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

IN REPLY REFER TO:

HWY-RM
3.78287

June 14, 2001

TO: GENEVIEVE SALMONSON, DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

FROM: BRIAN K. MINAAI, DIRECTOR OF TRANSPORTATION

SUBJECT: FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR COUNTY OF HONOLULU, KAUAI, AND HAWAII RURAL FIBER OPTIC DUCT LINES PROJECT BY SANDWICH ISLES COMMUNICATION, INC., ON BEHALF OF DEPARTMENT OF HAWAIIAN HOMELANDS

The State of Hawaii, Department of Transportation, has reviewed the comments received during the 30-days public comment period which began on March 23, 2001. The agency has determined that these projects will not have significant environmental effect and have issued a FONSI. Please publish this notice in the June 23, 2001 OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Forms and four copies of the final EA for island of Oahu, Kauai, and Hawaii. Please call Mr. Michael Okamoto of our Highways Division, Right-of-Way Branch at 692-7331 if you have any questions.

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2001-06-23-KA-FEA-

FINAL ENVIRONMENTAL ASSESSMENT

FOR

SANDWICH ISLES COMMUNICATION, INC.

KAUAI RURAL FIBER OPTIC DUCT LINES PROJECT

KAUAI, HAWAII

MAY 2001

Sandwich Isles Communications, Inc.
A Waimana Company

FINAL ENVIRONMENTAL ASSESSMENT

FOR

SANDWICH ISLES COMMUNICATION, INC.

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KAUAI, HAWAII

MAY 2001

PREPARED FOR:

Sandwich Isles Communications, Inc.
A Wavecom Company

PREPARED BY:

SSFM INTERNATIONAL

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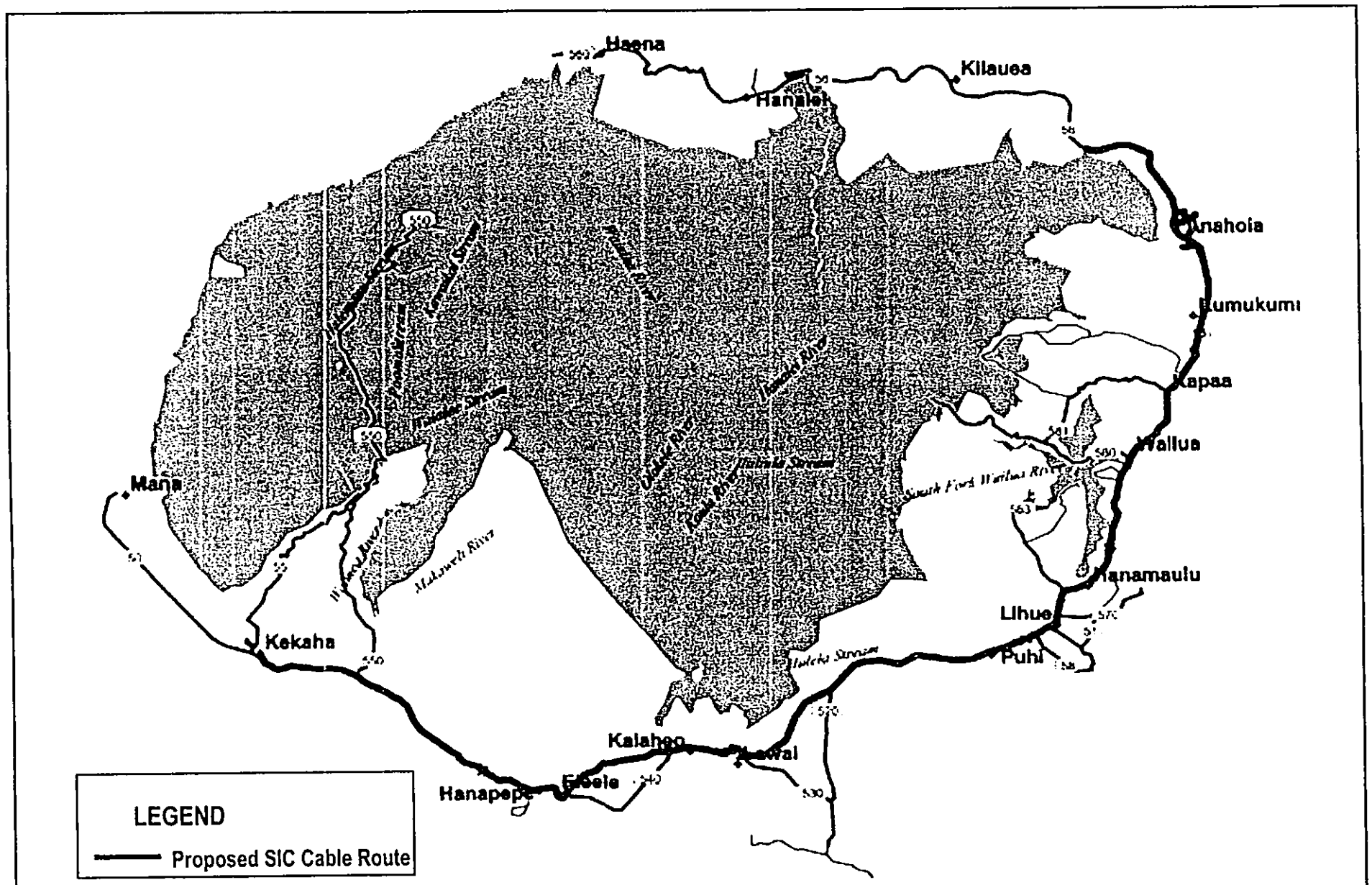


KAUAI FIBER OPTIC ROUTE LOCATION MAP

Figure 1.1

Kauai Rural Fiber Optics Duct Lines Project
Sandwich Isles Communication, Inc.

Source: Delrome Street Atlas

SSFM INTERNATIONAL

CHAPTER 1
INTRODUCTION

1.1 PURPOSE FOR ENVIRONMENTAL ASSESSMENT

Sandwich Isles Communications, Inc. (SIC) is proposing the Kauai Rural Fiber Optics Duct Lines Project for the Island of Kauai. SIC is proposing to install a total of approximately 51 miles of underground fiber optic telecommunications cable within existing rights-of-way (ROW) of State highway facilities throughout the island. The purpose of the project is to link State of Hawaii (State) Department of Hawaiian Home Lands (DHHL) homestead properties on the island with a modern high speed telecommunications system.

The majority of these roadway facilities affected would be State highways (about 92%), and the preferred conduit alignment within these rights-of-way would be on the mauka side of the roadway. A few miles of roadways owned by DHHL would also be involved with this project. Construction of this project would generally involve installing this duct system within an excavated trench approximately 1 foot wide and 2 to 4 feet deep. Figure 1.1 shows the general location of routes planned for the island. Table 1.1 provides a summary of pertinent information associated with this project.

Background On Sandwich Isles Communication, Inc.

Sandwich Isles Communications, Inc. is a native Hawaiian-owned corporation that was incorporated in 1995, and has been serving native Hawaiians since 1998. SIC is duly commissioned and regulated by the Federal Communications Commission and the State of Hawaii Public Utility Commission as a rural telephone company.

The mission of SIC is to provide state-of-the-art, competitively priced, broad band telecommunications services to DHHL homestead properties. This would provide beneficiaries and lessees of DHHL with access to cost-competitive telephone service. It would also allow for providing state-of-the-art telecommunication innovations such as educational programming, internet services, video tele-conferencing, and other fiber optic-based services in the future.

To meet this mission, SIC was assigned a State DHHL license agreement to provide the installation of essential communications services to homestead properties on the Island of Kauai at no cost to DHHL. This would allow more funds from DHHL to be put into residential development of homestead properties. Consequently, SIC needs expedient, consistent, and equal access to public roadway rights-of-way to construct telecommunication services to State DHHL homestead properties.

Table 1.1 Summary Information

Project Name:	Sandwich Isles Communication, Inc.; Kauai Rural Fiber Optic Duct Lines Project
Applicant Identification:	Sandwich Isles Communication, Inc. Pauahi Tower, 27th Floor 1001 Bishop Street Honolulu, Hawaii 96813 Contact: Mr. Larry Fukunaga
Authorized Agent:	SSFM International, Inc. 501 Sumner Street, Suite 502 Honolulu, Hawaii 96817 Contact: Mr. Ronald A. Sato, AICP
Accepting Authority:	Rights-of-Way Branch, Highways Division Department of Transportation, State of Hawaii
Project Description:	This project involves the installation of about 51 miles of fiber optic telecommunications cable to be buried within the rights-of-ways of existing State highways and some DHHL roads throughout the island of Kauai. The purpose of this project is to link State DHHL homestead areas on Kauai with fiber optic cables to provide beneficiaries with modern essential high speed and competitively priced communication services.
Project Location:	Beginning in Kekaha, the route follows Kaumualii Highway through Waimea, Hanapepe, Kalaheo, and Puhi to the highway's terminus at Rice Street in Lihue. Continuing northward out of Lihue, the route follows, Kuhio Highway through Hanamaulu, Kapaa, and Anahola/Kamalomaloo (where branch lines will serve the Anahola Subdivision). The route terminates in Moloaa, the northernmost DHHL homestead property on the Island of Kauai.
Land Ownership:	Roadway rights-of-way affect the jurisdiction of both State of Hawaii, Department of Transportation, and the State Department of Hawaiian Home Lands for roadways in the Anahola Subdivision.
Tax Map Key:	State and DHHL rights-of-way are not identified by Tax Map Key.
State Land Use:	Roadway facilities run through Conservation, Agricultural, Rural, and Urban Districts.
County Zoning:	The proposed fiber optic cable alignment occurs within several zoning districts.
SMA Designation:	Portions of the proposed fiber optic cable alignment are located within the Special Management Area.

