-of-way through State owned land.

The Corridor Public Hearing for both sections of the highway was conducted in May 1969, at Kahilu Hall in Waimea, Hawaii. The State Highways Division presented the corridor studies and recommended alignment to the public. The comments received at the corridor hearing were evaluated and incorporated into the preliminary design of the proposed highway. A design public hearing was conducted on December 12, 1973 at Kahilu Hall. The comments received at the design public hearing are included in this report and will be considered in the final design of the highway. Rights-of-way acquisition for the Mud Lane-Waimea section is scheduled for 1976 with construction to begin in late 1977 and completion forecast for early 1978. For the Waimea-Kawaihae section, survey and engineering is scheduled for 1975-1976. Right-of-way acquisition is tentatively scheduled for 1976, with construction to begin early in 1977, and completion forecast for late 1978.

B. Description of the Environment

1. General

The proposed highway will provide an improved connection between the two economic centers located in the project area; Waimea, headquarters for the famous Parker Ranch and produce center and Kawaihae, a waterfront community with a deep water port that serves approximately one-half of the island. Livestock and fresh produce are the main industries in Waimea. The Community of Kawaihae is sustained by the shipping industry and tourism.

To the northwest is the district of North Kohala. Sugar, cattle and macadamia nuts have been the major agricultural products. However, with the phasing out of the operations of the Kohala Sugar

Company, slightly over 500 employees and the support services within and outside of North Kohala will be affected.

Despite the closing of the Kohala Sugar Company and the construction of new roads, no significant departure from the present life-style of the people is anticipated. The developments that are planned will not alter the life style to a great degree. The State (Kohala Task Force) and County have been working closely with the people of North Kohala and the sugar industry to plan alternative uses for the lands affected by the termination of sugar operations. Furthermore, the County has plans to assist the development of agriculture in South Kohala by protecting prime agricultural lands from urbanization and by providing necessary capital improvements such as water.

2. Geology

"The Island of Hawaii is the largest and youngest island in the Hawaiian group. It was built from the ocean floor by voluminous outpourings of lava from five volcanoes - Kohala, Mauna Kea, Hualalai, Mauna Loa, and Kilauea. The volcanos are believed to have started in the Tertiary period (16).

The Kohala volcano on the northern end of the island, 5,505 feet high, became extinct in the Middle Pleistocene. This volcano was deeply eroded on the windward side near the end of the Pliocene time.

Mauna Kea, the highest mountain, reaches 13,784 feet above sea level. The volcano has not erupted during historic time. It is built up of olivine basalt and covered with layers of volcanic ash. These individual ash layers vary in thickness from less than an inch to about

4 or 5 feet. During the Wisconsin stage of glaciation in North America, Mauna Kea was capped by a small glacier.

Hualalai mountain, 8,251 feet high, is built up of basalts. A large trachyte pumice cone of Puuwaawaa occurs on the northern slope. The last eruption of Hualalai, in 1800-1801, produced olivine basalt.

Mauna Loa covers an area of 2,035 square miles or 50 percent of the island. It is 13,680 feet high and last erupted in 1950. Mauna Loa and Mauna Kea receive an annual blanket of snow that lasts for a couple of months during the winter.

The Kilauea volcano, 4,090 feet high, originated on the southern slopes of Mauna Loa. Its lavas are largely olivine basalt. The flows in recent years have not been of the explosive type, and it has been possible to observe them safely at reasonably close range. The most spectacular eruption occurred in 1959 when Kilauea Iki erupted and sent fountains of lava shooting 1,900 feet in the air. The following year, a flank eruption engulfed the town of Kapoho. Since then, many eruptions of short duration have occurred along the fissure zone.

The topography of the island reflects the volcanic activity. In the northern and eastern sections where volcanic flows have not occurred recently, the terrain has been eroded by rivers and streams. The stream pattern is more or less radial. The spaces between drainages are narrow. In the southern section the terrain is undissected, is quite barren, and reveals large areas of exposed lava.

The valleys draining the rainy, windward slopes of Mauna Kea are younger and therefore smaller than those of the Kohala

Mountains. The dry western slope of Mauna Kea is largely undissected by stream erosion. The prominent gulches in the upper slopes of Mauna Kea have a distinct relationship to the glaciers which covered the top of the mountain during the late Pleistocene time. Shallow gulches drain the southwestern slopes of Mauna Loa.

The Waimea plains were formed by the Mauna Kea lava ponding against the older Kohala Mountains. The plains are covered with volcanic ash. The Interior Plateau at Pohakuloa is covered with fresh lava from Mauna Loa banking against Mauna Kea and Hualalai," (Soil Survey of Island of Hawaii, State of Hawaii, Soil Conservation Service, U.S. Department of Agriculture, December, 1973).

3. Physical Characteristics

"Rainfall varies from less than 20 inches per year at Kawaihae to about 30 inches per year at the Waimea end of the survey area. In both areas it is highly seasonal (Baker et al. 1965:15, 24).

Soils fall into three categories as defined by the University of Hawaii Land Study Bureau (Baker et al. 1965). The shift from lowland to upland soils occurs at about 1,200 to 1,400 feet in elevation, which places the Kawaihae portion of the survey, at a maximum altitude of about 300 feet, well below this point, and the Waimea end of the corridor, at a maximum elevation of about 2,600 feet, well above it. In the ahupua'a of Kawaihae 1, the soil is a deep, medium-textured, dark-brown material derived from volcanic ash. The terrain is rocky, well drained, and varies in slope from 0 to 20 percent, with steeper slopes present. The soil in Kawaihae 2 is equivalent to that of Kawaihae 1, with two distinctions: it is moderately deep to deep and there are inclusions of undulating

terrain with slopes of 7 to 28 percent. This soil type can be traced along the corridor right-of-way through the ahupua'a of Ouli to about the 1,300-foot elevation contour in Lalamilo and Waikoloa, where it is replaced by another type. This is a deep, medium-textured, very-dark-brown, rocky soil, the parent material of which is also volcanic ash. Slopes range from 0 to 20 percent and are well drained.

The plant cover in the vicinity of Kawaihae is predominantly grass, with small strands of algaroba on the slopes, and dense concentrations of algaroba in the steep-sided gulch bottoms. According to Ripperton and Hosaka (1942:23), 'The vegetation remains fairly stable with comparatively little invasion by species adapted to the adjacent moister zones.'

The upland vegetation is also predominantly grass, with only an occasional algaroba (perhaps half a dozen were located in this part of the survey area) and a few wiliwili. 'The plant community is unstable and subject to an evolutionary change' (Ripperton and Hosaka 1942:24), "Hawaii Historic Preservation Report 74-1, Archaeological and Historical Surveys of Waimea to Kawaihae Road Corridor, Island of Hawaii, Department of Anthropology, B. P. Bishop Museum, April, 1974).

4. Hydrology and Drainage

Rainfall amounts vary considerably within short distances in the project area and its surroundings. From less than 20 inches in the Kawaihae area, the annual precipitation increases to 30 inches per year at Waimea. In the Kohala Mountains, which lie to the north, the annual rainfall is approximately 170 inches.

The project watershed extends up the slopes of the Kohala Mountains and includes the Waimea Plains. The project watershed ranges from elevation 10 feet at the shorefront to 13,600 feet at the summit of Mauna Kea. The terrain within the watershed has relatively steep slopes with rugged topography. Good forest cover exists in the Kohala Mountain area which is protected from grazing. There are no perennial flows on the permeable slopes of Mauna Kea, but Waikoloa Stream, Lanimaumau Stream and several unnamed drainage ways in the Kohala Mountains have intermittent flows. The upper reaches of Waikoloa Stream are perennial and are a source of water supply for irrigation and domestic consumption. Waikoloa Stream flows rapidly from the mountains through Waimea, joins Keanuimano Stream and proceeds toward the sea.

There are 40 subwatersheds along the route of the proposed highway (detailed information on contributing watersheds, approximate peak discharges of surface runoff, and station location for proposed hydraulic structures are found in, Preliminary Hydrology Study for Waimea-Kawaihae Road, R. M. Towill Corporation, 1973).

The proposed highway will not alter the natural drainage pattern to a great degree. Discharges from contributing watersheds intersected by the highway will be routed via side ditches and/or drainage culverts across the highway. The 50-year storm will be the design criteria for the ditches and culverts.

In Waimea, the Soil Conservation Service, under the authority of the Watershed Protection and Flood Prevention Act constructed the Puukapu Retarding Dam. Since the construction of this structure and the

routing of flood flows in the Lanimaumau Stream to this dam; added protection from flood threats has been provided for this area.

For the recommended route, the drainage system will basically consist of culvert pipes (3 feet to 15 feet in diameter); side ditches and headwall and catchment structures. No major bridge construction will be necessary. Erosion control measures such as slope control planting and sedimentation ponds will be incorporated in the design of the highway.

III. IMPACT OF THE PROJECT ON THE ENVIRONMENT

A. General

The impact of the proposed highway upon this area will be pronounced since the existing roadways are unsafe and inadequate. The new highway will be constructed with minimum adverse effects on the environment. The design effort will integrate both functional and environmental aesthetics. The new highway will provide a much improved transportation facility and will enhance the orderly development of adjacent lands.

B. Social

The proposed highway will provide a wider, safer and more efficient transportation facility for the public. The design of the highway will be directed towards public safety with plans reflecting maximum safeguards to protect motorists and produce a high quality roadway. Safety features such as guardrails, signing and basic roadway geometry will be part of the design. Because of the steep slopes along the Waimea-Kawaihae section of the highway, added safety features of a truck-climbing lane for slow traffic and emergency escape ramps will be constructed. The health and general welfare of the people will improve since the proposed highway will increase mobility vital to the local economy, national defense and natural disaster plans. In long-term perspectives, the social well being of the public will be enhanced and maintained through improved public access to developing public recreational and resort areas.

The new highway will require the acquisition of agricultural lands used primarily for cattle grazing. The location of the Mud Lane-Waimea section of the highway will not divide nor disturb the character of any

neighborhood. The Mud Lane-Waimea section will not require relocation of any families.

The recommended alignment for the Waimea-Kawaihae section will affect one family and an individual; both of whom are homesteaders on land (Kawaihae) managed by the Department of Hawaiian Home Lands, in accordance with the Hawaiian Homes Commission Act of 1920, as amended. There are six members in the family, whose parents are retired and are probably in the low income group. The individual affected is a male, unemployed and on welfare assistance. Both the family and the individual are living in three bedroom dwelling units (Plate 3).

Alternate "A-4" will affect two families and one individual, all occupying dwellings on Hawaiian Home Lands (Kawaihae). There are five members in the first family, whose parents are retired and can probably be considered of low income. The father of the other family of four is presently unemployed and his wife operates a concession stand. Their family is probably in the moderate to middle income group. The individual affected by Alternate "A-4" rents a two bedroom unit; is a bachelor who pays minimum rental which includes part-time work around the premises. The tenant is probably considered in the low income group. The majority of the buildings affected are in poor to fair condition.

Alternates "A-3" and "A-5" will not require relocation of families and will have minimum impact on existing homes in Kawaihae.

A study was conducted by the Department of Transportation for available replacement housing units. The survey indicated that there are no low rent housing or FHA subsidized housing available within the proximity of the project area, that are within the financial means of the relocatees.

As evidenced by the foregoing discussion, it is obvious that regardless of which alternate or combination of alternates is ultimately selected for approval of the construction of this highway facility, varying degrees of direct economic and sociological impact will result.

All Federally-aided highway programs, such as this project, must comply with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. The State of Hawaii has appropriate legislation and the State Department of Transportation also has an organization that is equipped and staffed to administer a relocation assistance program that is in accordance with the Federal law.

An examination of the Federal law, as well as the State's program which is described in the Relocation Advisory Assistance and Relocation Payments brochure, reveals that certain statutory limits exist with respect to replacement housing payments that can be made to tenant and owner-occupant displacees. Under the typical relocation assistance program, a displaced tenant will be eligible for a maximum amount of \$4,000 which is to be paid over a period of four years in annual installments which is approximately \$83.33 per month of rental subsidy, or in the case of an owner-occupant, a maximum lump sum payment in the amount of \$15,000 can be made to enable him to purchase a comparable decent, safe and sanitary replacement dwelling unit. These payments are in addition to moving payments and other services to which a relocatee is entitled to receive.

Due to the high cost of rental and homes for sale in Hawaii, the above-mentioned maximum for replacement housing payments are often times insufficient to satisfactorily relocate the persons displaced by public projects. State and Federal regulations require that a displaced person

must be relocated within his financial means. In other words, a tenant-occupant must be relocated so that the replacement housing unit will not increase his "out of pocket" costs in terms of rent, over and above the amount that he actually paid for his rent at the affected property, considering the additional payments received from his replacement housing payments.

Instances of the owner-occupant is also similar to that of the tenant-occupant. Payment is made on a lump sum basis to enable him to purchase a comparable replacement housing unit to that which he had previously occupied and therefore, he will be no worse off financially in terms of housing costs than he was before.

Based upon the information provided above, there is every indication that the statutory requirements would have to be exceeded to satisfactorily relocate the displaced persons. In such instances, a procedure called "Replacement Housing As Last Resort," Section 206(a), of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, is to be used to satisfactorily relocate displaced persons to comparable replacement housing that will be within their financial means.

There are various alternatives that can be used under Section 206(a), such as:

1. Purchase land and/or existing dwellings.
2. Rehabilitate existing dwellings.
3. Relocate and if necessary, refurbish or rehabilitate dwellings purchased by the State for right-of-way purposes.
4. Construct new dwellings.

All of these alternatives are accomplished under the auspices of the State highway agency and such housing can be either rented or sold to

the displacee. It is the Government's responsibility to provide the same ownership or tenancy status which the displacee had prior to his displacement. However, the Government is not obligated to provide a dwelling that will change the ownership or tenancy status of the displaced person unless such a replacement dwelling unit is available or can be provided more economically.

In addition, the replacement housing payment can be increased beyond the statutory limits to allow the displaced person - owner or tenant - to purchase or rent a dwelling beyond the maximum allowed if it is determined to be more economical.

Federal and State procedures also have additional safeguards in a sense that construction cannot be authorized to begin on any project until such time that all displacees have been satisfactorily relocated to comparable decent, safe and sanitary replacement housing units; such replacement housing units must be within their financial means or is in place and has been made available to him. (The foregoing discussion on relocation represents a summary of the "State's Conceptual Relocation Program" which is included in its entirety in Appendix H).

C. Economics

The Mud Lane-Waimea section will bypass the town of Waimea and the Waimea-Kawaihae section will bypass the town of Kawaihae when Phase III is constructed. The bypassing of Waimea will not affect the general level of the business activities to a great extent since the local businesses primarily serve and cater to the operational needs of the community. The most probable effect of the bypass will be the decline in the automotive services. The food services such as restaurants and drive-ins may also experience a slight decrease in sales volume as a result of the

rerouting of the transient traffic. Similar observations have also been made in studies conducted on the impact of communities bypassed by highways. (Reference: (a) "Report on the Economic Impact of the Relief Route on the Town of Lower Paia," John Child and Co., 1958. (b) "Economic Evaluation of Two Indiana Bypasses," Bulletin 67, Highway Research Board, 1953. (c) "Measuring the Economic Impact of a Limited Access Highway on Communities, Land use and Land Values," Bulletin 268, Highway Research Board, 1960.) However, access roads into the community will be provided. General motorist service signs may be provided to indicate the availability of such services.

The bypassing of Kawaihae will have the same effect on the general business activities as described for the town of Waimea.

The new highway will provide the essential means to achieve the planned development and economic potential anticipated for this area. The general economic vitality of the area will be increased because of the improved transportation facility and improved access to existing and planned development. An improved access to Kawaihae Harbor will benefit the industries that utilize this facility. The Hamakua Coast Plantations ship bulk sugar out of Kawaihae Harbor; therefore, the improved highway will enhance the economic viability of the sugar industry. The maritime port, with plans for future expansion and possible opening of an inter-island ferry system will also benefit from the new highway. A more direct access to the Waimea-Kohala Airport will enhance the tourist industry and benefit the people along the coastline.

The general employment situation in this sector will continue to improve with subsequent developments of the planned industrial, recreational and resort activities. The public and private projects will provide a

needed stimulus for growth and an upward trend for employment. The highway project itself will produce a short-term increase in employment level for construction personnel.

The design of the highway will recognize the continuing aspect of maintenance and operations. The design will result in the lowest feasible maintenance and operating expenses. Drainage systems, pavements, slopes and all other facilities will be designed to facilitate the problems of access for maintenance and operations. The design will recognize the operational aspect of existing roadways, both during and after construction. The construction contracts will call for maintenance detours, which includes temporary detours, signing and other safety features for public protection. The existing highways will continue to serve traffic while the new highway is under construction; therefore, traffic disruption should be negligible and occur only at connections.

The existing Mamalahoa Highway through the town of Waimea will remain as a local circulation road. The existing Waimea-Kawaihae Road will be utilized during the construction of the highway and later be utilized by the county as a local circulation road. Jurisdiction of these two roads will be under the County of Hawaii.

The effect of these projects on the local tax base by removing the acquired land (617 acres) from the tax rolls is considered minimal since the majority of the land required for the highway rights-of-way is presently owned by the State. Although the land is zoned for agricultural use, a major portion is barren land except in the vicinity of Waimea. The landownership, acreage, and zoning of all lands to be acquired are shown on Table I.

The Mud Lane-Waimea section will have some impact on farming and ranching operations. One farm operation will probably have to be

LAND ACQUISITION REQUIREMENTS

Mud Lane - Waimea Section

<u>Landowner</u>	<u>Land Required (Acres)</u>	<u>Zoning</u>
Hawaiian Home Lands	109	Agricultural
Richard Smart	57	Agricultural
Yoshio Kawabata	<u>18</u>	Agricultural
TOTAL	184	

Waimea-Kawaihae Section

<u>Landowner</u>	<u>Land Required (Acres)</u>	<u>Zoning</u>
Parker Ranch	110	Unplanned Agricultural
Olohana Corporation (Lessee)	78	Unplanned General Industrial
Queen's Medical Center	2	General Industrial/ Agricultural
Hawaiian Home Lands	8	Agricultural
State of Hawaii	<u>235</u>	Unplanned
TOTAL	433	

TOTAL ACQUISITION REQUIRED: 617 ACRES

TABLE 1

relocated to an adjacent lot. This crop farm operation exists on land managed by the Department of Hawaiian Home Lands. Only a portion of the crop farm operation will be affected. The farmer will be given an opportunity to lease the abutting homestead land which is vacant and presently available in exchange for the portion that is to be affected. The land available is comparable to the land which will be affected and a smooth transition of the present farm operation to the new replacement homestead site will be provided. Any land taken from the Department of Hawaiian Home Lands will be functionally replaced in accordance with the Hawaiian Homes Commission Act of 1920, as amended. In addition, several ranching operations will be disrupted and rearrangement of paddocks and construction of cattle underpasses will probably be necessary to insure maximum use of the surrounding land.

The recommended alignment, and Alternates "A-3" and "A-4" will affect the proposed Hilo Electric Light Company power plant site. Alternate "A-4" will also require the relocation of one business establishment.

Most of the land affected by the Mud Lane-Waimea section of the proposed highway is owned by Hawaiian Home Lands or Parker Ranch. The alignment of this section will designate the urban boundary for the expansion of Waimea. Land planners do not envision a radical departure from the present; the natural and open space character of the area will be retained to a high degree.

The majority of the land traversed by the Waimea-Kawaihae section is owned by the State. The other major land owners with lands that this section traverses include the Parker Ranch, Queen's Medical

Center, Hawaiian Home Lands and the Olohana Corporation which leases lands from both Parker Ranch and Queen's Medical Center.

Parker Ranch at the present time does not have development plans in the vicinity of the proposed highway. In the vicinity of Waimea-Kohala Airport west of Mamalahoa Highway, a skeet range is being planned. A 1,000-foot clearance zone will have to be maintained between the range and the new highway. Other developments in this vicinity includes the possibility of a light industrial park adjacent to Mamalahoa Highway and 3,000 feet south of the junction. Another possible development is the construction of a University of Hawaii campus on lands to be dedicated by Parker Ranch, however, the location has not been determined.

Olohana Corporation's master development plan of the Kohala coastal area considers the integration of recreation, tourist, and residential facilities. The development plan prepared for Olohana Corporation by Belt, Collins and Associates of Honolulu in August, 1967, provides a coastal land use map illustrated on Plate 5 which shows the proposed development of the area. Projects which are being developed are the Mauna Kea Beach Hotel complex and the Kawaihae Village, a moderate income housing development in the vicinity of the intersection of the new Queen Kaahumanu Highway section and Waimea-Kawaihae section of the proposed highway. Although a general plan has been prepared by the Olohana Corporation, implementation plans for the remaining projects have not been finalized. These plans will, in part, depend on the highway route.

A historic site has been designated in the area between the Kawaihae Harbor and Spencer Park. This designated Puukohola Heiau National

Historic Site, within Queen's Medical Center property, contains the Puukohola, Mailekini and Haleokapuni Heiaus, and the ruins of John Young's House.

Presently, the existing Waimea-Kawaihae Road to Kawaihae Harbor bisects the designated historic park site. The heiaus are on the ocean side of the roadway and John Young's house on the mountain side. The ultimate plan for this national park is to restore the features within the park boundary, approximately 80 acres, as they existed during the reign of Kamehameha the Great. This requires the relocation of the existing Waimea-Kawaihae Road and bridges by the developing agency. For development of a highway corridor which does not adversely affect the historic values of the sites, alternatives are being closely coordinated with the local staff of the National Park Service.

Hilo Electric Light Company has an electrical substation in the vicinity of the existing Waimea-Kawaihae and Queen Kaahumanu Highway intersection, which provides power for the Kawaihae area. It is essential that this plant is maintained and kept operational. Hilo Electric Light Company has plans to construct a power plant in the vicinity of Kawaihae Harbor (Plate 3), and has initiated land transfer proceedings with the Hawaiian Homes Commission. This plant will provide power for the west coast of the island. The recommended alignment will be coordinated with Hilo Electric Light Company.

The Kawaihae Harbor complex north of the Puukohola Park site is the deep-water port for the west coast of the island (Plate 6). The onshore land of the port complex is owned by the State of Hawaii.

The port of Kawaihae is the transportation hub for West Hawaii County and will increase in activities and importance with recent completion of the Queen Kaahumanu Highway and the future opening of the proposed highway.

Anticipated projections of import and export through Kawaihae Harbor will require expansion of port facilities to accommodate this growth in service and improvement of vehicular access to and from the harbor. The current heavy truck traffic to Waimea is expected to increase substantially with the future development of the harbor. A better highway facility will be required to phase in this traffic.

Land ownership north of the harbor is illustrated in Plate 3. Hawaiian Home Lands owns most of the land in the vicinity of the proposed alignment. They have initiated plans for a light industrial subdivision south of Honokoa Gulch and some of the initial increment has already been constructed.

Individual residents and properties adjacent to the Kawaihae Road and across from the harbor are Hawaiian homesteaders leasing land from the Hawaiian Home Lands. Several residents of this area are requesting relocation of their families to other areas because of noise and air pollution from the harbor facilities.

D. Environment

The proposed highway will traverse an area of old lava flows with variations in both terrain and climate. With respect to terrain, the highway originates in the flat lands surrounding Waimea and terminates in Kawaihae surrounded by relatively steep slopes and rugged topography. The land between these two towns is similarly typified by relatively steep slopes and rugged topography. The cool wet climate of Waimea

contrasts noticeably with the warm arid desert-like climate of Kawaihae. Although the construction of the highway will result in some construction scars, much of the land will be improved with erosion control methods such as slope control planting. Aesthetics will be a major consideration for the design of the highway. The project will be blended into the terrain to the extent feasible, and special attention will be devoted to grading and general visual impact.

The National Park Service has a general development plan for the designated Puukohola Heiau National Historic Site as illustrated on Plate 4. Congress has authorized the establishment of the historic site; however, no definite boundaries have been established, therefore, various alternate alignments are being closely coordinated with the local NPS staff. Since the proposed highway will be relocated along the boundary of the designated Puukohola Heiau National Historic Site, a review of the effects of the proposed project on the historic resource of the designated historic site have been conducted in accordance with Section 106 of the National Historic Preservation Act of 1966 (see Appendix G). The significant Hawaiian temples and other features to be restored and preserved in the park site by the National Park Service are described as follows:

1. Puukohola Heiau

This massive structure which measures 224 by 100 feet was the last heiau to be built and is one of the most famous heiaus in the State of Hawaii. The heiau is walled on three sides with the ocean side being open and terraced. The temple was completed in 1791 during the reign of King Kamehameha the Great who dedicated it with human sacrifices to his

family war god. The principal offering was the body of his rival ruling chief on the Island of Hawaii. This incident was closely associated with King Kamehameha's rise to power as the supreme ruler of the Hawaiian Islands.

2. Mailekini Heiau

The Mailekini Heiau, an older temple, rests on the lower slopes below the Puukohola Heiau a short distance to the northwest. This temple symbolizes the inter-chiefdom and inter-island warfare of the period before 1780. It was the principal temple of the ruling district chief and was later modified into a fort with twenty cannons to protect the harbor of Kawaihae.

3. Haleokapuni Heiau (Underwater Heiau)

This Heiau is submerged offshore and located in line with the Puukohola and Mailekini heiaus. This temple was dedicated to the sharks.

4. John Young's House

John Young, an Englishman, was one of two foreign advisors who joined Kamehameha in 1790. His advice and guidance were instrumental in establishing the Kingdom of Hawaii and initiating its progress towards westernization and eventual statehood. His house, built in 1798, is the first western-style house in Hawaii. Ruins of what is believed to be his house remain east of the Puukohala Heiau; across from the existing Waimea-Kawaihae Road.

Phase I of the recommended alignment and Alternate "A-5" will preserve the status quo of the existing conditions whereby the ruins of John Young's House are separated from the rest of the historic site; however, a pedestrian overpass blending into the National Park development plan may be built to connect the two areas.

Upon construction of Phase II of the recommended alignment, the highway will skirt along the northeastern corner of the historic site and bypass the John Young's House and historic site. It is recommended that the historic site boundary be the makai boundary of the highway right-of-way. The other alternatives bypass north of the park site and at a higher elevation. The landscaping of the highway, designed to offset the dry barren surroundings and to enhance the aesthetic values of the roadway, will be in conflict with the historic site setting.

Based on the archaeological and historical researches initiated by the State Department of Transportation, other new significant historic sites were found within the project area. The new significant historic sites are the Lalamilo Kuleana and Ranch District, the King's Residence (part of Puukohola Heiau complex), Davis' Tomb and Macy's Grave. These sites are shown on Plate 2. The only site that may be affected by the proposed highway is the Lalamilo Kuleana and Ranch District. Alternate "A" traverses through the site and Alternate "A-1" borders on the edge of the boundary. The recommended alignment bypasses the site to the southwest.

For the Mud Lane-Waimea section of the highway, the State Archaeologist examined stereo airphotos to determine whether any significant historic sites existed within the highway corridor. No major sites were found to exist within the corridor. However, the State Archaeologist recommended that additional field study for this section be conducted within the highway right-of-way during salvage operation of the Waimea-Kawaihae section prior to construction.

The B. P. Bishop Museum has conducted field archaeological studies and a historical survey of the Waimea-Kawaihae Road corridor for the Department of Transportation following the general guideline established by the State Archaeologist. Two types of field investigation were conducted. The archaeological survey work consisted of a full scale survey of the Waimea and Kawaihae areas and a walk-through survey (a brief examination) of the central area of the corridor. The results of the survey uncovered a total of 640 archaeological and/or historical sites or more than 7,000 features.

On the basis of the survey investigations, there is no evidence to indicate that the recommended alignment for the Waimea-Kawaihae section of the highway would endanger any archaeological or historical sites of such scientific value that they could not be salvaged. The recommended alignment will bypass several historic sites and districts recommended for preservation by the Bishop Museum. The archaeological and historical findings for the highway corridor have been published by the State Department of Transportation: Hawaii Historic Preservation Report 74-1, Archaeological and Historical Surveys of the Waimea to Kawaihae Road Corridor, Island of Hawaii, April, 1974. Recommendations made by the B.P. Bishop Museum will be coordinated with the office of the State Archaeologist and necessary salvage operations will be conducted within the highway right-of-way prior to construction.

The mitigation for historic sites (both Federal and State) are being coordinated closely with the National Park Service and State Park Division.

The new highway will improve the mobility of fire protection vehicles and provide an effective fire break to contain and prevent the spread of fires.

There will be no encroachment upon conservation land. The proposed highway will require the removal of vegetation and wildlife habitat along the highway route. The Fish and Games Division of the State Department of Land and Natural Resources, have indicated that the construction of the proposed highway may affect the habitat of introduced game birds and song birds; however, other suitable habitat in the area exists for these birds. There will be no rare species of wildlife affected. A list of wildlife species believed to exist in the area, compiled by the State's Wildlife Office, is shown in Appendix B. The retention of the existing environment to preserve the natural surroundings will be of prime importance.

The noise level will increase temporarily during the construction of the highway and will create a little disturbance in the vicinity of Kuhio Village and Kawaihae. The remainder of the highway will be located on vacant lands. The noise that is generated from the highway traffic will not create a great disturbance. Noise levels were determined in the vicinity of Kuhio Village along the Mud Lane-Waimea section and in the area of the designated historic site along the Waimea-Kawaihae section (Manual for Highway Noise Prediction [Short Version], Technical Report, DOT-FHWA, March 1972). These noise levels were based on the projected 1995 Average Daily Traffic. The southern part of Kuhio Village, which is closest to the proposed highway, would register 67 on a ninetieth-percentile

noise level in A-weighted decibels (dBA). This is within the Category B requirement, of Noise Standard FHPM 7-7-3. Design noise level for Category B is 70 dBA (exterior) and applicable to land use categories of residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, etc. The above method indicates that the present noise level from Mamalahoa Highway which passes through the town of Waimea is 80 dBA, which exceeds the FHPM requirement. However, diversion of the transient traffic to the bypass route should decrease the noise level through Waimea Town.

In the vicinity of the designated historic site, various noise levels were projected for different alignments. The predictions of these noise levels for 1995 were on the basis that the roadway and the observer would be on the same relative elevation. Assuming that a person were to stand at the ruins of John Young's house site, the existing road would register 70 dBA; the recommended alignment would register 68 dBA; Alternate "A-4" would register 65 dBA; Alternate "A-3" would register 61 dBA. A noise level of 66 dBA is predicted for the recommended alignment using the current traffic volume and the same prediction method. Although the projected noise level will exceed FHPM's L10 noise level for category "A" (60 dBA) requirement, construction of a noise barrier can reduce the noise level to 60 dBA or less. Alternatives for noise attenuation will be considered during the detailed design phase.

The highway is not expected to have significant impact on local air and water pollution problems. Drilled wells along the coastline north and south of the proposed highway indicate that the static water level above the mean sea level varies from 0.5± to 2.0 feet and inland it rises to 6.0 feet, (An Inventory of Basic Water Resources Data, Island of Hawaii, Report

34, Department of Land and Natural Resources, February 1970). Since the roadway elevation varies from 10 feet at Kawaihae to more than 2,800 feet at Waimea, it can be stated that the ground water table will not be affected.

A mathematical study (Appendix I) was conducted to determine if there would be an adverse impact to the air quality at sensitive receptor sites along the proposed Waimea-Kawaihae Road corridor. The EPA model "HIWAY" was used for this study.

The climatic conditions at both terminus of the proposed corridor are extremely different and because of the lack of historical meteorological data along the entire route, several assumptions were made to simulate the probable worst case conditions.

The study plan considered the proposed roadway alignment as two, straight, level roadway segments subjected to the most severe wind and meteorological conditions. The "worst case" conditions assumed winds of very low velocity parallel to the study alignment (stability class F).

Winds in the lowland areas along the coast are generally sea breeze from the WNW with mostly clear and sunny weather. The ceiling for these areas was assumed to be 500 meters. The prevailing winds in the higher elevations near Waimea are from the ENE and fog cover is not uncommon. The ceiling used for this segment was 50 meters.

Sensitive receptor locations along the corridor were measured from the idealized and straightened road segments which were positioned closer to these receptors than the actual proposed alignment. Analyses were made based on 1985 and 1995 projected traffic volumes. The highest probable CO concentrations at the Highway Rights-of-Way (75 feet from centerline roadway) were tabulated. (Table 2)

PROBABLE "WORST CASE" CONDITIONS

CO CONCENTRATIONS AT RIGHT-OF-WAY

	RECEPTOR LOCATIONS	WIND DIRECTION	CO CONCENTRATION* (PPM) AT HIGHWAY RIGHT-OF-WAY	
			ADT 1985	ADT 1995
Roadway Segment #1	Intersection with Roadway Segment #2	A	0.418	0.356
	Hapuna Beach Park	A	0.434	0.370
	Waimea Town and Kuhio Village	B	0.539	0.452
Roadway Segment #2	Puukohola Historic Site	C	0.333	0.280
	Intersection with Roadway Segment #1	C	0.430	0.361
	Puukohola Historic Site	D	0.415	0.349
	Kawaihae	D	0.430	0.361

*Maximum Allowable Carbon Monoxide Pollutant
 Federal Standard - 35.0 ppm
 State Standard - 9.0 ppm

TABLE 2

It was concluded that based on this EPA HIWAY prediction model, there will be no detrimental impact or any significant contribution of pollutants by the highway system to any receptor sites along the proposed alignment.

During the final design and construction stage, assistance from such specialty agencies as the Soil Conservation Service, U.S.D.A., and the Forestry Division of the Department of Land and Natural Resources, will be solicited to review existing erosion, dust and sediment control plan. For construction, contractors are required to comply with Section 107.17, "Protection of Rivers, Streams, Impoundments, Forests and Archaeological and Paleontological Findings," Section 639, "Temporary Project Water Pollution Control (Soil Erosion)," and Section 641, "Hydro-Mulch Seeding," of the Standard Specifications for Road and Bridge Construction, State of Hawaii, and Chapter 43, "Air Pollution Control," Public Health Regulations, State of Hawaii.

The unused portion of the right-of-way after the initial construction will be made available to adjacent property owners for productive use until such time when the ultimate construction occurs. Specific aspects of multi-purpose use of the rights-of-way have not been incorporated in the preliminary design; however, when such use is warranted, evaluation and planning of joint use of space will be conducted.

No churches or schools will be adversely affected by the proposed highway. The improved transportation facility will benefit the students from Kawaihae who are currently bussed to schools located in Waimea and Honokaa. Waimea bypass road will decrease traffic through town where the school and churches are now located.

In the vicinity of the intersection of the proposed highway and Mamalahoa Highway, there are two airports. The Waimea Airport is abandoned and need not be considered. The Waimea-Kohala Airport serves inter-island flights and small private aircrafts. The location of the proposed highway does not conflict with the airway clearance requirements.

The design of the proposed highway will minimize any inconvenience to existing facilities. Necessary requirements to maintain uninterrupted utility service and traffic movement during construction will be incorporated within the construction documents. Upon completion of the highway, local circulation in Waimea should be greatly improved by the elimination of heavy truck traffic and through traffic. Similarly, use of the existing access to side roads plus the proposed connections to the highway will provide an improved local circulation network within the entire area.

IV. UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

The construction of the highway will generate some adverse effects; however, measures and plans to minimize these effects will be established. As previously discussed in Section III, in the town of Kawaihae some homes will be affected. Relocation assistance will be provided in accordance with Federal and State laws. Some families have already requested relocation assistance from the Department of Hawaiian Home Lands to avoid noise and air pollution which are claimed to be existing in the vicinity of Kawaihae Harbor.

The area will be cleared, excavated and filled for highway construction and pavement will replace the existing ground cover. No significant change in designated land use and visual impact on adjacent lands is anticipated.

Some degradation and/or removal of low priority archaeological features will probably be unavoidable during construction of the highway. The B. P. Bishop Museum, retained by the State, performed an archaeological surface survey and historical research for the Waimea-Kawaihae Corridor. The research uncovered several new historically significant sites, however, none of the features found will be affected by the recommended alignment. Necessary archaeological salvage work will be conducted within the highway right-of-way prior to construction.

A limited degree of air and water pollution from dust and storm runoff is expected during construction, but will be minimized by Section 107.17, Section 639 and Section 641, of the Standard Specifications for Road and Bridge Construction, State of Hawaii. Noise levels will increase temporarily during construction of the highway, but will return to normal or decrease upon completion of construction.

V. PROJECT ALTERNATIVES

A. Mud Lane-Waimea Section

The various alternatives have already been discussed in the corridor study and corridor and design public hearings. However, the following alternatives will be briefly summarized.

1. No Construction

The existing highway would be left as is and the following effects will not satisfy the immediate and future traffic and development needs:

- a. In its present state, the existing highway will not be able to accommodate the projected traffic volumes.
- b. Vertical and horizontal alignment, restricted sight distance, hazardous roadside obstructions and no control of access are substandard and unsafe.
- c. There will be no separation of increasing through and local traffic for the town of Waimea and the residential subdivision of Lalamilo.
- d. Money will not be spent for the new highway, but expenditures for the maintenance of the existing substandard road will increase.

2. Upgrading of Existing Highway

The widening and upgrading of the existing highway through the heart of Waimea town was considered but not deemed feasible nor advantageous for the following reasons:

- a. In order to upgrade the existing highway to current standards, expensive right-of-way through developed properties would have

to be acquired. Furthermore, additional acquisition would be required where frontage roads are necessary to maintain partial control of access. Businesses, residences, schools, farms and a fire station, all fronting the existing highway, would have to be relocated or adjusted. Thus, this requirement alone would defeat the very purpose of serving the community.

b. The inconvenience during construction and the additional costs involved will be heavily felt due to the necessary relocation of primary and distribution utility services, construction of detours and right-of-way adjustments.

c. As traffic increases, the noise level and air pollution in Waimea town would also increase.

d. The concept of a heavily travelled, partial access control highway through the heart of Waimea would not be compatible with the activities and character of this rural community.

B. Waimea-Kawaihae Section

The various alternative alignments considered are shown on Plate 2 and have been discussed in Section III. The alternatives of no construction and improvement of the existing roadway are as follows:

1. No Construction

The existing highway would be left as is and the following effects would not satisfy the immediate and future traffic and development needs:

a. The projected increase in traffic volume will exceed the capacity of the existing highway.

b. Hazardous conditions due to existing substandard vertical and horizontal alignment and restricted sight distances will increase with the expansion of harbor, industrial, residential and recreational development.

c. Lack of an improved highway will be a hindrance to planned industrial, resort and recreational developments.

d. Money will not be spent for the new highway, but maintenance expenses of the existing highway will increase.

2. Upgrading of Existing Highway

Improving the existing roadway was considered but deemed not advantageous for the following reasons:

a. Many small individually owned parcels and businesses would be affected.

b. The right-of-way cost would be high.

c. Hazardous conditions due to sharp curves, steep grades and poor sight distance will remain.

d. Traffic would be disrupted during construction.

e. Access to fronting properties would be difficult to provide.

f. Traffic capacity can not be increased significantly unless a major portion of the existing highway is realigned and reconstructed.

VI. RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The major portion of the proposed highway will intrude into lands generally classified as agricultural varying from prime farm lots in Waimea to lava fields in the Kawaihae area. However, in terms of long-range productivity the location of the proposed highway will be a significant factor in determining and defining land use for the area. The proposed highway alignment conforms to the County of Hawaii General Plan (Plate 10) which has incorporated the location of the Mud Lane-Waimea section as its limits for urban expansion for the town of Waimea. This concept of the bypass is to set and designate the highway as the urban boundary to promote the controlled growth of Waimea rather than limitless expansion of the community.

The Waimea-Kawaihae section of the highway will provide the basis of orderly development in this area. It will enhance the growth of the economic and recreational potential that is acknowledged for South Kohala. This new link between Waimea and Kawaihae will facilitate the development and improvement of shipping facilities, recreational and cultural activities, and resort communities. Upon completion of the proposed highway, a safe and efficient highway will serve the public. The new highway will have an increased traffic carrying capability with high safety standards and will promote an orderly development of the area and region.

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The construction of the proposed highway will commit land, labor and material. A major portion of the project will utilize agricultural and pasture lands. In the event of future abandonment of the project, the area could be reverted to its original use. The construction materials, that could be used in the project, are probably irretrievable but could be recycled for fill, reclamation of land, aggregate and various other uses. The labor utilized in the project would be wholly irretrievable.

The resources committed are not of substantial quantity when compared to the ultimate planned expansion and growth of these districts. The new highway will designate the urban boundary of Waimea, enhance the development of the maritime port of Kawaihae, provide improved access to the planned Hapuna Regional State Park, County of Hawaii Spencer Park, Waimea-Kohala Airport, the Puukohola Heiau National Historic Site and stimulate the development of the resort community along the ocean. The new highway will also be beneficial to the various agricultural industries such as sugar, cattle ranching, and produce farming.

VIII. MINIMIZATION OF UNAVOIDABLE ENVIRONMENTAL EFFECTS

The unavoidable adverse effects (see section IV) will be minimized as follows:

A. In the event that families and/or businesses are required to be relocated, the State will provide Relocation Advisory Assistance and Relocation Payments.

B. Additional archaeological and historical features uncovered during the construction of the highway will be handled in accordance with Section 107.17 of the State Specifications.

C. The adverse construction effects of local interruptions, noise, dust, erosion and water problems will be controlled by standard State Specifications and Chapter 43, of the Public Health Regulations, State of Hawaii.

IX. PROBLEMS AND OBJECTIONS

The Draft Environmental Impact Statement was reviewed by Federal, State, County and other organizations. The Comments received through the Office of Environmental Quality Control are included in Appendix C.

X. COORDINATION WITH OTHER AGENCIES

A. Coordination has been afforded the following agencies and commercial and private enterprises:

National Park Service: 9-11-72, 1-18-73, 7-3-73, 11-13-73, 2-27-74

Department of Transportation, Airport Division: 7-3-73

Department of Transportation, Harbors Division: 1-22-73, 7-3-73

Department of Land and Natural Resources, Land Management Division:
2-14-69, 7-3-73

Department of Planning and Economic Development: 2-14-69

Department of Land and Natural Resources, State Parks Division:
2-6-73, 7-3-73, 4-11-75, 5-27-75, 6-23-75

Department of Hawaiian Home Lands: 7-10-72, 3-5-73, 12-12-73,
3-7-74

County of Hawaii, Department of Planning: 6-17-68, 2-14-69, 2-9-73

County of Hawaii, Department of Public Works: 2-9-73

Hawaiian Telephone Company: 2-6-73

Hilo Electric Light Company: 2-8-73

Hilo Gas Company: 2-8-73

Parker Ranch: 2-8-73

Olohana Corporation: 1-17-73, 7-31-73, 11-13-73, 2-27-74, 4-11-74

Queen's Medical Center: 5-1-73, 7-31-73

Palekoki Ranch, Inc.: 2-16-73

Waimea-Kawahae Community Assoc.: 2-13-69, 1-15-74

B. All necessary permits for construction will be obtained upon selection of the alignment.

APPENDIX A

DRAFT EIS DISTRIBUTION LIST

The Government agencies and other organizations from which comments were requested through the Office of Environmental Quality Control, State of Hawaii are listed below:

Federal Agencies

Agricultural Stabilization and
Conservation Service
U. S. Department of Agriculture
(Honolulu Office)

Soil Conservation Service
U. S. Department of Agriculture
(Honolulu Office)

Federal Aviation Administration
Department of Transportation
(Honolulu Office)

Forest Service
U. S. Department of Agriculture
(Honolulu Office)

Assistant Secretary - Program
Policy Director
Environmental Project Review
Washington, D.C.

Department of Housing and Urban
Development
(Honolulu Office)

Department of Housing and Urban
Development
San Francisco, CA

Department of Health, Education,
and Welfare
San Francisco, CA

U. S. Economic Development
Administration
North Seattle, WA

U. S. Department of Agriculture
Washington, D.C.

U. S. Army-Corps of Engineers
Honolulu District
Honolulu, Hawaii

National Bureau of Standards
U. S. Department of Commerce
Washington, D.C.

National Oceanic and Atmospheric
Administration
U. S. Department of Commerce
National Ocean Survey
Honolulu Field Office

National Park Service
Department of Interior
(Honolulu Office)

Director
U. S. Bureau of Sport Fisheries and
Wildlife
(Honolulu Office)

Director
National Marine Fisheries Service
(Honolulu Office)

Geological Survey
U. S. Department of the Interior
(Honolulu Office)

Environmental Protection Agency
Attn: Mr. Charles Seeley
(Honolulu Office)

Federal Agencies

Environmental Protection Agency
Region IX
Mr. Paul De Falco, Regional
Administrator
San Francisco, CA

Department of the Air Force
Attn: Colonel W. E. Y. Paxton
Honolulu, Hawaii

Department of the Navy
Attn: Rear Admiral Richard A. Paddock
Honolulu, Hawaii

Department of the Army
Honolulu, Hawaii

State Agencies

Department of Agriculture

Department of Accounting and General
Services

Department of Defense

Department of Education

Department of Hawaiian Home Lands

Department of Health

Department of Land and Natural
Resources

Department of Planning and Economic
Development

Department of Social Services
and Housing

Department of Transportation
Airport Division

Department of Transportation
Harbors Division

County Agencies

Department of Planning

Department of Public Works

Department of Parks and Recreation

Department of Water Supplies

Department of Research and Development

University of Hawaii

Environmental Center

Water Resources Research Center

Marine Programs

Utilities

Hawaiian Electric Company

Hilo Electric Light Company

Hawaiian Telephone Company

Hilo Gas Company

Honolulu Gas Company

Libraries

Hawaii State Library

DPED Library

University of Hawaii
(Sinclair & Hamilton)

Municipal Library
City & County of Honolulu

State Archives

Legislative Reference Bureau

Civic Organizations

Waimea-Kawaihae Community Association
Kamuela, Hawaii

Other Organizations

Olohana Corporation
Room 502
745 Fort Street
Honolulu, Hawaii

Queens Medical Center
1301 Punchbowl Street
Honolulu, Hawaii

Parker Ranch
Kamuela, Hawaii

APPENDIX B
LIST OF WILDLIFE SPECIES
WITHIN THE PROJECT AREA

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

DIVISION OF FISH AND GAME
1179 Punchbowl Street
Honolulu, Hawaii 96813
February 27, 1974

Mr. Richard H. Wagner
Project Engineer
R. M. Towill Corporation
1600 Kapiolani Boulevard
Honolulu, Hawaii 96814

Dear Mr. Wagner:

In response to your letter of February 22, 1974 relative to the Environmental Impact Statement for the Mud Lane - Waimea-Kawaihae Road, Island of Hawaii and the wildlife found in the project area I have enclosed a check-list indicated (with an asterisk *) what species might be present. I must emphasize that this information is judgemental in nature based upon our experiences in the area and a knowledge of the habitat and is not based upon actual surveys of the birdlife. These species are probably present.

Only the Hawaiian bat; Black-crowned night heron, Pacific golden plover; ruddy turnstone and Hawaiian owl are native species and none are considered endangered.

I trust that I have been helpful in this matter.

Sincerely,

(Signed) RONALD L. WALKER, Chief
Wildlife Branch

RLW:nn

enclosure

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FISH AND GAME

Wildlife Branch

CHECKLISTS OF THE BIRDS AND MAMMALS
OF HAWAII

(Endemic, Indigenous, Migratory or
Introduced Species Existing as
Breeding or Wintering Populations)

Prepared
1971

B-2

CHECKLIST OF THE MAMMALS OF HAWAII

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>HAWAIIAN NAME</u>
Family MACROPODIDAE <u>Petrogale penicillata</u>	Brush-tailed rock wallaby	
Family VESPERTILIONIDAE <u>Lasiurus cinereus semotus</u>	*Hawaiian bat	Pe'a
Family LEPORIDAE <u>Oryctolagus cuniculus</u>	European rabbit	Lapaki
Family MURIDAE <u>Rattus rattus</u> <u>Rattus norvegicus</u> <u>Rattus exulans hawaiiensis</u> <u>Mus musculus</u>	*Black rat *Brown rat *Hawaiian rat *House mouse	Iole Iole Iole Iole li'ilii'i
Family CANIDAE <u>Canis familiaris</u>	Feral dog	Ilio
Family VIVERRIDAE <u>Herpestes auropunctatus</u>	*Mongoose	Iole-manakuke
Family FELIDAE <u>Felis catus</u>	*Feral cat	Pōpoki
Family PHOCIDAE <u>Monachus schauinslandi</u>	Hawaiian monk seal	Ilio-holo-i-kauaua
Family SUIDAE <u>Sus scrofa</u>	*Feral pig	Pua'a
Family CERVIDAE <u>Axix axis</u> <u>Odocoileus hemionus</u> <u>columbianus</u>	Axis deer Black-tailed deer	kia kia
Family ANTILOCAPRIDAE <u>Antilocapra americana</u>	Pronghorn	
Family BOVIDAE <u>Capra hircus</u> <u>Ovis musimon</u> <u>Ovis aries</u> <u>Bos taurus</u>	Feral goat Mouflon Feral Sheep Feral cattle	Kao, kunana Hipa Pipi

CHECKLIST OF THE BIRDS OF HAWAII

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>HAWAIIAN NAME</u>
Family DIOMEDEIDAE		
<u>Diomedea nigripes</u>	Black-footed Albatross	
<u>Diomedea immutabilis</u>	Laysan Albatross	
Family PROCELLARIIDAE		
<u>Puffinus pacificus</u>	Wedge-tailed Shearwater	Uau Kani
<u>chlororhynchus</u>	Christmas Isl. Shearwater	
<u>Puffinus nativitatis</u>	Newell's Shearwater	Ao
<u>Puffinus puffinus newelli</u>		
<u>Pterodroma phaeopygia</u>	Dark-rumped Petrel	Uau
<u>sandwichensis</u>	Bonin Isl. Petrel	
<u>Pterodroma hypoleuca</u>	Bulwer's Petrel	Ou
<u>Bulweria bulwerii</u>		
Family HYDROBATIDAE		
<u>Oceanodroma castro</u>	Hawaiian Storm Petrel	Oeoe
<u>cryptoleucura</u>		
<u>Oceanodroma markhami</u>	Sooty Petrel	
<u>tristrami</u>		
Family PHAETHONTIDAE		
<u>Phaethon rubricauda</u>	Red-tailed Tropic-Bird	Koae Ula
<u>rothschildi</u>	White-tailed Tropic-Bird	Koae
<u>Phaethon lepturus dorotheae</u>		
Family SULIDAE		
<u>Sula dactylatra personata</u>	Blue-faced Booby	
<u>Sula leucogaster plotus</u>	Brown Booby	A
<u>Sula sula rubripes</u>	Red-footed Booby	A
Family FREGATIDAE		
<u>Fregata minor palmerstoni</u>	Greater Frigate Bird	Iwa
Family ARDEIDAE		
<u>Nycticorax nycticorax</u>	*Black-crowned Night Heron	Aukuu
<u>hoactli</u>	Cattle Egret	
<u>Bubulcus ibis</u>		
Family ANATIDAE		
<u>Branta sandvicensis</u>	Hawaiian Goose	Nene
<u>Anas wyvilliana</u>	Hawaiian Duck	Koloa
<u>Anas laysanensis</u>	Laysan Teal	
<u>Anas acuta</u>	Pintail Duck	
<u>Spatula clypeata</u>	Shoveler	
<u>Mareca americana</u>	American Widgeon	

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>HAWAIIAN NAME</u>
Family ACCIPTIRIDAE <u>Buteo solitarius</u>	Hawaiian Hawk	Io
Family PHASIANIDAE <u>Lophortyx californicus</u>	California Valley Quail	Manukapalulu
<u>Lophortyx gambeli</u>	Gambel's Quail	Manukapalulu
<u>Coturnix coturnix japonica</u>	*Japanese Quail	Manukapalulu
<u>Phasianus colchicus</u>	*Ring-necked Pheasant	Kolohala
<u>Phasianus versicolor</u>	Blue Pheasant	
<u>Lophura leucomelana</u>	Nepal Kalij	
<u>Gallus gallus</u>	Jungle Fowl	Moa
<u>Pavo cristatus</u>	Pea Fowl	
<u>Alectoris graeca chukar</u>	Chukar	
<u>Alectoris graeca cypriotis</u>	Turkish Chukar	
<u>Alectoris barbara barbara</u>	Barbary Partridge	
<u>Francolinus pondicerianus</u>	*Indian Grey Francolin	
<u>Francolinus francolinus</u>	*Indian Black Francolin	
<u>Francolinus erckelii</u>	Erckel's Francolin	
<u>Bambusicola thoracica</u>	Chinese Bamboo Partridge	
Family NUMIDIDAE <u>Numida melagris galeata</u>	Guinea Fowl	
Family MELEAGRIDIDAE <u>Meleagris gallopavo</u>	Domestic Turkey	
<u>Meleagris gallopavo intermedia</u>	Rio Grande Turkey	Palehu
Family RALLIDAE <u>Gallinula chloropus sandvicensis</u>	Hawaiian Gallinule	Alae Ula
<u>Fulica americana alai</u>	Hawaiian Coot	Alae Keokeo
Family CHARADRIIDAE <u>Pluvialis dominica</u>	*Pacific Golden Plover	Kolea
<u>Squatarola squatarola</u>	Black-bellied Plover	
<u>Arenaria interpres</u>	*Ruddy Turnstone	Akekeke
Family SCOLOPACIDAE <u>Numenius tahitiensis</u>	Bristle-thighed Curlew	Kioea
<u>Heterosculus incanum</u>	Wandering Tattler	Ulii
<u>Crocethia alba</u>	Sanderling	Hunakai
Family RECURVEIROSTRIDAE <u>Himantopus himantopus knudseni</u>	Hawaiian Stilt	Aeo

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>HAWAIIAN NAME</u>
Family LARIDAE		
<u>Sterna lunata</u>	Gray-backed Tern	Pakalakala
<u>Sterna fuscata oahuensis</u>	Sooty Tern	Ewaewa
<u>Procelsterna cerula</u>		
<u>sexatilis</u>	Blue-gray Tern	
<u>Anous stolidus pileatus</u>	Noddy Tern	Noio Koha
<u>Anous minutus melanogenys</u>	Hawaiian Noddy Tern	Noio
<u>Gygis alba rothschild</u>	White (Fairy) Tern	Ilanu O Ku
Family COLUMBIDAE		
<u>Streptopelia chinensis</u>		
<u>chinensis</u>	*Lace-necked Dove	
<u>Geopelia striata striata</u>	*Barred Dove	
<u>Zenaidura macroura</u>	Mourning Dove	
<u>Columba livia</u>	*Feral Pigeon	
Family ALUCONIDAE		
<u>Aluco pratincola</u>	*Barn Owl	
Family STRIGIDAE		
<u>Asio flammeus</u>		
<u>sandwichensis</u>	*Hawaiian Short-eared Owl	Pueo
Family APODIDAE		
<u>Collocalia inexpectata</u>	Edible Nest Swiftlet	
Family ALAUDIDAE		
<u>Alauda arvensis</u>	*Skylark	
Family ICTERIDAE		
<u>Sturnella neglecta</u>	Western Meadowlark	
Family PYCNOTIDAE		
<u>Pycnonotus cafer</u>	Red-vented Bulbul	
<u>Pycnonotus jocosus</u>	Red-whiskered Bulbul	
Family TURDIDAE		
<u>Phaeornis obscura obscura</u>	Hawaii Thrush	Omao
<u>Phaeornis obscura</u>		
<u>myadestina</u>	Kauai Thrush	Kamau
<u>Phaeornis palmeri</u>	Small Kauai Thrush	Puaiohi
<u>Leiothrix lutea</u>	*Red-billed Leiothrix	
<u>Garrulax canorus</u>	*Chinese Thrush	Hwa mei
Family SYLVIIDAE		
<u>Cettia diphone</u>	Bush Warbler (Uguisu)	
<u>Acrocephalus familiaris</u>		
<u>kingi</u>	Nihoa Miller Bird	

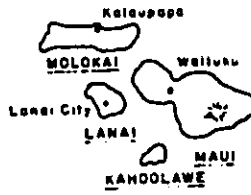
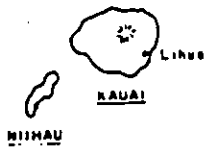
<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>HAWAIIAN NAME</u>
Family MUSCICAPIDAE		
<u>Chasiempis sandwichensis</u> <u>sclateri</u>	Kauai Elepaio	Apekepeke
<u>Chasiempis sandwichensis</u> <u>sandwichensis</u>	Hawaii Elepaio	
<u>Chasiempis sandwichensis</u> <u>gayi</u>	Oahu Elepaio	
Family PARIDAE		
<u>Parus varius</u>	Varied Tit (Yamagara)	
Family ZOSTEROPIDAE		
<u>Zosterops palpebrosus</u> <u>japonicus</u>	*White Eye (Mejiro)	
Family MELIPHAGIDAE		
<u>Moho braccatus</u>	Kauai Oo	Oo Aa
Family EMBERIZIDAE		
<u>Richmondia cardinalis</u> <u>Paroaria cucullata</u>	*Cardinal Brazilian Cardinal	
Family DREPANIIDAE		
<u>Loxops virens virens</u>	Hawaii Amakihi	
<u>Loxops virens chloris</u>	Oahu Amakihi	
<u>Loxops virens wilsoni</u>	Maui Amakihi	
<u>Loxops virens stejnegeri</u>	Kauai Amakihi	
<u>Loxops parva</u>	Lesser Amakihi	Anianiau
<u>Loxops maculata mana</u>	Hawaii Creeper	
<u>Loxops maculata flammea</u>	Molokai Creeper	Kakawahie
<u>Loxops maculata newtoni</u>	Maui Creeper	
<u>Loxops maculata maculata</u>	Oahu Creeper	
<u>Loxops maculata bairdi</u>	Kauai Creeper	Akikiki
<u>Loxops coccinea ochracea</u>	Maui Akepa	Akepuie
<u>Loxops coccinea coccinea</u>	Hawaii Akepa	Akepuie
<u>Loxops coccinea</u> <u>caeruleirostris</u>	Kauai Akepa	Ou-holowai
<u>Hemignathus procerus</u>	Kauai Akialoa	
<u>Hemignathus lucidus affinis</u>	Maui Nukupuuu	Akiapolauu
<u>Hemignathus lucidus</u> <u>hanapepe</u>	Kauai Nukupuuu	
<u>Hemignathus wilsoni</u>	Hawaii Nukupuuu	Akiapolauu
<u>Pseudonester xanthophrys</u>	Maui Parrot Bill	
<u>Psittirostra psittacea</u>	Ou	
<u>Psittirostra cantans</u> <u>ultima</u>	Nihoa Finch	
<u>Psittirostra cantans</u> <u>cantans</u>	Laysan Finch	

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>HAWAIIAN NAME</u>
<u>Psittirostra bailleui</u>	Palila	
<u>Himatione sanguinea</u> <u>sanguinea</u>	Apapane	
<u>Palmeria dolei</u>	Crested Honeycreeper	Akohekohe
<u>Vestiaria coccinea</u>	I'iwi	
Family FRINGILLIDAE		
<u>Carpodacus mexicanus</u> <u>frontalis</u>	*House Finch	
<u>Passer domesticus</u>	*English Sparrow	
<u>Estrilda amandava</u>	Strawberry Finch	
<u>Serinus canaria</u>	Canary	
<u>Lonchura malacca</u> <u>atricapilla</u>	Black-headed Mannikin	
<u>Lonchura punctulata</u>	*Ricebird	
Family STURNIDAE		
<u>Acridotheres tristis</u>	*Indian Mynah	
<u>Gracula religiosa indica</u>	Greater Hill Mynah	
Family CORVIDAE		
<u>Corvus tropicus</u>	Hawaiian Crow	Alala
<u>Urocissa erythrorhyncha</u>	Red-billed Blue Pie	

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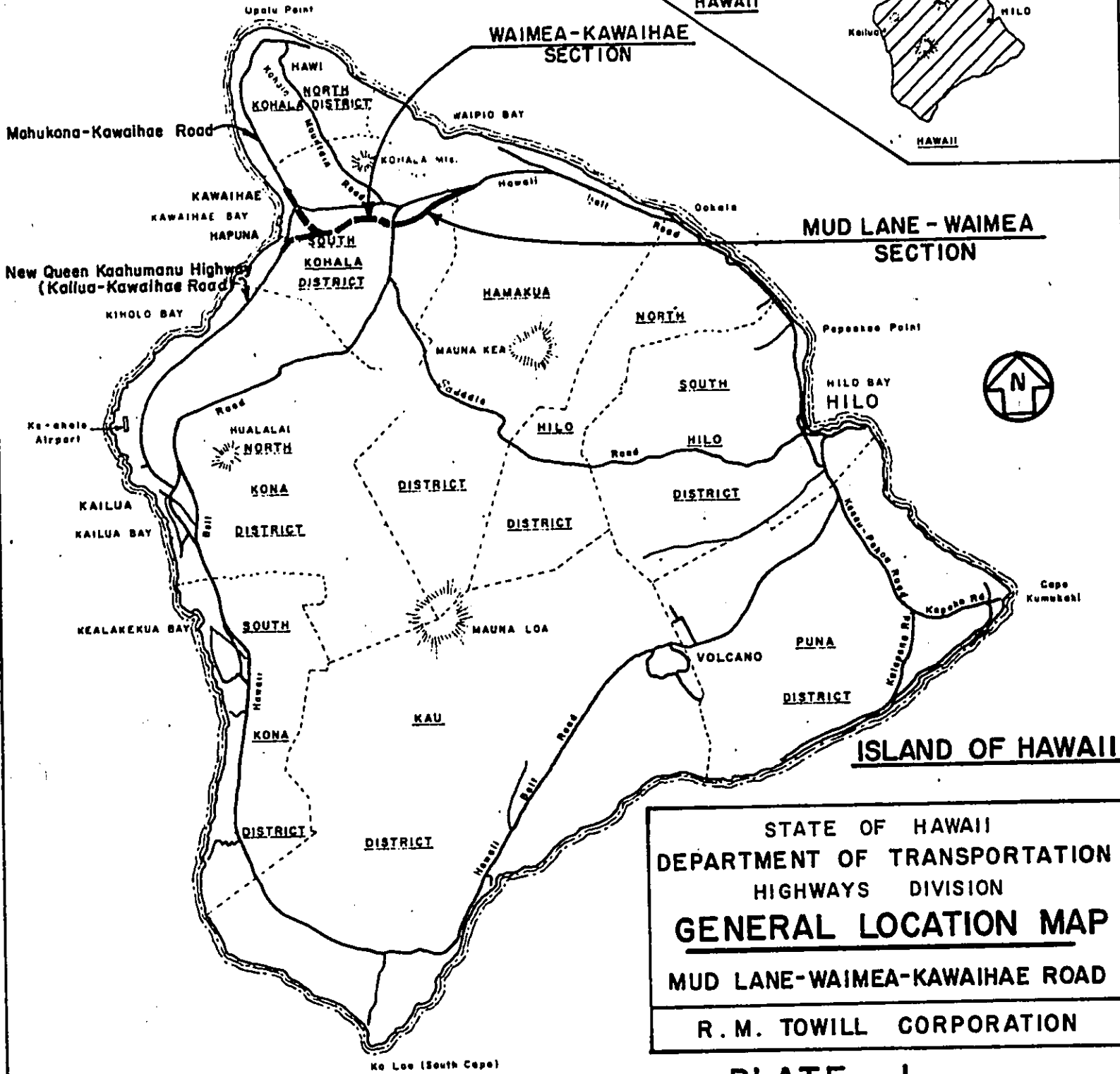
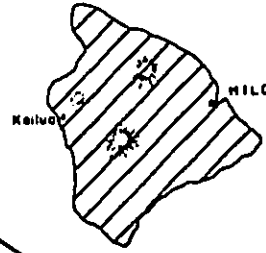
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Scale in Miles



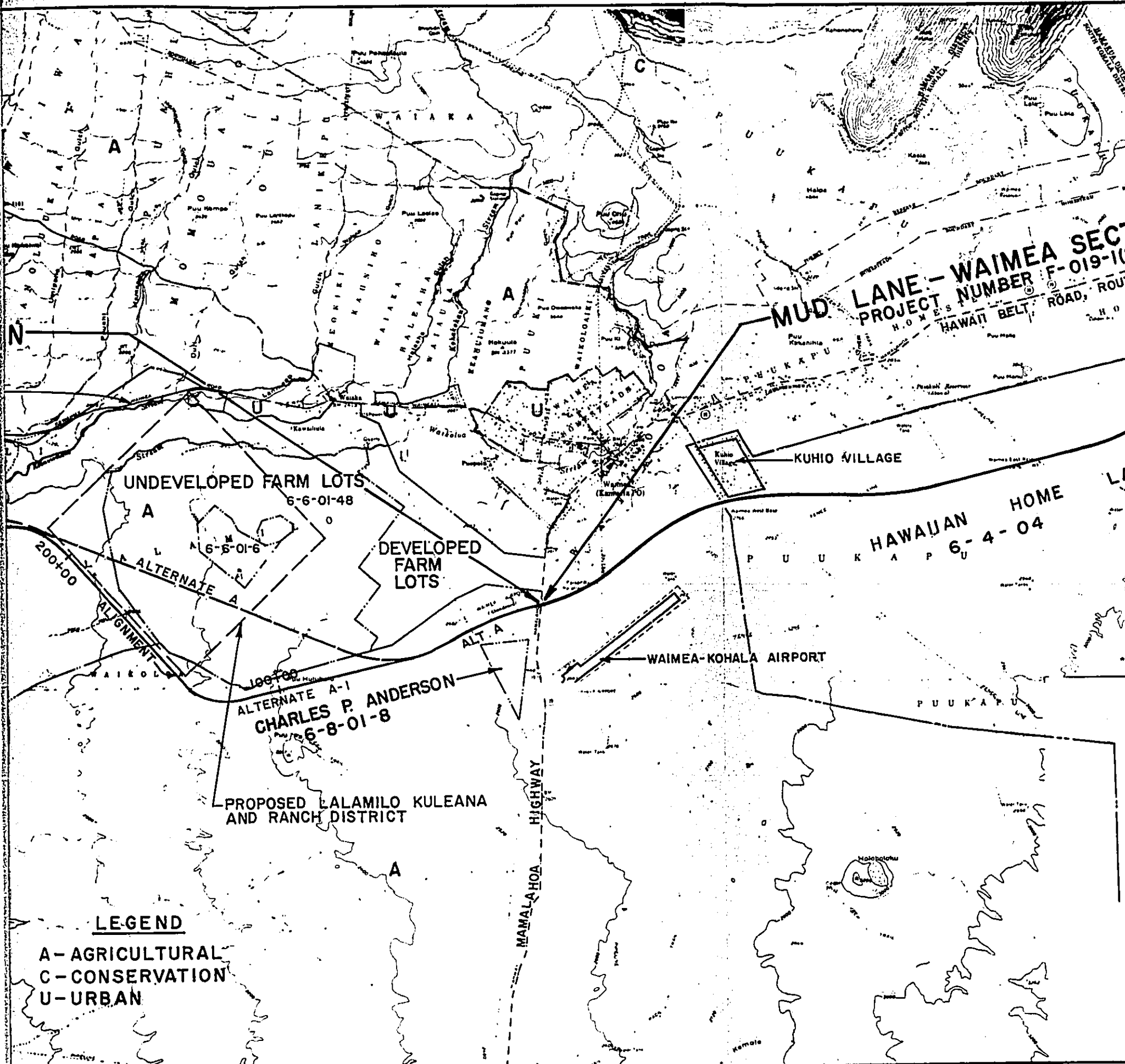
STATE

OF

HAWAII



Ke Loo (South Cape)



MUD LANE - WAIMEA SECT
PROJECT NUMBER F-019-112
 HAWAII BELT ROAD, ROUTE

UNDEVELOPED FARM LOTS
 6-6-01-48

DEVELOPED FARM LOTS

HAWAIIAN HOME
 6-4-04

ALTERNATE A-1
CHARLES P. ANDERSON
 6-8-01-8

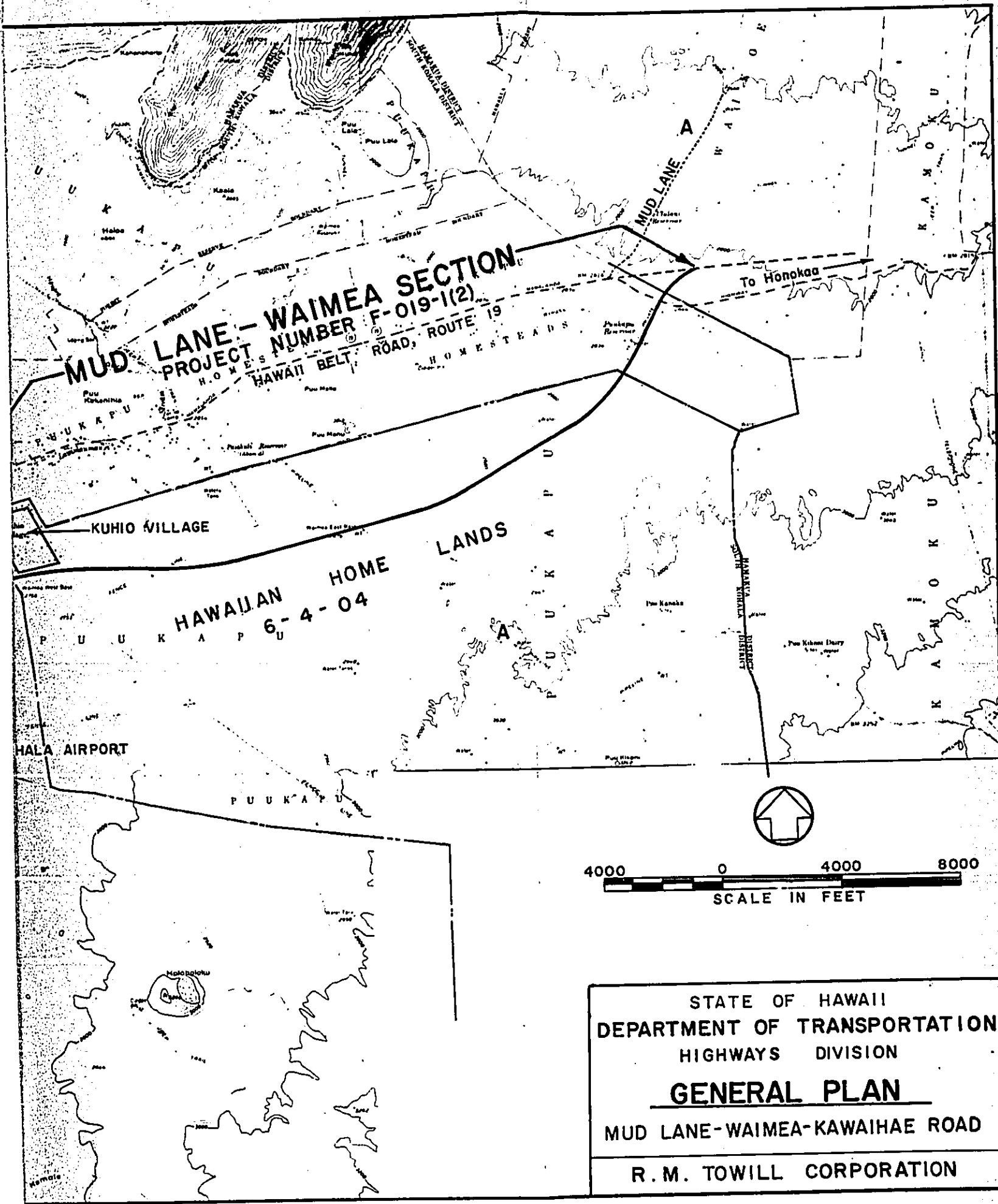
PROPOSED LALAMILO KULEANA AND RANCH DISTRICT

MAMALAHOA HIGHWAY

WAIMEA-KOHALA AIRPORT

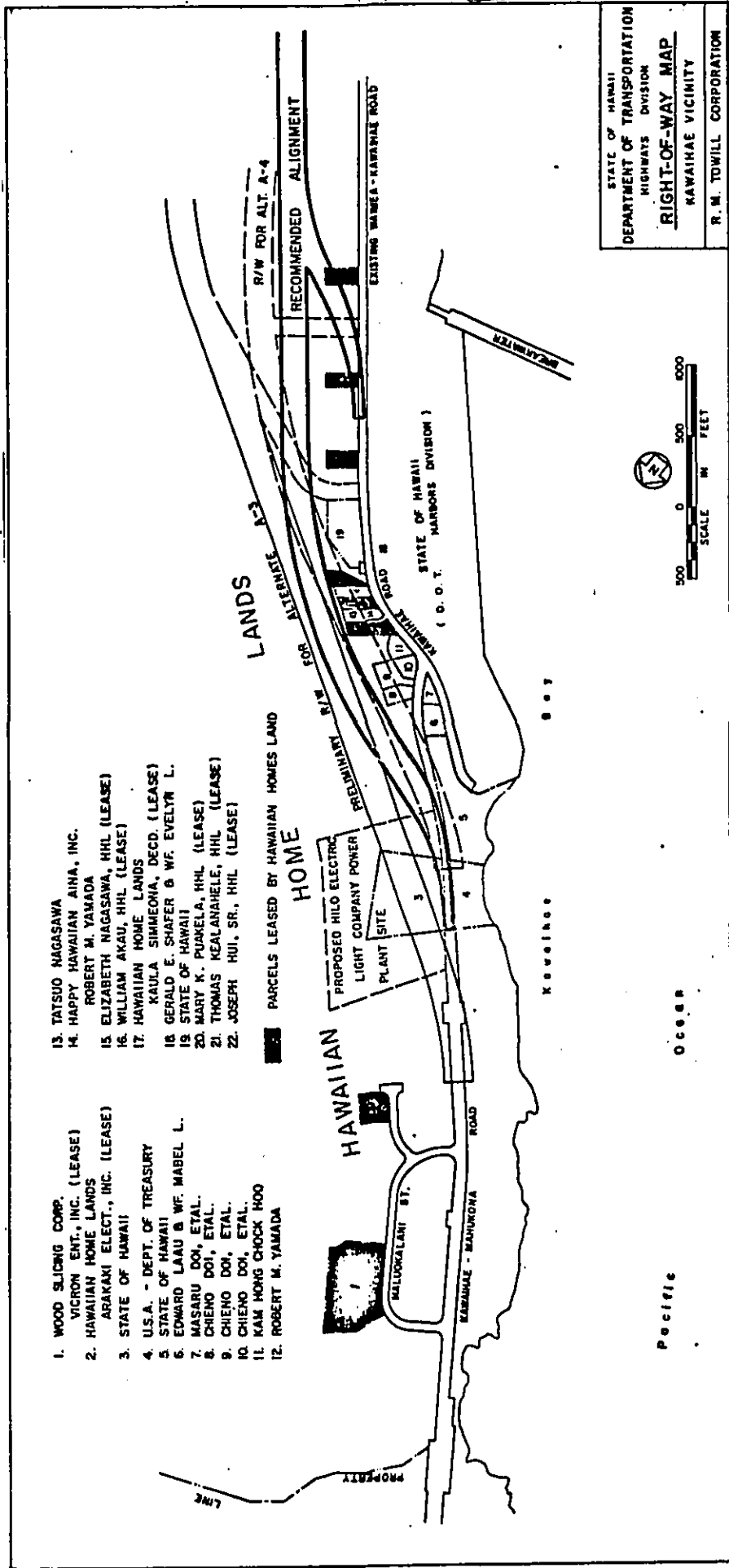
LEGEND

- A - AGRICULTURAL**
- C - CONSERVATION**
- U - URBAN**



STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
GENERAL PLAN
 MUD LANE-WAIMEA-KAWAIHAE ROAD
 R. M. TOWILL CORPORATION

PLATE 2




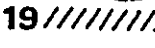


1. WOOD SLIDING CORP.
VICRON ENT., INC. (LEASE)
2. HAWAIIAN HOME LANDS
ARAKAKI ELECT., INC. (LEASE)
3. STATE OF HAWAII
4. U.S.A. - DEPT. OF TREASURY
5. STATE OF HAWAII
6. EDWARD LAAU & W.F. MABEL L.
7. MASARU DOH, ETAL.
8. CHIENO DOH, ETAL.
9. CHIENO DOH, ETAL.
10. CHIENO DOH, ETAL.
11. KAM HONG CHOCK HOO
12. ROBERT M. YAMADA

13. TATSUO HAGASAWA
14. HAPPY HAWAIIAN AINA, INC.
ROBERT M. YAMADA
15. ELIZABETH HAGASAWA, HHL (LEASE)
16. WILLIAM AKAU, HHL (LEASE)
17. HAWAIIAN HOME LANDS
KAULA SIMMEONIA, DECD. (LEASE)
18. GERALD E. SHAFER & W.F. EVELYN L.
19. STATE OF HAWAII
20. MARY K. PUKELA, HHL (LEASE)
21. THOMAS KEALAHAELE, HHL (LEASE)
22. JOSEPH HUI, SR., HHL (LEASE)

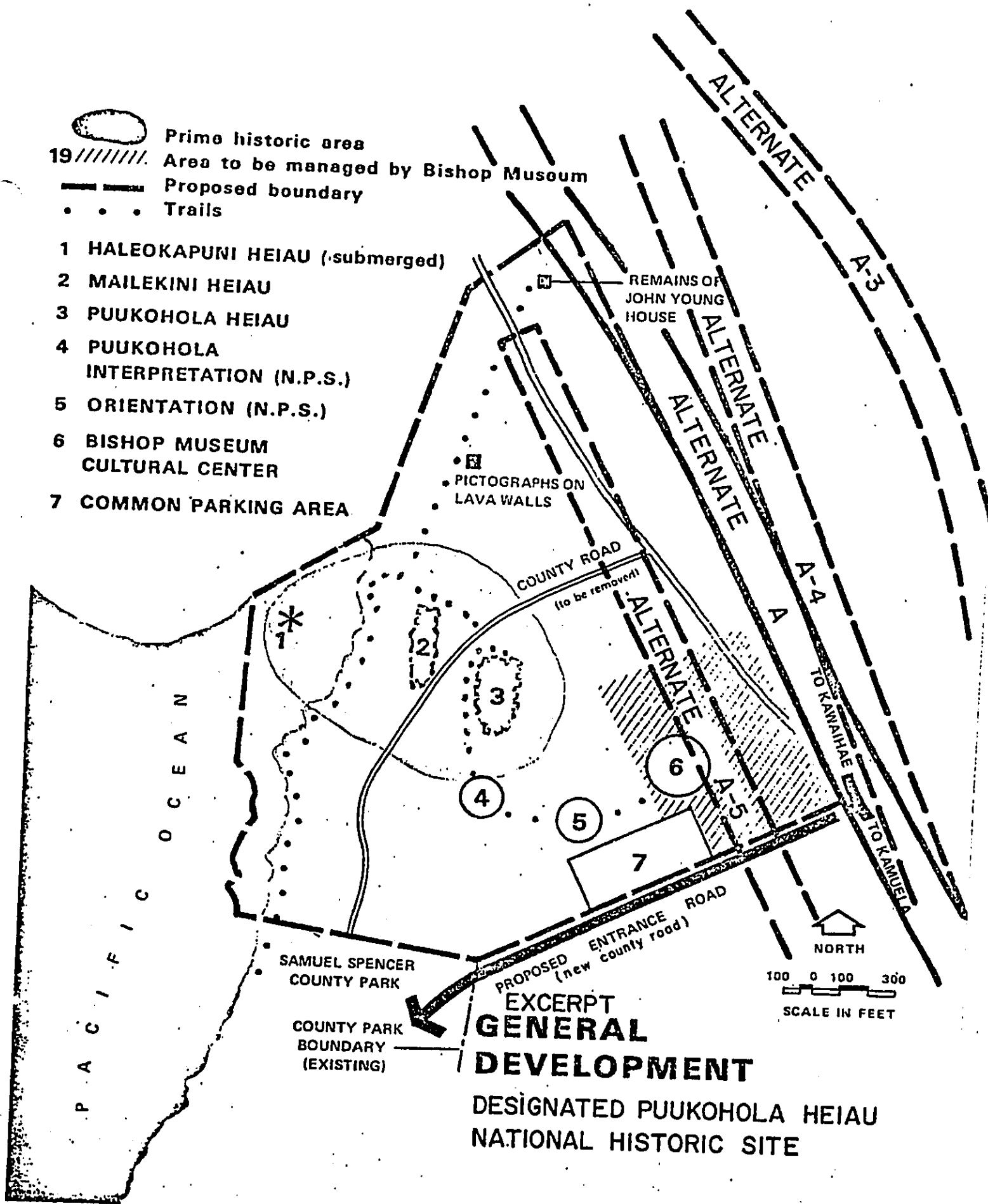
PARCELS LEASED BY HAWAIIAN HOMES LAND

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
RIGHT-OF-WAY MAP
KAWAIIHAE VICINITY
R. M. TDWILL CORPORATION

PLATE 3

-  Prime historic area
-  Area to be managed by Bishop Museum
-  Proposed boundary
-  Trails

- 1 HALEOKAPUNI HEIAU (submerged)
- 2 MAILEKINI HEIAU
- 3 PUUKOHOLA HEIAU
- 4 PUUKOHOLA INTERPRETATION (N.P.S.)
- 5 ORIENTATION (N.P.S.)
- 6 BISHOP MUSEUM CULTURAL CENTER
- 7 COMMON PARKING AREA



**EXCERPT
GENERAL
DEVELOPMENT**

DESIGNATED PUUKOHOLA HEIAU
NATIONAL HISTORIC SITE

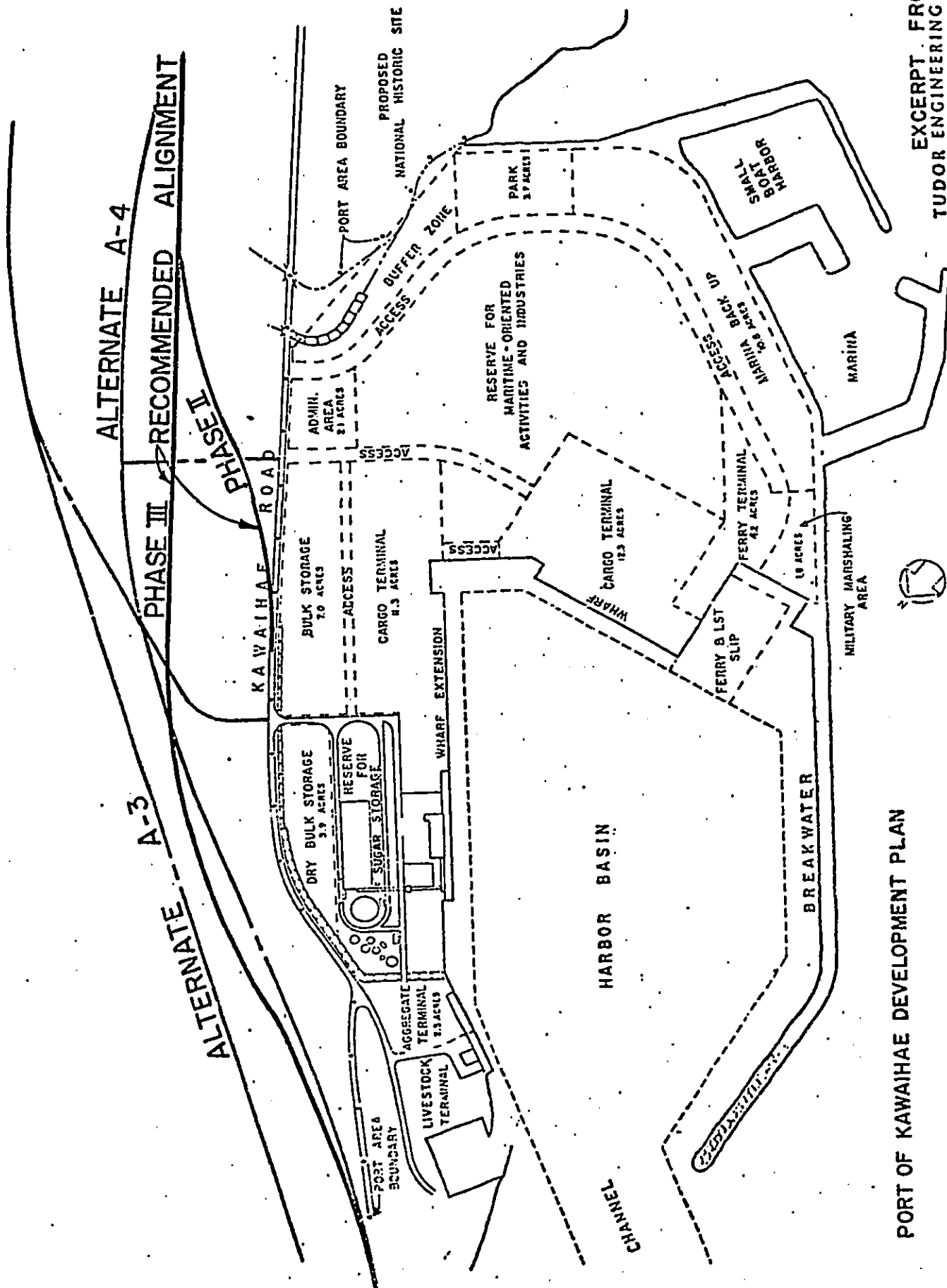
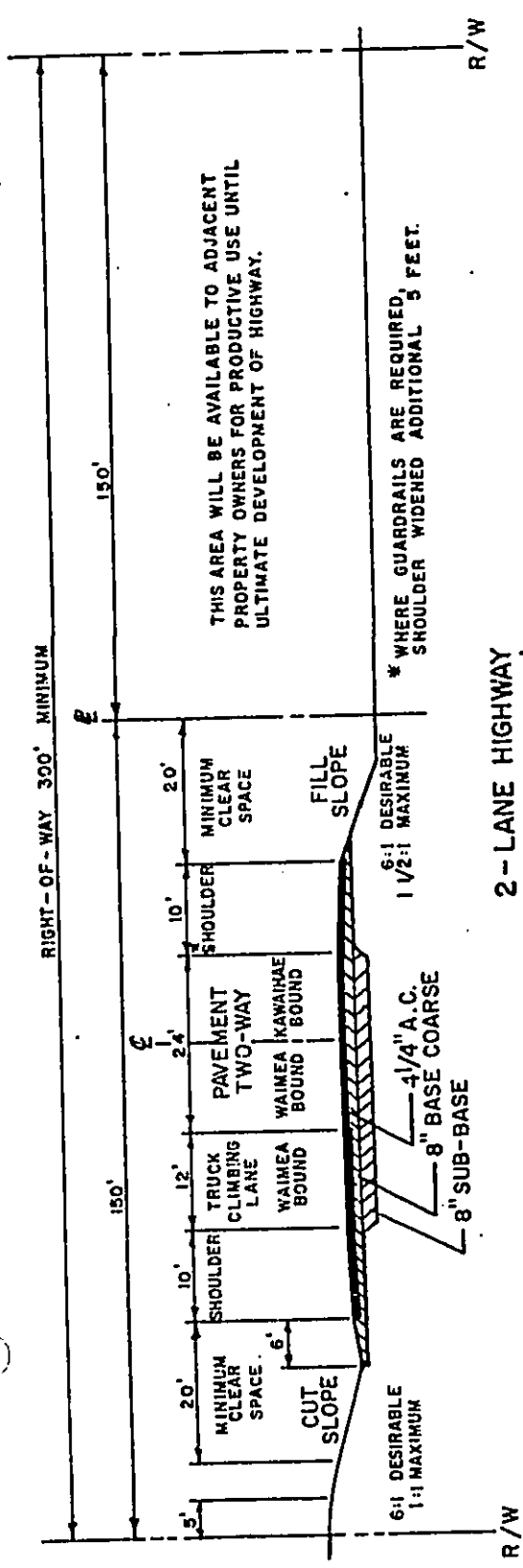


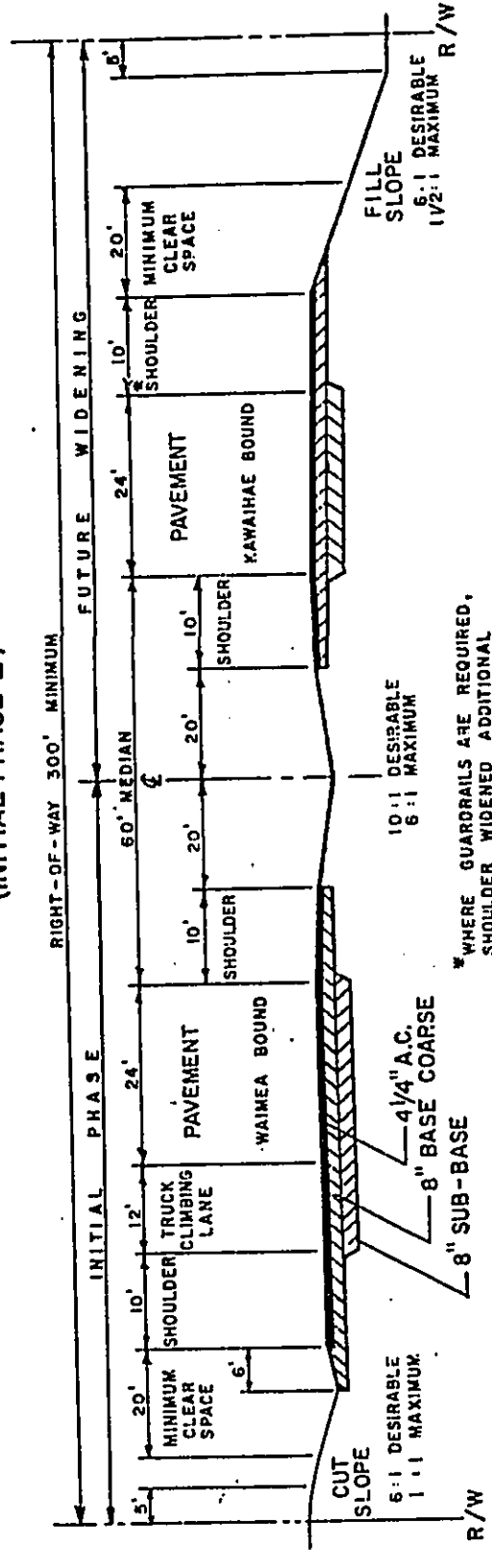
PLATE 6

PORT OF KAWAIHAE DEVELOPMENT PLAN

EXCERPT FROM:
 TUDOR ENGINEERING COMPANY
 CONSULTING ENGINEERS
 1116 UNION AVAIL SUITE 200
 HONOLULU, HAWAII 96813
 TELEPHONE: 808 331 3111



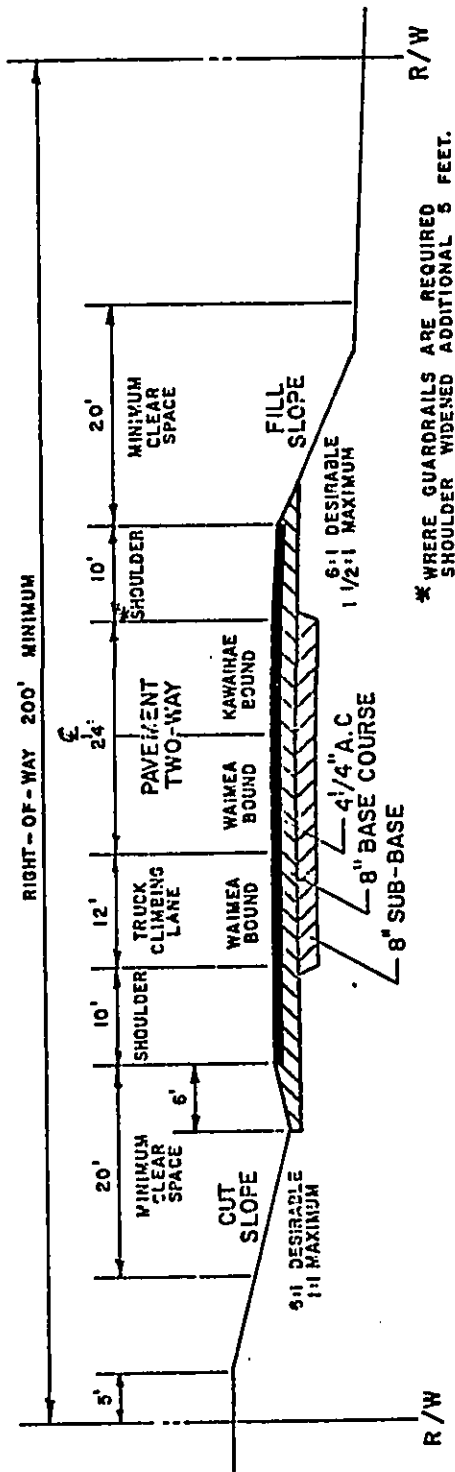
2-LANE HIGHWAY
(INITIAL PHASE I)



4-LANES DIVIDED
(ULTIMATE PHASE I)

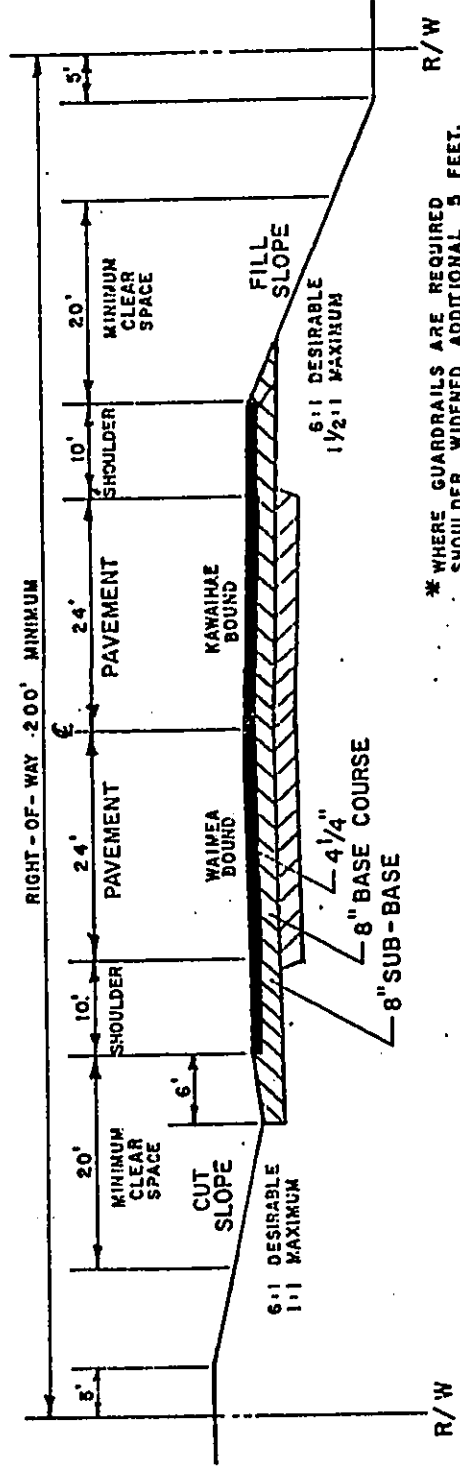
TYPICAL ROADWAY SECTIONS
WAIMEA - KAWAIHAE SECTION
ISLAND OF HAWAII

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
NO SCALE



* WHERE GUARDRAILS ARE REQUIRED
SHOULDER WIDENED ADDITIONAL 5 FEET.