1.2 DISCUSSION OF APPLICANT ACTION

The telecommunication line project would involve the use of rights-of-way within the State Department of Transportation (DOT) highway facilities along with some DHHL-owned roadways to install the fiber optic cables. As a result, this project would involve the "use of state or county lands." Portions of certain existing roadways affected by the project are also situated within the State's "Conservation District." Hence, this project is subject to the environmental documentation procedures prescribed under Chapter 343, HRS and Title 11, Chapter 200 of the State Department of Health's (DOH) Administrative Rules.

A Final Environmental Assessment (Final EA) is being prepared for this project to address the probable impacts associated with the entire route proposed for the island of Kauai. Therefore, this project represents an Applicant Action being undertaken by SIC. This Final EA has been prepared in conformance to regulatory requirements to address the probable impacts on the surrounding environment resulting from the proposed project, and a Finding of No Significant Impact (FONSI) is anticipated for this project.

1.3 IDENTIFICATION OF ACCEPTING AUTHORITY

Since this project represents an Applicant Action, the Accepting Authority for this environmental document rests with the agency receiving and agreeing to process the request for project approval. This telecommunication line project would require easements and permits for placing the lines within both State rights-of-way along with DHHL owned roadways, therefore, it involves more than one agency with jurisdiction.

To determine the Accepting Authority for this project, consultation with staff from the DOT, DHHL, and OEQC was conducted. Although no County roadway rights-of-way would be affected, consultation was also conducted with the County Planning Department. Subsequently, a meeting was held with representatives from SIC, OEQC, DHHL, and DOT to discuss determination of the appropriate Accepting Authority.

Based upon this meeting, it was determined and agreed that the State DOT would serve as the Accepting Authority for this project. The State DOT was determined to be the most appropriate agency since they are: 1) the agency with the greatest responsibility for approving the action as a whole, 2) can most adequately fulfill the requirements of Chapter 343, HRS, 3) has special expertise and access to information, and 4) would have the most participation in the action since the majority of roads affected are under their jurisdiction.

CHAPTER 2
PROJECT DESCRIPTION

2.1 PROJECT LOCATION AND VICINITY

The underground fiber optic cable proposed for the Island of Kauai would be constructed within about 51 miles of roadway facilities under the jurisdiction of either the State or DHHL. This is due to the presence of several DHHL homestead areas located in various areas of the island ranging from Kekaha to Moloaa. As a result, this fiber optic system would extend through several communities present within the various districts making up this island. Figures provided later in this chapter show the proposed routes in relation to the various districts.

Beginning in Kekaha, the proposed route follows Kaumualii Highway through Waimea, Hanapepe, Kalaheo, and Puhi to the highway's terminus at Rice Street in Lihue. Continuing northward out of Lihue, the route follows, Kuhio Highway through Hanamaulu, Kapaa, and Anahola/Kamalomaloo (where branch lines will serve the Anahola Subdivision). The route terminates in Moloaa, the northernmost DHHL homestead property on the Island of Kauai.

2.2 DESCRIPTION OF PROJECT

This project consists of the construction of underground fiber optic duct lines within the rights-of-ways of State DOT highway facilities to provide service to DHHL homestead areas on the Island of Kauai. DHHL has about 7 major homestead locations on the island which total about 20,210 acres (DHHL 1997). A total of approximately 51 miles of roadway would be affected of which the large majority would be State highway facilities. Two miles would be within roadways in Anahola which are under the jurisdiction of DHHL.

About 46.6 miles (92%) would be constructed within State DOT right-of-ways while the remaining approximately 4.4 miles would be within DHHL roadway right-of-ways. These underground fiber optic duct lines would be constructed within either existing roadway pavements or shoulder areas. The preferred conduit alignment within these rights-of-way would be on the mauka (inland) side of roadways. However, the specific location of conduit alignments would be determined on a case by case basis during the design of this project. The preferred location within roadway right-of-ways would be first unpaved shoulders, then paved shoulders, and finally paved travel lanes.

2.2.1 Design Information For Duct System

An underground duct system would be constructed within roadways that will be used for the installation of fiber optic cabling and/or copper cabling. There are four different duct system design alternatives being considered to contain the fiber optic telecommunication cables.

Selection of a particular duct system design would be determined on a case-by-case basis during the design work performed for the various segments associated with this system. These alternative conduit systems are identified, and preliminary drawings of typical trench sections which may be associated with these duct system designs are provided in Figures 2.1 and 2.2.

1. A single 4-inch diameter duct;
2. Two 4-inch diameter ducts;
3. A single bundle of seven (7) 1¼-inch diameter ducts within a 6-inch pipe sleeve; and
4. A combination of two 4-inch diameter ducts along with a single bundle of seven (7) 1¼-inch diameter ducts within a 6-inch pipe sleeve.

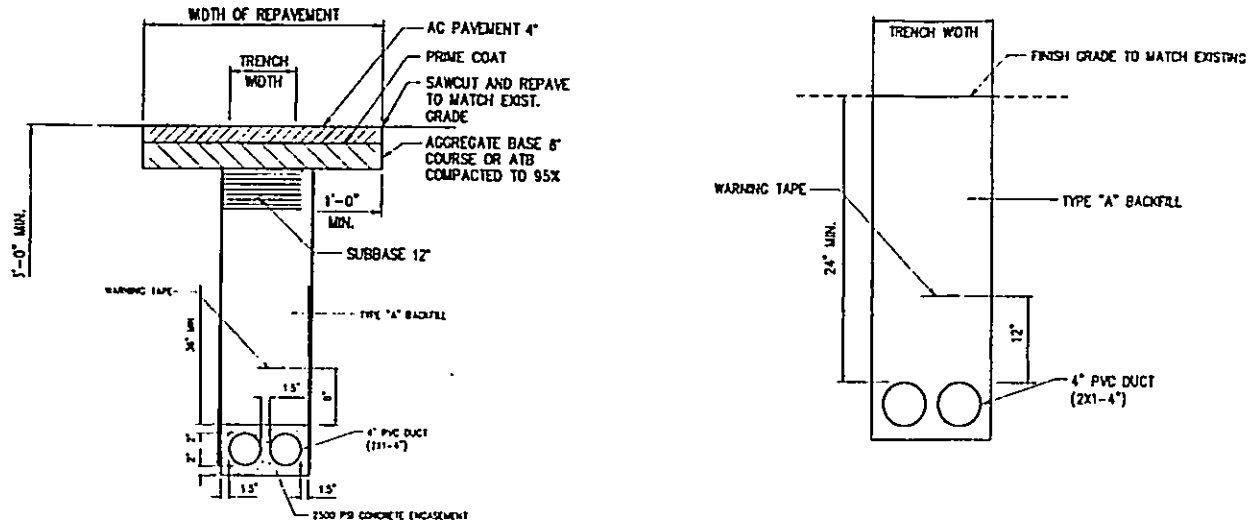
The various duct designs would likely be enclosed in a concrete encasement or other approved encasement types. Within roadway pavements, these concrete encasements would generally be situated about 3 to 4 feet below the surface, include a sub-base provided under the pavement's aggregate base course, and agency approved backfill of material on top of the encasement. Within roadway shoulder areas, these encasements would be situated about 2 feet below the surface and would be covered with agency approved backfill material. In addition to these underground ducts, handholes of about 3 feet by 5 feet in size would be installed approximately every 2,000 to 3,000 feet or other intervals based upon design requirements.

Construction Methods

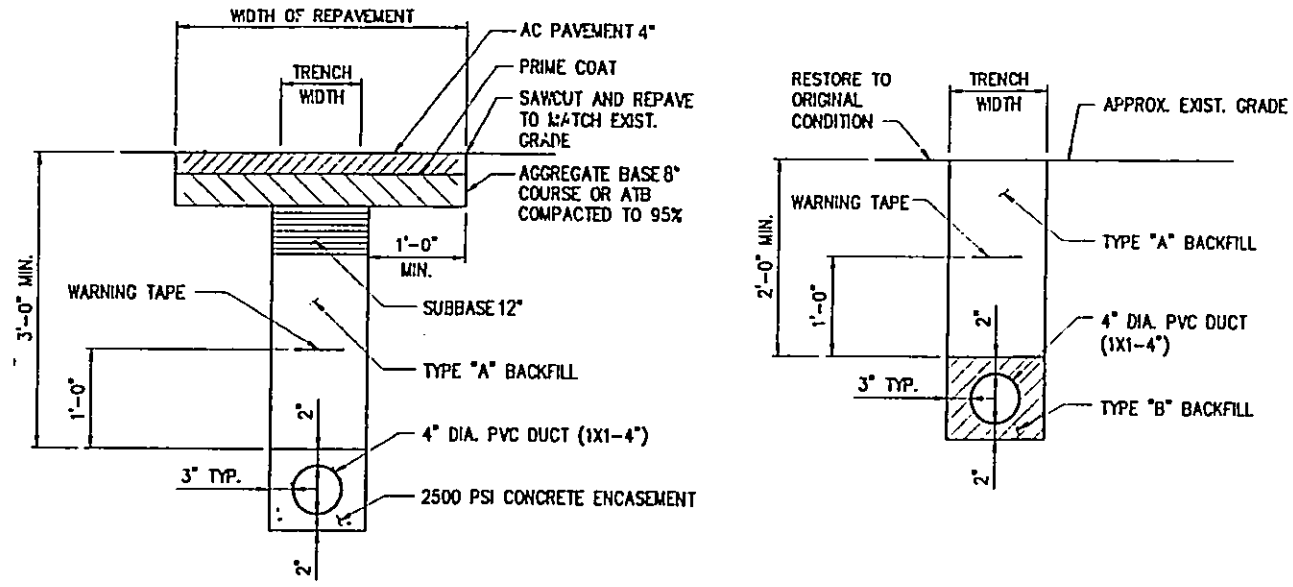
All improvements associated with this rural fiber optic duct lines project, including appurtenant pull boxes and switches, are planned to be constructed underground. Preliminary design indicates that no above ground appurtenances should be necessary. However, if a few small above ground telephone equipment are necessary, they are planned to be located within either DHHL properties, public rights-of-way as permitted by agencies, or other privately-owned properties. Necessary telephone cabinets would generally be about 4 feet in height or less.