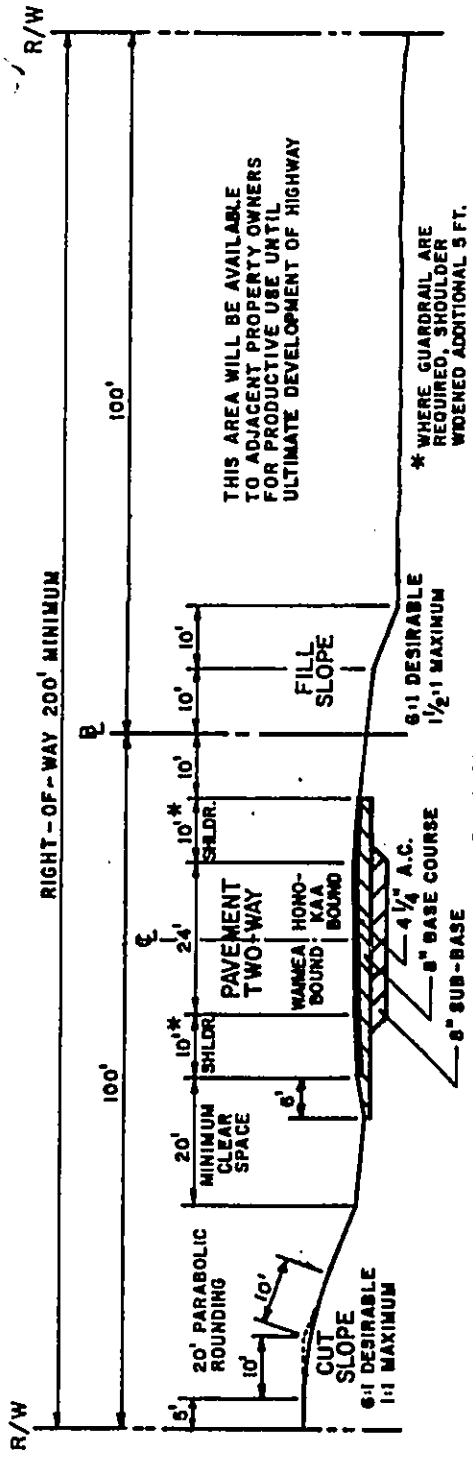
2-LANE HIGHWAY
(INITIAL PHASE II & III)



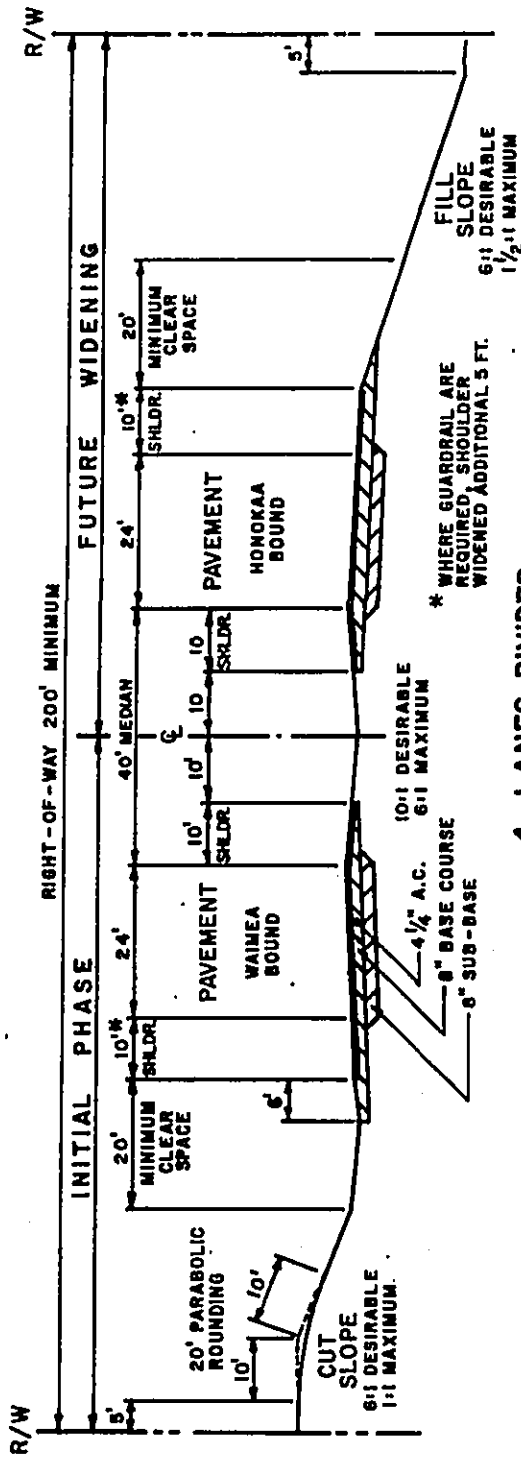
* WHERE GUARDRAILS ARE REQUIRED
SHOULDER WIDENED ADDITIONAL 5 FEET.

4-LANES DIVIDED
(ULTIMATE PHASE II & III)

TYPICAL ROADWAY SECTIONS
 WAIMEA - KAWAIHAE SECTION
 ISLAND OF HAWAII
 STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
 NO SCALE



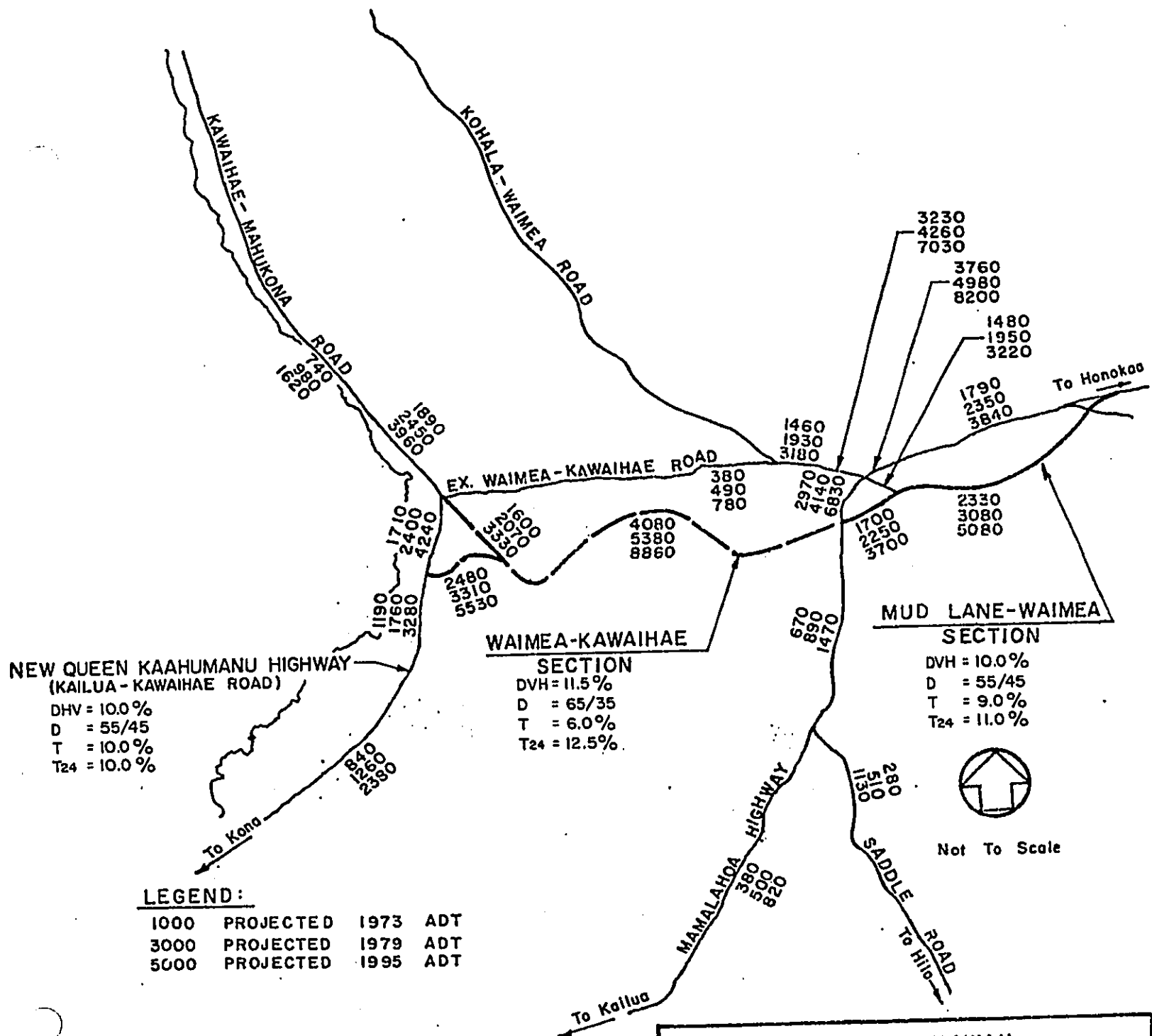
**2 - LANE HIGHWAY
(INITIAL PHASE)**



**4 - LANES DIVIDED
(ULTIMATE PHASE)**

**TYPICAL ROADWAY SECTIONS
MUD LANE - WAIMEA SECTION
ISLAND OF HAWAII**

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
NO SCALE



STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TRAFFIC DATA
 MUD LANE-WAIMEA-KAWAIHAE ROAD
 R. M. TOWILL CORPORATION

APPENDIX C

REVIEW COMMENTS AND EVALUATIONS

DRAFT ENVIRONMENTAL IMPACT STATEMENT

State of Hawaii Office of Environmental Quality Control	C-1
Federal Agencies:	
U. S. Army, Corps of Engineers	C-6
U. S. Air Force	C-7
Department of the Interior, Pacific Southwest Region	C-8
Federal Housing Administration	C-10
Soil Conservation Service	C-11
Department of Health, Education and Welfare	C-12
Federal Aviation Administration, Pacific-Asia Region	C-13
Federal Aviation Administration, Pacific-Asia Region	C-14
State Agencies:	
University of Hawaii, Water Resources Research Center	C-15
Department of Transportation, Harbors Division	C-16
Department of Health (Agency for Air, Noise and Water Quality)	C-17
Department of Planning and Economic Development	C-18
Department of Land and Natural Resources	C-19
Department of Transportation, Airports Division	C-21
Department of Transportation, Airports Division	C-24
Department of Agriculture	C-25
Private Organizations:	
Hawaiian Telephone	C-26
Hawaiian Electric Company	C-27

DEPT. OF TRANS.
TRANSPORTATION SYSTEMS
PLANNING OFFICE
GOVERNOR

APR 22 9 24 AM '74

RECEIVED
APR 29 8 51 AM '74



DESIGN BRANCH OF HAWAII
HIGH OFFICE OF ENVIRONMENTAL QUALITY CONTROL
DEPT. OF TRANSPORTATION FOR THE GOVERNOR
850 HALAHALA ST.
ROOM 301
HONOLULU, HAWAII 96813

6308
REC'D RICHARD E. MARLAND, PH.D.
DIRECTOR INTERIM DIRECTOR
APR 25 1974
TELEPHONE NO. 825-3711
DEPT. OF TRANSPORTATION
OFF. OF TRANSPORTATION

April 16, 1974

MEMORANDUM

TO: The Honorable E. Alvey Wright
Director, Department of Transportation

FROM: Richard E. Marland, Interim Director
Office of Environmental Quality Control *Richard E. Marland*

SUBJECT: Draft EIS - Hawaii Belt Road, Mudlane-Waimea-Kawaihae

We are pleased to provide our evaluation of the subject Draft EIS. To date, we have received comments from the following:

Federal Agencies:

- U.S. Army, Corps of Engineers (5 Dec. 73)
- U.S. Air Force, 15 ABWG/DEEE (PACAF) (5 Dec. 73)
- Dept. of the Interior (24 Jan. 74)
- Federal Housing Administration (29 Nov. 73)
- Soil Conservation Service (14 Dec. 73)
- Dept. of Health, Education, & Welfare, Regional Office (28 Dec. 73)
- Federal Aviation Administration, Pacific-Asia Region (2 Jan. 74 and 23-Nov. 73)

Private Organizations:

- Hawaiian Telephone (19 Nov. 72)
- Hawaiian Electric Co., Inc. (6 Dec. 73)

State Agencies:

- UH/Water Resources Research Center (23 Nov. 73)
- Harbors Division/DOT (3 Dec. 73)
- Dept. of Health (11 Dec. 73)
- Dept. of Planning & Economic Development (18 Dec. 73)
- Dept. of Land & Natural Resources (15 Jan. 74)
- Airports Division/DOT (10 Dec. 73 and 4 Dec. 73)
- Dept. of Agriculture (16 Nov. 73)

Prior transmittal of these comments has been confirmed with Mr. Fred Abeshima of your staff. Our review of the Draft EIS indicates several major concerns.

Updating of Information

The Draft EIS (dEIS) noted that corridor hearings were held in May 1969 and that design hearings were scheduled for Fall 1973. Any objections, if any, which were raised at the two hearings should be summarized and analyzed in the final EIS (fEIS). Also, the latest status of the Section 4(f) and Section 106 determinations should be discussed. Finally, the dEIS mentions that an alternative alignment was to be selected by the end of the year. That alternative should be identified in the fEIS.

Waimea-Kohala Airport

In the 10 December 73 letter from Airports Division, it was stated that "... a 2,000-foot runway extension at Waimea-Kohala Airport will not be necessary in the future." However, the FAA response dated January 2, 1974 indicated that "... according to the ... Layout Plan on file here, (runway 4/22) will be extended about 2000 feet." The FAA also indicated that another 500 feet would be eventually required at the highway end of the runway. The conflict in the two review comments should be resolved by the two agencies; such resolution should be documented in the fEIS.

Description of Environment

Corps of Engineers recommended expanded description of the environment, particularly with respect to drainage patterns, sugar and ranching industries, and socio-cultural characteristics of the population. Interior suggested that the fEIS include more discussion of wild life, vegetation, and geology. We recommend that the fEIS include discussion of rainfall intensity and distribution, hydrology, geology, floral regimes, and fauna. Also, socio-economic characteristics such as population, income levels, employment characteristics, and major economic activities should be outlined. Finally, the "planned developments" (upon which traffic projections were based) should be identified and discussed; a regional map should identify the general location of each of the major planned developments.

Archaeology

Interior stated, "The evaluation of project impact on archeology is questionable and inadequately documented. Effects of the proposed highway on archeological resources should be

* * * *

Comment 1-a. Objections raised at the corridor hearings and the design public hearing should be summarized and analyzed in the final EIS (fEIS).

b. The latest status of the Section 4(f) statement and Section 106 report determinations should be discussed.

c. The recommended alignment should be identified in the fEIS.

Response 1-a. The comments surfaced at the corridor hearings and design public hearing have been evaluated and incorporated in the fEIS. (Appendix D and E.)

b. A Section 106 report has been prepared in accordance with the National Historic Preservation Act of 1966. A Section 4 (f) statement is not required. (Appendix G.)

c. The recommended alignment is identified in the fEIS. (Plate 2.)

Comment 2. The conflict in review comments for the Waimea-Kohala Airport (extension of runway) between the State Airports Division and the FAA should be resolved.

Response 2. As stated in the letter from the Airports Division, State Department of Transportation, December 10, 1973, the subject runway will not be extended in the future. (Appendix C, Page C-24.)

Comment 3. Recommend that the description of the environment section be expanded.

Response 3. Additional information to describe the project area environment has been included in the fEIS. (Section II-D.)

accurately and objectively stated. Mr. Barrera's evaluation of significance of sites...is professionally controversial and is not supported by his report (emphasis added). DOT also questioned the conclusion that no historical sites are known to exist in the area. The FEIS must document additional efforts made by DOT to resolve these disagreements with the validity of archeological analyses.

Hawaiian Home Lands

It was noted that the Mudlane-Waimea Section will traverse lands presently owned by Hawaiian Homes Commission. Consultation with the Commission and any concerns raised by the Commission should be disclosed and evaluated in the FEIS.

Effect on Land Values

The FEIS noted that the "...anticipated increase in value of the surrounding non-government land...would probably offset the loss of taxable land." CEQ recognizes that adverse effects of proposed actions should be considered independently of whether, on balance, the agency believes that the overall effect will be beneficial. Therefore, increasing land value should not be dismissed as a "beneficial effect" -- but should be examined as a significant effect in its own right. We recommend that the FEIS include an analysis of existing land values along the corridor and in the areas to be served by the proposed highway; also, the FEIS should discuss expected increases in land value and possible effects on the population and economic activities. Such "base-line" data would be useful in post-project evaluation of the socio-economic effects of highway development. Also, such analysis would be consistent with NEPA's mandate to "utilize a systematic, interdisciplinary approach" in planning and decision making.

Traffic Analyses

In the section on Alternatives, the FEIS noted that "The projected increase in traffic volume will exceed the capacity of the existing highway." However, the FEIS does not adequately discuss existing capacity and projection methodology. As HRRC noted, the traffic survey was conducted in 1969. Is there more recent information and does the most recent data verify the 1969 projections for 1973? There is no discussion of how the projections were derived -- although there are numerous statements referring to anticipated growth in traffic volume. As previously mentioned, the planned developments upon which traffic volume is predicated must be clearly discussed; the projection methodology (i.e., transportation model, traffic assignment, etc.) should be identified and summarized to permit the reader to understand

* * * *

- Comment 4. The FEIS must document additional efforts made by DOT to resolve the disagreements by the Department of Interior and the Preliminary Archaeological Field Report as to the validity of the archaeological analysis.
- Response 4. The final report, approved by the State Archaeologist has been published by the State Department of Transportation: Hawaii Historic Preservation Report 74-1, Archaeological and Historical Surveys of the Waimea-Kawaihae Road Corridor, Island of Hawaii. The Bernice P. Bishop Museum conducted field work and historical researches based on the scope of work prepared by the State Archaeologist. Although the recommended alignment will not trespass the historically significant sites and district, archaeological salvage work will be conducted within the highway right-of-way prior to construction. An examination of stereo airphotos by the State Archaeologist indicates that there were no significant sites found within the Mud Lane-Waimea section, however, surface survey and salvage work will be conducted prior to construction. (Appendix C, Page C-8.)
- Comment 5. Consultation with the Hawaiian Homes Commission should be disclosed and evaluated in the FEIS.
- Response 5. Concerns raised by the Hawaiian Homes Commission have been included in the FEIS. (Appendix D, Page D-3.)
- Comment 6. Increasing land value should not be dismissed as a "beneficial effect." Recommend that the FEIS include an analysis of existing land values along the corridor.
- Response 6. The FEIS has been corrected such that "increasing land value" is not reflected as a beneficial effect. An analysis to determine a cost estimate for the highway right-of-way and for affected homes along the highway corridor was conducted and is included in the report. (Section II-A.)
- Comment 7-a. The FEIS does not adequately discuss the existing road capacity and projection methodology.
- Response 7-a. The basic method applied to project the traffic follows the guidelines as prescribed in AASHTO's 1965 publication, A Policy On Geometric Design of Rural Highways (Chapter II, Design Controls and Criteria). Special trip generators such as Keahole Airport and proposed developments of major significance with adequate data were incorporated independently. To verify whether the previous projection trendline is still valid, all traffic count stations within the study area were checked for the years 1970-1972. It was found that the reanalysis substantiates the original growth rate and that no adjustments to the original traffic assignment (1969) is necessary. (Plate 9.)

how traffic projections were calculated.

Design assumptions should also be outlined. Design and operating speed, as well as projected truck ratio and design capacity, should be discussed. Finally, the conclusion that the highway will contribute to the safety of motorists should be documented with accident statistics on the existing road through Waimoa and Kawaihae. Will the new highway, in fact, reduce accidents and fatalities -- on both a per million vehicle-mile basis and a total basis?

Noise

Why is the present noise level in Waimoa higher than that expected from the new highway (80dBA versus 70 dBA)? What traffic mix was assumed for the 1973 noise level? Anticipated noise impact on Kawaihae Village should also be discussed.

Air Pollution

It is concluded that significant impact on local air pollution problems is not expected. CEQ Guidelines clearly state:

"Secondary or indirect, as well as primary or direct, consequences for the environment should be included in the analysis. Many major Federal actions, in particular those that involve the construction or licensing of infrastructure investments...stimulate or induce secondary effects in the form of associated investments and changed patterns of social and economic activities...Such secondary effects...may often be even more substantial than the primary effects of the original action itself".

It is recognized that the Kona coast is subject to air inversion conditions. The secondary effects of highway improvement should be carefully discussed. Because the proposed highway is intended to provide the basis for planned development and to enhance industries that require improved transportation facilities, the new roadway must be viewed as a "priming" action. The long-term and cumulative effects of urbanization in the Kawaihae region must be evaluated -- not only with respect to automobile emissions but also industrial emissions.

Recommendations

We recommend that: (1) written responses be sent to all commentors, including this Office, indicating how specific concerns were considered, evaluated, and disposed; (2) all comments and your responses should be incorporated as an appendix to the FEIS; (3) a copy of the FEIS should be sent to those individuals that provided substantive comments to the DEIS. We hope that our comments will be useful in further evaluation of the proposed highway.

cc: Mr. Ralph Segawa, Federal Highway Administration, Hon. Office

* * * *

Comment 7-b. Design features should be discussed.

c. The conclusion that the highway will contribute to the safety of motorists should be documented with accident statistics.

Response 7-b. Design features have been included in the FEIS. (Section II-A.)

c. An analysis of accident statistics is attached. (Appendix C, Page C-5.)

Comment 8-a. Why is the present noise level in Waimoa higher than expected from the new highway?

b. What traffic mix was assumed for the 1973 noise level?

Response 8-a. The existing noise level in Waimoa is higher than the noise level projected for the proposed bypass highway because the existing highway travels through the heart of the community. Diversion of the transient traffic to the bypass route should decrease the noise level through Waimoa town. (Section III-D.)

b. A ratio of 10% trucks to automobile traffic was used for the 1973 noise level.

Comment 9. The secondary effects of the highway improvement on air pollution should be discussed.

Response 9. A review of the proposed project by the State Department of Health foresees no significant air pollution problems anticipated as a result of this project. It is acknowledged that air pollution sources will increase with the development of the area. No industrial developments, other than Kawaihae Harbor and the light industrial activities at Kawaihae is anticipated. (Section III-D.)

ACCIDENT STATISTICS
FOR THE ISLAND AND MAMALAHOA HIGHWAY (M.H.)

Year	Miles of Road		Major Accidents		Fatalities		Accidents Per Mile	
	Island	M.H.	Island	M.H.	Island	M.H.	Island	M.H.
1964	1,293	8.0	768	23	16	1	0.59	2.88
1965	1,312	8.0	748	23	11		0.57	2.88
1966	1,327	8.0	867	25	18	1	0.65	3.13
1967	1,338	8.0	1,032	13	13		0.77	1.63
1968	1,354	8.0	1,161	27	18		0.86	3.38
1969	1,380	8.0	1,332	23	25		0.97	2.88
1970	1,361	8.0	1,549	30	18		1.14	2.50
1971	1,376	8.0	1,605	18	20		1.17	2.25
1972	1,380	8.0	1,716	22	27	1	1.24	2.75
1973	1,335	8.0	1,871	23	23		1.40	2.88

NOTE: Data for Mamalahoa Highway is for an approximate 8-mile section within the project area.



DEPARTMENT OF THE ARMY
HONOLULU DISTRICT, CORPS OF ENGINEERS
BUILDING 96, FORT ARMSTRONG
HONOLULU, HAWAII 96813

PODED-P

5 December 1973

Dr. Richard Marland, Interim Director
Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street
Honolulu, Hawaii 96813

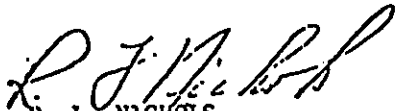
Dear Dr. Marland:

We have reviewed the draft EIS for Hawaii Belt Road, Mudlane-Waimea-Kawaihae, Project Nos. F-019-1(2), F-019-1(6), and S0270(4), and have the following comments:

a. The project itself is adequately described, but the EIS does not contain a sufficient description of the environment for an assessment of impact to be made. For example, from the information presented, we are unable to determine what effects will occur on drainage patterns due to the road. The sugar and ranching industries of the region are not discussed as to their present condition and to foreseeable changes. Discussion of the socio-cultural characteristics of the populations of North and South Kohala Districts should be included since traditional life styles appear on the verge of major alteration caused by such things as the closing of the Kohala Sugar Plantation and the building of new roads.

b. We note a conflict in land use plans of the Kawaihae Harbor area as presented in Plates 5 and 6 and an omission of discussion concerning the joint Federal-State Kawaihae Small Boat Harbor.

Sincerely yours,


R. L. NICHOLS
Chief, Engineering Division

* * * *

- Comment 1. The EIS does not contain a sufficient description of the environment for an assessment of impact to be made.
- Response 1. Additional description of the environment has been included in the FEIS. (Section II-B.)
- Comment 2. There is a conflict of land use plans as presented in Plates 5 and 6.
- Response 2. Plate 5 has been corrected to reflect the joint Federal-State Kawaihae Small Boat Harbor. (Plate 5.)

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 15th AIR BASE WING (PACAF)
APO SAN FRANCISCO 96553



5 DEC 1973

REPLY TO
ATTN OF: DEEE

SUBJECT: Draft Environmental Impact Statement

TO: Office of Environmental Quality Control
Office of the Governor
550 Halekauwila Street
Tani Office Building, Third Floor
Honolulu, Hawaii 96813

1. Reference is made to your undated letter, subject as above.
2. This office has no comment to render relative to the draft environmental impact statement for the Hawaii Belt Road, Mudlane - Waimea - Kawaihae, Projects No. F-019-1(2), F-019-1(6) and S-0270(4).

A handwritten signature in cursive script, appearing to read "Allan M. Yamada".

ALLAN M. YAMADA
Asst Dep Comdr for Civil Engrs

* * * *

Response: No evaluation required.



ER-73/1531

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
PACIFIC SOUTHWEST REGION
BOX 36098 • 430 GOLDEN GATE AVENUE
SAN FRANCISCO, CALIFORNIA 94102
(415) 856-8200
January 24, 1974

Dr. Richard E. Marland
Interim Director
Office of Environmental Quality Control
530 Halekauwila Street
Honolulu, Hawaii 96813

Dear Dr. Marland:

The Department of the Interior has reviewed the draft environmental statement for Mud Lane-Waimoa-Kawaihae Road, Island of Hawaii and is pleased to offer the following comments for your consideration.

We question the conclusion that there will be no significant adverse effects on vegetation or wildlife as a result of the highway construction. The alteration of approximately 590 acres of wildlife habitat for the construction of a highway will have an effect by reducing existing habitat and displacing wildlife to adjoining areas. Also, even though erosion control measures will be undertaken during construction, water pollution resulting from dust and storm runoff is expected to occur. We do feel that erosion conditions will be significant, especially in an area containing an arid, warm, desert-like atmosphere with existing limited vegetation. Also, we suggest the statement be expanded to include a list of the species of wildlife inhabiting the area.

Virtually no data on the geology of the area is provided in the statement. Although environmental problems which may result from geologic conditions should be within the range of standard engineering practice, the statement should at least describe the geology, and mention any previous investigation concerning the geology of the proposed rights-of-way.

To ascertain if section 1-6 of the Historic Preservation Act does apply, a determination should be made whether the alternative routes cross boundaries of the designated Puukohola National Historic Site, or infringe upon the integrity or

* * * *

Comment 1. The alteration of approximately 590 acres of wildlife habitat will have an effect by reducing existing habitat and displacing wildlife.

Response 1. The alteration of approximately 590 acres of land required for the proposed project will reduce the wildlife habitat and destroy existing vegetation. An estimated 350 birds or one (1) bird per 1.7 acres will be affected by the project (Reference: The Game Birds of Hawaii, Schwartz, C. W. and Schwartz, E. R., 1949). Suitable habitats exist in adjacent areas. Impact is minimal and no native species are considered endangered. (Appendix B.)

Comment 2. Suggest that the statement be expanded to include a list of wildlife inhabiting the area.

Response 2. A list of probable wildlife species inhabiting the areas has been furnished by the Fish and Game Division, Department of Land and Natural Resources and is included in the FEIS. (Appendix B.)

Comment 3. The statement should at least describe the geology and mention any previous investigation concerning the geology of the proposed rights-of-way.

Response 3. A description of the geology and soils in the project area has been included in the FEIS. (Section II-B.)

Comment 4. A determination should be made whether the alternative routes cross boundaries of the designated Puukohola Heiau National Historic site or infringe upon the integrity or significance of the area. The evaluation of the project impact on archaeology is questionable and inadequately documented.

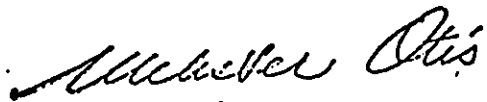
Response 4. The recommended alignment will not trespass the historically significant sites or district. The final report on archaeological findings has been published by the State Department of Transportation: Hawaiian Historic Preservation Report 74-1. Archaeological and Historical Surveys of the Waimoa-Kawaihae Road Corridor, Island of Hawaii. This report has been accepted by the State Archaeologist. Section 106 report has been coordinated with SHPO and Advisory Council on Historic Preservation. (Appendix G.)

significance of the area. If so, we suggest the effects of the project on this site be fully evaluated. To assist you in this undertaking, we suggest you request the Advisory Council on Historic Preservation (Western Office, P. O. Box 26552, Belmar Station, Lakewood, Denver, Colorado 80226) to review the statement.

The evaluation of project impact on archeology is questionable and inadequately documented. Effects of the proposed highway on archeological resources should be accurately and objectively stated. Mr. Barrera's evaluation of significance of sites in attachment number one is professionally controversial and is not supported by his report. The "walk-through" survey of the central corridor is inadequate to provide substantive data necessary for assessment of the project's effect. Therefore, we suggest that an intensive archeological survey be completed before construction is started, and the entire survey report be attached to the final environmental statement or summarized in the appropriate section of the statement.

We appreciate the opportunity to review and comment on the environmental statement.

Cordially,



Webster Otis
Special Assistant to the Secretary

cc: Director, OEPR, Washington, D. C.
Regional Director, NPS, San Francisco
Regional Director, BOR, San Francisco
Director, USGS, Washington, D. C.
Regional Director, BSW, Portland

* * * *

Comment 5. Suggest that an intensive archaeological survey be completed before construction is started.

Response 5. A complete archaeological salvage work along the highway right-of-way will be conducted upon approval of the highway alignment. (Section III-D.)



REGION IX
450 Golden Gate Avenue
P.O. Box 36083
San Francisco, California 94102

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
FEDERAL HOUSING ADMINISTRATION
HONOLULU INSURING OFFICE
P.O. BOX 3377
HONOLULU, HAWAII 96801

November 29, 1973

IN REPLY REFER TO:
G. Matsumoto
546-5554

Dr. Richard E. Marland
Interim Director
Office of Environmental Quality Control
550 Halekauwila Street
Honolulu, Hawaii 96813

Dear Dr. Marland:

Subject: Reply to Draft Environmental Impact Statement for Hawaii
Belt Road, Mudlane - Waimea - Kawaihae Road, Project Nos.
F-019-1(2), F-019-1(6) and S-0270(4)

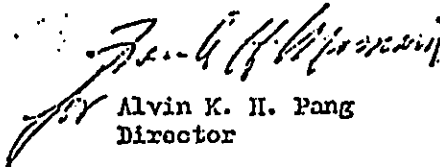
We have reviewed the Draft EIS for Hawaii Belt Road and generally agree that the proposed highway will provide a safer and an improved transportation facility for the area. However, we would like to make a few comments on noise abatement and archeological and historical sites.

Since most of the future traffic may be heavy trucks and military vehicles, consideration should be given to minimize excessive noise from reaching adjacent residential areas in the Design Phase. The assessment of noise may be significant not only to future residents but also to future parks and schools along the proposed highway.

Salvaging operations of archeological features should be carefully handled and the recommendations of William Barrera, Jr., of the Department of Anthropology, Bishop Museum, complied with.

Thank you for the opportunity of commenting on the Draft EIS.

Sincerely,


Alvin K. H. Pang
Director

* * * *

- | | |
|--------------------|--|
| <u>Comment</u> 1. | Consideration should be given to minimize excessive noise from reaching adjacent residential areas. |
| <u>Response</u> 1. | Noise abatement, if warranted, will be considered in the design of the highway. (Section III-D.) |
| <u>Comment</u> 2. | Salvaging operations of archaeological features should be carefully handled. |
| <u>Response</u> 2. | Salvaging operations of archaeological sites will be conducted prior to construction (Standard Operating Procedures for State Department of Transportation projects). (Section III-D.) |

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

440 Alexander Young Bldg., Honolulu, HI 96813

December 14, 1973

Dr. Richard E. Marland
Office of Environmental
Quality Control
Room 301, 550 Halekauwila St.
Honolulu, HI 96813

Dear Dr. Marland:

Subject: Draft Environmental Impact Statement for Hawaii Belt
Road, Mud Lane-Waimea-Kawaihae, Proj. Nos. F-019-1(2),
F-019-1(6) & S-0270(4)

We have reviewed the above-mentioned draft and offer the following
comments for your consideration.

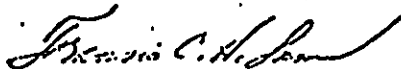
It appears that the Mud Lane-Waimea Section of Alternate A will be
located below the emergency spillway outlet of the floodwater
retarding structure just above Kuhio Village. This structure was
built as part of the PL-566 Puukapu Watershed Project.

The floodwater retarding structure is designed to retard flood-
waters up to and including the 100-year (1%) frequency storm. Flows
through the emergency spillway are not expected to occur unless flood
runoff exceeds this level.

It should be emphasized that control of erosion, both during and
after construction, will be very important. Since the floodwaters
collected by this structure are discharged into six 24-inch-diameter
outlet wells, it is imperative that these outlet wells be kept free
of sediment.

Structure design data, including hydrologic information, is available
at our office. Should you desire to review this data, we would be
glad to accommodate your request.

Sincerely,


Francis C. H. Lum
State Conservationist

* * * *



Comment: Emphasizes that control of erosion, both during and after
construction is very important.

Response: Erosion control measures such as slope control planting and
sedimentation ponds will be incorporated in the design of
the highway. (Section II-B.)



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
REGIONAL OFFICE

80 FULTON STREET
SAN FRANCISCO, CALIFORNIA 94102

OFFICE OF
THE REGIONAL DIRECTOR

Office of Environmental Affairs

December 28, 1973

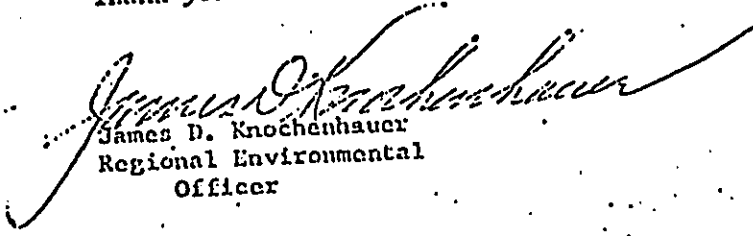
Richard E. Marland
Interim Director
Office of Environmental Quality
Office of the Governor
550 Halekiauila Street
Honolulu, Hawaii 96813

Dear Dr. Marland:

The Draft Environmental Impact Statement for Hawaii Belt Road, Mudlane-Waimea-Kawaihae, Project Nos. F-019-(2), F-019-(6) & S-0270(4) has been reviewed by this office. We regret the delay in responding, however the material was apparently mis-directed and just now was received.

The environmental assessment appears to be adequate and ample attention seems to have been given to alternatives and necessary safeguards. We note that this project will likely be growth inducing and may permit development of land currently unused or in agricultural use only. We urge that early attention be given to the need for social, health, welfare, educational and transportation services which will result from such development. Such planning may be incorporated in the relocation phase of the project and could avoid a crisis in services delivery when the highway is completed and the development is initiated.

Thank you for the opportunity to review this statement.


James D. Knochenhauer
Regional Environmental
Officer

* * * *

Comment: Recommend early attention be given to the need for social, health, welfare, education and transportation services which will result from the development of surrounding land.

Response: The areas of concern cited in the review comments are under consideration. (Section III-B.)

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

PACIFIC-ASIA REGION
P. O. BOX 4009
HONOLULU, HAWAII 96813

NOV 28 1973



Mr. Richard E. Marland
Interim Director
Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street
Honolulu, Hawaii 96813

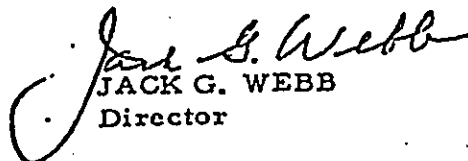
Dear Mr. Marland:

We have reviewed the Draft Environmental Impact Statement for Hawaii Belt Road, Mud Lane - Waimea - Kawaihae.

There will be no adverse impact on current use of or future plans for the Waimea-Kohala Airport and FAA air navigation facilities, to the best of our knowledge.

We have no objection to any of the alternatives of this proposal.

Sincerely,


JACK G. WEBB
Director

* * * *

Response: No evaluation required.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

PACIFIC-ASIA REGION
P. O. BOX 4009
HONOLULU, HAWAII 96813

JAN 2 1974



Mr. Richard E. Marland
Interim Director
Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street
Honolulu, Hawaii 96813

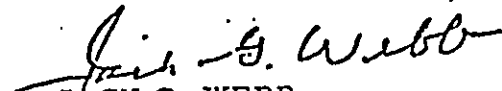
Dear Mr. Marland:

A review of our response of November 23, 1973 to your inquiry, requesting input to your environmental assessment of the proposed Hawaii Belt Road, Mud Lane - Waimea - Kawaihae, Project Nos. F-019-1(2), F-019-1(6), and S-0270(4), indicates a need to clarify the possible effects upon future use of the Waimea-Kohala Airport.

The present Runway 4/22, according to the State of Hawaii's Airport Layout Plan on file here, will be extended about 2000 feet, 1200 feet of which would be on the runway end nearest the proposed highway. In addition, our National Airport System Plan shows a long-range requirement for an additional 500 feet, also on the end toward the highway. In order to ensure the necessary safe airspace clearance over the proposed highway it is essential that the final precise highway alignment and elevation be coordinated with the State Department of Transportation and with this office.

The opportunity to provide input to your Draft Environmental Impact Statement is appreciated.

Sincerely,


JACK G. WEBB
Director

Comment:

In order to ensure the necessary safe air space clearance over the proposed highway, it is essential that the final precise highway alignment and elevation be coordinated with the State Department of Transportation and Federal Aviation Administration.

Response:

The proposed highway will not conflict with the future plans for the Waimea-Kohala Airport per Airports Division letter dated December 10, 1973. The final alignment will be coordinated with the Airports Division and the Federal Aviation Administration. (Appendix C, Page C-24.)

UNIVERSITY OF HAWAII

Water Resources Research Center
Office of the Director

MEMORANDUM

November 23, 1973

MEMO TO: Richard E. Marland
Interim Director, OEQC

FROM: Reginald H. F. Young ^{RHFY}

SUBJECT: Draft EIS, Hawaii Belt Road, Mud Lane-Waimea-Kawaihae

The subject statement was reviewed in this office, principally by Henry Gee, and the following comments are submitted for your information:

The traffic survey was conducted in 1969, almost four years ago to predict the 1973, 1979 and 1995 volume. Has any new traffic survey been conducted to verify the 1973 prediction? What is the predicted date for ultimate phase construction of the 4-lane divided highway and at what predicted traffic volume? What is the maximum capacity of traffic for the initial phase of two-lanes in the Mud Lane-Waimea Section and the two-lanes and truck climbing lane in the Waimea-Kawaihae Section? What is the ratio of trucks to automobiles traffic?

Typographical error on page 4. Abbreviation for America Association of State Highway Officials is (AASHTO).

RHFY:jmn

cc: Henry Gee
Jerry Johnson, EC

* * * *

- Comment 1. Has any new traffic survey been conducted to verify the 1975 prediction?
- Response 1. The most recent traffic count was conducted in 1972. (Section II-A.)
- Comment 2. What is the predicted date for ultimate phase construction of the 4-lane divided highway?
- Response 2. The predicted date for the ultimate 4-lane construction is dependent on available funds and the need for the highway widening. (Section II-A.)
- Comment 3. What is the maximum capacity of traffic for the initial phase of two lanes in the Mud Lane-Waimea section and the two lanes and truck climbing lane in the Waimea-Kawaihae section?
- Response 3. The maximum capacity for the initial phase is 6,000 to 7,000 average daily traffic. (Plate 9.)
- Comment 4. What is the ratio of trucks to automobile traffic?
- Response 4. The ratio of trucks to automobile traffic is 10%. (Plate 9.)