The planned construction methods for the installation of fiber optic cables would be either open trench work or some type of trenchless method such as horizontal directional drilling or microtunneling. The handholes and manholes installed would also be used for the installation of fiber optic cables. Trenchless methods would be used where open trench construction methods are not possible or practicable under certain existing conditions. For example, trenchless methods have been used to construct lines where the disturbance associated with open trench methods is not acceptable.

The specific construction method implemented for a particular section of fiber optic cable would be determined on a case-by-case during the design of the various segments associated with this project. As a result, important design considerations affecting the selection of construction method would typically include existing geotechnical conditions, present conditions along the roadway, and construction cost and schedule. One instance where a trenchless method would be considered is at major intersections to minimize disruptions to traffic flow.



Typical Trench Sections for Two 4-Inch Ducts (Under Pavement and Shoulder)



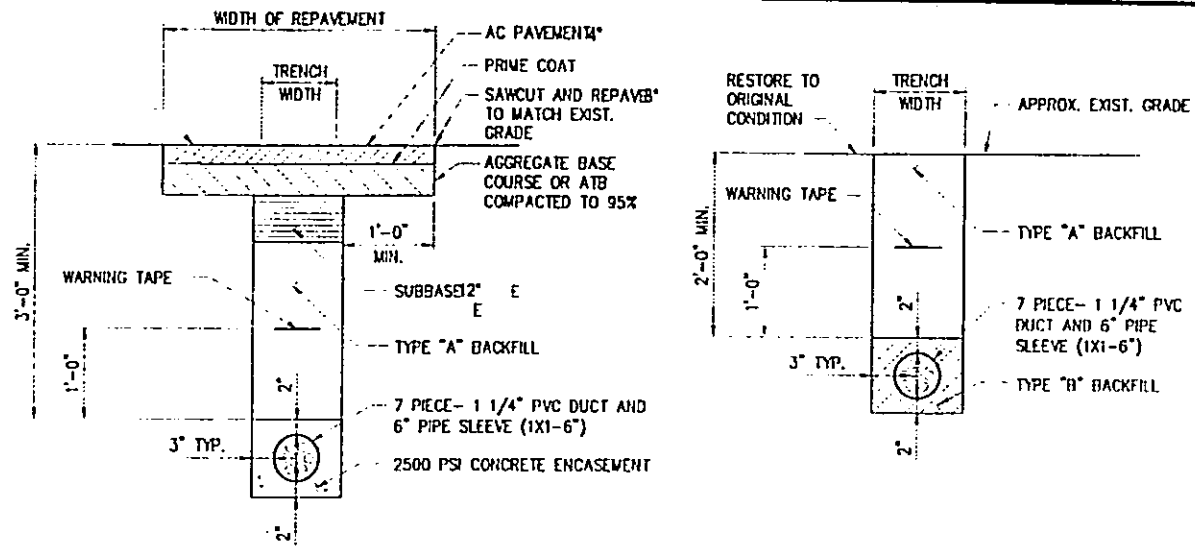
Typical Trench Sections for Single 4-Inch Ducts (Under Pavement and Shoulder)

PRELIMINARY TYPICAL TRENCH DESIGN

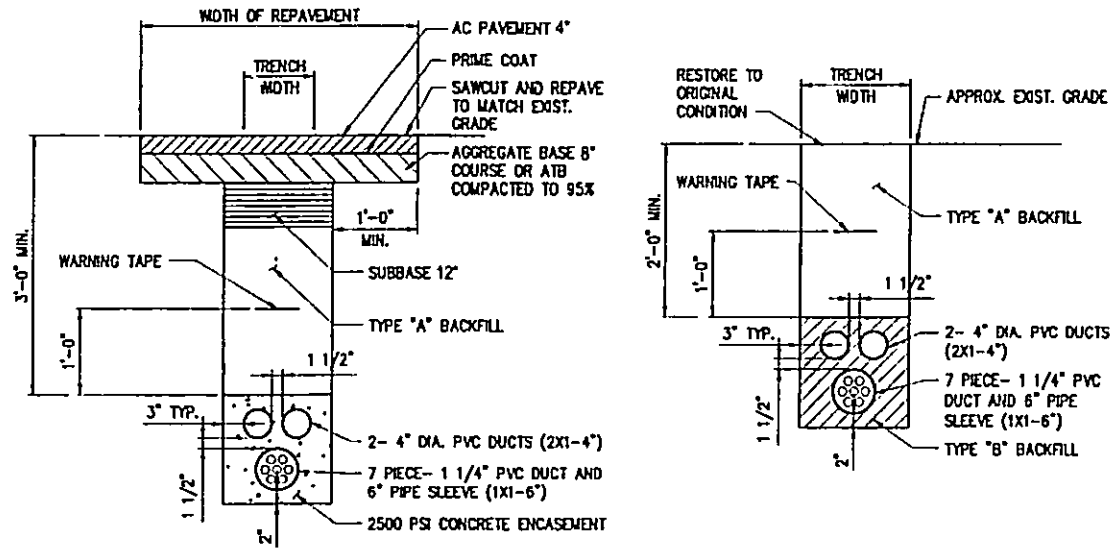
Figure 2.1

Kauai Rural Fiber Optic Duct Lines Project
Sandwich Isles Communication, Inc.

Source:
SSFM International, Inc.



Typical Trench Sections for Single Bundle of Seven 1.25-Inch Ducts (Under Pavement and Shoulder)



Typical Trench Sections for Combination of Ducts (Under Pavement and Shoulder)

PRELIMINARY TYPICAL TRENCH DESIGN

Figure 2.2

Kauai Rural Fiber Optic Duct Lines Project
Sandwich Isles Communication, Inc.

Source:
SSFM International, Inc.

The open trench method would typically be used where other underground utilities are not present, within rocky soils, or where construction corridors are not restricted. Construction of this duct system using this method would typically involve excavating a trench approximately 1 foot wide and about 3 to 4 feet deep to allow installation of the various duct systems previously shown. These trenches would be backfilled, and roadway shoulders or pavements resurfaced to meet State or County design standards.

Horizontal directional drilling methods have been used to construct pipelines and avoid open cut trench crossings beneath rivers and other waterways along with roadways through favorable geological deposits. This method of constructing pipelines or utility lines involves using sophisticated drilling techniques to drill a pilot hole, which is subsequently enlarged by reaming with various reaming tools to obtain a bore hole of the desired size. Drilling mud is used to flush the cuttings from the bore hole and to stabilize the bore hole by maintaining a slurry-filled pathway for subsequent reaming passes and pipe pullback. When the bored hole has reached the required size, the pipeline (or a casing) is pulled back into the bored hole in a single operation.

Microtunneling is another underground method of constructing pipelines or utilities using a remotely controlled, laser guided, steerable boring machine. The line is installed using pipe-jacking methods from a jacking pit to a receiving pit. The line and grade accuracy of this method is usually good, typically within several inches when properly executed.

At bridge crossings encountered along the planned route, the design for fiber optic cable crossings would be determined on a case-by-case basis since there are differences in the design and materials associated with each bridge. Design crossings would consider either bridge attachments or directional drilling under streams or gulches if practicable. It is intended that all fiber optic cables would be designed to avoid affecting streams or other sensitive environmental resources.

The design of all fiber optic cables within State highway facilities and Federal aid County highways would be in conformance to or exceed the regulations and minimal design requirements specified under Title 19, Chapter 105 (Accommodation and Installation of Utilities on State Highways and Federal Aid County Highways) of the State DOT's Administrative Rules (DOT 1981). These regulations cover requirements for the installation of underground utilities, highway crossings, and attachments to bridges.

Similarly, the design of all underground fiber optic cables within DHHL roadway facilities would be in conformance with or exceed the County's minimal standards prescribed under the *Standard Details For Public Works Construction* (DPW 1984). Furthermore, appropriate coordination with the State DOT and County would be conducted during the project's design.

2.2.2 Planned Fiber Optic Cable Line Routes

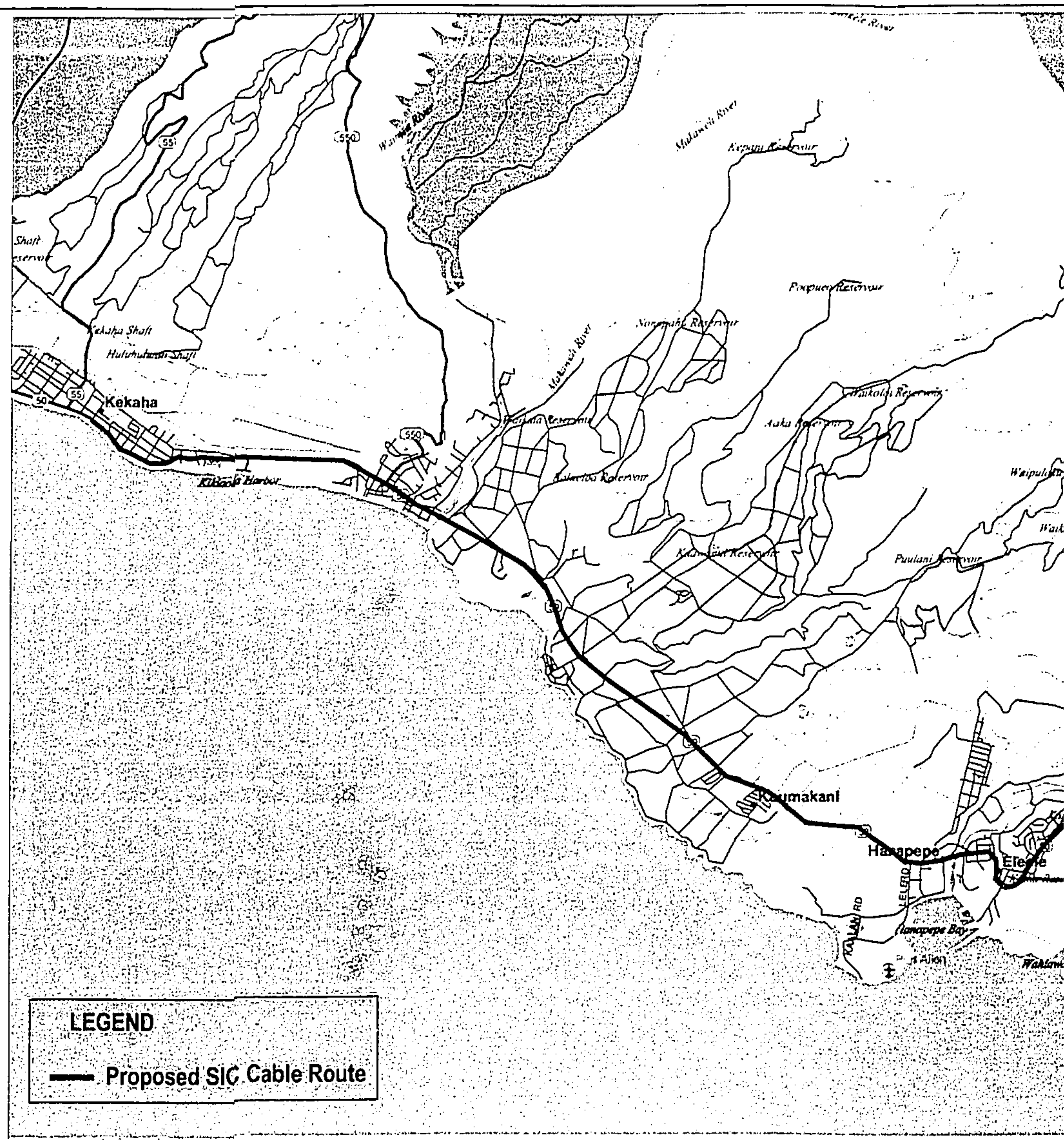
A description of the routes planned throughout the island is provided below in more detail. Table 2.1 provides a summary along with other information associated with the various fiber optic route sections through the various communities.

Table 2.1 Summary Of Fiber Optic Routes

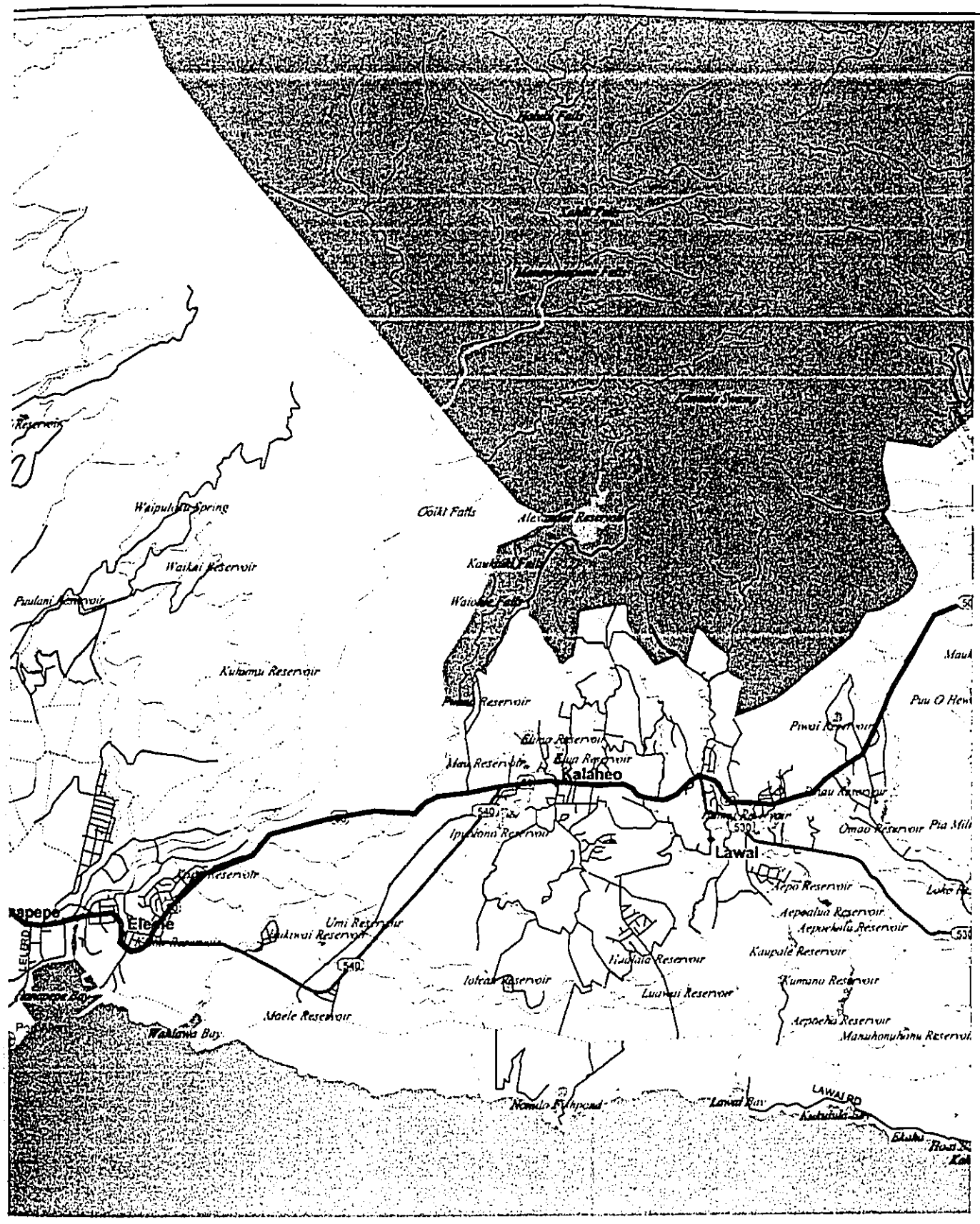
Route Description	Estimate Mileage	Roadway Jurisdiction
Kauai Island Route		
1. Kaumualii Highway from Alae Road (Kekaha) to Lele Road (Hanapepe)	9.5	State DOT
2. Kaumualii Highway from Lele Road (Hanapepe) to Maluhia Road (Omao)	10.6	State DOT
3. Kaumualii Highway from Maluhia Road (Omao) to Intersection with Rice Street and Kuhio Highway (Lihue)	6.9	State DOT
4. Kuhio Highway from Intersection with Kaumualii Highway and Rice Street (Lihue) to Kapule Highway (Hanamaulu)	2.8	State DOT
5. Kuhio Highway from Kapule Highway (Hanamaulu) to Kawaihau Road (Kapaa)	6.8	State DOT
6. Kuhio Highway from Kawaihau Road (Kapaa) to past Koolau Road (Moloaa)	10.0	State DOT
7. Roads in Anahola Subdivision consisting of: a. Ioane Road to Konona Road to Kalalea Road into subdivision b. Anahola Road to Kamane Road c. Aliomanu Road down to shoreline area d. Hokualele Road to Kamolomalo'o Place	4.4	State DHHL
Route Summary		
A. State Highway Facilities	**46.6**	**92% of Total**
B. DHHL Roadway Facilities	**4.4**	**8% of Total**
C. Total Roadway Facilities	**51.0**	

West Kauai Route

The fiber optic route generally begins in the town of Kekaha in the area where DHHL has their Kekaha homestead property. This route would be constructed within the State rights-of-way along Kaumualii Highway beginning from its intersection with Alae Road and proceed eastbound. This particular segment of the route would follow this highway up to Lele Road in Hanapepe where there are a few more DHHL properties in the area. Figure 2.3. shows the fiber optic route in this area of the island.



WEST KAUAI FIBER OPTIC ROUTE M



IC ROUTE MAP

Figure 2.3

Source:
Delrome Street Atlas USA.