JOHN A. BURNS
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HARBORS DIVISION
P.O. BOX 397 HONOLULU, HAWAII 96809
79 SO. PIHAIKI STREET, HONOLULU, HAWAII 96813

E. ALVEY WRIGHT
DIRECTOR
LAWRENCE F. O. CHUN
DEPUTY DIRECTOR
MUN Y. M. LEE
DEPUTY DIRECTOR
DOUGLAS S. SAKAYOTO
DEPUTY DIRECTOR

IN REPLY REFER TO:
HAR-EP
1724

December 3, 1973

MEMORANDUM

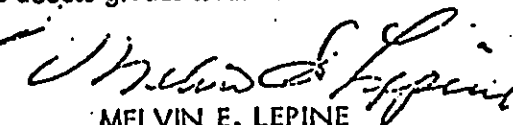
TO: HONORABLE RICHARD E. MARLAND
Interim Director, Office of Environmental Quality Control

FROM: MELVIN E. LEPINE
Chief, Harbors Division

SUBJECT: COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT
HAWAII BELT ROAD, MUDLANE - WAIMEA - KAWAIHAE

We have reviewed the draft EIS for subject roadway and offer the following comments:

1. An improved highway to link Kawaihae Harbor with the population centers to the east and south is required to handle the increasing tonnage of cargo generated at the port. The volume has more than doubled in the past 10 years and will continue to grow.
2. The desired alignment must offer a direct, practical, economical approach to the Kawaihae Harbor area. This would be possible by improving the existing road through the Puukohola Historic site as in Alternate A-5 or if necessary by a new alignment close to the harbor such as Alternate A. Alternates A-3 and A-4 would require steep access grades from the harbor and are not desirable.


MELVIN E. LEPINE

* * * *

Comment:

The desired alignment must offer a direct, practical and economical approach to Kawaihae Harbor.

Response:

The recommended alignment provides a direct, practical and economic approach to Kawaihae Harbor. (Plate 2.)

C-16

JOHN A. BURNS
GOVERNOR OF HAWAII



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

WALTER Q. QUISENDERRY, M.P.H., M.D.
DIRECTOR OF HEALTH

WILBUR S. LUMMIS JR., M.S., M.D.
DEPUTY DIRECTOR OF HEALTH

RALPH B. BERRY, M.P.H., M.D.
DEPUTY DIRECTOR OF HEALTH

HENRI P. MINETTE, M.P.H., Dr.P.H.
DEPUTY DIRECTOR OF HEALTH

IN REPLY, PLEASE REFER TO:
EH-AS

December 11, 1973

TO: Dr. Richard E. Marland, Interim Director
Office of Environmental Quality Control

FROM: Director of Health.

SUBJECT: Draft Environmental Impact Statement for Hawaii Belt Road,
Mudlane - Waimea - Kawaihae, Proj. Nos. F-019-1(2),
F-019-1(6) and S-0270(4)

The following are comments relative to the subject Environmental
Impact Statement:

Water Pollution

We see no long-term water pollution due to the type of terrain,
and the area is generally on the dry side. Rainfall is minimal,
but should large rain storms appear, run off may cause some
short-term water pollution problems.

Air Pollution

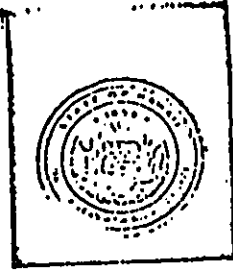
During construction of the road in the areas near Waimea Town
and Kawaihae Town, special care should be taken to minimize dust
from the construction activities. Dust control techniques
outlined in Chapter 43, Air Pollution Control, State of Hawaii,
Public Health Regulations should be followed also. No other
significant air pollution problems anticipated as a result of
this project.

WALTER B. QUISENDERRY, M.D.

cc: Sanitary Engineering Branch
Air Sanitation Branch

* * * *

- Comment 1. Rainfall is minimum, but should large rain storms appear,
runoff may cause some short-term water pollution problems.
- Response 1. The proposed highway will not alter the drainage pattern nor
increase runoff significantly, however, erosion control
measures, such as slope control planting will be incorporated
in the design of the highway. (Section II-B.)
- Comment 2. Dust control techniques, as outlined in Chapter 43, Air
Pollution Control, Public Health Regulations, State of Hawaii,
should be followed.
- Response 2. Dust control techniques cited in the above regulation will be
followed. (Section VIII.)



STATE OF
HAWAII

DEPARTMENT OF PLANNING
AND ECONOMIC DEVELOPMENT

P. O. BOX 2359 • HONOLULU, HAWAII 96804

December 18, 1973

JOHN A. BURNS
Governor

SHELLEY M. MARK
Director

EDWARD J. GREANEY, JR.
Deputy Director

Ref. No. 0131

MEMORANDUM

TO: Dr. Richard E. Marland, Interim Director
Office of Environmental Quality Control

FROM: *Shelley M. Mark*
Shelley M. Mark, Director

SUBJECT: Draft EIS for Hawaii Belt Road Improvement, Mud Lane to Waimea,
Waimea to Kawaihae, Hawaii County

We have reviewed this draft statement and feel that most of the probable project-induced impacts are adequately covered. The report is well organized in its coverage of various elements, to include the archaeological aspect as well. The maps provided also adequately illustrate both the scope of the entire project and the relationship of particular segments to such important areas as the Puukohola National Historic Park and the harbor area at Kawaihae.

We recommend that the applicant agency closely coordinate this project with the Department of Land and Natural Resources, as well as Hawaii County's Planning Department, which agencies are quite concerned with improvements in these areas.

We have no further comments at this time, but we would appreciate being kept informed of the progress of this project.

cc: Hawaii County Planning Department
Department of Land and Natural Resources

* * * *

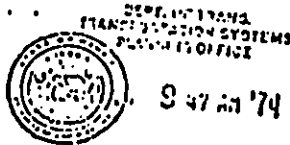
Comment:

Recommend that this project be coordinated with the Department of Land and Natural Resources and the County of Hawaii Planning Department.

Response:

The alignments are being coordinated with the Department of Land and Natural Resources, County of Hawaii, Planning Department, U. S. National Park Service and various other agencies and organizations. (Section X.).

JOHN A. BURNS
GOVERNOR OF HAWAII



9 47 am '74

DIVISIONS
CONSERVATION
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 241
HONOLULU, HAWAII 96809

January 15, 1974

MEMORANDUM

TO: Dr. R. E. Marland, Interim Director
OZQC

FROM: Sunao Kido, Chairman and Member
Board of Land and Natural Resources

SUBJECT: Hawaii Belt Road, Mud Lane-Waimea-Kawaihae
Proj. Nos. F-019-1(2), F-019-1(6), & S-0270(4).

We have reviewed DOT's environmental impact statement on the proposed Mud Lane-Waimea-Kawaihae road and have the following comments:

1. The Mud Lane-Waimea section has not been reviewed by the Historical/Archaeological section to determine if historical values might be affected. The origin of the statement that no historical sites are known to exist in this portion of the road is not known. The DOT should provide stereo airphotos of the corridor route to our State Parks Division for a determination.
2. Excluding the possible effect upon the Puukohala National Historical Landmark, the Waimea to Kawaihae section will have no adverse effect upon known historical values providing that the recommendations made in the Bishop Museum's report are implemented. (Attachment 1, page 5 of DOT's EIS)
3. If the right-of-way involves the taking of any park or historical site lands from the Puukohala National Historical Landmark, a Section 4-F statement must be prepared.

Comment 1. The Department of Transportation should provide stereo airphotos of the corridor route to the State Parks Division for examination.

Response 1. Stereo airphotos of the Mud Lane-Waimea section were reviewed by the State archaeologist. No major sites were found in the proposed route, however, the field survey and salvage work will be conducted prior to construction. (Section III-D.)

Comment 2. The Waimea-Kawaihae section will have no adverse effect upon known historical values providing that the recommendations made in the Bishop Museum's report are implemented.

Response 2. The recommendations of the Bernice P. Bishop Museum's final report, Hawaii Historic Preservation Report 74-1, will be implemented. (Section III-D.)

Comment 3. If the right-of-way involves the taking of any park or historical site lands from the Puukohala Heiau National Historic Site, a Section 4(f) statement must be prepared.

Response 3. Since the recommended alignment will not involve the taking of any park or historical site lands from the Puukohala Heiau National Historic Site, a Section 4(f) statement will not be required. (Appendix G.)

Memo to
Dr. R. E. Marland

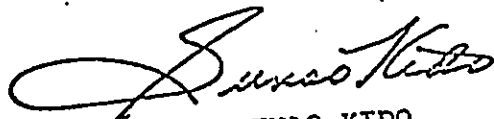
-2-

January 15, 1974

4. A Section 106 procedure must be implemented by the Federal Highways Administration pursuant to PL 89-665 owing to the possibility of an effect upon the Puukohala National Historical Landmark, regardless of the alternative selected.
5. There are insufficient data in the EIS to determine the potential effects of the various alternatives upon the Landmark, and this must be done before Section 106 procedure may be consummated.
6. Pending further information upon the differential effects of the alternatives upon the Landmark, alternative A-3 seems preferable.

The FHWA should be urged to institute Section 106 proceedings as soon as possible to avoid possible project delays.

BOARD OF LAND AND NATURAL RESOURCES



SUNAO KIDO
Chairman and Member

* * * *

Comment 4. A Section 106 procedure must be implemented by the Federal Highways Administration pursuant to P. L. 89-665.

Response 4. A review of the effects of the proposed project on the historic resource of the designated Puukohala Heiau National Historic Site has been processed separately in accordance with Section 106 of the National Historic Preservation Act of 1966. (Appendix G.)

JOHN A. BURNS
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
AIRPORTS DIVISION
HONOLULU INTERNATIONAL AIRPORT • HONOLULU, HAWAII 96819

E. ALVEY WRIGHT
DIRECTOR
LAWRENCE F. O. CHUN
DEPUTY DIRECTOR
MUNNY T. M. LEE
DEPUTY DIRECTOR

IN REPLY REFER TO:
AIR-EP
2753

December 4, 1973

Dr. Richard E. Marland
Interim Director
Office of Environmental Quality
Control
550 Halekauwila Street
Honolulu, Hawaii 96813

Dear Dr. Marland:

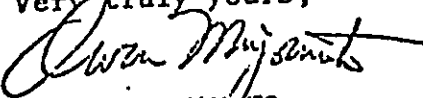
Subject: Draft Environmental Impact Statement
for Hawaii Belt Road, Mudlane -
Waimea - Kawaihae, Project Nos.
F-019-1(2), F-019-1(6) & S-0270(4)

Our comment on the subject EIS is relative to the
Waimea-Kohala Airport.

On page 27, second paragraph, the last sentence reads,
"The location of the proposed highway does not conflict with
the airway clearance requirements." This statement is true
for the existing condition. However, our master plan calls
for a 2,000 feet extension of the runway to the northeast.
If this extension is installed and by using the present FAA
criteria, the airway-highway clearance may not be adequate.
This problem was noted in our last memorandum to the Highways
Division. A copy of the memorandum is attached.

Thank you for the opportunity to comment on the draft EIS.

Very truly yours,


OWEN MIYAMOTO
Chief, Airports Division

Enclosure

* * * *

Response: See following letter dated December 10, 1973.

C-21

AIR-EP
1562

HWY-DD

4-5-73

AIR

Hawaii Belt Road, Mud Lane towards Kamuela Race Track,
Project No. P-019-1(2)

This will acknowledge your Transmittal Memo, HWY-DD 2.8536,
dated 3-16-73.

We have not eliminated the possibility of extending the
runway at Waimea-Kohala Airport. This being so, we must have
provisions for a maximum 2,000 feet extension to the northeast.

On this basis, we cannot recommend approval of the subject
highway alignment or grade unless the airway-highway clearance
requirements are met at all points within the limits of the
approach slopes.

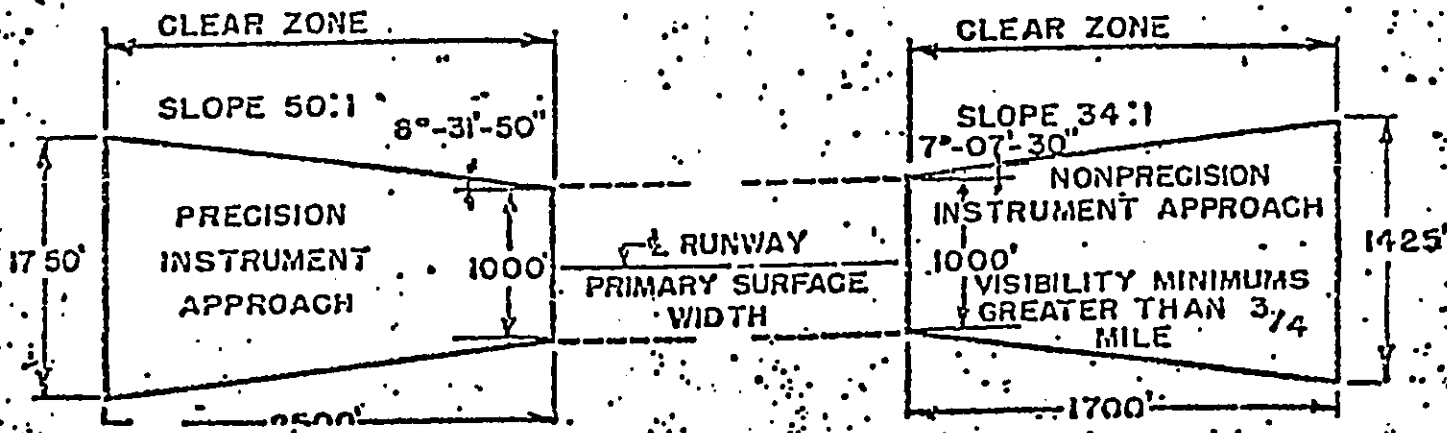
If you plan to pursue this highway alignment further, please
check the clear zone dimensions and revise your drawing accordingly.
The outer dimension of the clear zone is 1425 feet as shown in
the attached sketch.

Please call us if you need further clarification.

OWEN MIYAMOTO
Chief, Airports Division

Enclosure

B. PRECISION INSTRUMENT RUNWAY



JOHN A. BURNS
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
AIRPORTS DIVISION
HONOLULU INTERNATIONAL AIRPORT • HONOLULU, HAWAII 96819

E. ALVEY WRIGHT
DIRECTOR

LAWRENCE F. O. CHUN
DEPUTY DIRECTOR

MUNNY V. M. LEE
DEPUTY DIRECTOR

IN REPLY REFER TO:

AIR-EP
2777

December 10, 1973

Dr. Richard Marland
Interim Director
Office of Environmental Quality
Control
550 Halekauwila Street
Honolulu, Hawaii 96813

Dear Dr. Marland:

Subject: Draft EIS for Hawaii Belt Road.
Mudland-Waimea-Kawaihae

Please rescind our letter, AIR-EP 2753, dated December 4, 1973, in which we offered our comments on the subject EIS.

Our latest feeling is that a 2,000-foot runway extension at Waimea-Kohala Airport will not be necessary in the future.

Very truly yours,

A handwritten signature in cursive script, reading "Owen Miyamoto".

OWEN MIYAMOTO
Chief, Airports Division

cc: HWY-DD

* * * *

Response: No evaluation required.

JOHN A. BURNS
GOVERNOR



FREDERICK C. ERSKINE
CHAIRMAN, BOARD OF AGRICULTURE

WILLIAM E. FERNANDES
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1428 SO. KING STREET
HONOLULU, HAWAII 96814

November 16, 1973

MEMORANDUM

TO: Dr. Richard E. Marland, Interim Director
Office of Environmental Quality Control

SUBJECT: Draft Environmental Impact Statement for Hawaii Belt
Road, Mudlane - Waimea - Kawaihae, Proj. Nos. F-019-1(2),
F-019-1(6) & S-0270(4).

We have reviewed subject draft and foresee no major impact
on agriculture.

Thank you for the opportunity to comment on this matter.

William E. Fernandes
FREDERICK C. ERSKINE
Chairman, Board of Agriculture

* * * *

Response: No evaluation required.

HAWAIIAN TELEPHONE



P. O. BOX 475

HILO, HAWAII 96720

November 19, 1973

Dr. Richard E. Marland, Interim Director
Hawaii State Office of Environmental Quality Control
550 Halekauila Street Room 301
Honolulu, Hawaii 96813

Dear Dr. Marland:

Subject: Draft Environmental Impact Statement for Hawaii Belt
Road, Mudlane-Waimea-Kawaihae, Proj. Nos. F-019-1(2),
F-019-1(6) and S-0270(4).

All alternative routes for the subject highway projects will have minimal effect on existing telephone facilities. Our only concern at this time is the possible need to gain access to the subject highway right-of-way to provide telephone service to parcels to be accessed by this proposed highway segment.

Yours truly,

C. Choy
Supervising Engineer, OSP Staff

* * * *

Comment: Hawaiian Telephone is concerned about the possible need to gain access to the subject highway right-of-way to provide telephone services to parcels to be accessed by the proposed highway.

Response: There will be no utility corridor along the new highway route. (Plates 7A, 7B, and B.)

HAWAIIAN ELECTRIC COMPANY, INC.

Box 2750 / Honolulu, Hawaii / 96803



December 6, 1973

State of Hawaii
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Draft Environmental Impact Statement for Hawaii
Belt Road, Mud Lane - Waimea - Kawaihae
Project Nos. F-019-1(2), F-019-1(6) and S-0270(4)

The following comments are submitted on behalf of both Hawaiian Electric Co., Inc., and Hilo Electric Light Co., Ltd.

Facilities of Hilo Electric Light Co. (HELCO) will be only slightly impacted by the Mud Lane - Waimea section of the project and we have no objection to the proposed construction.

A new highway between Waimea and Kawaihae could be of major significance to our operations, and depending on the alignment at Kawaihae, could have a very significant impact.

HELCO presently operates diesel-electric generating units at Waimea. Diesel fuel is hauled by tank truck from Kawaihae Harbor to the plant an average of three to four round trips per week. A new highway with truck climbing lane will decrease the time required for hauling and reduce congestion on the present narrow road.

A new diesel-electric generating plant is planned near Keahole Airport and diesel fuel will be hauled by tank truck from Kawaihae Harbor to Keahole. The new Queen Kaahumanu Highway will be used as soon as it is available; however, in the meantime, the trucks will use Mamalahoa Highway from Waimea. The proposed new highway will probably not be available until after Queen Kaahumanu Highway is open; however, the new connection from Queen Kaahumanu Highway to Kawaihae will provide some improvement in hauling conditions.

At infrequent intervals, approximately once each year or two, major large equipment is hauled to the generating sites at Waimea or Keahole, and this hauling causes a major disruption to traffic on the present road. The new highway with truck climbing lane would eliminate this disruption.

HAWAIIAN ELECTRIC COMPANY, INC.

State of Hawaii
December 6, 1973
Page Two

Page 20 of the EIS refers to an "electrical substation." This "Kawaihae Substation" is used to transform electrical power from 69,000 volts to 12,470 volts and for control of three distribution lines which supply electrical power to Kawaihae, Mauna Kea and Hapuna areas. The proposed alternates avoid the substation.

Although Kawaihae Substation is vital to the supply of electrical power to this area, it could be integrated into the development of a new power plant site at Kawaihae. It would be necessary to purchase new equipment for installation at a new site to avoid a lengthy interruption of service to this entire area. Engineering, delivery of equipment, and construction would require about one year; therefore, if the new power plant site is available at least one year prior to the highway construction, relocation could be considered should it prove advantageous to route the highway through Kawaihae Substation. Easements would also be necessary for rerouting of the existing power lines to the new site.

As noted on Page 20 and as shown on Plate 3, HELCO plans to build a power plant at Kawaihae. Preliminary investigations indicate that the proposed site is suitable, and there are no other known sites available in the area. Since there are so few sites available which can meet the numerous criteria for a steam electric power plant, any highway alignment must avoid the site currently being investigated. Alternate A-3 is therefore unsatisfactory. It appears that Alternate A-4 could be compatible, providing the detailed design was coordinated with power plant development. Alternates A and A-5 could also be compatible.

Some existing and proposed 69 kv and 12 kv lines could be impacted by any of the alternates; however, these lines can usually be adjusted with no major difficulty and the lines could be accommodated by coordination in the design stage.

Should you wish to discuss the above comments, please contact Mr. John A. Roling, Jr. at Hawaiian Electric Company, Phone 548-3500.

Thank you for requesting our comments on this draft EIS.

Very truly yours,



R. E. Bell
Manager
Environmental Department

JAR, JR:mn

* * * *

Comment: Alternate A-4 could be compatible, providing detailed design be coordinated with the power plant development.

Response: The recommended alignment is similar to Alternate A-4 at the terminus of the highway. Coordination with Hawaiian Electric Company will be effected. (Plate 3.)

APPENDIX D

WRITTEN TESTIMONIES FOR
DESIGN PUBLIC HEARING AND EVALUATIONS

Kawaihae Village Association	D-1
Mauna Kea Beach Hotel	D-2
Department of Hawaiian Home Lands	D-3
Waimea-Kawaihae Community Association	D-4
County of Hawaii Planning Department	D-5
University of Hawaii, College of Tropical Agriculture	D-7
Belt, Collins and Associates, Ltd.	D-8
Palekoki Ranch, Inc.	D-10
F. K. Beamer	D-11
Honokaa Sugar Company	D-13
The Queen's Medical Center	D-14
Olohana Corporation	D-16

Kawaihae Village Association

DEP-E
508

Mr. Munny Lee
Deputy Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

RECEIVED
DEC 11 3 04 PM 1974

Dear Mr. Lee:


This is in regard to the new Waimea-Kawaihae Highway.

On behalf of the Kawaihae Village Association, I would like to endorse the position presented by Mr. Bell at your public hearing in Waimea on December 12, 1973:

1. That the route of the highway at the Kawaihae end follow the existing highway right-of-way from the Puako intersection as far as the boundary of the Puukohola Heiau National Historic Site.
2. The highway go around the mauka side of the historic site and the John Young House.
3. That provision be made for the highway to pass the harbor so that there can be a free flow of traffic between Kohala and Kona.

Very truly yours,

KAWAIHAE VILLAGE ASSOCIATION


Ivy Martines (Mrs.)
President

* * * *

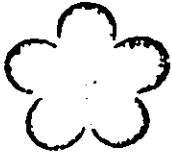
Comment:

The Kawaihae Village Association is in favor of the following:
a) the highway at Kawaihae end follow existing highway right-of-way from Puako intersection as far as the boundary of the historic park, b) the highway go around the mauka side of the historic park and the John Young House and c) the highway bypass the harbor.

Response:

From the intersection of the existing road and Queen Kaahumanu Highway, the phase construction for the recommended alignment will utilize the existing highway right-of-way, skirt the limits of the Puukohola Heiau National Historic Site and bypass John Young's House. The alignment will provide for a bypass of the town of Kawaihae and merge with the existing Kawaihae-Mahukona Road in the vicinity of the proposed electric power plant site.

EXECUTIVE OFFICE



MAUNA KEA
BEACH HOTEL
KAMUELA - HAWAII
96743

RECEIVED

MAR 21 11 50 AM 1974

March 13, 1974

DIRECTOR'S OFFICE

MAR 15 1 29 PM '74

DEPT. OF
TRANSPORTATION

6134

R. Adm. E. Alvey Wright, Ret.
Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

RECEIVED
MAR 29 1 17 PM '74
DESIGN BRANCH
HIGHWAYS DIVISION
DEPT. OF TRANSPORTATION

Dear Admiral Wright:

The route for the new Waimea-Kawaihae Highway is of concern to the Mauna Kea Beach Hotel which has always had an active interest in matters affecting the growth of South Kohala.

Mauna Kea Beach Hotel has many employees who commute daily from North Kohala, and it seems likely that this will remain so for sometime to come. As harbor activity expands, industrial traffic congestion can only aggravate the free movement of private vehicles through the harbor terminal. Therefore, we strongly support an alignment that would by pass Kawaihae Harbor.

Protection of the rare historic features associated with the Puukohola Heiau National Park is essential. We endorse a relocation of the highway outside the park, with suitable access to the County's Spencer Park as well.

Sound planning would dictate the use of as much of the existing road as is practicable. The portion of the Kawaihae road that fronts Makiki Nursery and the electric substation should be incorporated in the new highway.

Aloha and Mahalo,

R. H. Butterfield

Robert H. Butterfield
Vice President
and General Manager

RHB/lcs

* * * *

Comment:

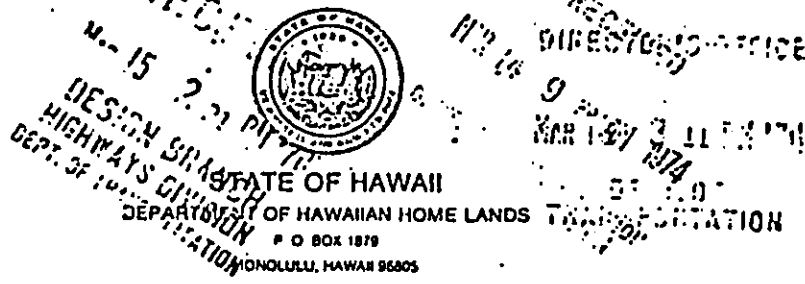
Mauna Kea Beach Hotel supports an alignment that bypasses the Kawaihae Harbor and the designated historic park.

Response:

The recommended alignment for the proposed highway will ultimately bypass the town of Kawaihae and will skirt mauka of the Puukohola Heiau National Historic Site.

MAUI OFFICE
P. O. BOX 125
PAHAIA MAUI 96743

KAUAI OFFICE
P. O. BOX 833
KAUAI HAWAII 96720



PROJECT OFFICES

MAUI OFFICE
P. O. BOX 22
KAHALULU MAUI 96732

MOLOKAI OFFICE
P. O. BOX 198
HOOLEIUA, MOLOKAI 96729

KAUAI OFFICE
P. O. BOX 332
LILUO, KAUAI 96708

March 12, 1974

Mr. E. Alvey Wright
Deputy Director - Operations
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Wright:

Subject: Mud Lane-Waimea-Kawaihae Road Alignment

The Hawaiian Homes Commission at its meeting of February 28, 1974, approved the testimony that was presented at the public hearing at Waimea, Hawaii, on December 12, 1973, relative to the Mud Lane-Waimea-Kawaihae Road Alignment.

Aloha and sincerely,

William G. Among
William G. Among
Commission Chairman

* * * *

Response: No evaluation required.

WAIMEA-KAWAIHAE COMMUNITY ASSOCIATION

P. O. BOX 685

KAMUELA HAWAII

January 16, 1974.

Mr. Munny Lee, Deputy Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii, 96813.

DEPT. OF TRANSPORTATION
HIGHWAYS DIVISION

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DESIGN BRANCH
HIGHWAYS DIVISION
DEPT. OF TRANSPORTATION

Dear Sir:

This will serve to report the testimony of Waimea-Kawaihae Community Association, for which we requested delayed presentation, concerning the design and alignment of the proposed Kamuela-Kawaihae Highway and the proposed Mud Lane to Kamuela Highway.

After much discussion and consideration of a report by our special committee consisting of Messers Onodera(Ch.), Mehau, Morriss, Robt. Lindsey and Wm. Akau, by motion duly adopted the Association took the following action.

"It is the preference and position of Waimea-Kawaihae Community Association that the proposed Kamuela-Kawaihae Highway follow the alignment presented at the Public Hearing held in Waimea on December 12, 1973, from the Mamalahoa Highway by Waimea-Kohala Airport, as far as the proposed junction with Section B of that alignment (near Hapuna Park); that it then connect with the existing Kaahumanu Highway through the Section B alignment; that it end at the junction of Section B with Kaahumanu Highway, all traffic from that point to be routed over Kaahumanu Highway; that the present Kawaihae Road from its intersection with Kaahumanu Highway (with such improvements as are necessary for safety) be continued in use to serve Kawaihae Port and to connect with the Kohala Coastal Route."

There was little discussion of the section of proposed new highway from Mud Lane to Kamuela.

The foregoing appeals to the writer as a constructive action. If the State will follow our desire, a very wasteful expenditure for a long stretch of road which will parallel Kaahumanu Highway will be avoided. Also the problem of people displacement in Kawaihae will not occur, leaving any re-routing at Kawaihae for such time in the future when it may become justified by traffic demands.

Regarding the by-passing of Puu Kohola Historic Site, it is felt that the reputed John Young House Site can be approached by overpass or underpass, unless the Park Service is prepared to assume the cost of rerouting the highway.

Acceptance of our position in this concern will be in the public interest, will be greatly appreciated by this Association and is earnestly solicited.

Yours very truly,

Richard Penhallow, President.

* * * *

Comment:

The Waimea-Kawaihae Community Association favors the recommended alignment up to the intersection of the proposed Hapuna Leg. From this intersection, it is recommended that the Hapuna Leg be constructed to connect to the Queen Kaahumanu Highway. The association also recommends an overpass or an underpass for the section of highway along the Puukohola Heiau National Historic Park unless the State Parks will assume the cost of routing the highway around the historic park.

Response:

As stated in the FEIS and the approved Corridor Report, the immediate need is for an improved roadway to Kawaihae Harbor. The recommended alignment will serve this purpose and at the same time eventually skirt around the Puukohola Heiau National Historic Site.



DIRECTOR'S OFFICE

PLANNING DEPARTMENT

26 AUPUNI STREET - HILO, HAWAII 96720

JAN 10 12 51 PM '74

DEPT. OF TRANSPORTATION
HONOR. H. SUZUKI
Director

SHUNICHI KIMURA
Mayor

COUNTY OF HAWAII

January 8, 1974

Mr. E. Alvey Wright
Director, Department of Transportation
869 Punchbowl St.
Honolulu, Hawaii 96813

Re: Alignment Design - Mudlane-Waimea-Kawaihae Highway
South Kohala, Hawaii

RECEIVED
JAN 15 8 35 AM '74
DESIGN BRANCH
HIGHWAYS DIVISION
DEPT. OF TRANSPORTATION

We welcome this opportunity to comment upon this highway project. The Planning Department is sensitive to aspects of transportation planning, and we realize that this highway will be a major determinant to land use in the region.

The environmental impact statement and presentations made at public hearing on December 12, 1973, assured this Department that much of the environmental considerations have been taken into account. We would, nevertheless, appreciate your consideration of the following.

1. We would like to participate in the determination of the access points along the highway's route. The location of accesses will have unequivocal ramifications on the layout of urban Waimea, as well as have major land use implications.
2. We recommend that the right-of-way from Mudlane Highway to Waimea town conform to the General Plan standard of 300-foot wide for a major highway.
3. For the highway segment just makai of Mamalahoa Highway at Lalamilo, we favor alternate A-1. This alignment will enable the development of presently idle farm lots. Although this alternate is longer, there would be a greater variety of choices for access road locations into the farm lot area. Land for roads which would be developed for circulation within the farm lots creates a lesser impact upon available farm acreage. The other alternate traverses the farm lots and will take away approximately 70.0 acres of land along its right-of-way.
4. Alternate A is our choice of road alignment from STA 200+00 to 400+00. This route should afford the highway traveler with greater visual variety of scenery.

* * * *

- Comment 1. Planning Department would like to participate in the determination of access points along the highway route.
- Response 1. The determination of access points along the proposed highway will be coordinated with the Planning Department, County of Hawaii.
- Comment 2. Recommends that the right-of-way from Mud Lane to Waimea conform to the General Plans standard of 300 feet.
- Response 2. The 200-foot right-of-way for the Mud Lane-Waimea section of the proposed highway is adequate. Widening the right-of-way to 300 feet would entail increased expenditures and the taking of more Hawaiian Homes Land, which cannot be justified.
- Comment 3. Favors Alternate A-1 for the highway segment just makai of Mamalahoa Highway at Lalamilo.
- Response 3. The recommended alignment will follow Alternate A-1 based on the historical significance of the Lalamilo Kuleana and Ranch District. Expansion of farm lots may not be feasible due to discovery of possible historic district, Lalamilo Kuleana and Ranch District.
- Comment 4. Favors Alternate A from Station 200+00 to 400+00.
- Response 4. From Station 200+00 to Station 400+00 the recommended Alignment will follow Alternate A.

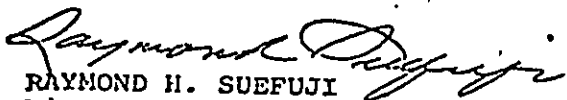
Mr. E. Alvey Wright

-2-

January 8, 1974

5. To prevent the possibility of destruction of historically significant findings along the highway route, we suggest that recommendation 2 to 4 of the Barrera preliminary archaeological report be followed. Further, that in the submittal of the final archaeological report, a location map of all sites be included, and completed before construction begins.
6. Of the alternative alignment for the Kawaihae end of the corridor, we would prefer Alternative A-3. This would offer the least impact upon the National Historic Landmark at Puukohola. Still, we hope that an analysis of the impact on the Landmark be done by the National Advisory Council as is provided by both Section 106 of the National Historic Preservation Act and Section 4F of the Transportation Act, as amended in 1968 by P.L. 89-670.
7. For the future development of the Hapuna Leg, we recommend Alternate B. This alternate would provide a more convenient route for travelers bound for Hapuna Bay Park.

We hope that our comments are in time for your consideration toward finalization of the subject highway. Should new maps be developed or other alternatives proposed, we would appreciate your sending us a copy.


RAYMOND H. SUEFUJI
Director

DS:mn

* * * *

- Comment 5. Suggests that recommendations 2 to 4 of the Barrera preliminary archaeological report be followed.
- Response 5. The recommendations of the final report, the Hawaii Historic Preservation Report 74-1, Archaeological and Historical Surveys of Waimea-Kawaihae Road Corridor, Island of Hawaii, will be followed.
- Comment 6. Prefers Alternate A-3 for the Kawaihae end of the highway. Hopes that an analysis of the impact on the historic park be done by the National Advisory Council.
- Response 6. The recommended alignment (ultimately) will skirt mauka of the Puukohola Heiau National Historic Site. A report in accordance with Section 106 of the National Preservation Act of 1966 have been attached.

UNIVERSITY OF HAWAII

College of Tropical Agriculture
Hawaii Branch Station

DIRECTOR'S OFFICE

Dec-27 11 24 AM '73

DEPT. OF
TRANSPORTATION

MEMORANDUM

TO: State Department of Transportation
Highways Division
Attn: E. Alvey Wright, Director

VIA: Dean C. Peairs Wilson *[Signature]*
College of Tropical Agriculture

FROM: John R. Thompson *[Signature]*
Superintendent

SUBJECT: Underpass adjacent to Hawaiian Homes Road Mud Lane -
Waimoa Section, Project No. F-019-1 (2)

RECEIVED
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DESIGN BRANCH
HIGHWAYS DIVISION
DEPT. OF TRANSPORTATION

I attended the public hearing on the design phase of this roadway on December 12 at Waimoa. From the display maps and in discussion with the engineers present it was determined that the Hawaiian Homes road will have an intersection with the new proposed highway approximately 1/4 mile mauka of the University of Hawaii's Mealani Experiment Station.

This roadway is utilized by several Hawaiian Homes ranchers and by the University of Hawaii for both vehicular traffic and for the driving of cattle. We have another experiment station, Pukalani, which is located approximately 3 miles mauka of the Mealani Station. We must drive our cattle down this Hawaiian Homes road as it is the only access between our two stations.

It would appear that an underpass adjacent to the Hawaiian Homes road intersection could provide a safe crossing for the livestock which must traverse this intersection. We move several hundred head of livestock along this roadway and it would be very hazardous and time consuming to block the highway intersection while these large herds are crossing the highway.

Please give this matter consideration as this roadway is used as a lane for driving cattle both by the University and by Hawaiian Homes ranchers.

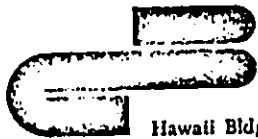
JRT:jpc

cc: Mr. Charles Schuster, Hawaii District Engineer
Dr. Richard N. Bullock, Assistant Director, HAES
Dr. Richard Stanley, Acting Asst. Dean, Hawaii County

* * * *

Comment: The University of Hawaii desires an underpass adjacent to the Hawaiian Homes road intersection.

Response: Due to geometrics of the proposed highway, it is difficult to provide a cattle underpass. However, a side road connection for vehicular and pedestrian traffic will be provided to and from the highway as requested by Hawaiian Home Lands (land owner).



Belt, Collins and Associates, Ltd.
Engineers, Planners and Landscape Architects

Hawaii Bldg., Suite 514, 745 Fort St., Honolulu, Hawaii 90813, Phone 521-3448

December 29, 1973 ^{JAN 3} AM 1974

DEPT. OF TRANSPORTATION
HIGHWAYS DIVISION

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DESIGN BRANCH
HIGHWAYS DIVISION
DEPT. OF TRANSPORTATION

RECEIVED

Mr. Tetsuo Harano
Chief
Highways Division
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Harano:

On behalf of Olohana Corporation, I would like to provide you formally with its position with respect to the alignment of the proposed new Mud Lane-Waimea-Kawaihae Road and provide for your consideration what we believe to be major design considerations for the makai portion of that road.

With respect to the alignments presented at the public hearing in Waimea on December 12, 1973, we have no comments on the Mud Lane-Waimea section. Further, we have no comments on the Kawaihae-Waimea section between the Mamalahoa Highway and the State of Hawaii/Richard Smart boundary (mauka of Hapuna), except to note that we would like the corridor to hit the State/Smart boundary as far mauka as possible. In the long term, Olohana plans development mauka of the Queen Kaahumanu Highway, and the new highway will tend to interfere with that development to a greater and greater extent the lower it falls down the hill on the Smart and Queen's Medical Center lands. In addition, we are concerned that inadequate access is provided to the new facility mauka of the Queen Kaahumanu Highway.

Our major area of concern is the portion of the Kawaihae-Waimea section from the Queen Kaahumanu Highway through Kawaihae. As stated at earlier hearings and meetings with you and your staff, we are opposed to the various alternative alignments proposed for this area and favor selection of another alignment completely. We know that you have studied a wide variety of possible alignments including ones which we have suggested.

Principals: Robert M. Belt, Walter K. Collins, James R. Bell
Associates: William D. Ng, Paul M. Hirota, Donald H. Chung, Raymond F. Cain

December 27, 1973

These studies have been excellent and have helped us in our understanding of the many problems faced in actually designing a new highway in that location.

We have given a great deal of thought to the problem and would like to offer for your review our view of some of the major considerations that we believe should be weighed in the final highway design. We would like to emphasize, however, that we do not want a decision on the alignment in this location postponed because that would simply delay other activities, such as the establishment of the Puu Kohola site boundary, the ability of Olohana to develop its lands, and the location of a new power facility.

We feel that the selected alignment should:

- a) Pass immediately makai of the HELCO substation;
- b) Pass mauka of the John Young housesite; and
- c) Provide for an eventual bypass of the Kawaihae harbor area and related community.

Within this framework, we have prepared for your use a map showing eight final design considerations which we feel are important to implementation of whatever alignment is selected in this area. We hope you will adopt them and ask your consultant to use them as a guide for his final design plan.

Sincerely yours,


James R. Bell

LEH:JRB:gk

cc: Derek Cockle
Jim Faries

Encl.

* * * *

Comment: The selected alignment should: a) pass immediately makai of HELCO substation, b) pass mauka of the John Young House, and c) provide for an eventual bypass of the Kawaihae Harbor area and related community.

Response: The recommended alignment will bypass makai of HELCO substation and skirt mauka of the John Young's House site. The ultimate alignment will bypass Kawaihae.

REC-

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HONOLULU, HAWAII

DIRECTOR'S OFFICE

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December 24, 1973
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DESIGN BRANCH
HIGHWAYS DIVISION
DEPT. OF TRANSPORTATION

RECEIVED

The Honorable E. Alvey Wright
Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Sir:

I have reviewed your projected Hawaii Belt Road, Mudlane-Haimea-Kawaihae Project, Nos. F-019-1(2), F-019-1(6) & S-0270(4).

The realignment of this highway project through my leasehold, Tax Key 6-6-01-1, will disrupt my ranching operations in many ways; however, I shall not stand in the way of progress.

In order to overcome the disruptions, when the highway is under construction, I would like the following: 6 ingresses and exits from the highway, 3 pipeline underpasses and 2 cattle underpasses. They have been designated on the attached map.

The cattle underpasses should be high enough for a horse and possibly a rider to go underneath them. They should be wide enough for at least a pick-up truck to go through. The ingresses and egresses so marked will permit me to maintain my pipelines and fences and take care of cattle in the different areas. The pipeline underpasses need to be installed so that I can move water from the existing pipeline to areas which will be cut off by the new highway. In addition, any existing pipelines which are upset should be replaced in good working condition. The boundaries of the road should be fenced.

Sincerely yours,
Jack Ramos
Jack Ramos - President

Encl.

Comment: Requests 6 ingresses and exits from the highway, 3 pipeline underpasses and 2 cattle underpasses.

Response: There are two locations which will require large (10 feet ±) drainage culverts in the Lalamilo Lands. These culverts may be considered for cattle crossings. The access to the highway must be coordinated with the landowner, Department of Land and Natural Resources (DLNR). If the highway crosses existing water lines, the State Department of Transportation will provide an underpass, otherwise coordination with DLNR must be made.

December 21, 1973

P.O. Box 305
Kamuela, Hawaii 96743

73 03 14
DEPT. OF TRANSPORTATION
HIGHWAY DIVISION
ATTN: Mr. Schuster

Dear Sir:

I am a small rancher and have been one for 23 years. My only income comes from my ranch. It has taken me 23 years at a tremendous expense, hardship and effort to develop 16-20 acres paddocks on my ranch which I now have set up on a rotational pastural program, which is very functional and allows me maximum use of all of my area.

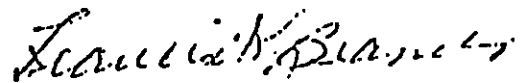
Now comes the State Highway which will divide my already small ranch in half. By running the highway through my ranch, the State will destroy my rotational cattle management program which took me 20 years to build. Destroy my only source of income, take away some 25 acres of precious high rainfall, improved, grazing land, forcing me a small one-man rancher to move cattle over a high-speed State highway, which will now require me to hire cowboys which is impossible to find today. Make ineffective and unavailable the use of my corral and squeeze chute by my divided ranch. In all, virtually, over-night destroy one man's life achievement. This will not only affect myself but my neighbors Mr. Spencer, *Ellis Florn* and *Spencer Schuster*.

It seems to me that the first proposal where-by the highway would begin Waimea side of the lake, cutting thru Hawaiian Homes Commission land and taking a portion of the boundary between the University and myself and continuing along Mr. Spencer's boundary is more reasonable and sensible. It would leave intact the ranch areas instead of bisecting 4 ranches as is now proposed. The University has available to them several areas, one I understand for over 200 acres. Furthermore, they have available equipment, manpower, money. Whereas, Mr. Spencer, *Ellis Florn*, and *Spencer Schuster* and myself are small, individual ranches with very limited area, manpower and funds and I'm sure like myself, their livelihood is very dependent on whatever limited income they receive from their small ranches.

December 21, 1973

In conclusion, I request that the State restudy and make available other alternate routes whereby the small ranches are not destroyed. One idea would be to follow boundary lines as was first proposed.

Sincerely,



F. K. Beamer

* * * *

Comment:

Requests that the State restudy and make available other alternate routes whereby the small ranches are not destroyed.

Response:

Several alignments were presented at the Corridor Public Hearing. Based on comments received and evaluated, this alignment was selected. The Highways Division has been coordinating with the State Department of Hawaiian Home Lands to minimize the impact on the Hawaiian Home Lands. Additional effort will be provided to insure that undue hardship not be created for homesteaders of the Hawaiian Home Lands. The Department of Hawaiian Home Lands and the Commissioners endorsed this alignment.

AGENT
S & CO., LTD.
BOX 3020
U. HAWAII - 96802
ADDRESS: "DRACO"

MANAGER'S OFFICE DIRECTOR'S OFFICE
HONOKAA SUGAR COMPANY

Haina, Hamakua, Hawaii - 96709 DEC 17 2 23 PM '73

December 12, 1973

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DEPT. OF TRANSPORTATION
HONOLULU, HAWAII

Mr. E. Alvey Wright, Director
State of Hawaii Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Sir:

This is to inform you that Honokaa Sugar Company favors the proposed Mudlane-Waimea-Kawaihae road project Nos. F-019-1(2), F-019-1 (6) and S-0270 (4) as proposed by your Department

We feel, however, that a four-lane road is what is really needed and hope that it will not be too long before the full project is implemented.

Yours truly,

HONOKAA SUGAR COMPANY

PS Bouvet

P. E. Bouvet
Manager

PEB:ih

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* * * *

Response: No evaluation required.

The Queen's Medical Center DIRECTOR'S OFFICE

Honolulu, Hawaii

Dec 13 12 55 PM '73

c/o Hawaiian Trust Company, Limited DEPT. OF
P. O. Box 3170 TRANSPORTATION
Honolulu, Hawaii 96802.

December 12, 1973

State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Attention: Mr. E. Alvey Wright
Director

Gentlemen:

We have given much thought and study to the proposed General Plan, Kūd Lane-Waimea-Kawaihae Road, particularly as it affects the makai portion of the highway from approximately station 390+00 to the Harbor.

The grade may be adverse but we feel that if not previously studied an alternate should be considered to the Kawaihae Road taking off near station 390+00 on a sweeping curve to a point near Alternate B. to join the new Queen Kaahumanu Highway.

This suggestion will eliminate the need to acquire private land which removes it from the tax roll. It will further reduce cost by avoiding duplication of the two converging highways, as shown on the State Plan, and will shorten the distance on a drive from Waimea to Kailua.

* * * *

Comment: Suggests that an alternate alignment from Station 390+00 to a point near the Hapuna Leg to connect to the Queen Kaahumanu Highway be considered. Also urges that every consideration be given to adopting the proposed Secondary alignment as recommended Belt Collins and Associates, November 14, 1973.

Response: The recommendations of the Corridor Public Hearing conducted in November 1969, set the need for the Kawaihae leg to be constructed initially.