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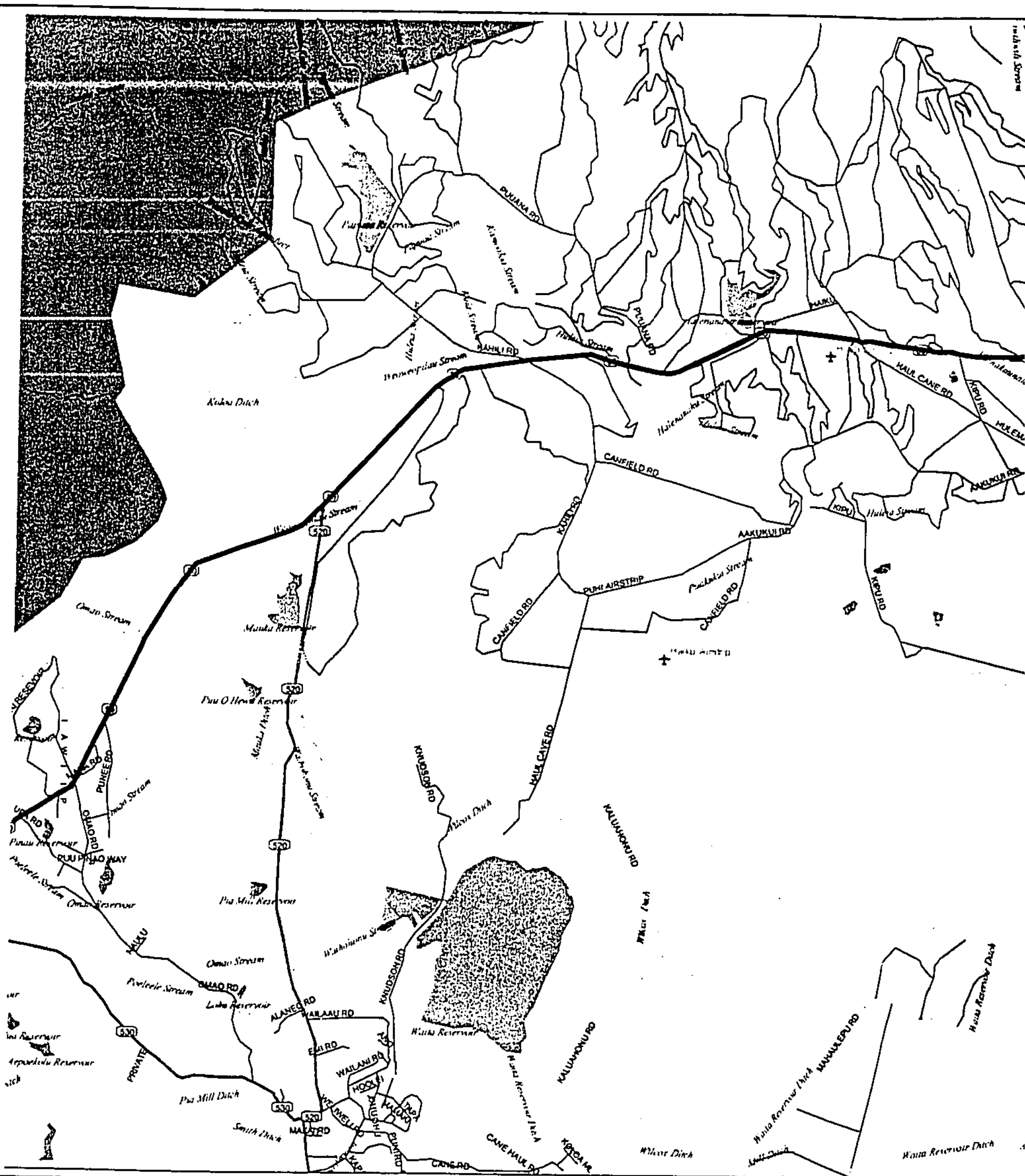
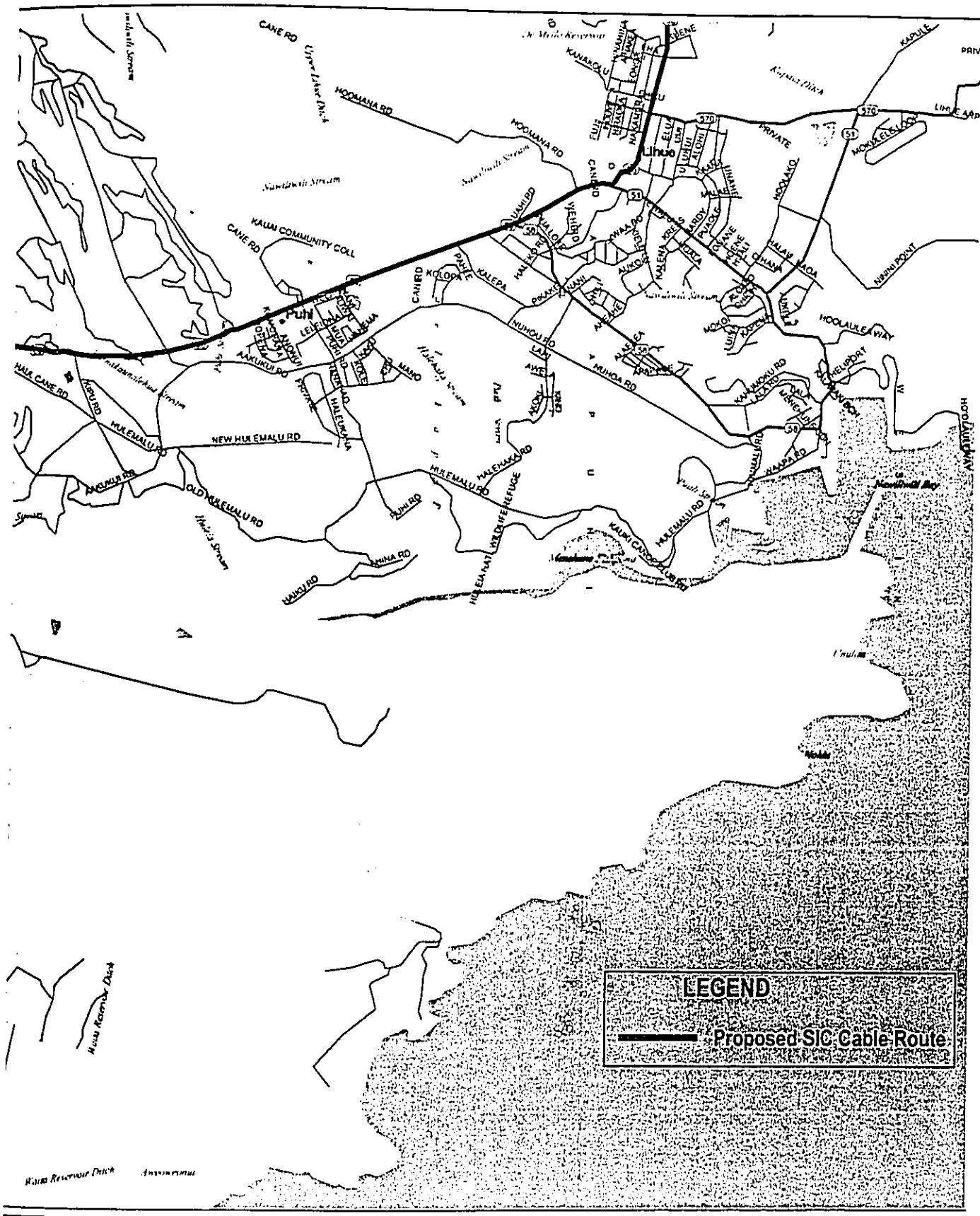


CENTRAL KAUAI FIBER OPTIC F

Kauai Rural Fiber Optic Telecommunication Line Project
Sandwich Isles Communication, Inc.



R OPTIC ROUTE MAP

Source:
Delrome Street Atlas USA.

Figure 2.4

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The next section of the fiber optic route would continue along Kaumualii Highway from Lele Road to Maluhia Road in the community of Omao. This section of the route is shown on Figure 2.4. The fiber optic route would continue along Kaumualii Highway into the town of Lihue where it meets with the intersection of Rice Street and Kuhio Highway. The route would then turn onto Kuhio Highway travelling toward Hanamaulu.

The fiber optic route would follow Kuhio Highway from Lihue to its intersection with Kapule Highway in Hanamaulu. Figure 2.5 shows this route proceeding in the eastern portion of the island. From this point, the route would continue along Kuhio Highway into the towns of Wailua and Kapaa where there are DHHL properties located in both towns. The route would then continue along the highway past the DHHL subdivisions in Anahola until reaching its terminus point in Moloaa where the last DHHL property is located.

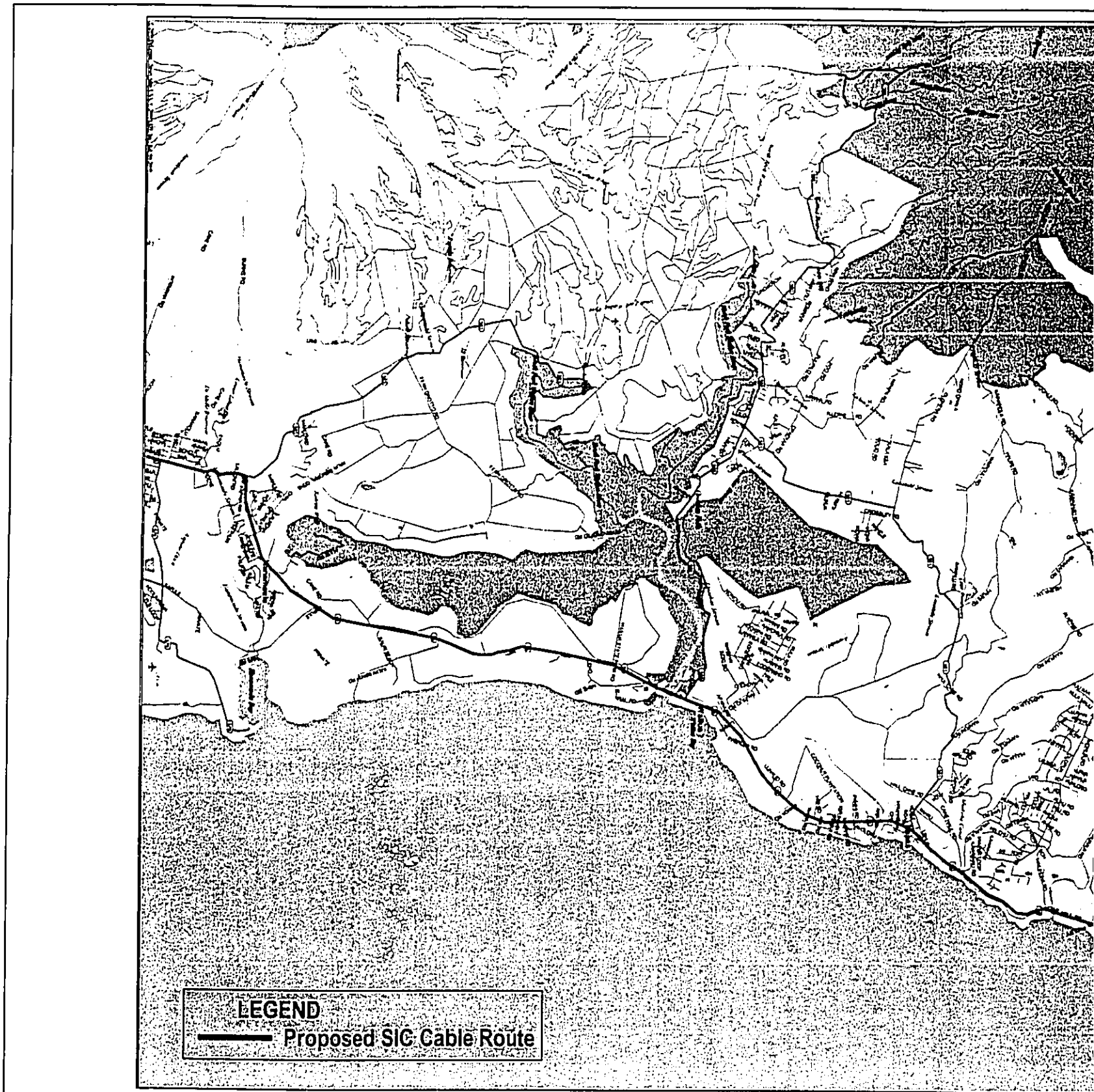
Within Anahola, there would be several routes extending from Kuhio Highway into this DHHL subdivision area. As shown on Figure 2.5, the fiber optic route would extend along Ioane Road, Konona Road, and to Kalalea Road leading into inland portion of this subdivision area. Another segment would travel from the highway along Anahola Road to Kamane Road. A third segment would travel along Aliomanu Road down to shoreline area. The last segment would follow along Hokualele Road makai of the highway before turning onto Kamolomalo'o Road.