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DEPT. OF TRANSPORTATION

State of Hawaii
Department of Transportation
December 12, 1973

Page Two

We further urge that every consideration be given to adopting the proposed Secondary Route alignment, dated November 14, 1973, prepared by Belt, Collins and Associates, Ltd. It will preserve the historic sites while at the same time provide better access to the Kawaihae Harbor.

We thank you for the opportunity to make this presentation.

Very truly yours,



K. R. Nurse
Vice President-Secretary

KRN:ew

OLOHANA CORPORATION

Administrative Office

Room 502
745 Fort Street Mall
Honolulu, Hawaii 96813
Telephone 536-4429

Engineering Office
Kawaihae
Kamuela, Hawaii 96743
Telephone 882-1260

DIRECTOR'S OFFICE

DEC 14 8 02 AM '73

DEPT. OF
TRANSPORTATION

December 12, 1973

Highways Division
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Re: Waimea-Kawaihae Highway
Project Nos. F-019-1 (6)
S-0270 (4)

Gentlemen:

The most critical portion of the new alignment for the Waimea-Kawaihae highway is its approach to the Port of Kawaihae, coupled with provision for traffic flow by-passing the harbor.

That section of the highway has grave impact on:

1. Historical features of incalculable value and importance;
2. Passenger mobility between North Kohala and points to the south of the harbor;
3. Maritime, industrial and commercial activities essential to the region's economic welfare; and
4. The visual environment.

It has been conceded that a harbor by-pass will eventually be necessary. To connect the new highway corridor with the existing roadway as it bisects the Puukohola Heiau National Historic Site, as one alternative proposes, would not only violate the very essence of historical preservation, but would compound the costs to relocate the road at a future time.

Another alternative proposed by the Highways Division would follow a mauka course where the highway's visual appearance would be maximized due to elevation and terrain conditions it would encounter. Moreover, that route would eliminate most of the reasonably level terrain available in that area for harbor-support industries.

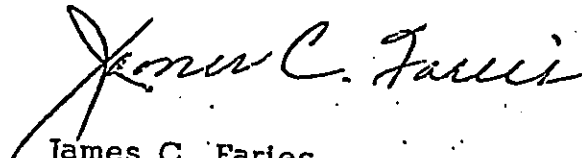
Highways Division
Waimea-Kawaihae Highway
Page Two
December 12, 1973

A preferable alignment which this corporation strongly endorses would serve the historical, environmental, economic and social needs of the Kawaihae area by 1) utilizing the existing right-of-way from the intersection of the Queen Kaahumanu Highway to a point near the southeast boundary of the National Historic Site; 2) by-passing the park in near proximity to its northeast boundary, taking advantage of terrain conditions that would keep the highway at the lowest elevations; and 3) maintaining an even course mauka of existing urban uses to connect with the Mahukona roadway, with provision for egress and ingress to the harbor.

We hereby urge the Highways Division to recommend and adopt an alignment that will incorporate the features enumerated above.

Very truly yours,

OLOHANA CORPORATION


James C. Faries
Vice President

* * * *

Comment:

Recommends an alignment which will incorporate the following: a) utilize the existing right-of-way from the intersection of Queen Kaahumanu Highway to a point near the southeast boundary of the historic park site, b) bypass the historic park in near proximity to the northeast boundary, and 3) travel mauka of existing urban uses to connect with the Mahukona roadway, with provisions for egress and ingress to the harbor.

Response:

From the intersection of the existing road and Queen Kaahumanu Highway, the recommended alignment will utilize the existing right-of-way and skirt mauka of the designated Puukohola Heiau National Historic Park. The ultimate alignment will bypass Kawaihae and merge with the existing Kawaihae-Mahukona Road in the vicinity of the proposed electric power plant site.

APPENDIX E
HIGHLIGHTS OF DESIGN PUBLIC HEARING
AND EVALUATIONS
(KAHILU HALL, DECEMBER 12, 1973)

Gordon K. T. Wong, Hawaiian Home Lands
Yoshito Fukui, Resident of South Kohala
Robert Lindsey, Resident of South Kohala
Alika Cooper, Resident of Puako
James Bell, Belt, Collins and Associates, Ltd.

TESTIMONIES AT PUBLIC HEARING

1. Mr. Gordon K. T. Wong - Hawaiian Home Lands (HHL)

Comment: Mr. Wong reconfirmed the Hawaiian Home Lands Commissioner's support of the project and requested minimum impact for the homesteaders, farmers and ranchers.

Response: The affected properties, fences, paddocks, etc., will be properly relocated, reconstructed or compensated by the State.

Comment: HHL prefers that existing roadway be utilized for the Kawaihae area and none of the homesteaders be affected.

Response: The recommended alignment will utilize the existing road until a bypass for the historic park site and harbor is wanted.

2. Mr. Yoshito Fukui - resident of South Kohala.

Comment: Requested speedy construction of Waimea town bypass road to reduce traffic through Waimea town.

Response: Concurred.

3. Mr. Robert Lindsey - resident of South Kohala.

Comment: Mr. Lindsey is against the highway construction in general; however, if necessary, he prefers the use of the existing road or Alternates A-3 or A-5 because the families residing in Kawaihae would not have to be relocated. He is against Alternate A and A-5 due to impact on families.

Response: If affected, the families will be properly relocated and compensated for.

Comment: He feels that more accidents will occur with the new highway due to few turns and few bumps.

Response: One of the main purposes for construction of the new highway is to improve on the safety features which is lacking on the existing roadway. The highway design alone cannot control the human factor which cause individuals to exceed the design parameters of the highway; however, wider pavement with shoulders and escape ramps will improve safety. Accident statistics for existing highway are provided in Appendix C.

Comment: Mr. Lindsey questions improved economic viability due to new highway (i.e. sugar industry along Hamakua).

Response: Written testimony from P.E. Bouvet of Honokaa Sugar Company endorses new highway facility (Appendix D).

4. Mr. Alike Cooper - resident of Puako.

Comment: Inquiry made that no significant historic sites were found and questions what is significant.

Response: We stated, "No features of scientifically significant importance were found within the proposed highway alignment corridor." The archaeologist defines "scientifically important" as "the sites which possess the potential for expanding scientific knowledge and the site excavation cannot be performed with currently available techniques without risking the loss of data." Several historically important sites recommended by the historian have been recognized. The recommended alignment has been altered to avoid this conflict.

Comment: Questions the ability of Bernice P. Bishop Museum.

Response: The Bernice P. Bishop Museum is the most recognized authority of Hawaiian and Pacific archaeology and anthropology.

5. Mr. James Bell - Belt, Collins, and Associates.

Comment: Opposed to basic corridor, although accepting it at this time.

Response: No comment.

Comment: Where the highway hits State-Parker Ranch boundary, prefer most mauka alignment.

Response: The recommended alignment utilizes a more mauka corridor.

Comment: Corridor should pass immediately makai of Hilo Electric Light Company (HELCO) substation, pass mauka of John Young House, provide for an eventual bypass of the Kawaihae Harbor.

Response: Phase construction included in the new alignment will ultimately satisfy all of these points.

Comment: Minimize the impact of private lands for development.

Response: No comment.

Comment: Provide safe access to National Park and to Spencer Park.

Response: Access opening will be provided for Puukohola Heiau National Historic Site and Spencer Park.

Comment: Depress highway in the vicinity of park site.

Response: The preliminary design indicates that the roadway profile must be in fill in the park vicinity to accommodate the large drainage structures required at Makeahua Gulch; however, this suggestion will be considered in the final design.

Comment: Bypass Kawaihae community and provide good access to harbor complex.

Response: Phase construction of new alignment will accomplish this.

Comment: Limit impact on possible HELCO Power site.

Response: R. E. Bell of Hawaiian Electric has indicated in his written comments that Alternate A-4 is compatible provided detailed design was coordinated with power plant development. The terminus of the new alignment is similar to Alternate A-4.

APPENDIX F

SUMMARY OF ARCHAEOLOGICAL AND HISTORICAL
SURVEYS OF THE WAIMEA TO KAWAIHAE ROAD CORRIDOR
WITH EXCERPTS FROM HAWAII HISTORIC PRESERVATION REPORT 74-1

Part I - Archaeological Survey F-1 - F-26

Part II - Historical Survey F-27 - F-31

PART I - ARCHAEOLOGICAL SURVEY

INTRODUCTION

PURPOSE OF THE SURVEY

This report presents the results of an archaeological survey of the approximately 2000-ft-wide highway corridor of the proposed Waimea to Kawaihae Road (Fig. 1). The purpose of this research was to locate and record the archaeological sites within the corridor and to make recommendations regarding the sites that should be subjected to systematic excavation and/or intensive mapping during subsequent research. The methodology of the survey was determined by the goals of the project as set forth in the Bishop Museum's research proposal--to retrieve site information that would bear upon two theoretical approaches, the study of cultural ecology and the study of settlement patterns. An attempt was made to gather information that might support the hypotheses, stated in the proposal, regarding extent of agricultural activity, size of indigenous population, and relationship of intensity of agricultural activity to population density and distance from the ocean.

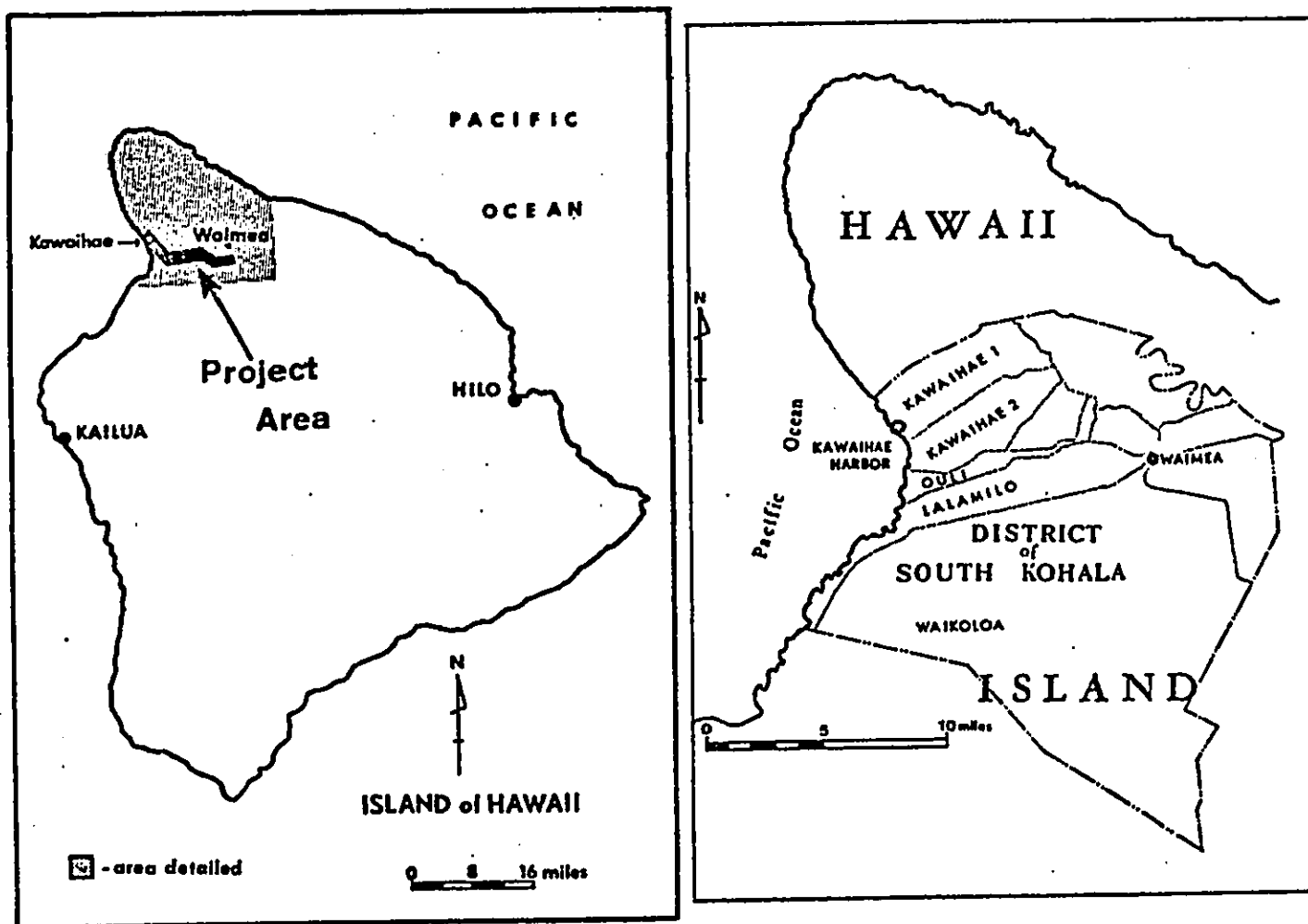


Fig. 1. LOCATION MAPS FOR THE SURVEY AREA, SHOWING ROAD CORRIDOR AND AHUPUA'A BOUNDARIES.

FIELD METHODS

The Road Corridor was subjected to Phase I (full-scale) survey, with the exception of an area in the mid-section of the corridor. This section was designated for a walk-through survey by a staff archaeologist of the Department of Land and Natural Resources, who was unable to discern any sites in that area during an aerial overflight of the region.

A field director and three field assistants carried out the survey. The survey technique utilized varied according to the circumstances of the ground cover and the density of sites. In the ahupua'a (land divisions) of Ouli and lower Lalamilo it was possible for the crew to disperse and cover relatively large expanses of territory quite rapidly. In the areas of higher site concentration, however, especially in the upper Lalamilo area, it was necessary to assign each recording team to a specific area--delineated by readily observable features such as stone walls, streambeds, or ridges--for systematic recording of individual sites.

At the beginning of the survey we assigned site numbers to individual features. However, the density of sites in some areas, particularly upper Lalamilo, necessitated establishing an arbitrary basis for assigning of site numbers. Thus all features that would fit on one recording form were designated as one site; then a new site form was begun for nearby features. This approach facilitated mapping; if each feature in Lalamilo had been given a separate number the resulting map would have been so crowded with numbers as to be impossible to read.

SAMPLING ERROR

Certain problems arise concerning interpretations of site distribution. Since the survey area does not encompass the total area of any single ahupua'a but rather crosses portions of five ahupua'a (Lalamilo, Waikoloa, Ouli, and Kawaihae 1 and 2), our data does not present a picture of the relationships between inland and coastal portions of a single land unit. Thus, our interpretations are presented so as to avoid a composite picture of inland-coastal relationships within the area crossed by the Road Corridor. This type of analysis would be misleading, since it is clear that prehistoric utilization of adjacent land units may have differed quite radically--for example, the upper Lalamilo area contains nearly 3,500 features, while Waikoloa, separated from Lalamilo by a stone wall, contains only 240 features. It is possible that this discrepancy in present site distribution may be due to destruction of sites by military use or bulldozing in the Waikoloa area; these factors remain to be investigated.

Our interpretations are also affected by the fact that the orientation of the survey area differed in the Waimea and Kawaihae sections of the survey area. At Kawaihae, the Road Corridor runs at right angles to the inland-coastal axis of Kawaihae 1 and 2, producing information about sites in a very

limited zone. In the Waimea section, the survey produced site data from a strip that runs parallel to the inland-coastal axes of the land units.

Considering all of the above qualifications, the inland and coastal sections of the survey area should be evaluated as two distinct sources of information--the data presented in this report are relevant to coastal uses of the Kawaihae area and inland uses of a particular portion of the Waimea region.

ORGANIZATION OF REPORT

Because of the great number of features located (nearly 5,000), descriptions of the majority of the sites are not included in this report. (Individual site record forms are on file at the Bishop Museum.) The sites have been divided into gross categories of remains, and are summarized by ahupua'a and feature type in Table 1. It should be noted that, although the category labels assigned are in some cases functional terms, no such claim of function is made for all of the features included therein. For example, the term "shelter" is used to avoid the cumbersomeness of detailing all of the possible configurations of walls (C-shapes, U-shapes, L-shapes, and so on); it seems most likely, at this stage of the research, that these structures functioned as shelters, but as yet we do not have definite evidence for this interpretation.

WALK-THROUGH SURVEY

The walk-through survey in the mid-section of the corridor revealed a gradual diminution in the number and density of sites seaward of Waimea. These sites were most dense in the area immediately adjacent to the point at which the full-scale survey stopped below Waimea, and gradually became less frequent as we moved toward the ocean.

It is estimated that a total of three weeks with three assistants under the supervision of a field director will be sufficient to complete the full-scale survey of the Waimea to Kawaihae Corridor. There is no reason to suspect that this survey will reveal sites of a nature radically different from those located in the Waimea area. Therefore, it would be quite acceptable if the Department of Transportation should decide to have this survey carried out concurrent with salvage excavations of the final highway alignment.

SUMMARY

The framework within which the following comments are made is a scientific one. That is, the sites are not judged in terms of their importance to residents living in the vicinity today, because time was insufficient to pursue this line of inquiry. Neither are they judged from an aesthetic viewpoint, as it is not within the realm of an archaeologist's professional competence to make decisions of that sort. Comments are made in regard to the following criteria:

1. Do the sites possess the potential for expanding scientific knowledge regarding the past use, both historic and prehistoric, of the area encompassed by the right-of-way of the corridor, or of any other aspects of general anthropological interest?

2. Are any of the sites of such a nature that their excavation by professional archaeologists must be delayed until more refined techniques of investigation have been developed, so as not to risk the loss of data contained within them?

Insofar as the first criterion is concerned, the sites in the right-of-way of the Waimea-Kawaihae Corridor possess the potential for the investigation of numerous anthropological questions, both of local interest and of more general anthropological interest. This point has been made sufficiently clear in the main text; therefore these potentials are only summarized below.

1. The analysis of the spatial and temporal distribution of the sites could answer questions regarding land-use patterns, both with regard to geographical as well as social frameworks.

2. Another problem worth investigating concerns the 'ohana system, best known from the literature in Handy and Pukui's Polynesian Family System in Kau. Of interest in this regard was the discovery of possible fishing sinkers in upland sites. This raises questions as to the extent to which marine resources were obtained through traditional gift exchange, and the extent to which individuals from the inland areas went themselves to the coast to procure their own seafood.

3. Interesting questions have been raised by the data with regard to agricultural practices. Terracing was rare in both the seaward and the inland areas. Sites of possible agricultural function in the Lalamilo area consist of numerous stone mounds and shelters of such small dimensions that they would have been inadequate as habitations.

4. Questions regarding social organization could be asked, with answers sought in the excavation of those sites that have tentatively been identified as community-oriented. The spatial and temporal distribution

of these sites, studied in relation to the spatial and temporal distribution of the other sites (habitation, agricultural, and so on) would be a source of such information.

As for the second criterion, no sites were found within the survey area that are of such a nature that their excavation should be delayed pending the development of more refined excavation or analytical techniques.

In addition to the archaeological survey of the highway corridor, a historical survey was conducted. While the historical survey may have only marginal relevance to the archaeology of the highway corridor, it offers some clues with value for the archaeologist in making interpretations about any sites in the Waimea and Kawaihae areas. The main purposes of the historical survey are to catalogue the major historic activities that were carried out in the Waimea and Kawaihae area and to identify some individuals and organizations connected to them.

In summary, it may be said that those areas at either end of the highway corridor demonstrate a considerable degree of prehistoric exploitation. The inland area, in the vicinity of Waimea, shows evidence of agricultural as well as habitational utilization, while the coastal area near Kawaihae seems to have been the locus primarily of residential features that were probably associated with agricultural field systems located in the uplands of the Kohala Mountains. No evidence of extensive agricultural field systems such as were noted by Ellis [1963:288-289] in 1823 were found, but the field systems that are visible in the Waimea area and above Kawaihae are not very far distant from the limits of our survey area, and should be taken into account when analyzing the remains in the highway right-of-way.

Evidence for a direct correlation between the presence of nucleated habitation areas and the immediate presence of agricultural systems was minimal; a shifting pattern of agricultural exploitation involving separate geographical areas seems to have been more the case. Also, there does not appear to be any direct correlation between proximity to, or distance from, the ocean and the nature of residential patterning. It will be necessary to devise a series of working hypotheses for excavation of the sites which takes into account a wide range of climatological, geographical, and ecological factors, and to take into consideration the subtle interrelationships of these three factors when interpreting the data.

RECOMMENDATIONS

On the basis of the survey investigations reported above, there is no evidence to indicate that the proposed Waimea-Kawaihae Highway would endanger any archaeological or historical sites of such value that they could not be salvaged using present excavation and analytical techniques. Our specific recommendations are to:

1. Conduct an archaeological salvage program to retrieve maximum data from those sites that will be destroyed by the construction of the new highway, borrow pits, haulage roads, equipment storage, and maintenance areas, or any other destructive activity associated with the construction of the highway.

2. Subject that portion of the walk-through-survey area through which the highway will be built to a complete archaeological survey, and salvage any sites of importance located therein through excavation.

3. Conduct further historical study of land records, legendary materials, and any other written or remembered data concerning the survey area, in conjunction with the archaeological program.

4. Arrange with Department of Health, State of Hawaii, for the proper disposition of any human skeletal remains uncovered during the course of either the salvage excavations or the construction of the highway.

It is also urged that local residents be consulted to determine whether there might be reasons other than scientific for preserving sites within the highway right-of-way. This recommendation applies primarily to sites that are, or might be, burial areas, religious sites, or places of legendary or traditional interest to the descendants of the people who built and used them. The importance of this sort of consultation must not be overlooked.

TABLE 1. DISTRIBUTION OF FEATURES BY TYPE AND AHUPUA 'A

FEATURE TYPE	AHUPUA 'A.					TOTALS
	Kawaihae 1	Kawaihae 2	Lower Lalamilo	Upper Lalamilo	Waikoloa	
Mounds	56	49	5	1807	50	1967
Shelters	390	153	--	881	107	1531
Community-Oriented Structures	2	7	--	8	--	17
Possible Burials	27	8	--	51	17	103
Terraces	12	20	--	74	17	123
Possible Trails	1	--	--	123	15	139
Animal Enclosures	4	6	--	22	1	33
Walls	12	51	--	484	23	570
High, Round Features	2	1	--	--	--	3
Wood-Roofed Features	--	--	--	3	--	3
Roads	1	3	--	--	1	5
Serpentine Features	5	--	--	--	--	5
Possible <i>Auwai</i>	--	2	--	--	--	2
Shelter Cave	1	--	--	--	--	1
Petroglyph	--	1	--	--	--	1
Cemetery	1	--	--	--	--	1
Midden Area	1	--	1	--	--	2
Recent Agricultural Features	2	--	--	--	--	2
Platforms	7	4	--	5	1	17
Storage Feature/ Well	--	1	--	--	--	1
Firepits	6	--	--	7	5	18
Stone-Lined Depressions	2	--	--	8	--	10
Rock-Filled Depressions	--	--	--	5	1	6
Burial	1	--	--	--	--	1
Midden Deposits Present	43	16	--	17	4	80
TOTALS	533	306	6	3478	238	4561

KEY to SYMBOLS:

- * - SURFACE ARTIFACTS
- - U.S.G.S. ELEVATIONS

Contour Interval: 50 feet

Index to sheets

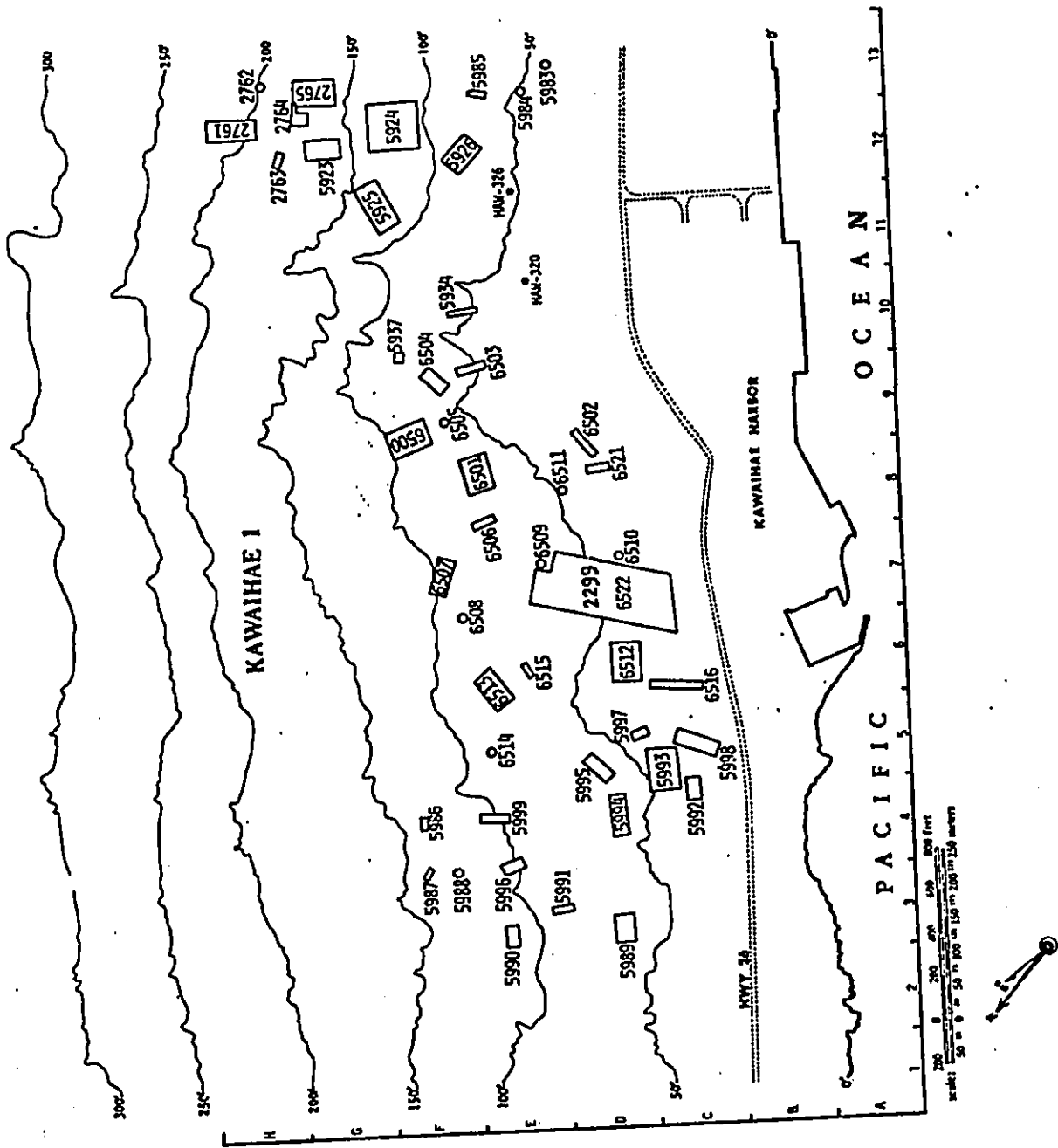


Fig. 2. LOCATION OF SITES IN KAWAIHAE I. (Contours show elevation above mean sea level.)

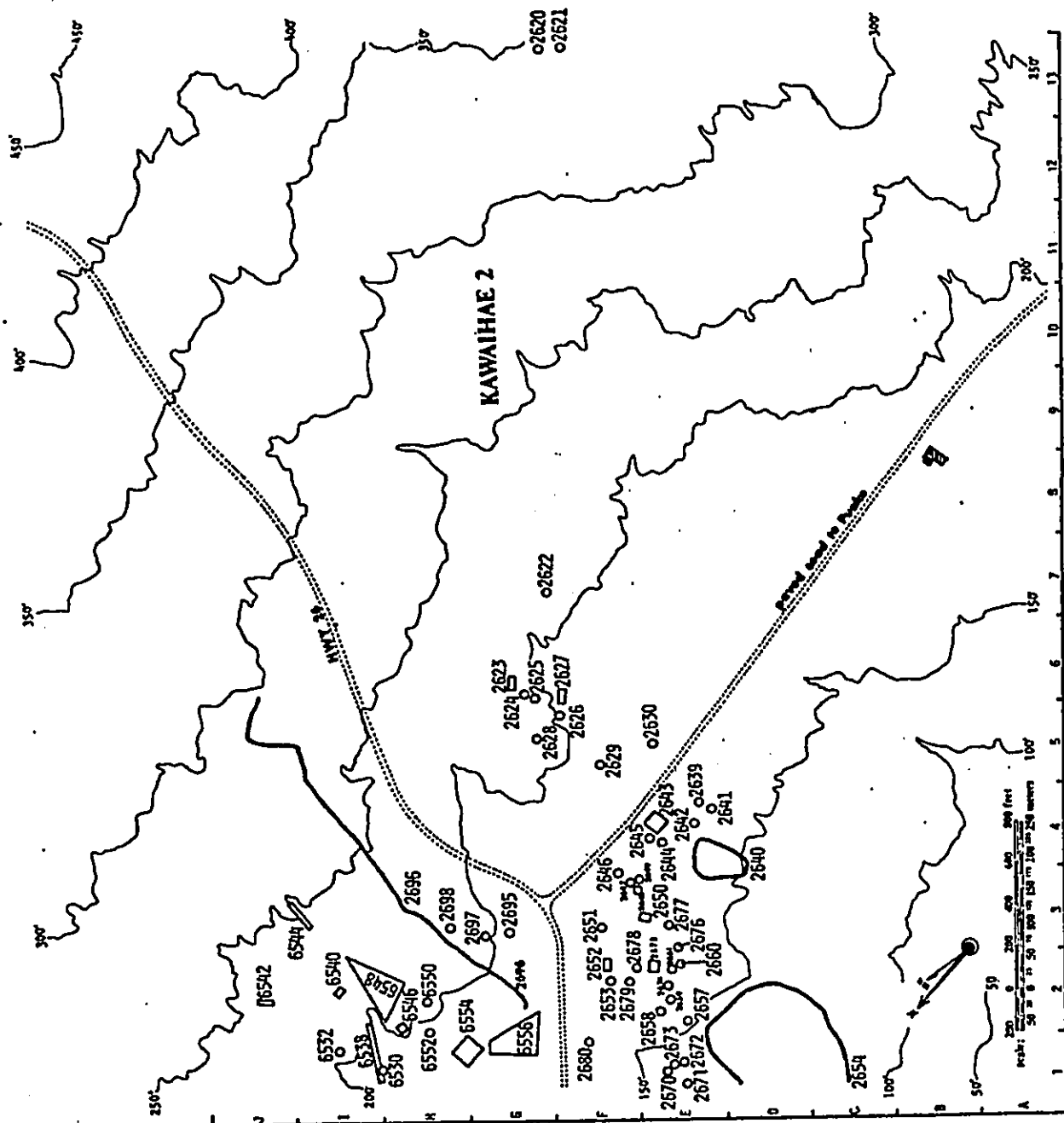


Fig. 4. LOCATION OF SITES IN KAWAIIHAE 2. (Contours show elevation above mean sea level.)

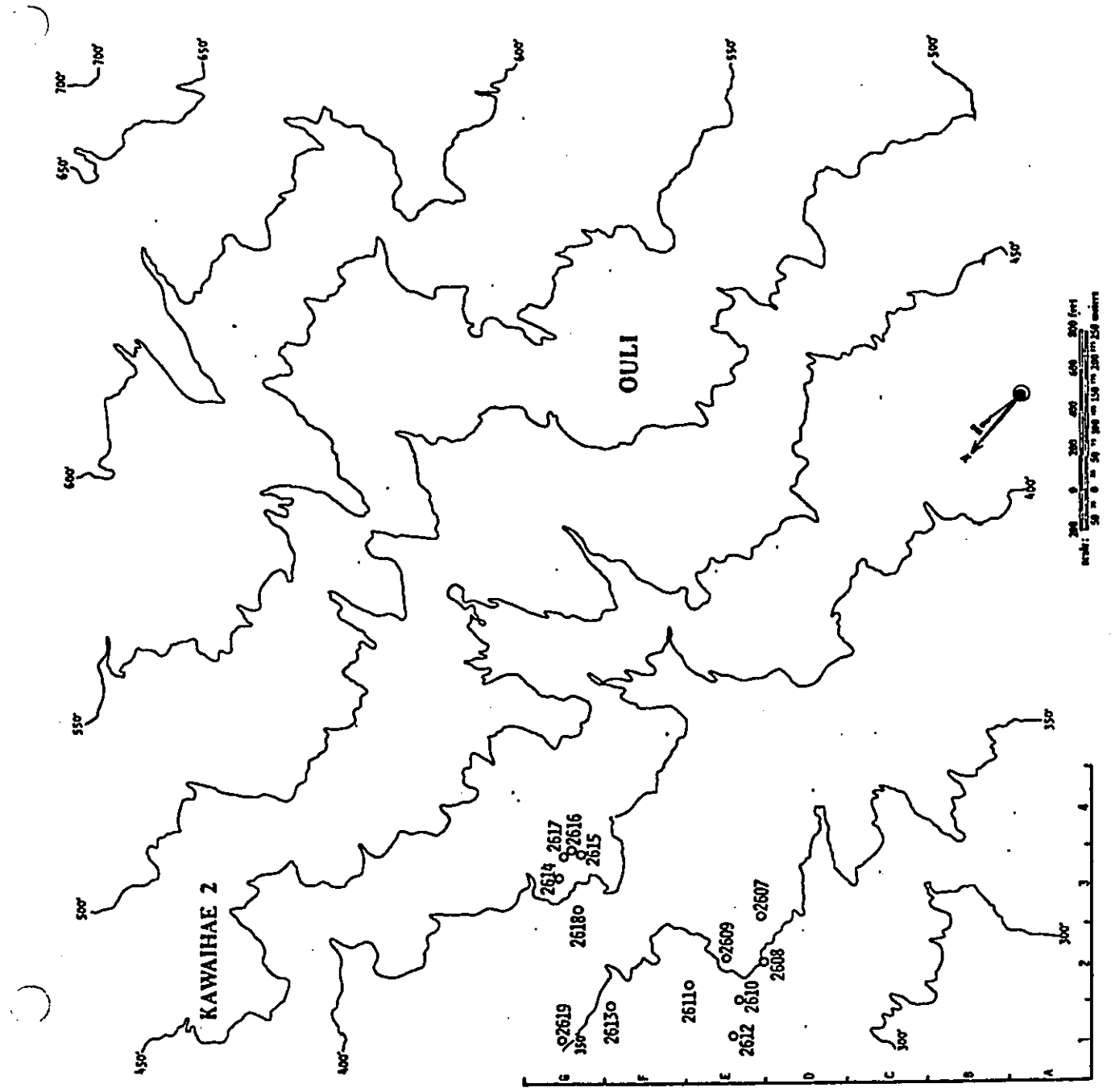


Fig. 5. LOCATION OF SITES IN KAWAIIHAE 2. (Contours show elevation above mean sea level.)

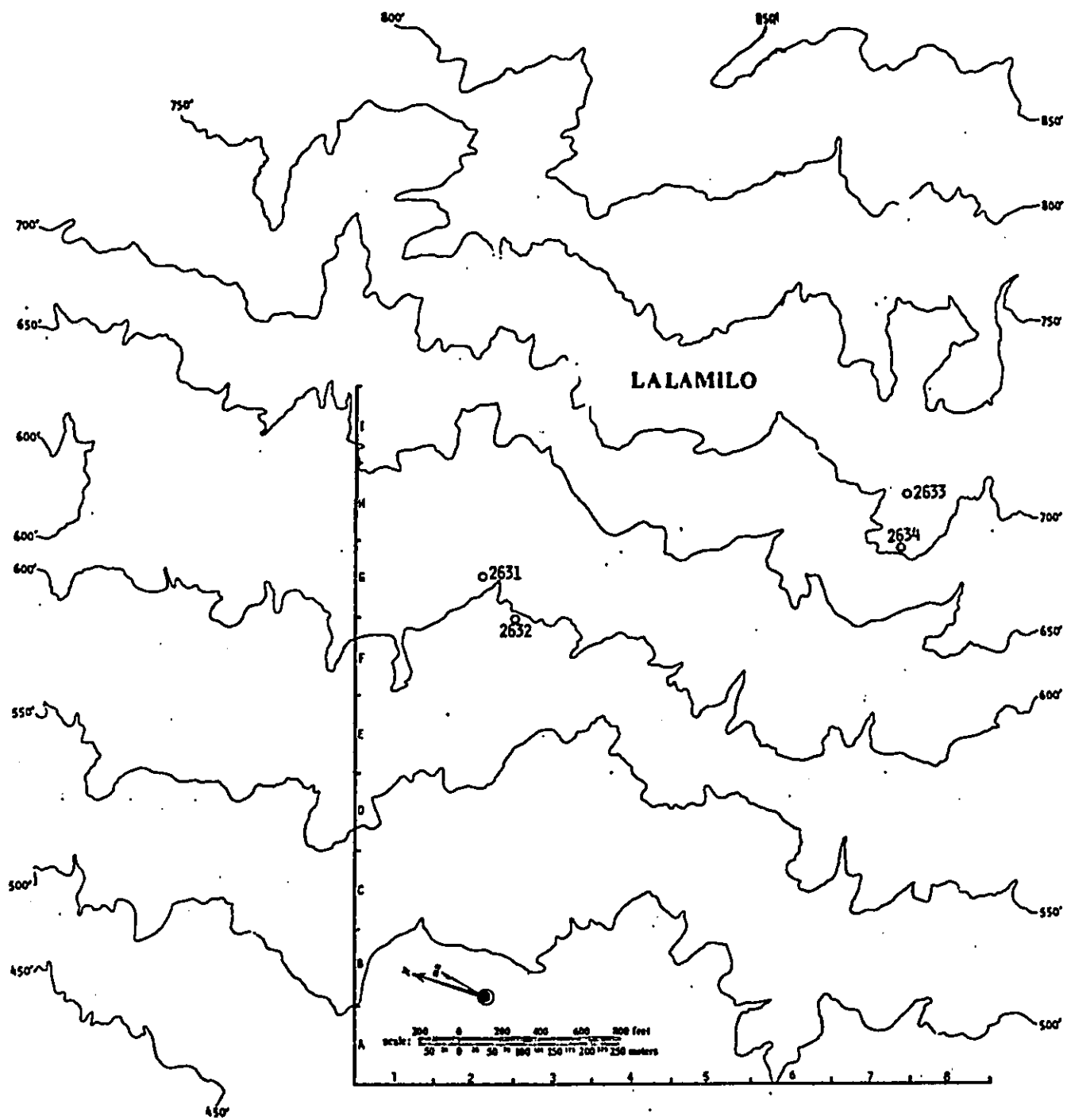


Fig. 6. LOCATION OF SITES IN LOWER LALAMILO. (Contours show elevation above mean sea level.)

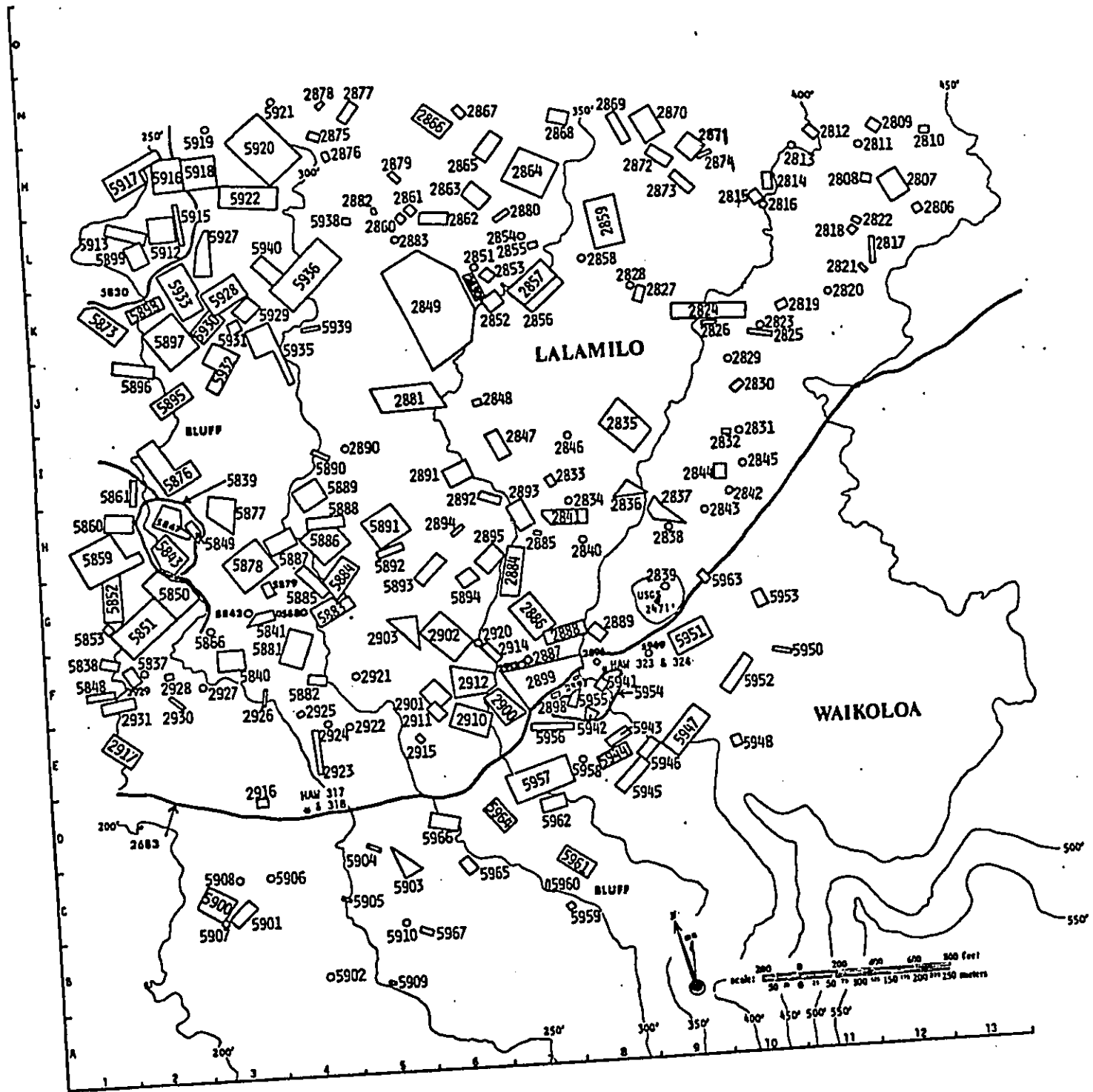


Fig. 8. LOCATION OF SITES IN UPPER LALAMILO & UPPER WAIKOLOA.
 (Contour interval = 50 ft.)

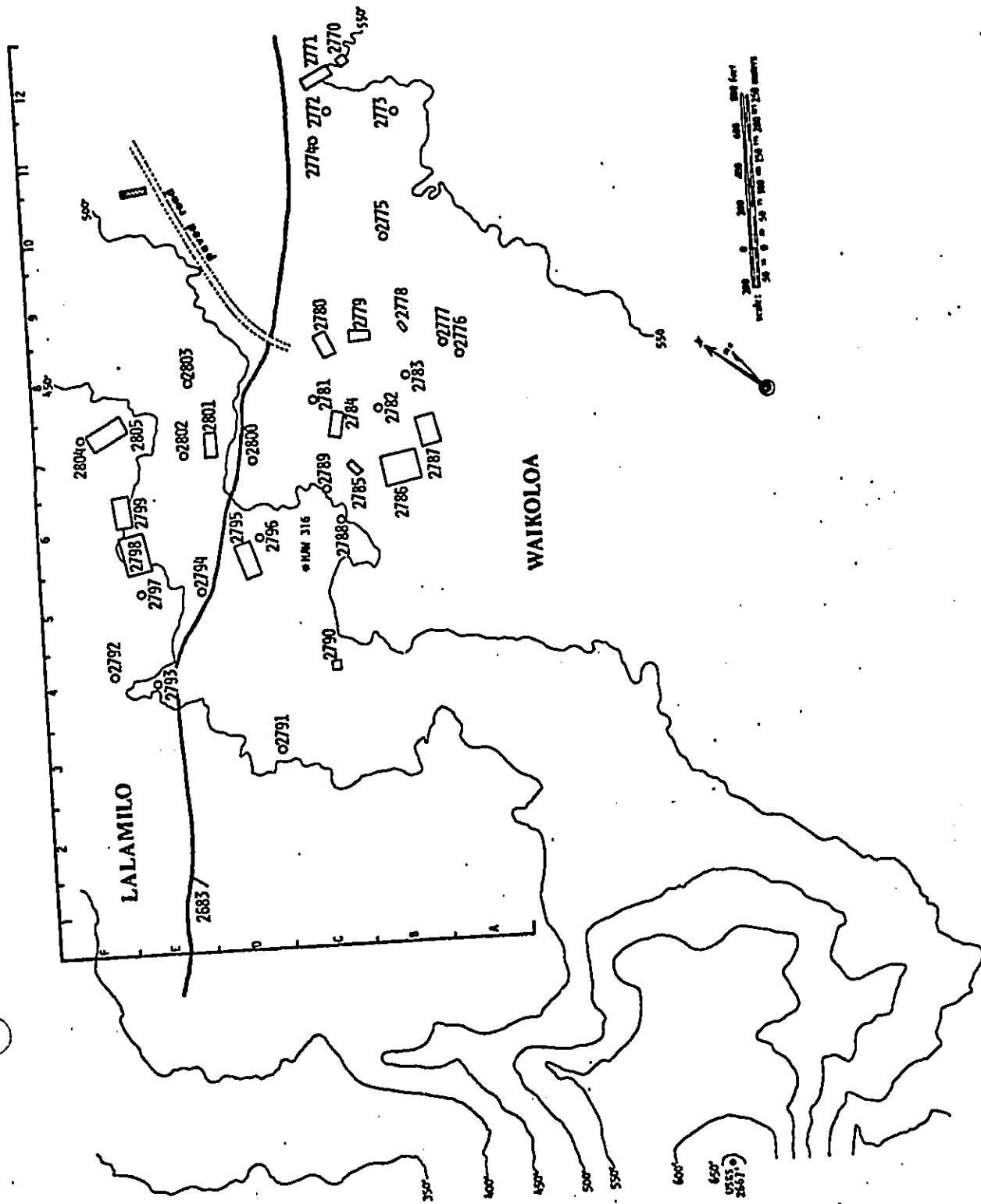


Fig. 9. LOCATION OF SITES IN UPPER LALAMILO & UPPER WAIKOLOA. (Contour interval = 50 ft.)