Future Development Phases

In addition to the underground fiber optic lines proposed within existing roadway rights-of-ways on the island, landing sites along shoreline areas are planned in the future to accommodate submerged cables connecting to this land based roadway system. The land based fiber optic system is an independent system to provide emergency, basic, and advanced telecommunication services to DHHL properties. The landing sites would connect DHHL properties statewide to give SIC an opportunity to provide inter-island service for beneficiaries instead of using more costly existing carriers.

Planning work will be conducted at a later time to determine the feasibility of pursuing specific submerged cable routes between islands along with specific landing sites for the Island of Kauai. The implementation of these landing sites is contingent upon the successful implementation of the underground fiber optic duct system within roadways connecting DHHL homestead properties. Implementation of the land-based system will have a direct bearing on the planning and development of these future landing sites.

Specific locations of such landing sites have not been determined since the economic feasibility of routes still needs to be planned and evaluated by SIC. Thus, there are currently no available project details available to address these landing sites. A separate environmental document would be prepared to better address these landing sites at the appropriate time when the feasibility of this phase is established and project details are developed. Consultation meetings with OEQC were held in May and October of last year concerning this matter, and it was mutually agreed that such an approach would be appropriate.



EAST KAUAI FIBER OPTIC ROU

Kauai Rural Fiber Optic Telecommunication Line Project
Sandwich Isles Communication, Inc.

)PTIC ROUTE MAP

Source:
Delrome Street Atlas USA>

Figure 2.5

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2.3 PROJECT NEED AND OBJECTIVES

The DHHL has been developing homestead properties for agricultural, pastoral, and residential purposes for native Hawaiian beneficiaries (DHHL 1997). However, funding requirements associated with the development of these homestead properties are costly and somewhat constrains DHHL's ability to administer their program. This funding is necessary to construct supporting infrastructure, such as roadways, water lines, and sewer lines.

SIC has entered into a license agreement with DHHL to construct, modernize, and operate a Hawaiian Home Land-wide telecommunication infrastructure at no cost to DHHL. This would provide telecommunications services to homestead properties at a cost less than or equal to the cost of other comparable service providers. This allows more funds from DHHL to be put into the actual development of homestead properties. It also allows beneficiaries to access emergency, basic, and advanced telecommunication services in their rural and insular locations. Consequently, the mission of SIC is to provide state-of-the-art, competitively priced, broad band telecommunications services to DHHL homestead properties to serve beneficiaries.

Consequently, SIC needs expedient, consistent, and equal access to public roadway rights-of-way to construct fiber optic lines between homestead properties resulting in the proposed project. This project will subsequently create several positive benefits for DHHL and its beneficiaries as identified below.

1. Provide beneficiaries with high quality, essential telecommunication services at a cost regulated by the PUC's tariff, which is competitive with comparable outside telecommunication services.
2. The construction, modernization, and operation of this telecommunication infrastructure will be completed at no cost to DHHL; thus allowing DHHL to use its funds to develop housing opportunities for its beneficiaries.
3. The action will provide DHHL beneficiaries with access to state-of-the-art telecommunication innovations such as educational programming, internet services, video tele-conferencing, and other fiber optic-based services in the future.
4. Employment training and educational opportunities for beneficiaries are also planned in the future.

2.4 DEVELOPMENT SCHEDULE AND CONSTRUCTION COST ESTIMATES

Upon completion of the environmental review process, design work for the various route segments will be completed. Other discretionary land use approvals or permits may also need to be obtained if applicable. Easement requests from the State DOT for installing the fiber optic duct lines will also be initiated during the design phase.

Construction of the various routes on the Island of Kauai will be implemented in phases. SIC has some priority routes which they are planning to install this year with remaining routes implemented over the next few years. The first priority is the segments located within the Anahola subdivision area and then connection from the Anahola to Hanamaulu area. Construction of the entire system for the island is planned to be completed in the year 2003.

The preliminary construction cost estimates for the Kauai fiber optic cable system is estimated to be approximately $10 million. SIC has received funding for this project from the U.S. Department of Agriculture, Rural Utilities Service (RUS) through a low-interest loan program to cover the capital investment for this infrastructure project. The RUS is a Federal agency that provides long-term, low interest loans to rural telephone companies like SIC for projects such as that proposed to serve DHHL. Under the RUS's Environmental Policies and Procedures, the proposed project is "Categorically Excluded" under the National Environmental Policy Act.

2.5 LISTING OF REQUIRED PERMITS

A listing of required discretionary land use permits and ministerial permits for this project is provided.

Federal Permits

1. Department of Army Permit - May be required for fiber optic routes crossing streams, and would be dependent upon the design of the system.

State of Hawaii Permits

1. Conservation District Use Permit – Installation of fiber optics within roadways located in the Conservation District should be "exempt" based upon initial consultation with DLNR staff since it may be considered an accessory use. However, coordination of construction plans and other design information with DLNR would be conducted for portions of those routes affected to obtain confirmation.
2. Stream Alteration Permit – May be required if fiber optic routes crossing streams affect the bed or banks.
3. Construction Noise Variance – Only if required.
4. 401 Water Quality Certification and Coastal Zone Management Consistency Determination – Required only if Department of Army permit is necessary.
5. Permit for construction within DOT rights-of-way.

County of Kauai Permits

1. Shoreline Setback Variance - May be required for installation of portions of the route that are within 40 feet of the certified shoreline.

CHAPTER 3
ALTERNATIVES CONSIDERED

Some alternatives to the fiber optic routes proposed were developed and evaluated for consideration as part of this project. However, these alternatives were eliminated from further consideration because they would not meet the project need and objectives of providing DHHL homestead properties with essential communication service pursuant to the DHHL license agreement with SIC. A discussion of those alternatives that were evaluated and eliminated from further consideration is provided.

3.1 NO ACTION ALTERNATIVE

The No Action Alternative would involve SIC not pursuing construction of the rural fiber optic duct lines within rights-of-way of existing State highway facilities. Thus, essential communication service would not be provided to DHHL homestead properties, and the service benefits potentially available to beneficiaries would not be realized. DHHL would then need to fund the planning, design, and installation of these fiber optic lines to serve their homestead properties. Furthermore, not implementing the proposed project would not satisfy the DHHL license agreement with SIC to provide the installation of these fiber optic lines at no cost to DHHL. Consequently, this alternative was eliminated from consideration because it would not meet the project needs and objectives, and would not benefit DHHL beneficiaries.

3.2 ROUTE ALTERNATIVES

Alternatives to the present routes proposed under this project were considered during the initial planning phases. However, there were generally only a few major highway facilities serving the various communities of this island which are generally separated by large undeveloped agricultural areas. Thus, there were limited other feasible and practicable alternatives available to connect the various DHHL homestead properties without using these main highways. For example, Kaumualii Highway is the only major highway facility providing vehicular access from the Lihue district to West Kauai communities. Similarly, Kuhio Highway is the only major highway facility providing vehicular access from the Lihue district to East Kauai communities such as Anahola and Kapaa. Based upon this alternatives evaluation, the proposed route was determined to be the most practical in connecting DHHL homestead properties and minimizing impacts.

CHAPTER 4
PHYSICAL AND BIOLOGICAL ENVIRONMENT

This chapter discusses the existing physical and biological environment in the general area of the proposed fiber optic routes, and the probable impacts resulting from the implementation of the project. Mitigative measures, if necessary, are also discussed.

4.1 CLIMATE, TOPOGRAPHY AND SOILS

Climate

Kauai's temperature undergoes relatively little seasonal variation. Four monitoring stations on the island are located near the proposed fiber optic route. They are Mana, Makaweli, Lihue, and Kealia. The monthly average low and high temperatures at three different times—January, June, and October--throughout the year are included in Table 4.1

Table 4.1. Average Temperature Along Proposed Cable Route

Location	Average Temperature (in degrees F.)					
	January		June		October	
	Low	High	Low	High	Low	High
Mana	62	80	68	88	69	90
Makaweli	64	87	69	93	65	93
Lihue	58	88	68	90	68	82
Kealia	64	79	70	88	72	89

Source: *Atlas of Hawaii*, p. 64

The average annual rainfall varies substantially over the cable route. It is lowest on the western side of the island, where average annual rainfall at Waimea, for example, about 24 inches (see Table 4.2). Rainfall in Waimea is quite seasonal. January is the wettest month at that location, with average monthly rainfall of 4.7 inches, while June is the driest, averaging 0.45 inches.

Rainfall increases east and north of Waimea, averaging 32 inches per year at Ele Ele, about 80 inches at Kalaheo, and nearly 100 inches at Knudsen's Gap. As average annual rainfall amounts increase, the variability tends to decrease, with rainfall in the wettest and driest months differing by a factor of well under 2 (versus the 10:1 ratio at Waimea).

Table 4.2. Precipitation At Selected Locations Along the Cable Route

Location		*Monthly Precipitation (in Inches)*				
		January	*April*	*July*	*October*	*Annual*
Waimea	Average	4.70	1.60	.71	2.08	23.99
	Median	2.91	.64	.29	1.35	19.29
Eleele	Average	5.44	2.73	1.56	2.69	32.26
	Median	3.67	1.658	1.27	2.06	27.99
East Lawai	Average	6.90	6.62	5.53	5.50	65.72
	Median	7.01	5.92	5.20	4.69	63.50
Koloa Mauka	Average	8.42	9.16	7.42	7.05	89.97
	Median	6.46	7.68	7.51	6.18	87.69
Lihue	Average	6.65	4.97	3.11	4.97	54.09
	Median	3.18	4.08	2.81	4.81	51.58
Wailua Kai	Average	6.36	5.05	2.99	4.46	53.36
	Median	5.82	4.31	2.61	3.74	49.73
Moloaa	Average	6.31	5.28	2.75	4.82	50.90
	Median	5.95	3.97	2.47	3.83	50.59

Source: National Climatic Data Center, National Oceanic and Atmospheric Administration (January 1992)

Once past the Gap, rainfall gradually decreases again as the route returns to lower altitudes. It averages between 50 and 55 inches per year from Lihue through Moloaa. Some of the seasonality returns as well, with the wettest month (January) typically averaging a bit more than twice the average of the driest month.

Average relative humidity is moderately high on Kauai. It is also relatively constant throughout the year. The winter months are most humid, averaging 77.0% to 77.5% at Lihue, for example. The summer months, when average temperature is highest, have the lowest relative humidity (74.0% to 74.5% in Lihue).

The northeast tradewinds are the prevailing surface winds along the eastern and northern portions of the proposed cable route. The tradewinds in the Lihue district are present over 80 percent of the time. The wind speed at that location is typically above 12 knots. On the western part of the island, in the lee of Mount Waialeale, average wind speed is less than 10 knots, the wind direction is much more evenly distributed around the compass, and "calm" winds are present almost 5 percent of the time.

4.1.1 Geology And Topography

Regional Geology

The main mass of Kauai consists of volcanic flows of basalt about 5 to 3 million years old. The most recent volcanic activity is believed to be post-erosional volcanic activity as late as 400,000 years ago (MacDonald et al., 1960; Clague and Dalrymple, 1988). Sedimentary deposits are present in a few areas along the coastal plain.

The proposed route for the fiber optic cable system overlies three of the six major geological formations of the island. These are: (i) the Na Pali member, primarily on the western side of Kauai but also on its southern and eastern sides; (ii) the Makaweli member on the island's southern side; and (iii) the Koloa member, on Kauai's southern and eastern sides. Except for the Koloa member, which represents the most recent alkalic lava eruptions, these volcanic series were all laid down during the primary shield building processes that provided the bulk of the island's mass. In addition, the initial segment on the western side of the island and the segment from the Wailua Golf Course past Kealia Beach north of Kapaa lie on the *sedimentary deposits* of the coastal plain.

The oldest of the main Hawaiian Islands, Kauai has moved away from the "hot spot" on the ocean floor that is believed to be responsible for the formation of the archipelago. Hence, renewed volcanism is not a threat. Kauai is the least seismically active island in the state. The entire island is in Seismic Zone 1, which means that the earthquake hazard is low. There are no other known geologic hazards along the route.

Topography

The fiber optic cable route passes through varied topography. The westernmost portion from Waimea-Kekaha to Hanapepe is through the low-lying, relatively level coastal plain. Once past Ele Ele, the route rises and passes through a long stretch of rolling terrain that extends through Kalaheo, Lawai, Omao, and Knudsen Gap. Once past the gap, the terrain levels off, with the elevation generally ranging from 500 to 600 feet above sea level. It then begins a slow descent through Puhi and Lihue before reaching the coastal plain again near the Wailua Golf Course. The route remains low and level through Kapaa before rising again through rolling terrain to Anahola and Moloaa.

The duct system would be installed along a narrow corridor within State and DHHL roadway rights-of-way. Consequently, the potentially affected areas consist of unpaved shoulders, paved shoulders, or paved travel lanes. The longitudinal slope within the right of-way is typically just a few percent and in no case exceeds 8 percent. The cross-slopes within the rights-of-way are small, and in no cases exceed 2 percent.

4.1.2 Soils

More than 50 natural soil types occur along the proposed route. These include select fill material emplaced during construction of the roadway; rocky outcrops; gravelly, sandy, and silty loams; and clay (Sato et al., 1972). Nearly all of the natural soils along the portion of the proposed route that lies east and north of Hanapepe are Oxisols. Oxisols are typically found on relatively level land at lower elevations. They are resistant to physical deterioration under intensive cultivation and are otherwise well suited to agriculture and urban development.

The portion of the route to the west of Hanapepe and the segment from the Wailua Golf Course past Kealia Beach crosses Mollisols. These are relatively young, well-drained soils that have developed on coral, lava, or alluvium. They occur in moderately dry areas of the island and are generally rich in plant nutrients. Like Oxisols, they are generally well suited to agriculture and urban development.

The rocky outcrops mentioned above are scattered along the entire route. They generally occur in areas where the highway cuts through hills and on the approaches to gullies.

4.1.3 Effects From Construction Activity

Construction of the underground fiber optic cable is not expected to have a significant impact on the existing topography or physical character of the immediate area. The installation of fiber optic cable would be within existing rights-of-way of State highway facilities and some DHHL roadways. Such construction work would thus involve affecting unpaved shoulders, paved shoulders, or paved travel lanes. As a result, there would essentially be no change to the existing topography of these roadway rights-of-way since all duct lines would be placed underground in conformance with both State and County design standards and requirements. Upon completion of fiber optic cable installation, roadways and shoulders would also be restored in conformance with applicable design standards.

The fiber optic cable route proposed would run through many areas having different soil types as discussed previously. However, much of the actual soil types encountered would likely consist of structural fill overlying a compacted sub-base associated with the construction of existing roadway facilities. This structural fill could likely consist of crushed coral or basalt, while the sub-base could likely consist of compacted existing, or "in-place" soils. Given this prior disturbance of existing soil composition for roadway construction, the installation of fiber optic cables should have minimal effect on existing soils. To minimize potential short-term impacts during construction activities, an erosion control plan will be prepared during the design of particular route segments, as necessary. Appropriate coordination and review of design plans would also be performed with pertinent agencies.

At locations of existing streams or gulches, the design and installation of fiber optic cables

would be determined on a case by case basis due to the unique conditions of that particular area along with the structure of bridges. The design of such crossings may involve bridge attachments for the fiber optic cable which would have no effect on the existing topography or soils. Some type of trenchless construction method may also be used, such as directional drilling, which should have minimal impact on topography since the fiber optic cable will be installed under the stream or gully. Appropriate coordination with the applicable agency would be conducted during the design phase to address these construction details and minimize impacts on the topography and soils.

Other Short-Term Construction Impacts

Other typical short-term impacts that are usually associated with construction related activities may include fugitive dust emissions, construction noise, and traffic disturbances from construction activity along roadways. Fugitive dust emissions are not expected to cause much disturbances or annoyances to surrounding properties along affected roadways. The installation of fiber optic cable would involve a very narrow trench or trenchless methods which would not result in significant disturbances to existing pavement and shoulder areas.

Construction activities are not expected to cause excessively loud construction noises which may significantly affect surrounding properties along roadways. Activities are planned to be conducted during normal working hours of weekdays, and all work would comply with pertinent regulations. In the event some work is conducted at night or may exceed permitted noise levels, a noise permit would be obtained from the State Department of Health. A traffic control plan would also be prepared to address traffic flow during construction activities. This plan would be submitted for agency review as part of the normal review of construction plans.

Although these potential short-term effects should be minimal, other possible mitigative measures would be considered for implementation during the project's design. Such measures would be determined during the design of particular routes and preparation of construction plans. Measures typically considered may include: limiting construction activities to off-peak traffic hours and implementing an approved Traffic Control Plan. The measures actually developed would be designed to make construction activities comply with pertinent Administrative Rules of the State Department of Health such as Title 11: Chapter 42 (Vehicular Noise Control), Chapter 46 (Community Noise Control), and Chapter 60-1 (Air Pollution Control).

Agricultural Lands

The proposed project is expected to have minimal if any impacts on agricultural lands or existing agricultural operations occurring in the project area. The fiber optic cable routes would be constructed within existing State roadway rights-of-way and DHHL roadways in the Anahola residential subdivision. Therefore, the project would not displace any agricultural lands or significantly disrupt or prevent current agricultural activities from continuing.

4.2 NATURAL HAZARDS

This section addresses those natural hazards applicable to the project. Of the potential natural hazards, earthquakes, hurricane, and tsunami and flooding hazards are addressed. There are no other known potential urban-related hazards applicable to the project such as airport clear zones, nuisances, hazardous wastes, or other site safety issues associated with roadways affected by the fiber optic cable routes. Because the fiber optic cables would be located underground, the project should not impact nor be affected by such urban-related hazards.

4.2.1 Earthquake Hazards

Although difficult to predict, an earthquake of sufficient magnitude causing structural or other property damage may occur in the future. However, except for the island of Hawaii, the Hawaiian Islands are not situated in a highly seismic area subject to numerous earthquakes (Macdonald et al. 1983). Most of the earthquakes that have occurred were volcanic earthquakes causing little or no damage.