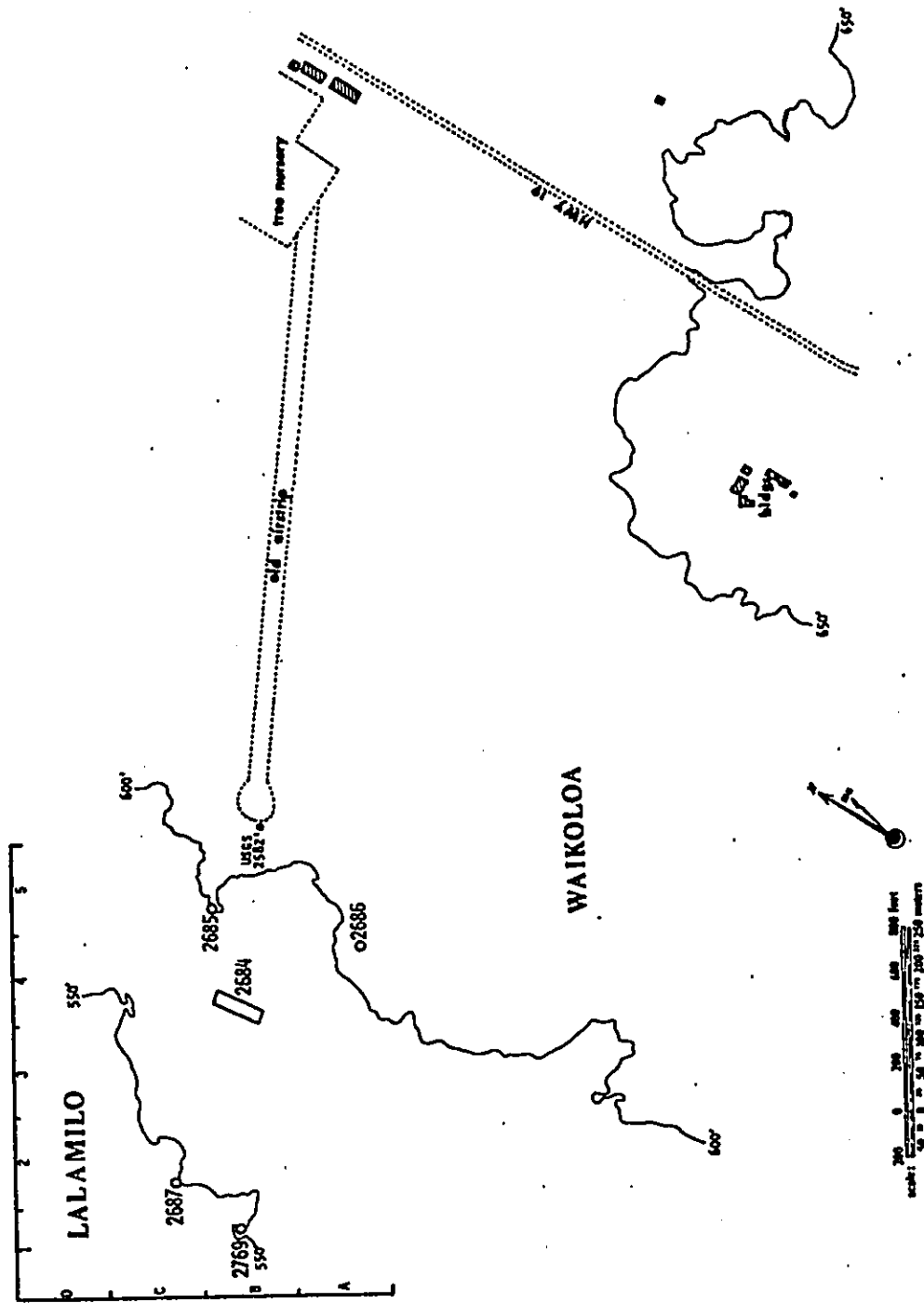


Fig. 10. LOCATION OF SITES IN UPPER LALAMILO & UPPER WAIKOLOA. (Contour interval = 50 ft.)

APPENDIX A. DISTRIBUTION OF FEATURES BY SITE

Site No.	Mounds	Shelters	Community-Oriented Structures	Possible Burials	Terraces	Possible Trails	Animal Enclosures	Walls	High, Round Features	Wood-Roofed Features	Roads	Serpentine Features	Possible Awaof	Shelter Cave	Petroglyph	Cemetery	Hidden Area	Recent Agricultural features	Platforms	Storage Feature/Well	Firepits	Stone-Lined Depressions	Rock-Filled Depressions	Burial	Midden Present	Artifacts Present	Historic Artifacts Present	TOTALS
05-2607	2	5																										
2608		1																										
2609	1																											
2610					1																							
2611	1																											
2612		1																										
2613	3																											
2614				2																								
2615	2																											
2616	1																											
2617								1																				
2618		1																										
2619		1																										
2620	2																											
2621	4																											
2622																				1								
2623	1	1																										
2624		1																							X			
2625		1																							X			
2626			1																						X			
2627		2																							X			
2628	1																								X			
2629		3																							X			
2630		1																							X			
2631																	1											
2632	2																											
11-2633	2																											
11-2634	1																											
05-2635		1																										
2636								2																				
2637	1			3				5																	X		X	9
2638				4																								
2639	1																											
2640						1																						
2641	1																								X			
2642	1																											
2643	1	1																										
2644	1																											
2645	1																											
2646	1																											
2647	1																											
2648		1																										
2649	1																											
2650	4																											
2651		1																										
2652	1	1						1																				
2653	1																											
2654						1																					X	
2655	1																											
2656	1	1						1																				
2657	1																											
2658		1						1																				
2659		1																										
2660	1	1																										
2661		1																										
2662												1																
2663													1															
2664		1																										
2665								1																				
2666		1																										
2667								1																				
2668		1				1																						
2669								1																				
2670	1																											
2671	1																											
2672								1																			X	
2673		1																										
2674	1	2																										
2675	3	1																										

Appendix A continued

Site No.	Mounds	Shelters	Community-Oriented Structures	Possible Burials	Terraces	Possible Trails	Animal Enclosures	Walls	High, Round Features	Wood-Roofed Features	Roads	Serpentine Features	Possible Auroch	Shelter Cave	Petroglyph	Cemetery	Hidden Area	Recent Agricultural Features	Platforms	Storage Feature/Well	Firepits	Stone-Lined Depressions	Rock-filled Depressions	Burial	Hidden Present	Artifacts Present	Historic Artifacts Present	TOTALS	
05-2676	3							1																					
2677								2																					
2678	2																												
2679		1																											
2680	1																												
2681		1																								X			
2682		2																											
06-2683								1																					
2684						1																							
2685	1																												
2686	1																												
2687																				1									
05-2688		1																								X			
2689	1																												
2690		2																											
2691																													
2692	1							1																					
2693		1						1																					
2694		1						1																					
2695		1						1																					
2696								1																					
2697		1																											
2698		2																											
2699																													
2700	2	24																											
2701	1																												
2702	1	6																											
2703			1																										
2704	9	6						9																					
2705		1																											
2706			1																										
2707		2																											
2708		1																											
2709		1																											
2710		1																											
2711																													
2712																													
2713		1																											
2714		1																											
2715		1																											
2716		1																											
2717	1																												
2718			1																										
2719		2																											
2720		1																											
2721																													
2722	1	5																											
2723																													
2724																													
2725		3																											
2726		1																											
2727																													
2728		1																											
2729																													
2730																													
2731		1																											
2732																													
2733																													
2734	2	3																											
2735		1																											
2736																													
2737		6																											
2738		12																											
2739		6																											
2740		2																											
2741	1																												
2742		1																											
2743	1	1																											
2744		3																											
2745																													

Appendix A continued

Site No.	Mounds	Shelters	Community-Oriented Structures	Possible Burials	Terraces	Possible Trails	Animal Enclosures	Walls	High, Round Features	Wood-Roofed Features	Roads	Serpentine Features	Possible Aisles	Shelter Cave	Petroglyph	Cemetery	Hidden Area	Recent Agricultural Features	Platforms	Storage Feature/Well	Firepits	Stone-Lined Depressions	Rock-Filled Depressions	Burial	Hidden Present	Artifacts Present	Historic Artifacts Present	TOTALS	
05-2746		1																											
2747								1																				1	
2748	1			1																								2	
2749	1	2																										3	
2750	3	22																										25	
2751		16																							X			16	
2752		8																										8	
2753		14																										14	
2754	1	6																							X	X	X	16	
2755		6																										6	
2756		2																							X			2	
2757	1																											1	
2758	2	13			2																							17	
2759		6			1																				X			7	
2760		5																										5	
2761		10																			2				X			12	
2762		1																										1	
2763																													
2764		6																					2					8	
2765	2	15																							X			17	
2766	2	9																										11	
2767		13			3																							16	
2768		4																							X			5	
06-2769	1											1																2	
2770		3																										3	
2771	1	3						1																				4	
2772																					2				X	X		4	
2773	1																											1	
2774	1																											1	
2775				1																								1	
2776	1	2																										3	
2777	1	1																										2	
2778		1																										1	
2779						7																						7	
2780					5																					X		5	
2781		1																										1	
2782		1																										1	
2783		1																										1	
2784						1																						1	
2785	1	2																										3	
2786		1																										1	
2787	1	5																										6	
2788		1																										1	
2789		1																										1	
2790		1																										1	
2791	1																				1							2	
2792	1	1																										2	
2793		1																										1	
2794	1	1																										2	
2795	1	1																										2	
2796		1																										1	
2797	1																											1	
2798	1					9																						10	
2799	4					3																						7	
2800		1																										1	
2801	3	2																										5	
2802	2																											2	
2803	1																											1	
2804																												1	
2805	9							2																				11	
2806		1																										1	
2807	1	3																			1							4	
2808		1																										1	
2809	1	6																										7	
2810	1	1																										2	
2811	4																											4	
2812	8																											8	
2813	1																											1	
2814		4																										4	
2815																										X			1

Appendix A continued

Site No.	Mounds	Shelters	Community-Oriented Structures	Possible Burials	Terraces	Possible Trails	Animal Enclosures	Walls	High, Round Features	Wood-Roofed Features	Roads	Serpentine Features	Possible Airst	Shelter Cave	Petroglyph	Cemetery	Hidden Area	Recent Agricultural Features	Platforms	Storage Feature/Wall	Firepits	Stone-Lined Depressions	Rock-filled Depressions	Burial	Hidden Present	Artifacts Present	Historic Artifacts Present	TOTALS
06-2816				1																								
2817	4				1																							
2818									3																			
2819	8								1																			
2820																												
2821						1																						
2822	2								6																			
2823		1																										
2824							1																					
2825							1																					
2826							1																		X	X		
2827	2	1																										
2828	1	1							1																			
2829	4	1																										
2830						1																						
2831	1																											
2832	1	2																										
2833	4	5							2																			
2834		1																										
2835	23	19		1	2	1		13																				
2836	2							2																				
2837								1																				
2838	1																											
2839				1							1																	
2840																												
2841	2	23						9																				
2842		1																		1								
2843									4																			
2844	6																											
2845	3																											
2846	1								1																			
2847		6							1																			
2848	1	2																					6			X		
2849	1	57	1	1				17																				
2850	1	9					1																					
2851		1																										
2852		5					1																					
2853	5	2																		1								
2854		2																										
2855		2																										
2856	1	2					3																					
2857		5					5		4																			
2858		4																										
2859	11	2					2		5																			
2860								1																				
2861		4							4																			
2862	8	3																										
2863	6	1					1		1																			
2864									1																			
2865	7						1																					
2866	1	1					1		1																			
2867	1	1																										
2868	5	2					1																					
2869									1																			
2870																												
2871	1	2							1																			
2872	6	7																										
2873	5	5							1																			
2874	5	1																										
2875	1	1					1																					
2876	2	1																										
2877		4						1																				
2878	3																											
2879	3																				1		1					
2880		2																										
2881	1	11																										
2882	2																											
2883																												
2884	6			1			3		1																			
2885	1	1																										

Appendix A continued

Site No.	Mounds	Shelters	Community-Oriented Structures	Possible Burials	Terraces	Possible Trails	Animal Enclosures	Walls	High, Round Features	Wood-Koofed Features	Roads	Serpentine Features	Possible A-Loof	Shelter Cave	Petroglyph	Cemetery	Hidden Area	Recent Agricultural Features	Platforms	Storage Feature/Well	Firepits	Stone-Lined Depressions	Rock-Filled Depressions	Burial	Hidden Present	Artifacts Present	Historic Artifacts Present	TOTAL:
06-2886	8	2		1	1			4																			14	
2887	2	2						1																				5
2888	3	1		1	1			1																				6
2889	2	1			1																							4
2890	1	1																										2
2891	2	1																							X			4
2892	1	2			1																							3
2893	1	3			2			2																				7
2894	1	2																					1					3
2895	6																								X	X		2
2896	1	1																										2
2897	1	1																										2
2898	2																								X	X		3
2899	1	3						7																				11
2900	15	5						5																				25
2901	3	2			1			2			1																	11
2902	18	10			1			2																	X			31
2903	1	5			3																							9
2904	1	1						1																				3
2905	1				1			1																				3
2906	1	1			1																							3
2907	6	4						3																				10
2908	3																							1				4
2909	21	6			2			6																				27
2910	16	8			2			4																				24
2911	2	5																										7
2912	10	5						6																				21
2913											1																	1
2914	5	2			3																							10
2915	5	1																										6
2916					2			1																				3
2917	12	2						5																				19
2918								1																				1
2919	3	1			3																							4
2920	1																											1
2921					1																							2
2922	2																											2
2923	3							1																				4
2924	1																											1
2925	4																											4
2926	6																											6
2927	5							2																				7
2928	5	3																							X			8
2929	5				1			2															1					10
2930	4	2			3																							10
2931	16	1						10																				27
2932	22																											22
2933								1																				1
2934	11	3						4																				18
2935					1																							1
2936		1																										16
2937	4	8						4																				12
2938								1																				1
2939					1																							2
2940	2							6																				8
2941																												6
2942	2				1																							3
2943					1																							6
2944	1	2																										3
2945	3	2						1																		X		6
2946	4	3						1																				11
2947	3	4						4																				7
2948	5							2																				7
2949	11	2			1			2															1		X	X		17
2950	2	1						2																				5
2951	2				5																							9
2952	2							2																				4
2953	8	4			1			1																				16
2954	5							9																				14
2955	22	6			1			1																				30

Appendix A continued

Site No.	Mounds	Shelters	Community-Oriented Structures	Possible Burials	Terraces	Possible Trails	Animal Enclosures	Nails	High, Round Features	Wood-Roofed Features	Roads	Serpentine Features	Possible Axiol	Shelter Cave	Petroglyph	Ceatory	Hidden Area	Recent Agricultural Features	Platforms	Storage Feature/Well	Firepits	Stone-Lined Depressions	Rock-Filled Depressions	Burial	Midden Present	Artifacts Present	Historic Artifacts Present	TOTALS
06-2956	18			3	1			17																			22	
2957	29	6																										35
2958	14	7				2		10																				33
2959	26	2		2		3																1						34
2960	13	6			1																				X			20
2961	1	1																										2
2962	1	1			1																							2
2963	1	1																										2
2964	11	1																							X			12
2965	5	3						4																				12
2966	2	2						2																				6
2967	1	2						1																				3
2968								1															1					2
2969					1																							1
2970	16				1																							17
2971	4	3																										7
2972	4							2																				6
2973	5																											5
2974	16																											16
2975	6	3			2		1																		X			12
2976	15	4						8																				27
2977	7	1			2																							10
2978	13	3			2		3																		X			21
2979	1																											1
2980	6	3			2		7																					18
2981	13	2			1		2																					18
2982	10	6																										16
2983							2																					2
2984	1	1					1	1																				3
2985	5	2		1	2		3																		X			13
2986	1																											1
2987	1																											1
2988	1							1																				2
2989	8	4						6																				12
2990	4							2																				6
2991	1				1		1																					3
2992	11						3																					14
2993	5				1		1																					7
2994	3	2					1																					6
2995	3						2																					5
2996	4	2			1																							7
2997	9	4					21																					34
2998	11	2			1		5																					19
2999					1																							1
5800		2																										2
5801	7							1																				8
5802	7							1																				8
5803	2				1																							3
5804	2				3																							5
5805	1				3																							4
5806	27	4						11																				42
5807	7	6						11																				24
5808	17	4						3																				24
5809	8				1	1																						10
5810		1			1	1																						3
5811	1	2				1																						4
5812	1				4																							5
5813	3	2			4																							9
5814					1																							1
5815	4	4			2		2																					12
5816	1				1																							2
5817	3	2			1	1																						7
5818	2	1																										3
5819	3				1	1																						5
5820	4	2			1		2																					9
5821	33	5			1	1																						41
5822	28				1																							29
5823	4							4																				8
5824	3	1			1																							5
5825	4	1			1		6																					12

Appendix A continued

Site No.	Mounds	Shelters	Community-Oriented Structures	Possible Burials	Terraces	Possible Trails	Animal Enclosures	Malls	High, Round Features	Wood-Roofed Features	Roads	Serpentine Features	Possible Almsf	Shelter Cave	Petroglyph	Cemetery	Midden Area	Recent Agricultural Features	Platforms	Storage Feature/Well	Firepits	Stone-Lined Depressions	Rock-Filled Depressions	Burial	Midden Present	Artifacts Present	Historic Artifacts Present	TOTALS
06-5826	10	2			2	1		5																			20	
5827	5	1			1	1		1																				8
5828	27	2			2	2		5																	X			34
5829	13	1			1	1		5																				15
5830							4																					4
5831	2	18		1				5																1				27
5832	4	2																										6
5833	2	1						2																				5
5834	1																											1
5835	2							1																				3
5836	1	2																										1
5837	1																											1
5838	4																											4
5839			1																						X	X		1
5840	58							5														1			X	X		42
5841	1	3						1																				5
5842								1																				1
5843	26		1	3				1																				30
5844	1	6						3																				10
5845	10							2																				12
5846	30	1		1	3			1																				36
5847	3		1																						X	X		4
5848	3			5	1																				X			9
5849			1																						X			1
5850	33		1	3				5																				42
5851	26	2		1	1			4																				34
5852	2					1		1																				4
5853	11	1						1																				12
5854	13	3				1		4													1							22
5855	46							2																				48
5856	51				2			3																				56
5857	8							5																				13
5858	9					2		5																				14
5859	15				4			5																				24
5860	18				1			5																				19
5861	9																											9
5862	55	1			1			1																				58
5863	34	1			2																							37
5864	18	2			1																							21
5865	34				1			1																				36
5866																						1						1
5867	13	3						3																				19
5868	48	2			2			4																				56
5869	12	1			1			1																1				16
5870	7				1																							8
5871	5																											5
5872	9			3	1			2																				15
5873	14	8			1			1																				24
5874	5	6			1			2																				14
5875	9				1																							10
5876	12	1			2																							15
5877	1	16		1																								18
5878	8	10	1					4																				23
5879		6																										6
5880		3																										3
5881	4	6						5																				15
5882		3						2																				5
5883	7	11			1			5																				24
5884	11	7			1			2																				21
5885	1	7			1			2																				12
5886	1	9			1			1																				11
5887	2	8						1																				6
5888	1	4			1																							14
5889	5	8						1																				3
5890		2																										11
5891		7				1		4																				6
5892		3						2																				13
5893		11						2																				4
5894	2				1			1																				4
5895	5	3			2			2																				12

Appendix A continued

Site No.	Mounds	Shelters	Community-Oriented Structures	Possible Burials	Terraces	Possible Trails	Animal Enclosures	Walls	High, Round Features	Wood-Roofed Features	Roads	Serpentine Features	Possible Awns	Shelter Cave	Petroglyph	Cemetery	Hidden Area	Recent Agricultural Features	Platforms	Storage Feature/Moat	Firepits	Stone-lined Depressions	Rock-filled Depressions	Burial	Hidden Present	Artifacts Present	Historic Artifacts Present	TOTALS
06-5896	6	7																									15	
5897	5	14																										19
5898	10	16																										26
5899	1	3																										4
5900							1																					1
5901		3																										3
12-5902	1																											1
06-590333		2			2																							4
5904	4																											4
12-5905						1																						1
06-5906	1																											1
5907 7					1																							1
5908	4																											4
12-5909																						2						2
5910	1																											1
06-5911	3	5				1		3																				12
5912	1	9						3																				13
5913		3			1			3																				8
5914	2	7																										9
5915	1	2						1																				4
5916	1	9						2																				12
5917	2	20						6																				28
5918		7						4																				11
5919		1																										1
5920							1																1					2
5921		1																										1
5922	6	13																										19
05-5923	1	13																										14
5924	3	16																										19
5925	1	13																										14
5926		7																										7
06-5927	3	12						2																				17
5928	6	20			1	1	1																					29
5929	13	1																										14
5930	1	3				1	1																					6
5931	1					1																						2
5932	1	5						3																				9
5933	2	13						8																				25
05-5934		2																										2
06-5935		9				1																						10
5936	13	7			1																	1						22
05-5937		5																										5
06-5938		1																										1
5939						1																						1
5940		7																										7
5941		2				2																						4
5942		4				1																						5
5943	3	3				2	1																					9
5944		6				1																						7
12-5945	1	8																										9
06-5946	2	4																										6
5947		5				1	2																					8
12-5948						6																						6
06-5949		1																										1
5950	2	1																										3
5951	2	1				1																						4
5952						2						1																3
5953		1				1	3																					5
5954							1																					1
5955	1	4																										5
5956		2			3		1																					6
5957		19																										20
5958		3																										3
12-5959							1																					1
5960		2																										2
5961	4	3				1																						10
5962	4	1			1	1	1																					8
06-5963		1																										1
5964	3	2				1																						6
12-5965	3				3	1	1																					8

*Numerous

Appendix A continued

Site No.	Mounds	Shelters	Community-Oriented Structures	Possible Burials	Terraces	Possible Trails	Animal Enclosures	Walls	High, Round Features	Wood-Roofed Features	Roads	Serpentine Features	Possible Auroch	Shelter Cave	Petroglyph	Cemetery	Hidden Area	Recent Agricultural Features	Platforms	Storage Feature/Well	Firepits	Stone-Lined Depressions	Rock-Filled Depressions	Burial	Hidden Present	Artifacts Present	Historic Artifacts Present	TOTALS
06-5966	1	2						1																				4
12-5967						1																						1
06-5968	1																											1
5969																												1
5970																									X			1
5971	2	1																										3
5972		2																										2
5973		1																										1
05-5980	9	4										1	1															14
5981	2					1																						3
5982		1							1																			2
5983		1																										1
5984		1												1														2
5985																												1
5986	3					1																						4
5987																												1
5988	1	1											1												X			3
5989		9																										9
5990	1	4																					1					6
5991	1	5																							X			6
5992	1	4						1																	X			6
5993		8																										8
5994		8																										8
5995	10												1															11
5996		1																							X			2
5997		5																							X			5
5998				1	3																							4
5999	6																											6
6500	16																									X	X	18
6501	9																											9
6502	1																											1
6503						1				1																		2
6504	1	3						1																				4
6505		1																										1
6506	6																											6
6507	9																											9
6508	2																											2
6509	3																											3
6510											1																	1
6511		1																										1
6512		2				1																						3
6513																												1
6514		1																										1
6515		3																										3
6516		2																										2
6518						6																						6
6519		1																										1
6520		2																										2
6521																												1
6522						19																						19
6523		3																										3
6524												1																1
6525		3																										3
6526		1																										1
6527		1																										1
6528		1																										1
6529	7	11																										18
6530																												1
6531																												1
6532		2																										2
6533		1																										1
6534		2				1								1														2
6535																												1
6536		2																										2
6538																												1
6540		2																										2
6542																												1
6544																												1

*Numerous

PART II: HISTORICAL SURVEY

SUMMARY OF SITES DISCUSSED IN THE HISTORICAL SURVEY
OF THE WAIMEA-KAWAIHAE CORRIDOR

Site 2292. Lalamilo Kuleana and Ranch District, Waimea, Hawaii
(See map attached.)

This is a site-rich area not far from Waimea Village, South Kohala. The Mission records between 1830 and 1880 and the Land Commission records between 1846 and 1850, provide detailed information about the people who lived there, the use to which the land was put and the land agents (konohiki) who gave permits to the settlers.

The sites are in a relatively undisturbed condition and provide a link between the ancient and the modern life style of Hawaiian living in the rolling kula lands of South Kohala.

The State Historical Sites Commission has been requested to designate this area as the Lalamilo Kuleana and Ranch District for preservation. The area should be surveyed by an expert archaeological team and selected sites excavated and others designated for restoration before the impact of a new highway through the area is felt.

Site 2296. House ruins on Makahuna Ridge, Kawaihae, Hawaii (part of Puukohola Heiau Complex 4139).

These ruins have been identified as the site of John Young's House. Young was an important person in the history of Hawaii during the reign of Kamehameha I, having worked for him as a military advisor, a translator and as governor of Hawaii Island from 1802 to 1812. He married a niece of Kamehameha I and his descendants continued to play important roles in Hawaii's history.

The ruins are part of a historical complex which also includes two important heiau (temple) structures, Puukohola and Mailekini, as well as the site of the King's Residence at the foot of the hill below Mailekini and a third heiau-type structure in the water off shore, Hale-o-Kapuni, which is now buried under silt from the coral stockpile of the harbor dredgings.

The integrity of these ruins should be preserved. An archaeological survey and limited excavations should be done before any attempt at reconstruction is made.

Attached is copy of map taken from Proposed Puukohola Heiau National Historic Site, in H. R. 1462, U. S. Govt. Printing Office, Washington, D.C., 1972:17.

Summary, page 2.

Site 2297. The King's Residence, Pelekane, Kawaihae, Hawaii (part of Puukohola Heiau Complex 4139).

Marked on an early map (Duperrey, 1819) as "Maisons du Roi," this site was where the French explorer Louis D. de Freycinet found Liholiho (Kamehameha II) in 1819 shortly after his father's death. A drawing of the site was made by L. I. Duperrey in 1819, which included Liholiho and his wives greeting Freycinet.

This is probably the place where Kamamalu, daughter of Kamehameha I and Kaheiheimalie, was born about 1802. She was Liholiho's half sister and lived in his household as his betrothed when they were children. She became his favorite wife and died, as he did, in England in 1824.

The name Pelekane, used for the area today, is a word that means Britain or British.

Archaeological work should be done in this area and efforts made to identify, preserve and perhaps even reconstruct the ancient structures.

The site is a part of the Puukohola Heiau Complex 4139.

Attached is copy of map by G. E. Greeley Jackson, 1883, showing site of Pelekane.

Site 2298. Davis' Tomb, "Keolahou" Church Site and Cemetery, Kawaihae, Hawaii.

A hundred feet or so west of where Kawaihae Church "Keolahou" used to stand is a cemetery connected with the former church. A large white tomb, which would have been highly visible in the days before kiawe trees (Prosopis juliflora) took over the area, has been identified by living relatives as the tomb of George Hueu Davis, eldest son of Isaac Davis, companion of Kamehameha I. G. Hueu Davis received the ahupua'a of Waikoloa in Kohala and Kiilae in Kona in the Mahele of 1848. He was a konohiki (landed chief) of Kohala at the time. He died in January 1876.

Davis' grave is located on a map by G. E. Greeley Jackson, 1883, as a prominent landmark which could be used as an aid to navigation in Kawaihae Bay. (See copy of map attached.)

Summary, page 3.

Site 2299. Macy's Grave, Kawaihae, Hawaii (Part of Cemetery Complex 6522).

Probably the grave of George W. Macy, a sea captain and business partner of James Louzada. Both Louzada and Macy were early merchants and landowners at Lihue in Waimea where they had purchased 250 acres of land (Grant 1157) in 1853, and attempted to grow sugar there.

There are many graves scattered throughout the area surrounding Macy's grave. Macy's grave was described as a "conspicuous white obelisk" on the slopes behind the shoreline of Kawaihae Bay by George E. Greeley Jackson on his map of Kawaihae Bay in 1883.

* * * * *

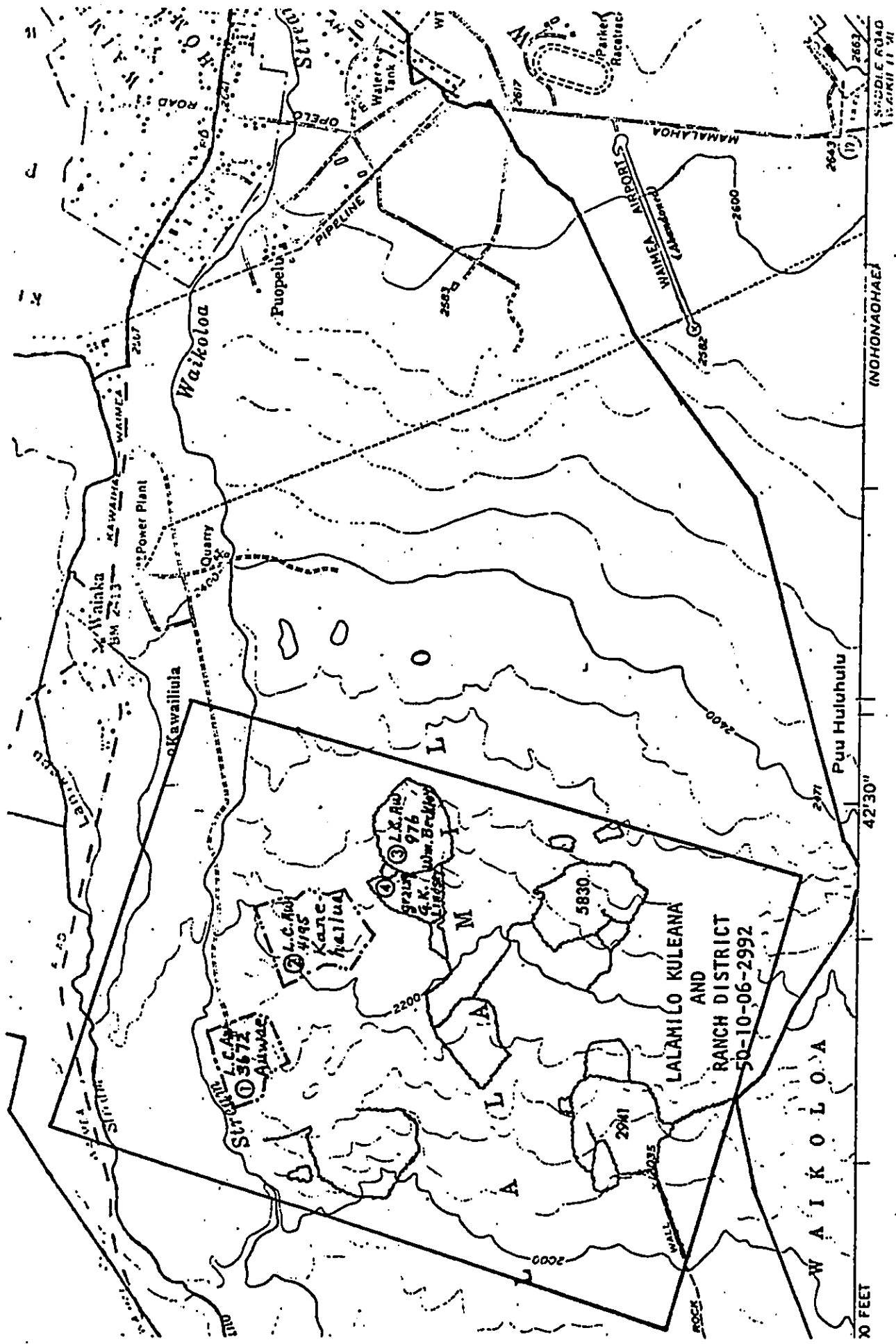
Additional information may be found in the Historical Survey of the Waimea to Kawaihae Road Corridor, Island of Hawaii by Marion Kelly on the following pages:

- Site 2292. Lalamilo Kuleana and Ranch District: See Exhibit E, pp. 76-80.
- Site 2296. House ruins on Makahuna Ridge: See pp. 8-18 and Exhibits A, B and C on pages 60 (site E5-7), 65-66 and 67-71.
- Site 2297. The King's Residence, Pelekane: See pp. 18, 22-26.
- Site 2298. Davis' Tomb: See pp. 13, 38-40.
- Site 2299. Macy's Grave: See pp. 13, 40.

In addition to the above sites, there are the two important heiau of Puukohola and Mailekini of which only brief mention is made in the historic report mainly because they are mentioned in greater detail by other writers, particularly by Russell A. Apple in his "History of Historic Structures in Kawaihae" published by the Division of State Parks in 1969 in the Hawaii State Archaeological Journal, 69-3, pp. 12-17. Also only mentioned in passing was the structure referred to as Hale-o-ka-puni which is described by Apple in his History on pp. 17-18.

Sites 2296, 2297 as well as Puukohola, Mailekini and Hale-o-ka-puni are all included as part of the Puukohola Heiau National Historic Site in the State of Hawaii. All possible protection should be given these sites.

In the interest of preserving important landmarks in Kawaihae which have survived the devastating effect of the construction of the harbor facilities, it is recommended that both Davis' Tomb (Site 2298) and Macy's Grave (Site 2299) be awarded similar protection.



SCALE 1:24000

Fig. 39. LALAMILO KULEANA AND RANCH DISTRICT SHOWN ON U.S.G.S. MAP.

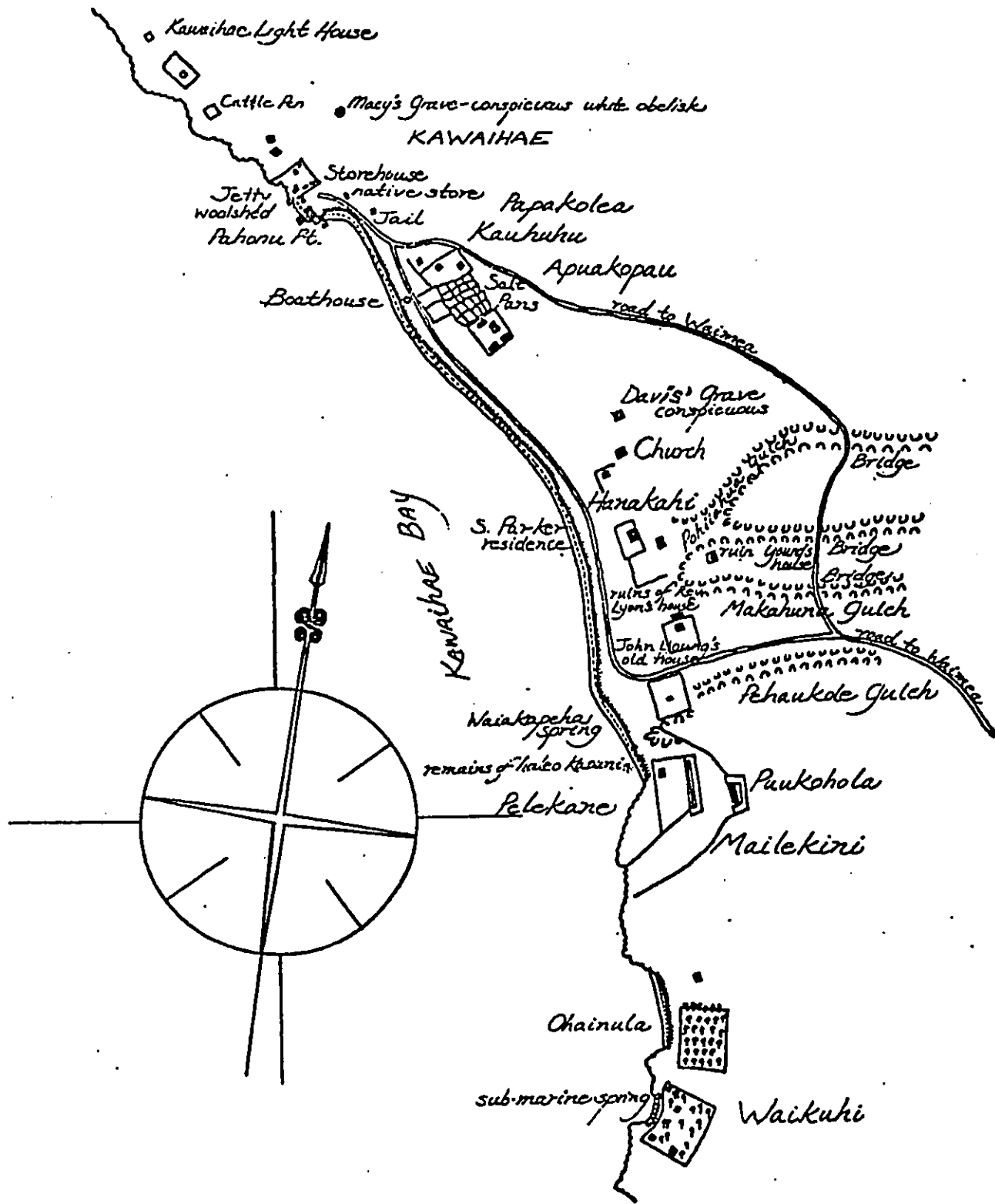


Fig. 4. PORTION OF MAP OF KAWAIIHAE BAY, HAWAII, BY GEORGE E. GREELEY JACKSON, JULY 1883, REDRAWN BY K. KELLY.

APPENDIX G

SECTION 106 DOCUMENTATION IN COMPLIANCE
WITH 36 C.F.R. PART 600 - PROCEDURES FOR
THE PROTECTION OF HISTORIC AND CULTURAL PROPERTIES

Historic Preservation Officer, State of Hawaii (May 27, 1975)	G1
Historic Preservation Officer, State of Hawaii (June 23, 1975)	G2
Advisory Council on Historic Preservation, Washington, D. C. (August 1, 1975)	G3

GEORGE P. ARIYOHU
GOVERNOR OF HAWAII



CHRISTOPHER COBB, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 621
HONOLULU, HAWAII 96800

DIVISIONS:
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

May 27, 1975

Mr. Ralph T. Segawa
Division Engineer
Federal Highways Administration
677 Ala Moana Blvd. Suite 613
Honolulu, Hawaii 96813

Dear Mr. Segawa:

SUBJECT: Hawaii Project Nos. F-019-1(6) and S-0270(4),
Section 106 Procedure for Waimea-Kawaihae Rd.

The documentation you have provided adequately documents this highway's effect on Puukohola, a site on the National Register, and proposes certain mitigating measures concerning the possible adverse effects on that site. However, this project's effect on other sites, which may be eligible to the National Register, has not been determined.

A recommendation to salvage archaeological sites implies that such sites are likely to yield information important to the prehistory of at least the local area. If the sites merit salvage, then they are likely to be eligible to the National Register. The archaeologist who did the survey, Mr. William M. Barrera, recommends 99 of the sites in the project area as valuable for research, according to the State Register criteria.

Very truly yours,

Edgar A. Hamasu
For CHRISTOPHER COBB
Historic Preservation Officer
State of Hawaii

cc: Advisory Council for
Historic Preservation - Denver

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



CHRISTOPHER COHN, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

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

DIVISIONS:
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

June 23, 1975

Mr. Ralph T. Segawa
District Engineer
U. S. Department of Transportation
Federal Highways Administration--Region Nine
677 Ala Moana Boulevard, Suite 613
Honolulu, Hawaii 96813

Dear Mr. Segawa:

915EC

SUBJECT: Section 106 Procedure for Waimea--
Kawaihae Road, Island of Hawaii

Reference is made to your letter of June 11, 1975 concerning the above subject and to our previous letter of May 27, 1975.

Based on a telephone conversation with Mr. Louis Wall of the Office of Compliance (Denver) of the Advisory Council on Historic Preservation, concerning the points you raised on National Register eligibility, I can now concur that a determination can be made that no archaeological sites likely to be eligible for inclusion on the National Register will be affected by the project. Historic Sites described in the Bishop Museum report, (Nos. 2292, 2296, 2297, and 2298), however, may be eligible for inclusion on the National Register. It is my understanding that all of these sites are outside of the corridor and will not be adversely affected.

I suggest that the Executive Director of Advisory Council on Historic Preservation be informed that a satisfactory agreement has been reached to mitigate the adverse effects of this project. This statement should include the following information: that the Federal Highways Administration surveyed the project area outside the Puukohola National Historic Landmark and in so doing, located archaeological sites. None of these sites meet the criteria for inclusion on the National Register of Historic Places. Certain of these sites should be salvaged prior to their removal. A detailed survey to determine which sites must be salvaged will be carried out by the Federal Highways Administration when the final corridor alternative is selected.

Mr. Ralph T. Segawa

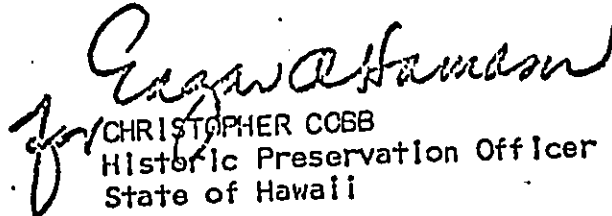
-2-

June 23, 1975

Certain historic sites located in the survey may be eligible for inclusion on the National Register of Historic Places. It appears that all of these historic sites lie outside the highway corridor a sufficient distance to mitigate any potential adverse effect. However, the Federal Highways Administration will work with the State Historic Preservation Officer so that adverse effect to these properties is avoided or mitigated.

Upon receiving this information, the Executive Director of the Advisory Council on Historic Preservation will then draft a formal memorandum of agreement as provided for in 36 CFR 800.5(g). Signature by the Federal Highways Administration, the Executive Director of the Advisory Council on Historic Preservation, the State Preservation Officer, and final ratification by the Council chairman will complete the 106 process on this project.

Very truly yours,


CHRISTOPHER COBB
Historic Preservation Officer
State of Hawaii

CC:jsm

G-2

Advisory Council
On Historic Preservation

1522 K Street N.W.
Washington, D.C. 20005

AUG 1 1975

Mr. F. E. Hawley
Regional Administrator
Federal Highway Administration
Region Nine
U.S. Department of Transportation
450 Golden Gate Avenue, Box 36096
San Francisco, California 94102

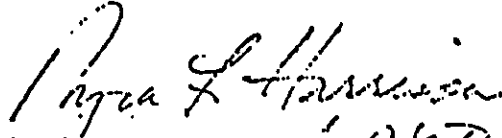
Dear Mr. Hawley:

On July 21, 1975 the Advisory Council received Federal Highway Administration's (FHWA) adequately documented determination that its assistance to the Hawaii State Department of Transportation, Highways Division, for construction of projects numbered, F-019-1(6) and S-0270(4), would have no adverse effect on Puukohola Heiau National Historic Site, National Historic Landmark, Hawaii County, Hawaii, a property included in the National Register of Historic Places, because the undertaking will result in relocation of the existing highway outside the National Register property and provide new access to the park consistent with long range management plans developed by the National Park Service. The Council staff has reviewed FHWA's determination of no adverse effect and notes no objection to the determination.

In accordance with Section 800.4(d) of the Advisory Council's "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800) FHWA may proceed with the undertaking.

Your continued cooperation is appreciated.

Sincerely yours,


John W. McDermott
Director, Office of Review
and Compliance

The Council is an independent unit of the Executive Branch of the Federal Government charged by the Act of October 15, 1966 to advise the President and Congress in the field of Historic Preservation.

APPENDIX H

REVISED RELOCATION PROGRAM - PLAN

AT THE CONCEPTUAL STAGE

KAWAIHAE-MAHUKONA ROAD FASP NO. S-0270(4)

DEPARTMENT OF TRANSPORTATION

MEMORANDUM

HWY-RM 3.39381

TO: HWY-DS

DATE: JUN 7 1961

FROM: HWY-R

SUBJECT: REVISED RELOCATION PROGRAM PLAN AT THE CONCEPTUAL STAGE
KAWAIIAE - MAHIKONA ROAD, FASP NO. S-0270(4)

The revised relocation program plan at the conceptual stage of the subject project is hereby submitted (see pages 4 and 5).

Although there are a total of eight proposed alternates, only two - Alternates A and A-4 - will be affecting individuals, families and/or a business. However, we would like to note that a proposed Hawaiian Electric site will be affected by Alternate A-3; at present, it is vacant and unused.

The following is a discussion of our findings, the relocation problems that we may encounter, if any, and their probable solutions:

ALTERNATE A

This alternate will be affecting one family and one individual, both of whom are homesteaders on land managed by the Department of Hawaiian Home Lands, in accordance with the Hawaiian Homes Commission Act of 1920, as amended. There are six members in the family, consisting of the parents, a son and three daughters. The parents are retired and may possibly be in the low income group. The individual who is also affected is a male who is approximately 50 years old, unemployed and on welfare assistance. Both the family and the individual are living in three bedroom dwelling units which are in poor to fair condition.

According to Mr. James Wright, there is a replacement site on similar Hawaiian Home Lands that is available and is approximately one mile away from the subject project area.

Because the affected dwelling units have an estimated appraised value of approximately \$5,500 and \$3,500, respectively, with an annual lease rent of \$1.00 for a term of 99 years, we can reasonably say that comparable decent, safe and sanitary replacement housing units are not available within the vicinity of the two affected homesteads.

NOTE: Much of the information regarding the people living on Hawaiian Homestead Lands was furnished by Mr. James Wright, project manager, for the Department of Hawaiian Home Lands.

AUG 7 - 1974

HWY-DM 3.39381

Situated less than a mile away is Kawaihae Village, the only development project in the immediate vicinity which has units that are available for sale or rent.

A study was conducted for available replacement housing units from the classified newspaper advertisements (Hawaii Tribune Herald and Honolulu Star-Bulletin), multiple listing services and governmental agencies. The result of our survey shows that low rent housing or FHA subsidized housing are not available within the proximity of the subject project. Since this area is considered to be remote on the island of Hawaii, it seems that if and when homes are available for rent, it is usually accomplished by "word of mouth".

However, situated less than a mile away is a development project, Kawaihae Village, in which there are units available for sale or rent. Mr. Harold Kurihara of the Hawaii Housing Authority, has indicated that there are presently 21 units -- duplex and single family dwelling units -- which are available for purchase or lease with terms on a one or two year basis. The units are all three bedrooms, one bath, and on a 55 year leasehold basis; the floor area of the duplex units is approximately 823 sq. ft. and that of the single family units is 913 sq. ft. The selling price of the duplex and single family units is \$26,850 and \$28,050, respectively.

The minimum downpayment required is \$200, depending on the amount of the family's income and assets but the terms and conditions are flexible.

If necessary, the units can be leased with a monthly rental of approximately \$200 for the duplex units and \$210 for the single family dwelling units.

It will therefore be necessary to utilize Section 206(a), Replacement Housing as a Last Resort, since the amount to purchase a comparable decent, safe and sanitary replacement housing unit is:

- (1) not readily available since there are not any housing available which are within the financial means of the relocates, and
- (2) more than the \$15,000 maximum allowed by governing statutes to purchase a replacement housing unit which will exceed the financial means of the persons to be displaced.

Mr. Wright of HIL has indicated that it will probably cost about \$18,000 to \$20,000 to build a comparable three bedroom replacement housing unit on the available Hawaiian homestead land. Also, he has stressed that there should not be any opposition from the affected homesteaders or commission members if Section 206(a) is utilized to develop replacement housing units on Hawaiian Homestead Land which is already available for the construction of said homes.

AUG 7 - 1984

ALTERNATE A-4

An estimated two families (owner-occupants), one individual (tenant) and one business will be affected by this alternate.

All of the above-mentioned are on Hawaiian Home Lands. One of the two affected families occupies a five bedroom dwelling unit. The parents of the first family is retired and has a son and two daughters and can probably be considered to be of low income. The head of the other family is presently unemployed and his wife operates a concession stand and their family consists of a son and a daughter; said family is probably in the moderate to middle income group.

A storage building and a rental unit situated at the rear of the DOI STORE may probably be affected by this alternate. The building that is used for storage purposes is a dwelling unit in which alcoholic beverages are stored. The other building is a two bedroom dwelling unit which is occupied by a bachelor who pays a monthly rental of \$25.00 which also includes part-time yard work around the premises. The tenant works at Mauna Kea Hotel and is probably in the low-income group. Only a moving payment for the goods that are stored by the business operation will be affected since there is additional storage space available within another adjacent building which is also used for storage purposes.

The majority of the buildings that are affected seem to be in poor condition and the remaining are in fair condition. The estimated appraised value for these dwelling units range from approximately \$1,500 to \$10,000.

As mentioned in Alternate A, comparable decent, safe and sanitary replacement housing units are not available for any of the affected persons. Therefore, the same problems and solutions to their housing needs will be encountered by this alternate.

CONCLUSION

If either of the above-mentioned alternates is selected, it is our opinion that replacement dwelling units be built on the available homestead lots instead of purchasing the units at Kawaihae Village, inasmuch as it will be more economical and feasible, as well as a means of giving the affected families the same kind of life style that they are used to living and which they presently possess.

However, when the project location is established and should an alternate be selected which will require relocation, a detailed relocation study will be prepared at the right-of-way stage which will analyze in detail the utilization of last resort housing as an alternative.

EXPLANATORY DATA ON HOUSING AS A LAST RESORT

As evidenced by the foregoing discussion, it is obvious that regardless of which alternate or combination of alternates is ultimately selected for approval of the construction of this highway facility, varying degrees of direct economic and sociological impact will result.

All Federally-aided highway programs, such as this project, must comply with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. The State of Hawaii has appropriate legislation and the State Department of Transportation also has an organization that is equipped and staffed to administer a relocation assistance program that is in accordance with the Federal law.

An examination of the Federal law, as well as the State's program which is described in the Relocation Advisory Assistance and Relocation Payments brochure attached herewith, reveals that certain statutory limits exist with respect to replacement housing payments that can be made to tenant and owner-occupant displacees. Under the typical relocation assistance program, a displaced tenant will be eligible for a maximum amount of \$4,000 which is to be paid on a lump sum basis, unless the displacee requests that it be paid in installments, or in the case of an owner-occupant, a maximum lump sum payment in the amount of \$15,000 can be made to enable him to purchase a comparable decent, safe and sanitary replacement dwelling unit. These payments are in addition to moving payments and other services to which a relocatee is entitled to receive.

Due to the high cost of rental and homes for sale in Hawaii, the above-mentioned maximum for replacement housing payments are often times insufficient to satisfactorily relocate the persons displaced by public projects. State and Federal regulations require that a displaced person must be relocated within his financial means. In other words, a tenant-occupant must be relocated so that the replacement housing unit will not increase his "out of pocket" costs in terms of rent, over and above the amount that he actually paid for his rent at the affected property, considering the additional payments received from his replacement housing payments.

Instances of the owner-occupant is also similar to that of the tenant-occupant. Payment is made on a lump sum basis to enable him to purchase a comparable replacement housing unit to that which he had previously occupied and therefore, he will be no worse off financially in terms of housing costs than he was before.

Based upon this conceptual study, there is every indication that the statutory requirements in providing the maximum replacement housing payments to satisfactorily relocate the displaced persons would have to be exceeded.

In such instances, a procedure called "Replacement Housing As Last Resort", Section 206(a), of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, is to be used to satisfactorily relocate displaced persons to comparable replacement housing that will be within their financial means; this increase in relocation payments beyond the maximum allowed is provided by law only under Last Resort Housing.

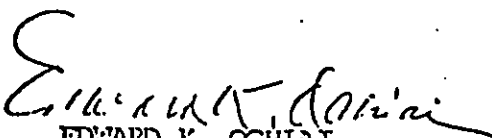
There are various alternatives that can be used under Section 206(a), such as:

- (1) Purchase land and/or existing dwellings.
- (2) Rehabilitate existing dwellings.
- (3) Relocate and if necessary, refurbish or rehabilitate dwellings purchased by the State for right-of-way purposes.
- (4) Construct new dwellings.

All of these alternatives are accomplished under the auspices of the State highway agency and such housing can be either rented or sold to the displacee. It is our responsibility to provide the same ownership or tenancy status which the displacee had prior to his displacement. However, we are not obligated to provide a dwelling that will change the ownership or tenancy status of the displaced person unless such a replacement dwelling unit is available or can be provided more economically.

In addition, the replacement housing payment can be increased beyond the statutory limits to allow the displaced person - owner or tenant - to purchase or rent a dwelling beyond the maximum allowed if it is determined to be more economical.

Federal and State procedures also have additional safeguards in a sense that construction cannot be authorized to begin on any project until such time that all displacees have been satisfactorily relocated to comparable decent, safe and sanitary replacement housing units; such replacement housing units must be within their financial means or is in place and has been made available to him.


EDWARD K. OCHLAT
Head, Right-of-Way Branch

Attachment

APPENDIX I

AIR QUALITY STUDY
PROPOSED WAIMEA-KAWAIHAE ROAD

AIR QUALITY STUDY
PROPOSED WAIMEA-KAWAIHAE ROAD

ISLAND OF HAWAII

Materials Testing & Research Branch
October 1975

AIR QUALITY STUDY:

PROPOSED WAIMEA-KAWAIHAE ROAD

A mathematical study was conducted to determine if there would be an adverse impact to the air quality at sensitive receptor sites along the proposed Waimea-Kawaihae Road corridor. The EPA model "HIWAY" was used for this study.

The corridor extends from the shore areas (sea level) of Kawaihae and Hapuna Bay and rises fairly rapidly to 2800 feet elevation at its eastern terminus near Kamuela Airport in Waimea. The climatic conditions at both terminus are extremely different and because of the lack of historical meteorological data along the entire route, several assumptions were made to simulate the probable worst case conditions.

The study plan considered the proposed roadway alignment as two, straight, level roadway segments subjected to the most severe wind and meteorological conditions. The "worst case" conditions assumed winds of very low velocity parallel to the study alignment (stability class F).

Winds in the lowland areas along the coast are generally sea breeze from the WNW with mostly clear and sunny weather. The ceiling for these areas (Road Segment #2) is assumed to be 500 meters. The prevailing winds in the higher elevations near Waimea are from the ENE and fog cover is not uncommon. The ceiling used for this segment (Road Segment #1) was 50 meters.

Sensitive receptor locations along the corridor were measured from the idealized and straightened road segments which were positioned closer to these receptors than the actual proposed alignment. Analyses were made based on 1985 and 1995 projected traffic volumes. The results of this study are summarized in Appendix A and the highest probable CO concentrations at the Highway Rights-of-Way (75 feet from centerline roadway) are tabulated.

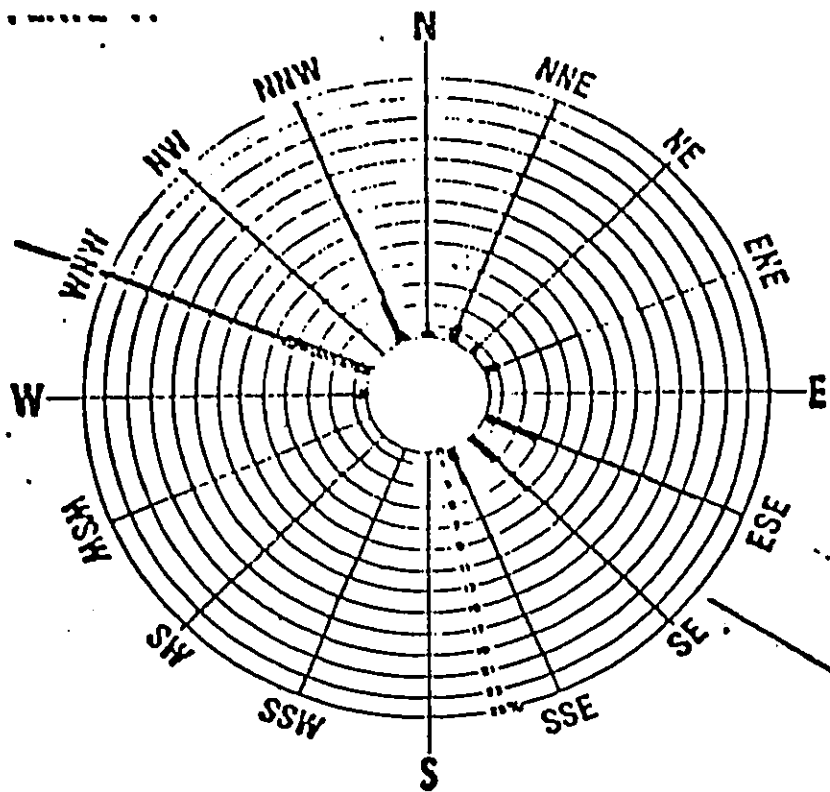
Summary: Based on EPA HIWAY prediction model, it can be expected that there will be no detrimental impact or any significant contribution of pollutants by the highway system to any receptor sites along the proposed alignment.

PROBABLE "WORST CASE" CONDITIONS
CO CONCENTRATIONS AT RIGHT-OF-WAY

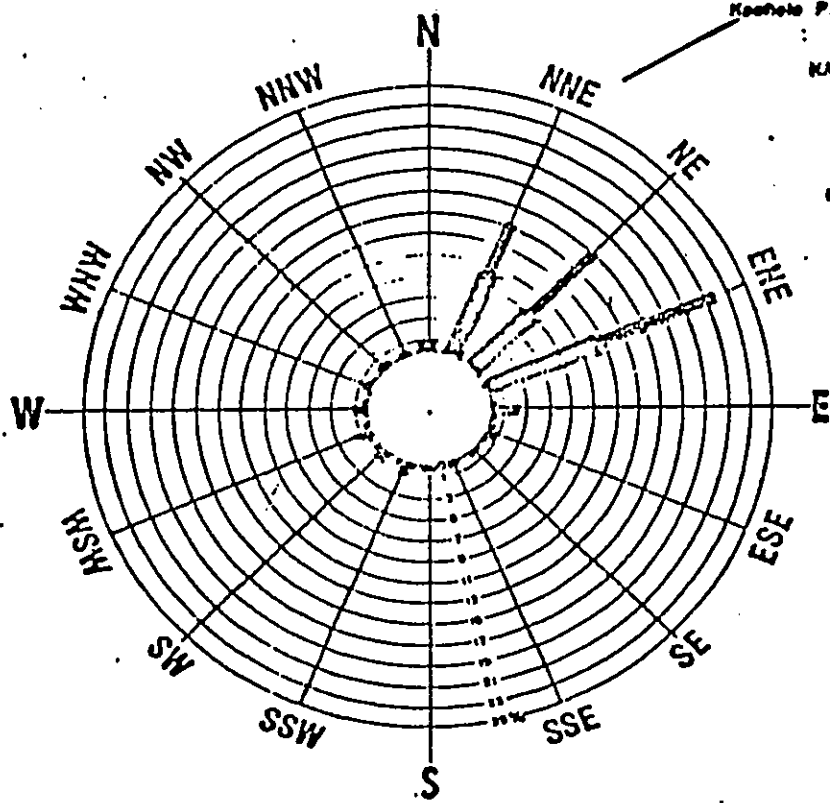
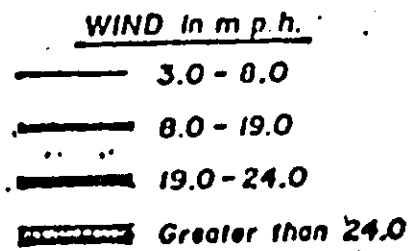
	RECEPTOR LOCATIONS	WIND DIRECTION	CO CONCENTRATION* (PPM) AT HIGHWAY RIGHT-OF-WAY	
			ADT 1985	ADT 1995
Roadway Segment #1	Intersection with Roadway Segment #2	A	0.418	0.356
	Hapuna Beach Park	A	0.434	0.370
	Waimea Town and Kuhio Village	B	0.539	0.452
Roadway Segment #2	Puukohola Historic Site	C	0.333	0.280
	Intersection with Roadway Segment #1	C	0.430	0.361
	Puukohola Historic Site	D	0.415	0.349
	Kawaihae	D	0.430	0.361

*Maximum Allowable Carbon Monoxide Pollutant
Federal Standard - 35.0 ppm
State Standard - 9.0 ppm

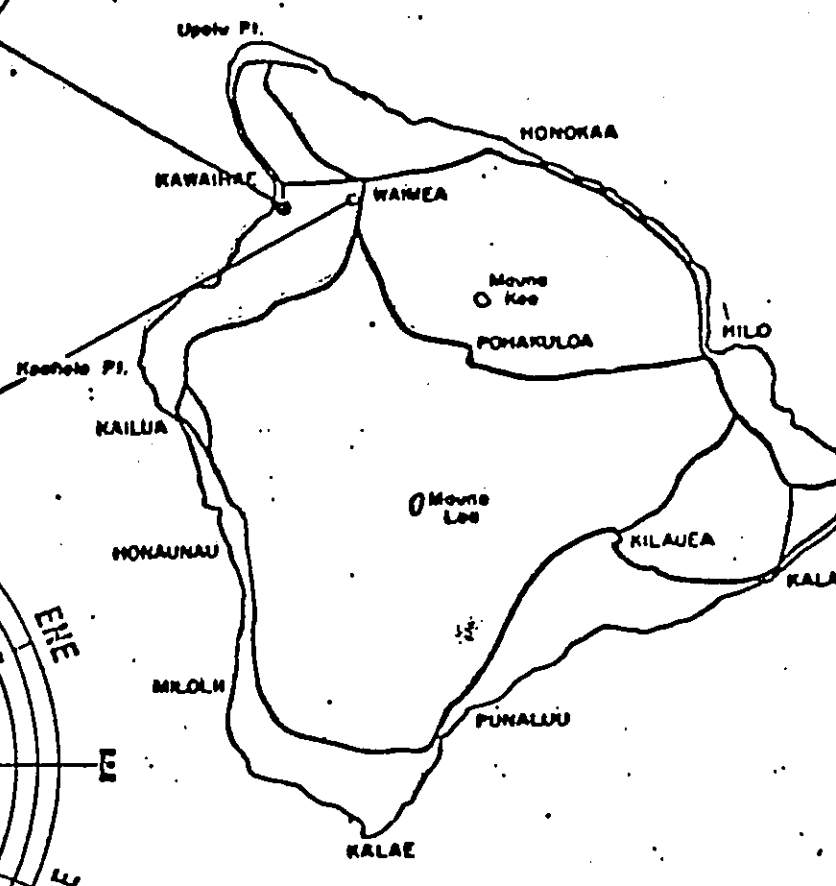
APPENDIX "A"



MAUNA KEA BEACH HOTEL



KAMUELA

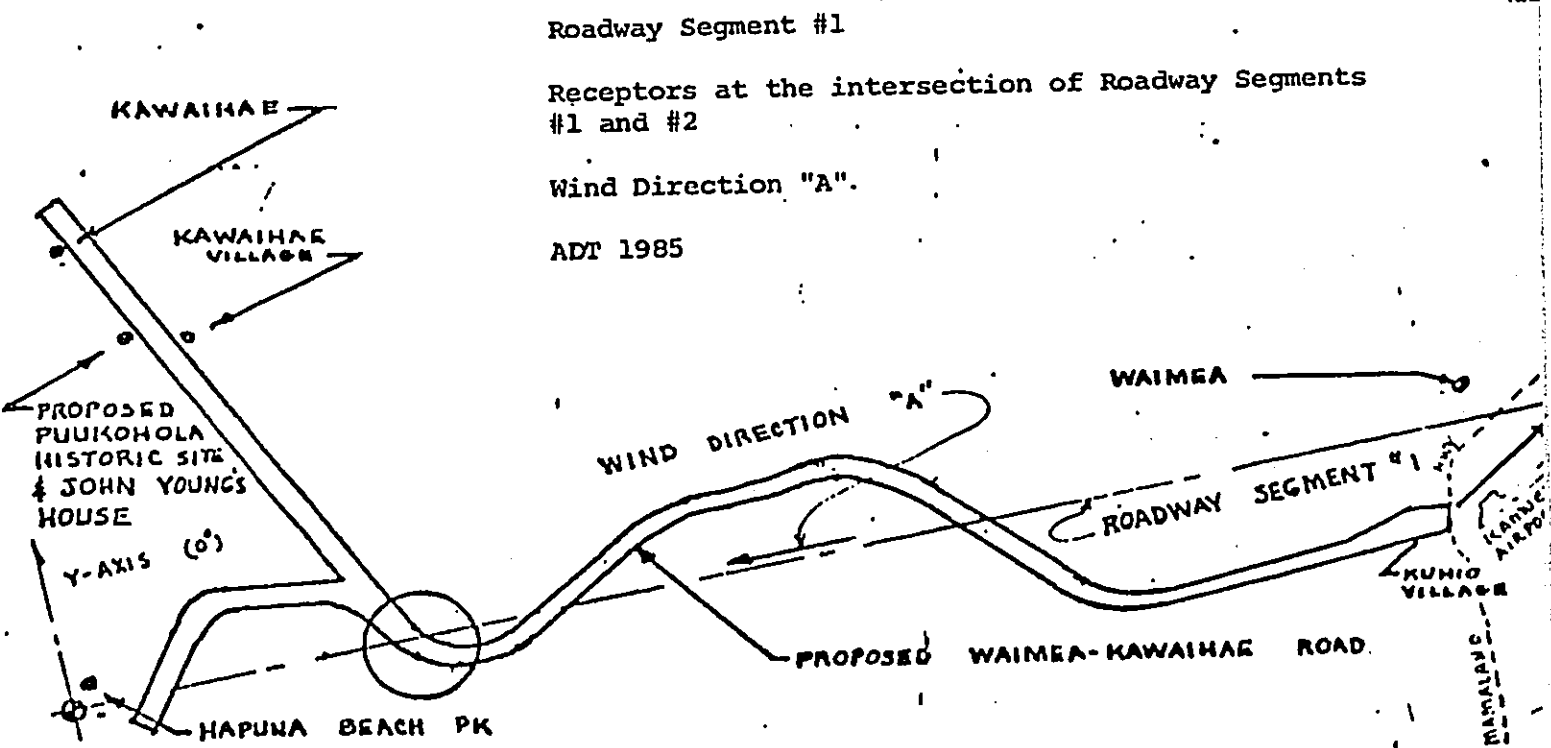


WIND ROSES FOR SELECTED STATIONS

STATE OF HAWAII
 Department of Land and Natural Resources
 Division of Water and Land Development
 Report R34

✓ HIGHWAY VERSION:*****
 ENDPOINTS OF THE LINE SOURCE
 0.0 , 0.0 AND 60000.000. 0.0
 EMISSION HEIGHT IS 0.600 METERS
 EMISSION RATE (GRAMS/SECOND * METER) OF 2 LANE(S)
 0.244E-03 0.244E-03
 WIDTH OF AT-GRADE HIGHWAY IS 7.000 METERS
 WIDTH OF CENTER STRIP IS 0.0 METERS
 WIND DIRECTION IS 90. DEGREES
 WIND SPEED IS 1.0 METERS/SEC
 STABILITY CLASS IS 5
 HEIGHT OF LIMITING LID IS 500.0 METERS
 THE SCALE FACTOR IS 0.0003KM.

RECEPTOR LOCATION X	RECEPTOR LOCATION Y	HEIGHT Z (M)	CONCENTRATION UGM/CU METER	PPM
20000.0000	87.0000	0.0	422.471	0.368
20000.0000	237.0000	0.0	187.548	0.163
20000.0000	587.0000	0.0	78.974	0.069
20000.0000	-63.0000	0.0	480.466	0.418 ←
20000.0000	-213.0000	0.0	196.274	0.171
20000.0000	-563.0000	0.0	88.858	0.078



HIGHWAY VERSION:*****
 ENDPOINTS OF THE LINE SOURCE
 0.0 , 0.0 AND 60000.000, 0.0
 EMISSION HEIGHT IS 0.600 METERS
 EMISSION RATE (GRAMS/SECOND*METER) OF 2 LANE(S)
 0.200E-03 0.200E-03
 WIDTH OF AT-GRADE HIGHWAY IS 7.000 METERS
 WIDTH OF CENTER STRIP IS 0.0 METERS
 WIND DIRECTION IS 90. DEGREES
 WIND SPEED IS 1.0 METERS/SEC
 STABILITY CLASS IS 5
 HEIGHT OF LIMITING LID IS 500.0 METERS
 THE SCALE FACTOR IS 0.0003KM.

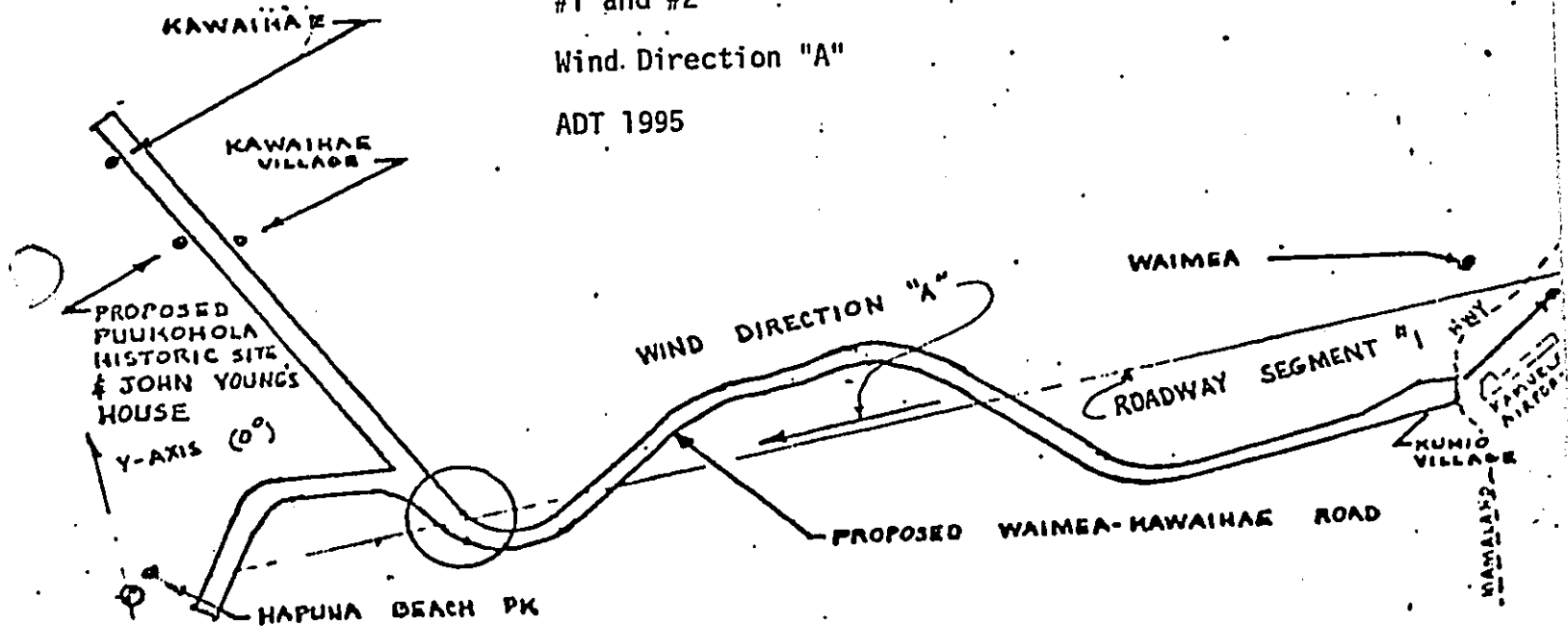
RECEPTOR LOCATION X	RECEPTOR LOCATION Y	HEIGHT Z (M)	CONCENTRATION UGM/CU METER	PPM
20000.0000	87.0000	0.0	360.139	0.313
20000.0000	237.0000	0.0	159.877	0.139
20000.0000	587.0000	0.0	67.322	0.059
20000.0000	-63.0000	0.0	409.577	0.356 ←
20000.0000	-213.0000	0.0	167.316	0.146
20000.0000	-563.0000	0.0	68.928	0.060

Roadway Segment #1

Receptors at intersection of Roadway Segments #1 and #2

Wind Direction "A"

ADT 1995



HWAY VERSION: *****
 ENDPOINTS OF THE LINE SOURCE
 0.0 , 0.0 AND 60000.000, 0.0
 EMISSION HEIGHT IS 0.600 METERS
 EMISSION RATE (GRAMS/SECOND * METER) OF 2 LANE(S)
 0.244E-03 0.244E-03
 WIDTH OF AT-GRADE HIGHWAY IS 7.000 METERS
 WIDTH OF CENTER STRIP IS 0.0 METERS
 WIND DIRECTION IS 90. DEGREES
 WIND SPEED IS 1.0 METERS/SEC
 STABILITY CLASS IS 5
 HEIGHT OF LIMITING LID IS 500.0 METERS
 THE SCALE FACTOR IS 0.0003KM.

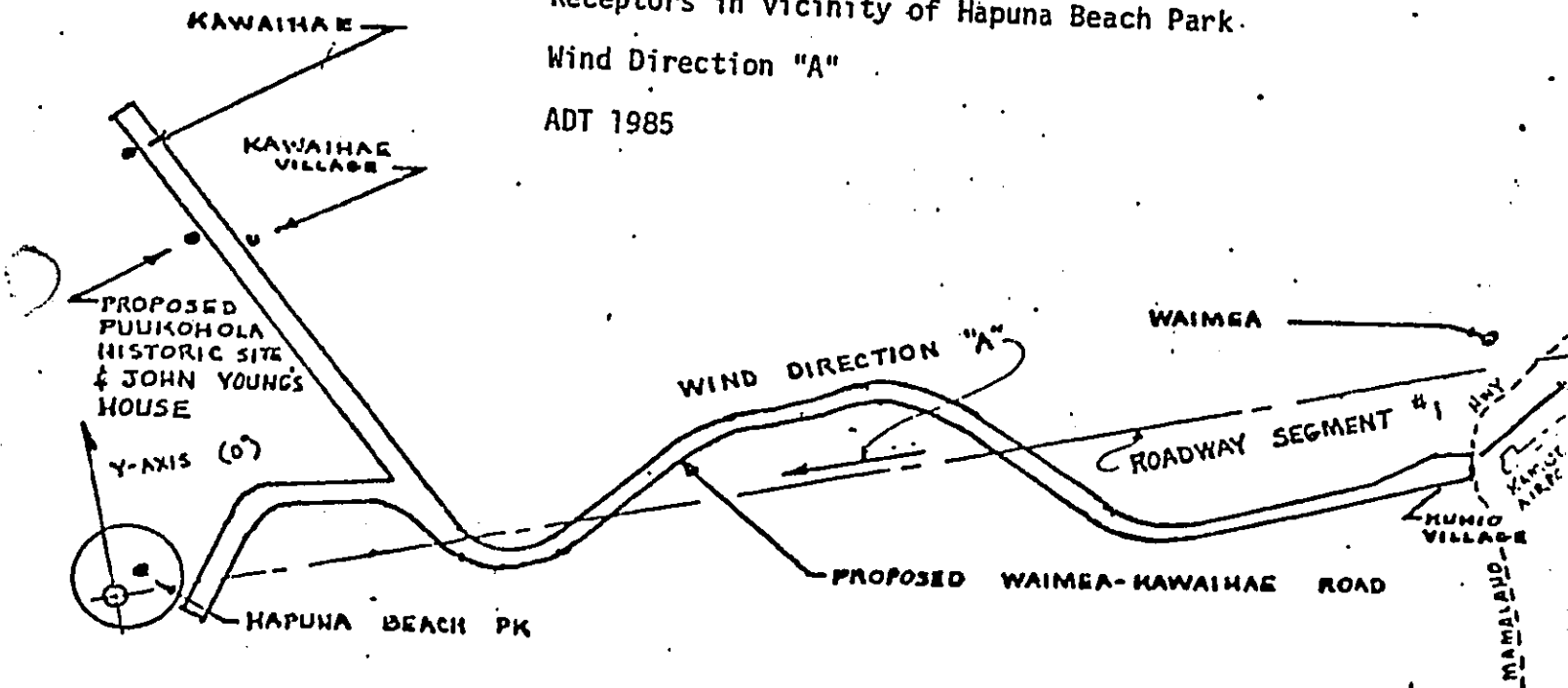
RECEPTOR LOCATION X	RECEPTOR LOCATION Y	HEIGHT Z (M)	CONCENTRATION UGM/CU METER	CONCENTRATION PPM
0.0	87.0000	0.0	440.363	0.383
0.0	237.0000	0.0	205.327	0.170
0.0	587.0000	0.0	96.042	0.084
0.0	-63.0000	0.0	498.365	0.434
0.0	-213.0000	0.0	214.070	0.186
0.0	-563.0000	0.0	97.986	0.085

Roadway Segment #1

Receptors in vicinity of Hapuna Beach Park.

Wind Direction "A"

ADT 1985



HIGHWAY VERSION 1 *****
 ENDPOINTS OF THE LINE SOURCE
 0.0 , 0.0 AND 60000.000, 0.0
 EMISSION HEIGHT IS 0.600 METERS
 EMISSION RATE (GRAMS/SECOND * METER) OF 2 LANE(S)
 0.200E-03 0.200E-03
 WIDTH OF AT-GRADE HIGHWAY IS 7.000 METERS
 WIDTH OF CENTER STRIP IS 0.0 METERS
 WIND DIRECTION IS 90. DEGREES
 WIND SPEED IS 1.0 METERS/SEC
 STABILITY CLASS IS S
 HEIGHT OF LIMITING LID IS 500.0 METERS
 THE SCALE FACTOR IS 0.0003KM.

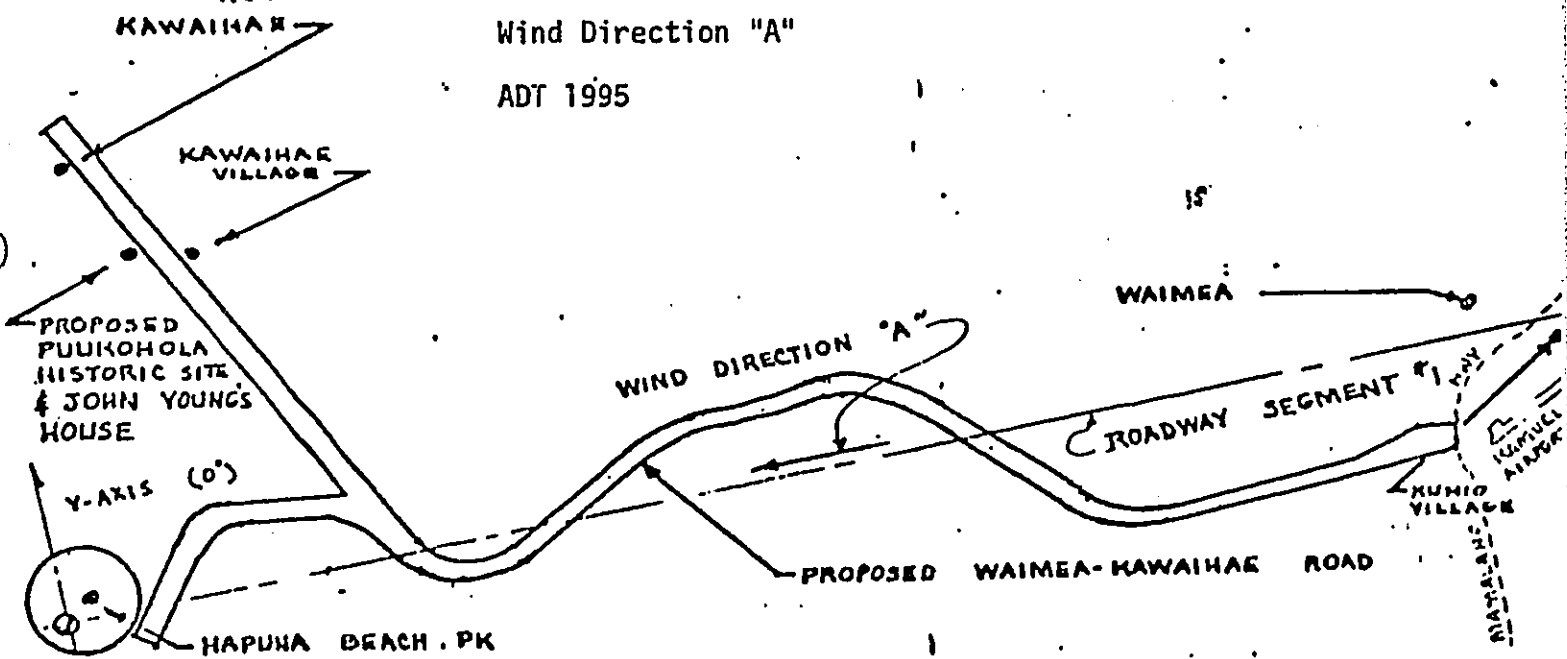
RECEPTOR LOCATION X	Y	HEIGHT Z (M)	CONCENTRATION UGM/CU METER	PPH
0.0	87.0000	0.0	375.391	0.327
0.0	237.0000	0.0	175.033	0.152
0.0	587.0000	0.0	81.872	0.071
0.0	-63.0000	0.0	424.835	0.370 ←
0.0	-213.0000	0.0	182.485	0.159
0.0	-563.0000	0.0	83.529	0.073

Roadway Segment #1

Receptors in Vicinity of Hapuna Beach Park

Wind Direction "A"

ADT 1995



HIGHWAY VERSION:*****
 ENDPOINTS OF THE LINE SOURCE
 0.0 , 0.0 AND 60000.000, 0.0
 EMISSION HEIGHT IS 0.600 METERS
 EMISSION RATE (GRAMS/SECOND * METER) OF 2 LANE(S)
 0.261E-03 0.261E-03
 WIDTH OF AT-GRADE HIGHWAY IS 7.000 METERS
 WIDTH OF CENTER STRIP IS 0.0 METERS
 WIND DIRECTION IS 270. DEGREES
 WIND SPEED IS 1.0 METERS/SEC
 STABILITY CLASS IS 5
 HEIGHT OF LIMITING LID IS 50.0 METERS
 THE SCALE FACTOR IS 0.0003KM.

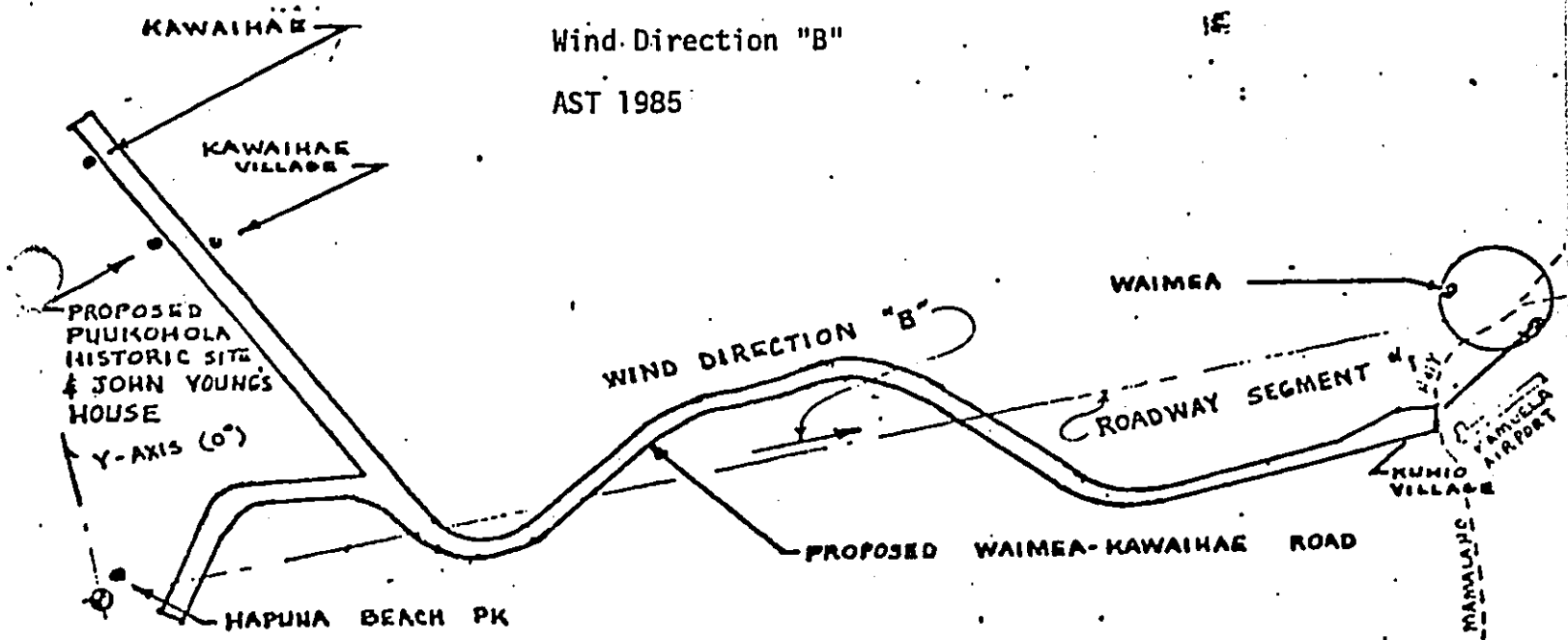
RECEPTOR LOCATION		HEIGHT Z (M)	CONCENTRATION	
X	Y		UGM/CU METER	PPM
68000.0000	63.0000	0.0	619.809	0.539 ←
68000.0000	213.0000	0.0	313.928	0.273
68000.0000	563.0000	0.0	180.375	0.157
68000.0000	-07.0000	0.0	557.667	0.485
68000.0000	-237.0000	0.0	304.343	0.265
68000.0000	-507.0000	0.0	177.872	0.155

Roadway Segment #1

Receptors at Vicinity of Kuhio Village & Waimea Town

Wind Direction "B"

AST 1985



HWAY VERSION:.....
 ENDPOINTS OF THE LINE SOURCE
 0.0 , 0.0 AND 68000.000, 0.0
 EMISSION HEIGHT IS 0.600 METERS
 EMISSION RATE (GRAMS/SECOND * METER) OF 2 LANE(S)
 0.219E-03 0.219E-03
 WIDTH OF AT-GRADE HIGHWAY IS 7.000 METERS
 WIDTH OF CENTER STRIP IS 0.0 METERS
 WIND DIRECTION IS 270. DEGREES
 WIND SPEED IS 1.0 METERS/SEC
 STABILITY CLASS IS 6
 HEIGHT OF LIMITING LID IS 50.0 METERS
 THE SCALE FACTOR IS 0.0003KM.

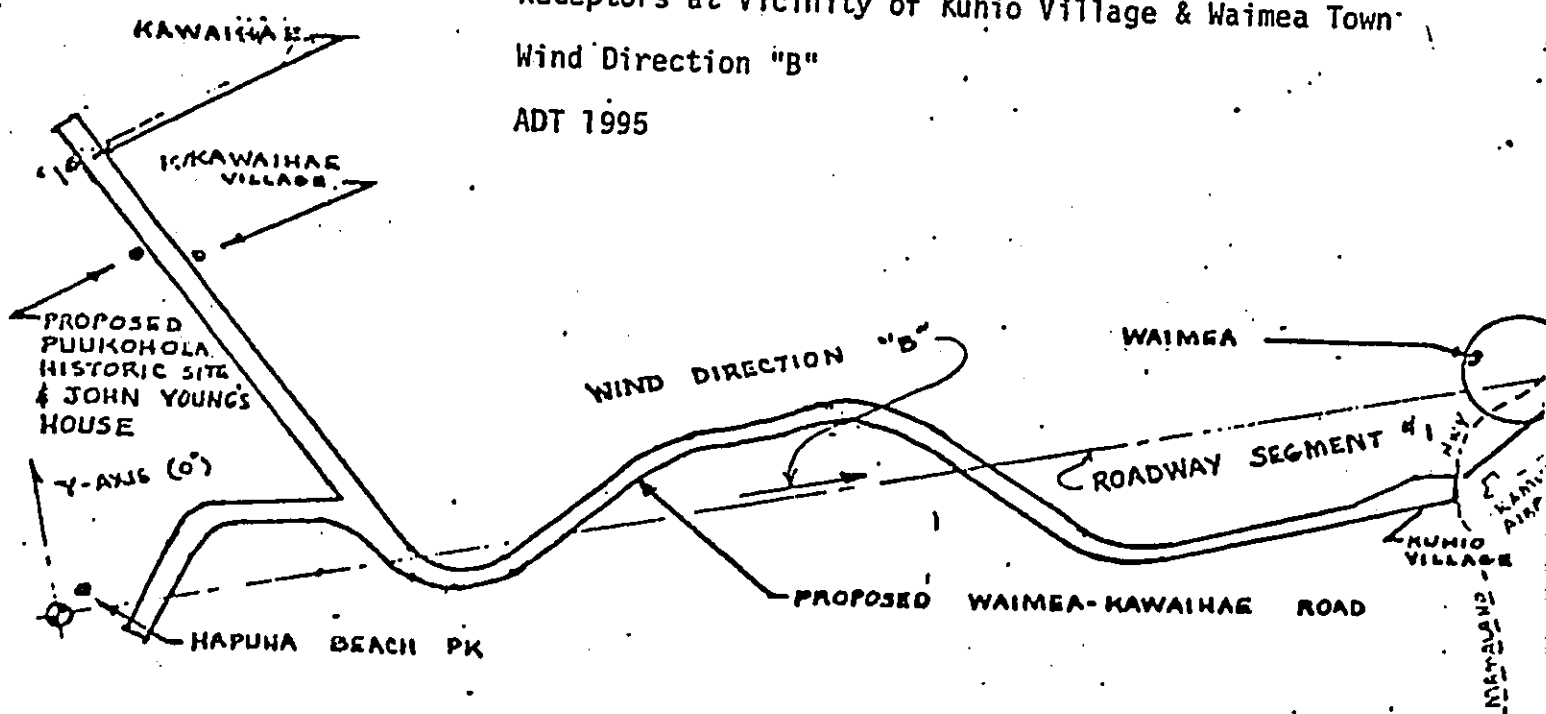
RECEPTOR LOCATION X	Y	HEIGHT Z (M)	CONCENTRATION UGM/CU METER	PPM
68000.0000	63.0000	0.0	520.070	0.452 ←
68000.0000	213.0000	0.0	263.411	0.229
68000.0000	563.0000	0.0	151.349	0.132
68000.0000	-87.0000	0.0	467.927	0.407
68000.0000	-237.0000	0.0	255.360	0.222
68000.0000	-507.0000	0.0	149.249	0.130

Roadway Segment #1

Receptors at Vicinity of Kuhio Village & Waimea Town

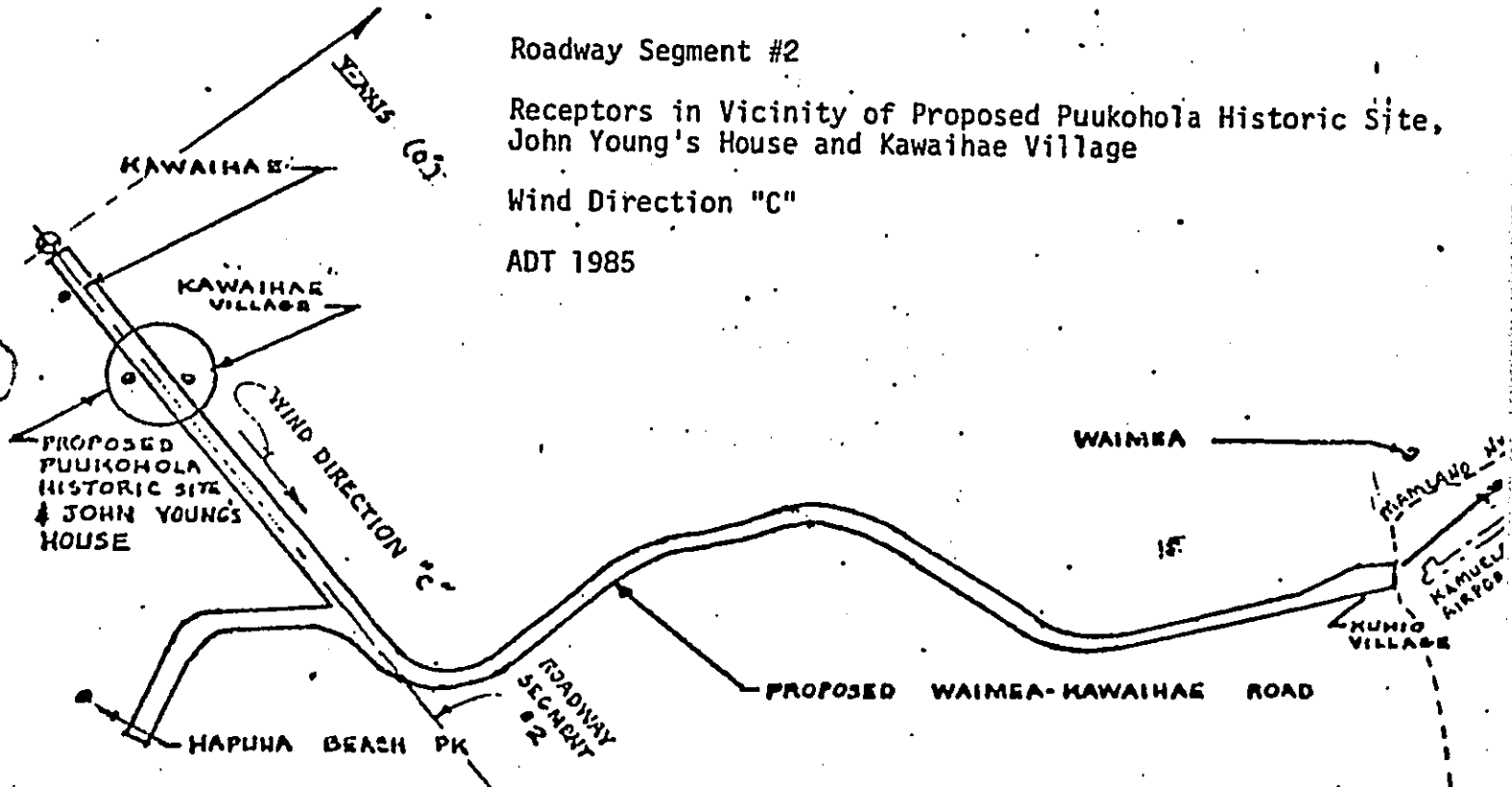
Wind Direction "B"

ADT 1995



HWAY VERSION:*****
 ENDPOINTS OF THE LINE SOURCE
 0.0 0.0 AND 27600.000, 0.0
 EMISSION HEIGHT IS 0.600 METERS
 EMISSION RATE (GRAMS/SECOND*METER) OF 2 LANE(S)
 0.261E-03 0.261E-03
 WIDTH OF AT-GRADE HIGHWAY IS 7.000 METERS
 WIDTH OF CENTER STRIP IS 0.0 METERS
 WIND DIRECTION IS 270. DEGREES
 WIND SPEED IS 1.0 METERS/SEC
 STABILITY CLASS IS 5
 HEIGHT OF LIMITING LID IS 500.0 METERS
 THE SCALE FACTOR IS 0.0003KM.

RECEPTOR LOCATION X	RECEPTOR LOCATION Y	HEIGHT Z (M)	CONCENTRATION UGH/CU METER	CONCENTRATION PPM
6600.0000	63.0000	0.0	382.893	0.333 ←
6600.0000	213.0000	0.0	88.402	0.077
6600.0000	563.0000	0.0	5.784	0.005
6600.0000	-87.0000	0.0	321.271	0.280
6600.0000	-262.0000	0.0	66.255	0.058
6600.0000	-587.0000	0.0	5.121	0.004



HIGHWAY VERSION:*****
 ENDPOINTS OF THE LINE SOURCE
 0.0 , 0.0 AND 27600.000, 0.0
 EMISSION HEIGHT IS 0.600 METERS
 EMISSION RATE (GRAMS/SECOND * METER) OF 2 LANE(S)
 0.219E-03 0.219E-03
 WIDTH OF AT-GRADE HIGHWAY IS 7.000 METERS
 WIDTH OF CENTER STRIP IS 0.0 METERS
 WIND DIRECTION IS 27.46+0 DEGREES
 WIND SPEED IS 1.0 METERS/SEC
 STABILITY CLASS IS B
 HEIGHT OF LIGHTING LID IS 500.0 METERS
 THE SCALE FACTOR IS 0.0003KM.

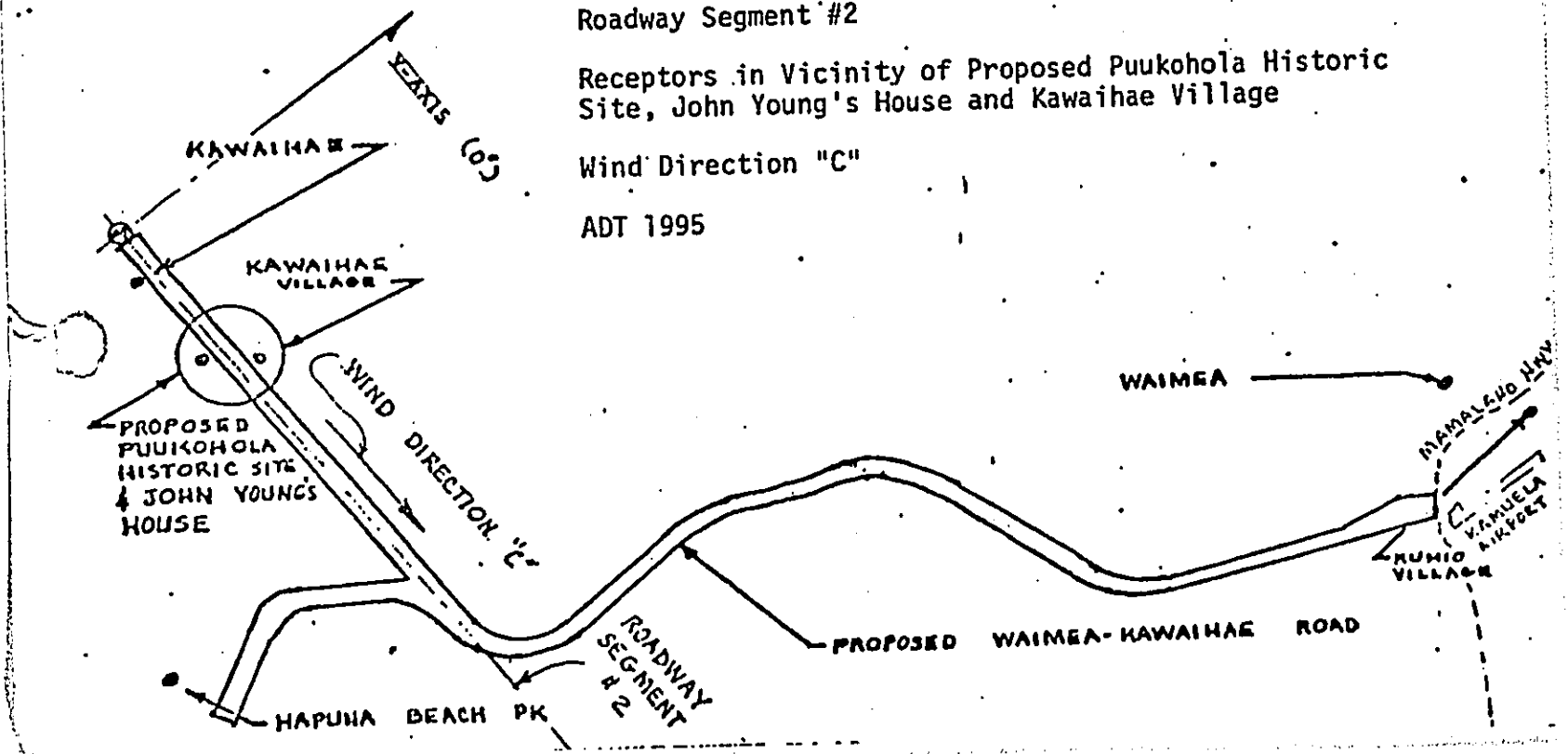
RECEPTOR LOCATION X	RECEPTOR LOCATION Y	HEIGHT Z (M)	CONCENTRATION UGH/CU METER	CONCENTRATION PPM
6600.0000	63.0000	0.0	321.278	0.280
6600.0000	213.0000	0.0	74.176	0.065
6600.0000	563.0000	0.0	4.786	0.004
6600.0000	-87.0000	0.0	269.572	0.235
6600.0000	-262.0000	0.0	55.593	0.048
6600.0000	-587.0000	0.0	4.297	0.004

Roadway Segment #2

Receptors in Vicinity of Proposed Puukohola Historic Site, John Young's House and Kawaihae Village

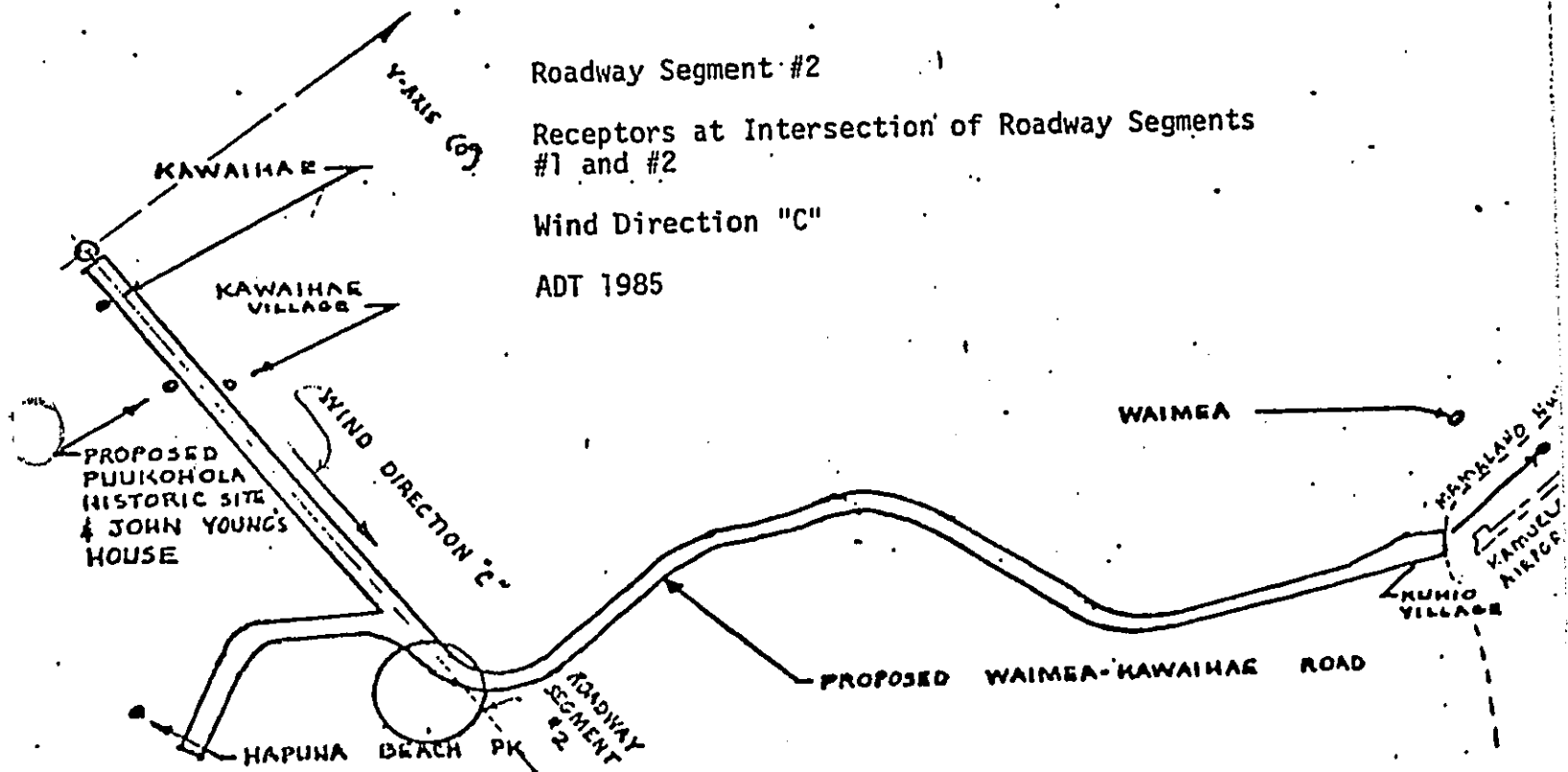
Wind Direction "C"

ADT 1995



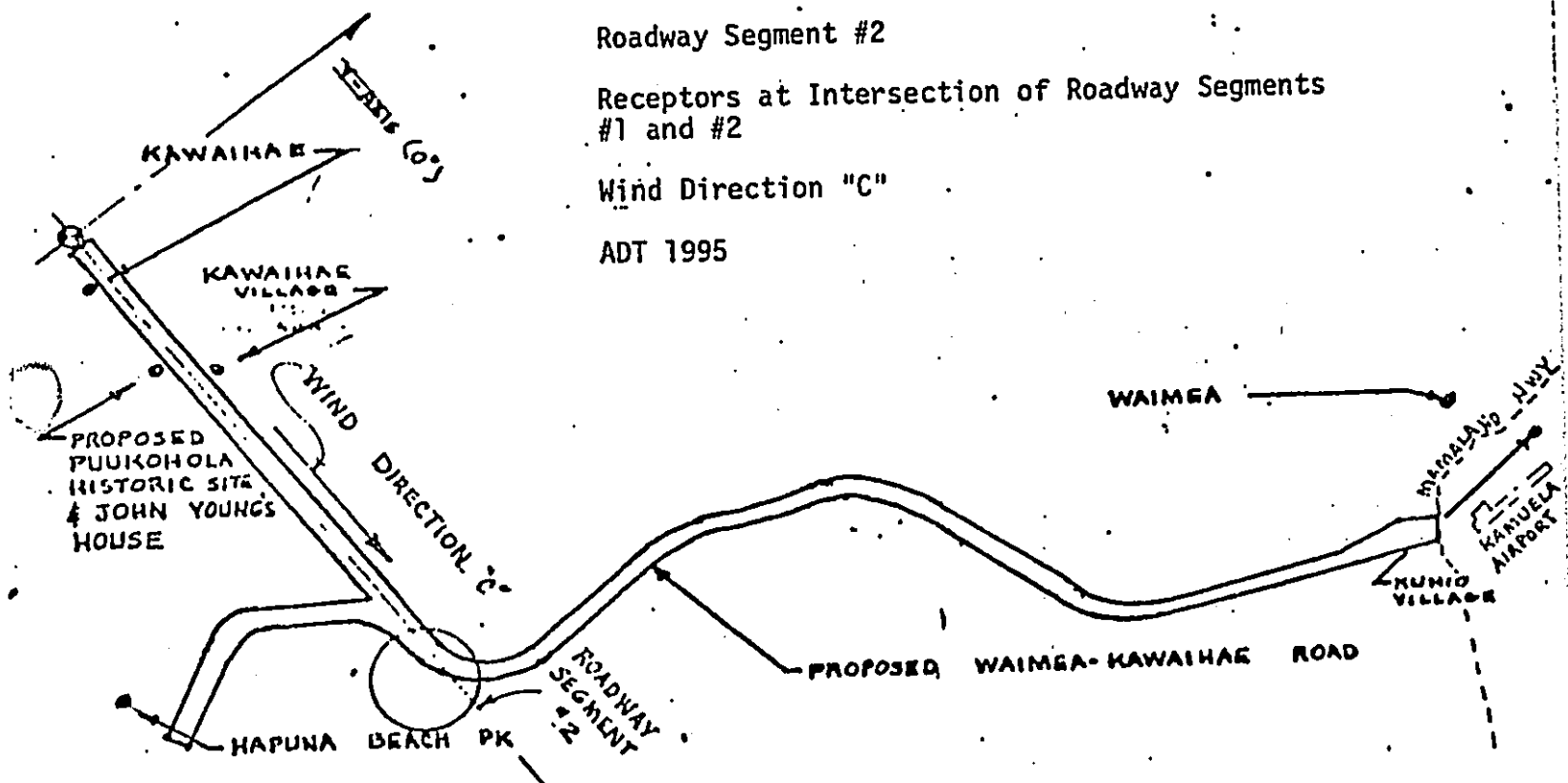
HIGHWAY VERSION: *****
 ENDPOINTS OF THE LINE SOURCE
 0.0 , 0.0 AND 27600.000, 0.0
 EMISSION HEIGHT IS 0.600 METERS
 EMISSION RATE (GRAMS/SECOND * METER) OF 2 LANE(S)
 0.261E-03 0.261E-03
 WIDTH OF AT-GRADE HIGHWAY IS 7.000 METERS
 WIDTH OF CENTER STRIP IS 0.0 METERS
 WIND DIRECTION IS 270. DEGREES
 WIND SPEED IS 1.0 METERS/SEC
 STABILITY CLASS IS B
 HEIGHT OF LIMITING LID IS 500.0 METERS
 THE SCALE FACTOR IS 0.0003KM.

RECEPTOR LOCATION		HEIGHT Z (M)	CONCENTRATION	
X	Y		UGM/CU METER	PPM
27600.0000	63.0000	0.0	493.972	0.438 ←
27600.0000	213.0000	0.0	190.211	0.165
27600.0000	563.0000	0.0	68.281	0.059
27600.0000	-87.0000	0.0	431.930	0.376
27600.0000	-237.0000	0.0	180.788	0.157
27600.0000	-587.0000	0.0	66.308	0.058



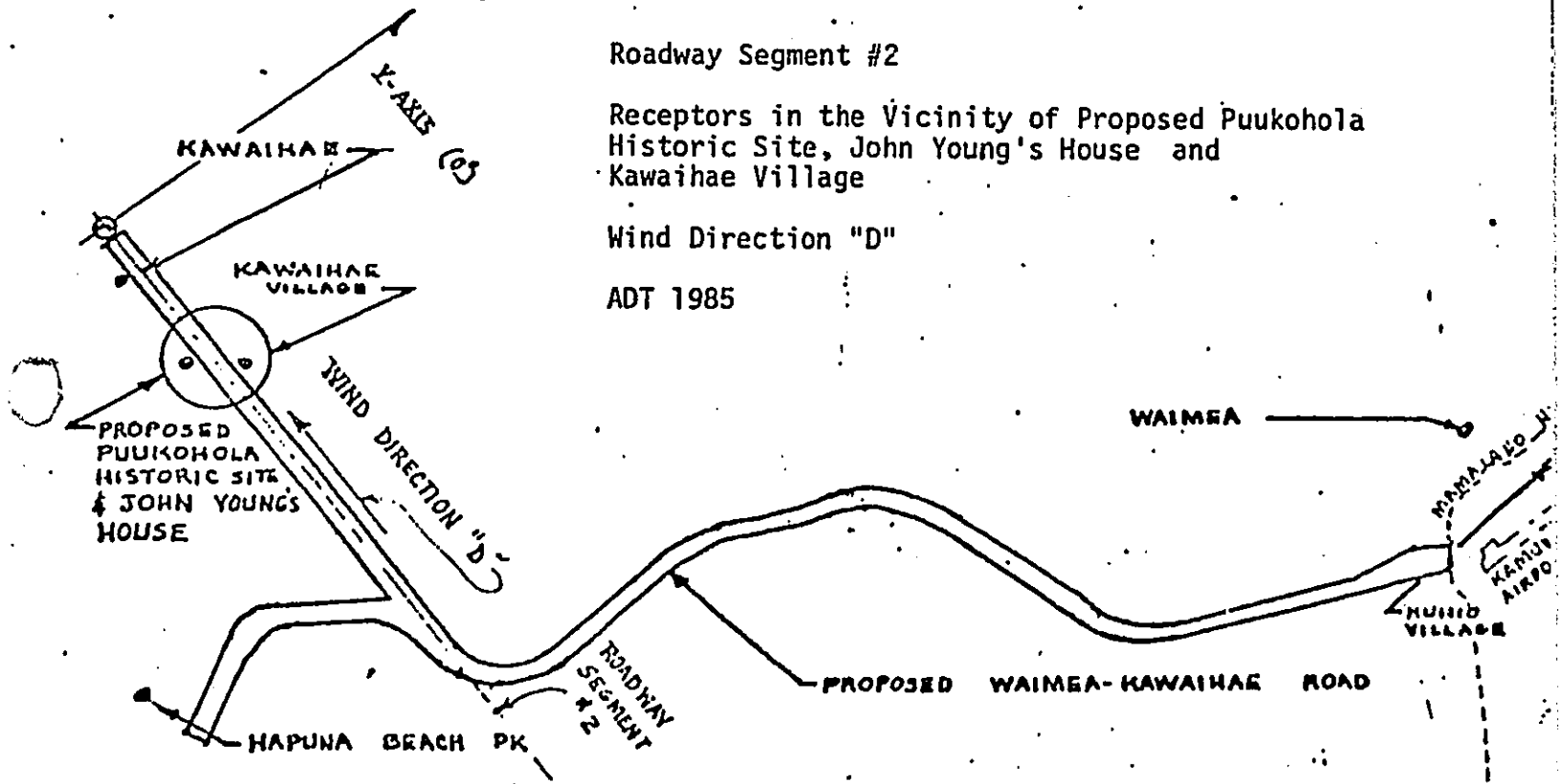
HIGHWAY VERSION: *****
 ENDPOINTS OF THE LINE SOURCE
 0.0 , 0.0 AND 27600.000, 0.0
 EMISSION HEIGHT IS 0.600 METERS
 EMISSION RATE (GRAMS/SECOND * METER) OF 2 LANE(S)
 0.219E-03 0.219E-03
 WIDTH OF AT-GRADE HIGHWAY IS 7.000 METERS
 WIDTH OF CENTER STRIP IS 0.0 METERS
 WIND DIRECTION IS 270. DEGREES
 WIND SPEED IS 1.0 METERS/SEC
 STABILITY CLASS IS 6
 HEIGHT OF LIMITING LID IS 600.0 METERS
 THE SCALE FACTOR IS 0.0003KH.

RECEPTOR LOCATION X	RECEPTOR LOCATION Y	HEIGHT Z (M)	CONCENTRATION UGM/CU METER	CONCENTRATION PPM
27600.0000	63.0000	0.0	414.482	0.361
27600.0000	213.0000	0.0	159.603	0.139
27600.0000	563.0000	0.0	57.293	0.050
27600.0000	-87.0000	0.0	362.424	0.315
27600.0000	-237.0000	0.0	151.695	0.132
27600.0000	-587.0000	0.0	55.638	0.048



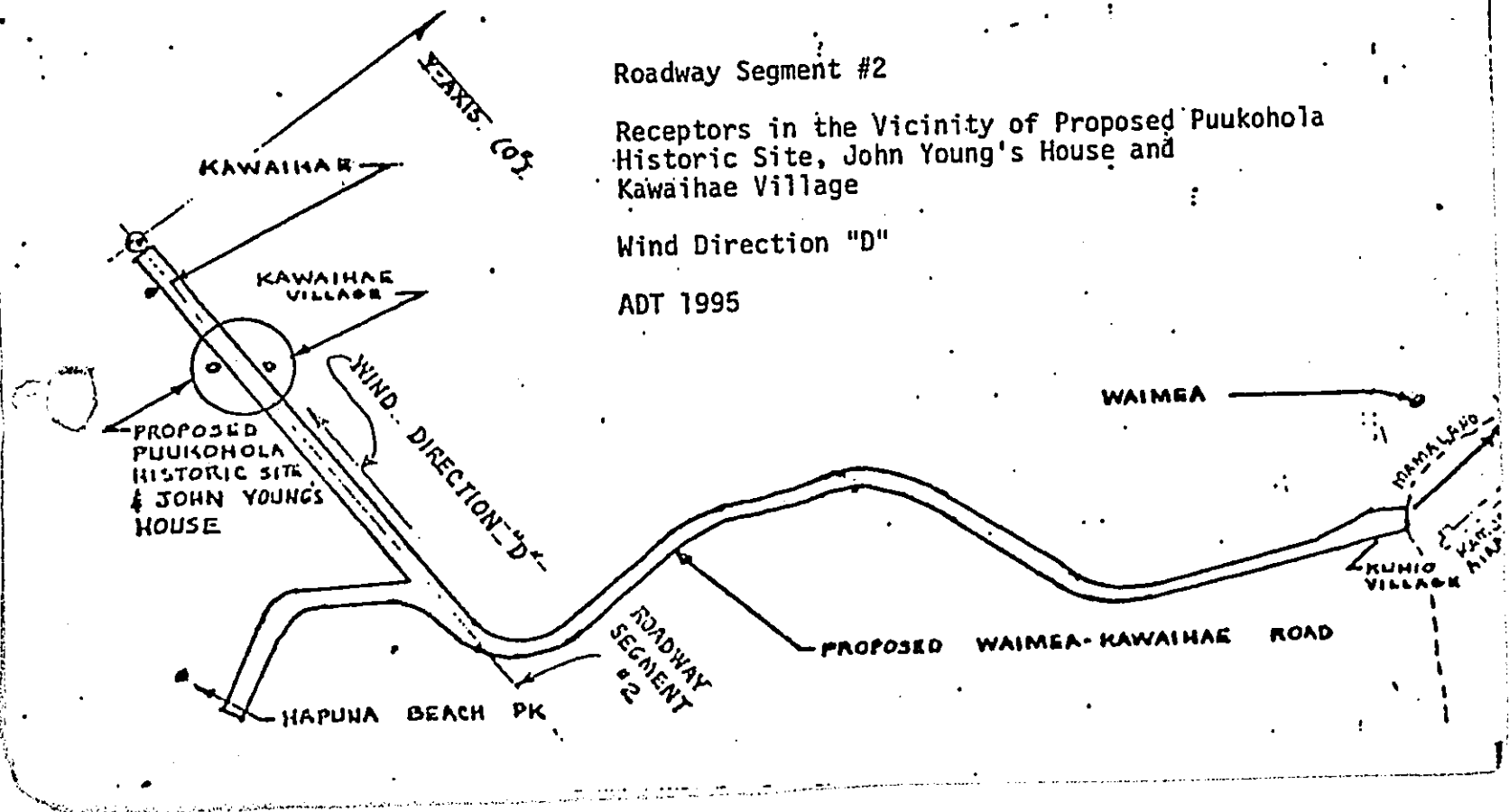
HWAY VERSION:*****
 ENDPOINTS OF THE LINE SOURCE
 0.0 0.0 AND 27800.000 0.0
 EMISSION HEIGHT IS 0.600 METERS
 EMISSION RATE (GRAMS/SECOND * METER) OF 2 LANE(S)
 0.261E-03 0.261E-03
 WIDTH OF AT-GRADE HIGHWAY IS 7.000 METERS
 WIDTH OF CENTER STRIP IS 0.0 METERS
 WIND DIRECTION IS 90. DEGREES
 WIND SPEED IS 1.0 METERS/SEC
 STABILITY CLASS IS 5
 HEIGHT OF LIMITING LID IS 500.0 METERS
 THE SCALE FACTOR IS 0.0003KM.

RECEPTOR LOCATION X	Y	HEIGHT Z (M)	CONCENTRATION UGM/CU METER	PPM
6600.0000	87.0000	0.0	415.551	0.362
6600.0000	237.0000	0.0	164.910	0.143
6600.0000	587.0000	0.0	52.455	0.046
6600.0000	-63.0000	0.0	477.563	0.415 ←
6600.0000	-238.0000	0.0	166.453	0.136
6600.0000	-563.0000	0.0	154.323	0.047



HIGHWAY VERSION: *****
 ENDPOINTS OF THE LINE SOURCE
 0.0 0.0 AND 27600.000 0.0
 EMISSION HEIGHT IS 0.000 METERS
 EMISSION RATE (GRAMS/SECOND-METER) OF 2 LANE(S)
 0.219E-03 0.219E-03
 WIDTH OF AT-GRADE HIGHWAY IS 7.000 METERS
 WIDTH OF CENTER STRIP IS 0.0 METERS
 WIND DIRECTION IS 90. DEGREES
 WIND SPEED IS 1.0 METERS/SEC
 STABILITY CLASS IS S
 HEIGHT OF LIMITING LID IS 500.0 METERS
 THE SCALE FACTOR IS 0.0003KM.

RECEPTOR LOCATION X	RECEPTOR LOCATION Y	HEIGHT Z (M)	CONCENTRATION UGM/CU METER	CONCENTRATION PPM
6600.0000	87.0000	0.0	348.681	0.303
6600.0000	237.0000	0.0	138.373	0.120
6600.0000	687.0000	0.0	44.014	0.038
6600.0000	-63.0000	0.0	400.714	0.349 ←
6600.0000	-230.0000	0.0	131.276	0.114
6600.0000	-563.0000	0.0	45.681	0.040



HIWAY VERSION 1*****

ENDPOINTS OF THE LINE SOURCE

0.0 0.0 AND 27600.000 0.0

EMISSION HEIGHT IS 0.600 METERS

EMISSION RATE (GRAMS/SECOND * METER) OF 2 LANE(S)

0.261E-03 0.261E-03

WIDTH OF AT-GRADE HIGHWAY IS 7.000 METERS

WIDTH OF CENTER STRIP IS 0.0 METERS

WIND DIRECTION IS 90. DEGREES

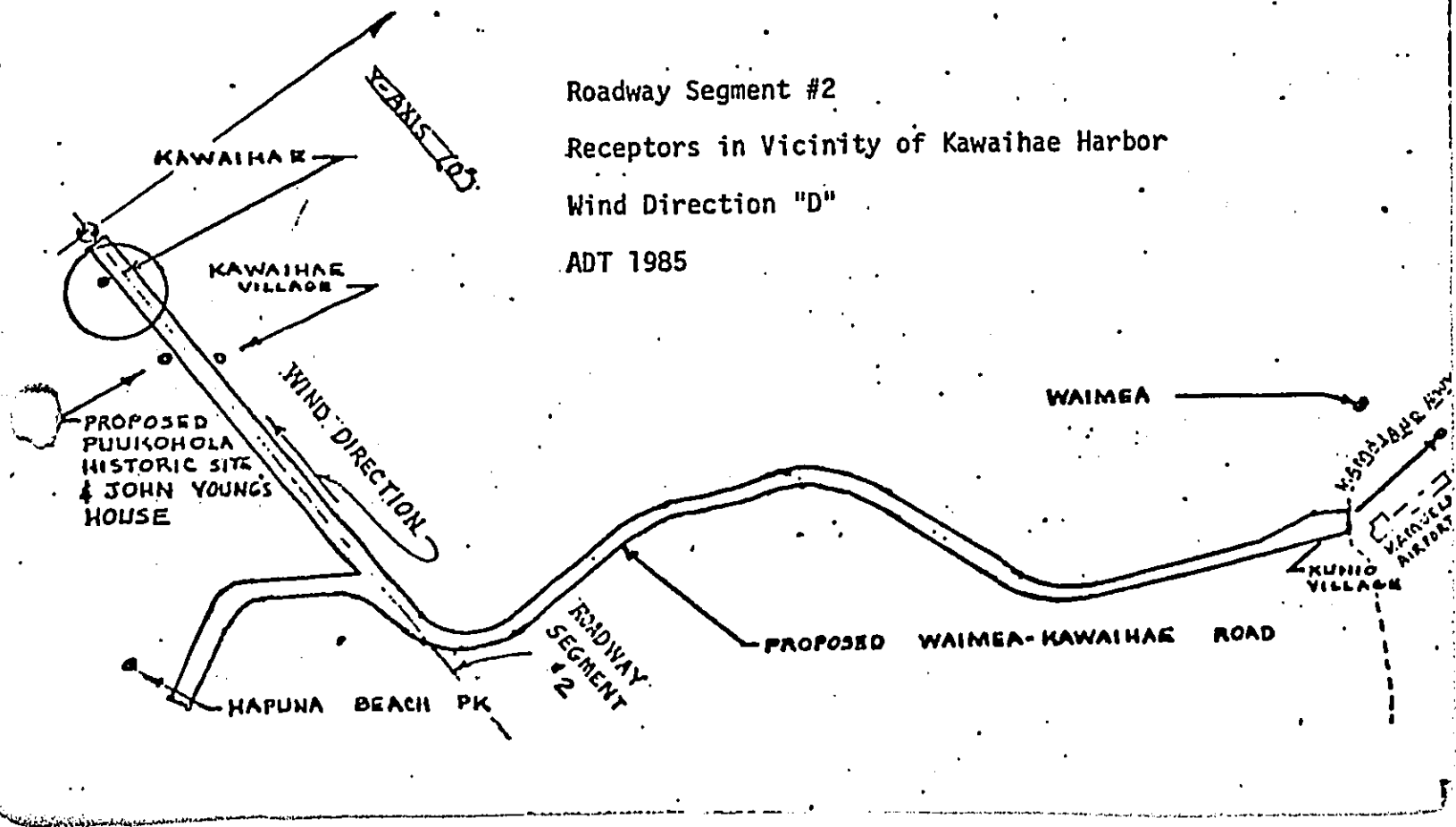
WIND SPEED IS 1.0 METERS/SEC

STABILITY CLASS IS 5

HEIGHT OF LIMITING LID IS 500.0 METERS

THE SCALE FACTOR IS 0.0003KM.

RECEPTOR LOCATION		HEIGHT Z (M)	CONCENTRATION	
X	Y		UGM/CU METER	PPM
0.0	07.0000	0.0	431.933	0.376
0.0	237.0000	0.0	180.792	0.157
0.0	587.0000	0.0	66.310	0.058
0.0	-63.0000	0.0	493.859	0.430 ←
0.0	-213.0000	0.0	190.207	0.165
0.0	-563.0000	0.0	68.278	0.059



Roadway Segment #2

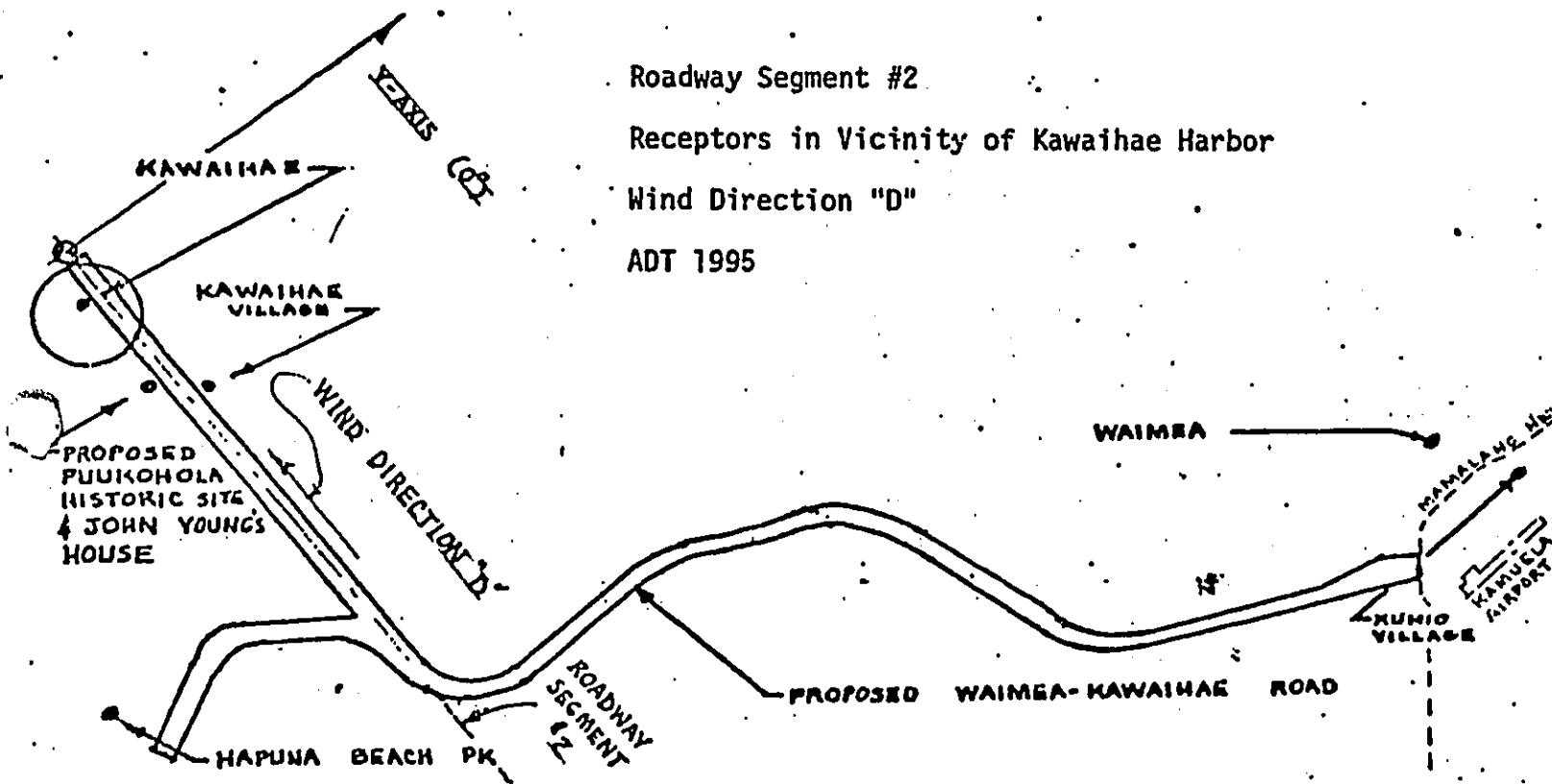
Receptors in Vicinity of Kawaihae Harbor

Wind Direction "D"

ADT 1985

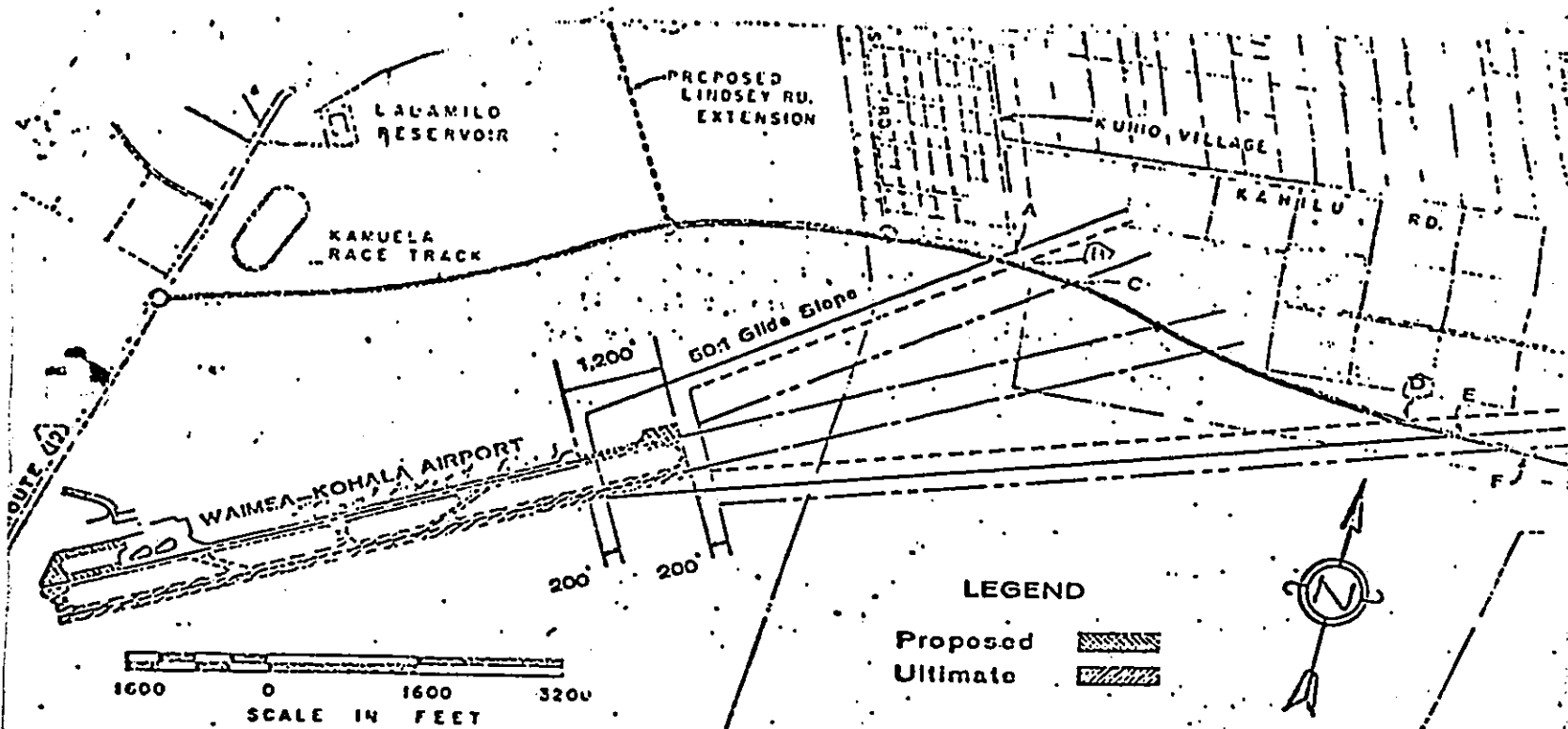
HWY VERSION:*****
 ENDPOINTS OF THE LINE SOURCE
 0.0 , 0.0 AND 27600.000, 0.0
 EMISSION HEIGHT IS - 0.600 METERS
 EMISSION RATE (GRAMS/SECOND * METER) OF 2 LANE(S)
 0.219E-03 0.219E-03
 WIDTH OF AT-GRADE HIGHWAY IS 7.000 METERS
 WIDTH OF CENTER STRIP IS 0.0 METERS
 WIND DIRECTION IS 90. DEGREES
 WIND SPEED IS 1.0 METERS/SEC
 STABILITY CLASS IS B
 HEIGHT OF LIMITING LID IS 500.0 METERS
 THE SCALE FACTOR IS 0.0003KM.

RECEPTOR LOCATION		HEIGHT Z (M)	CONCENTRATION	
X	Y		UGM/CU METER	PPM
0.0	87.0000	0.0	362.426	0.315
0.0	237.0000	0.0	151.699	0.132
0.0	587.0000	0.0	55.640	0.048
0.0	-63.0000	0.0	414.471	0.361
0.0	-213.0000	0.0	159.699	0.139
0.0	-563.0000	0.0	57.291	0.050



APPENDIX J

AIRWAY CLEARANCE APPROVAL



EXISTING RUNWAY

Points	Horizontal Distance	ELEVATIONS				CLEARANCE	
		Runway	Glide Path	Existing Ground	New Highway Pavement	Glide Path	Shielding
A	4500	2671	2761	2756	2741	20	15
E	8200	2671	2835	2817	2803	32	14

INTERIM RUNWAY

Points	Horizontal Distance	ELEVATIONS				CLEARANCE	
		Runway	Glide Path	Existing Ground	New Highway Pavement	Glide Path	Shielding
B	3550	2653	2754	2753	2743	11	15
D	6750	2653	2818	2803	2795	23	8

ULTIMATE RUNWAY

Points	Horizontal Distance	ELEVATIONS				CLEARANCE	
		Runway	Glide Path	Existing Ground	New Pavement Elevation	Glide Path	Shielding
C	4050	2657	2768	2764	2746	22	18
F	7400	2657	2835	2839	2821	14	18

SKETCH MAP SUPPORTING
FINDING OF PUBLIC INTEREST AT

W A I M E A - K O H A L A A I R P O R T
W A I M E A , H A W A I I

In compliance with Section 318, Title 23, U. S. C., we concur that the location of this airport and the consequent construction of Project No. F-019-1(2) is in the public interest.

Owen Mijamoto
 Dept. of Trans., Airports Division
 4/30/70
 Date

T. H. ...
 Dept. of Trans., Highways Division
 4/28/70
 Date

Richard T. ...
 Federal Aviation Admin.

John B. ...
 Bureau of Public Roads
 6-24-70

19 JUN 1970