Earthquakes in the Hawaiian Islands are primarily associated with volcanic eruptions resulting from the inflation or shrinkage of magma reservoirs beneath which shift segments of the volcano (Macdonald et al. 1983). Kauai is periodically subject to episodes of seismic activity of varying intensity. Available historical data indicates that the number of major earthquakes occurring on Kauai have generally been less and of lower magnitude compared with other islands such as Hawaii (DBEDT 1998, Furumoto, et al. 1973). However, earthquakes cannot be predicted with any degree of certainty or avoided, and an earthquake of sufficient magnitude (greater than 5 on the Richter Scale) may cause some damage to existing infrastructure facilities such as the underground fiber optic cables.

Although the possibility of earthquakes occurring on Kauai have been lower than other islands, potential damage to these fiber optic duct lines may occur from an earthquake of sufficient magnitude. However, damages to these facilities will be minimized since the design of the fiber optic duct lines would meet or possibly exceed the minimum design requirements specified under State DOT design standards and County building code standards. Thus, the risk of potential damage to this project will not be more than other existing land uses or infrastructure facilities on the island of Kauai.

4.2.2 Hurricane Hazards

The three major elements of a hurricane making it hazardous are: 1) strong winds and gusts, 2) large waves and storm surge, and 3) heavy rainfall. A hazard mitigation report prepared by the Federal Emergency Management Agency after Hurricane Iniki in 1992 determined that nine hurricanes approached within 300 nautical miles (about one day's travel time) of the

Hawaiian Island's coastlines between 1970 and 1992. Most hurricanes affecting the islands have focused on Kauai. Based upon a tracking of hurricanes since 1950, there appears to be no geographical or meteorological reasons why hurricanes miss the other islands but tend to steer toward Kauai (FEMA 1993).

Major hurricanes that have affected the Hawaiian Islands include Nina (November 30, 1957), Dot (August 6, 1959), Iwa (November 23, 1982, Estelle (July 23, 1986), and Iniki (September 11, 1992). All of these except Estelle have been most severe on Kauai. Iniki, which was a Class 5 hurricane, was the most powerful of these. Estimated maximum sustained winds over land were 140 mph with gusts to 175 mph, making Iniki the most powerful hurricane to strike the Hawaiian Islands in recent history.

A hurricane of significant strength and high winds passing close to the island could cause damages to existing buildings and structures on Kauai. However, the potential for damages from a hurricane to the proposed fiber optic cable lines should be minimal since all facilities would be located underground within existing roadway rights-of-way. The location of such facilities underground would thus make them less susceptible to damage from high winds.

Several of the fiber optic cable routes would also follow existing coastal roads which are susceptible to storm surge. However, potential damages from large waves and storm surge are not expected to significantly impact the project since the duct lines would be located underground. Similarly, heavy rainfall should not significantly impact the fiber optic cable system since it would be located underground. To further minimize potential damages, the improvements would be designed and constructed in conformance to applicable State DOT and County building regulations and design standards.

4.2.3 Flood Hazards

Portions of the fiber optic cable route pass through areas that the Flood Insurance Rate Maps identify as being subject to flooding. The underground fiber optic cable lines planned are not expected to be impacted by the various flood hazards present along certain portions of the routes. Nor is the installation of these fiber optic cable lines expected to have a significant impact on existing developed land uses and structures located within applicable flood areas. It is common for utilities to be installed in such areas since they are generally situated within the rights-of-way of existing roadway facilities.

The fiber optic duct lines would be constructed underground in conformance with State and County design requirements, therefore, they are not expected to be affected by flooding which occurs in these areas. Thus, waves that may potentially encroach onto roadways situated near the shoreline or due to tsunami inundation are similarly not expected to have a significant negative impact on these fiber optic cables.

The majority of flood hazard areas encroaching onto existing highways are associated with streams or drainage areas present within the various areas. Consequently, drainage improvements already implemented as part of the roadway construction or development of surrounding buildings and structures have addressed such flood hazards. Installation of the fiber optic cables should not impact the design or condition of such drainage facilities. Thus, the project would not alter existing drainage conditions which may impact existing buildings or structures along roadways during periods of flooding. Furthermore, review of construction plans would be coordinated with pertinent State and County agencies during the design of various segments.

4.3 BOTANICAL RESOURCES

The land through which the proposed fiber optic cable would pass is highly disturbed. In fact, Pratt and Gon (1998:123) have classified all of it as "Non-Native Ecosystem." Much of the proposed route, especially in the west and south, is through existing or former sugar cane fields.

In addition to the cane fields, the following common weedy species normally associated with such agricultural lands are often present along the boundary of the fields: swollen fingergrass (*Chloris barbata*), nutgrass (*Cyperus rotundus*), Bermuda grass (*Cynodon dactylon*), little bell (*Ipomoea triloba*), wild bittermelon (*Mormordica charantia*) and hair spurge (*Chamaesyce hirta*). Other vegetation typically includes weedy scrub composed of California grass (*Brachiaria mutica*), Guinea grass (*Panicum maximum*), koa haole (*Leucaena leucocephala*), Java plum (*Syzygium cumini*), ironwood (*Casuarina* sp.), and *Macaranga tanarius*. No endangered botanical species are believed to be present.

The actual alignment of the fiber optic cable within the rights-of-way of State highways and DHHL roads in the Anahola subdivision will be determined during the design of each segment. However, the priority would be to locate underground fiber optic cables within unpaved shoulder areas first to minimize disruption to existing paved areas. If not available, paved shoulders and finally paved travel lanes would be utilized. Finally, the construction of these roadways has disturbed existing areas and vegetation along these corridors. Therefore, it is anticipated that the proposed project will have minimal if any negative impact on important existing vegetation in these areas.

4.4 FAUNAL RESOURCES

Five alien mammalian species: rat (*Rattus* sp.), house mouse (*Mus musculus*), domestic dog (*canis* F. *familiaris*), cat (*Felis catus*), and pig (*Sus* s. *scrofa*) are believed to be present along the route. No birds are believed to nest within the road rights-of-way that would be used for the proposed fiber optic cable system.

Birds that overfly or use land near the proposed route probably include the Wedge-tailed Shearwater (*Puffinus pacificus cholororhynchus*), Cattle Egret (*Bubulcus ibis*), Jungle Fowl

(Red) (*Gallus gallus*), Ring-necked Pheasant (common), (Phasianus colchicus), Common Peafowl (Indian) (*Pavo cristatus*), Moorhen (Common) (*Gallinula chloropus sandvicensis*), Pacific Golden Plover (*Pluvialis fulva*), Spotted Dove (*Streptopelia chinensis*), Zebra Dove (*Geopelia striata*), Barn Owl (*Tyto alba*), Northern Mockingbird (*Mimus polyglottos*), Common Myna (*Acridotheres tristis*), White-rumped Shama Thrush (*Copsychus malabaricus*), Japanese White-Eye (*Zosterops japonica*), Melodius Laughing Thrush (*Garulax canorous*), Scaly-breasted Munia (*Lonchura punctulata topela*), Black-headed Munia (*Lonchura malacca*), House Finch (*Carpodacus mexicanus mexicanus*), Red-crested Cardinal (*Paroaria coronata*), and Northern Cardinal (*Cardinalis cardinalis*).

Because the proposed project will be contained within existing State highway rights-of-way and DHHL roads in Anahola, no long-term negative impacts on fauna or avifauna species are anticipated. Temporary, short-term construction activities during installation of fiber optic cable may result in small amounts of fugitive dust and increased noise levels. However, these impacts will be largely confined to the existing rights-of-way, and the aforementioned species are highly mobile and can leave the project area during construction. Vehicular traffic occurring along these affected roadways would also deter the presence of fauna and avifauna in the area especially along more highly used transportation corridors.

4.5 AIR QUALITY

Ambient air quality standards (AAQS) have been established by both Federal and State governments that limit ambient concentrations of particulate, matter less than 10 microns (PM_{10}), sulfur dioxide, nitrogen dioxide, carbon monoxide (CO), ozone, and lead. In addition, a State standard has been established for hydrogen sulfide. State AAQS are more stringent than the comparable national limits (NAAQS) except for the standards for sulfur dioxide, particulate matter and lead, which are set at the same levels.

A summary of both State and National AAQS is presented below. Hawaii's standards are not divided into primary and secondary standards as are the National standards. Primary standards are intended to protect public health with an adequate margin of safety while secondary standards are intended to protect public welfare through the prevention of damage to soils, water, vegetation, man-made materials, animals, wildlife, visibility, climate, and economic values.

The average air quality on Kauai is excellent. Levels of pollutants, including ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, particulate matter, and airborne lead, are generally below the U.S. Environmental Protection Agency National Ambient Air Quality Standards as well as the standards set by the State of Hawaii (Kauai Electric 1999).

Summary Of National And State Ambient Air Quality Standards

Pollutant	Sampling Period	NAAQS Primary	NAAQS Secondary	State Standards
Particulate Matter Less Than 10 Microns (PM_{10})	Annual	50	50	50
	24-Hour	150	150	150
Sulfur Dioxide	Annual	80	n/a	80
	24-Hour	365	n/a	365
Nitrogen Dioxide	Annual	100	n/a	70
Carbon Monoxide	8-Hour	10	n/a	5
	1-Hour	40	n/a	10
Ozone	1-Hour	235	n/a	100
Hydrogen Sulfide	1-Hour	n/a	n/a	35
Lead	Quarter	1.5	n/a	1.5

Note: All concentrations in micrograms per cubic meter ($\mu g/m^3$) except for carbon monoxide which is in milligrams per cubic meter (mg/m^3)

Impacts From Construction Activities

Air quality concerns most applicable to the fiber optic project are associated with short-term construction related emissions such as fugitive dust. No long-term effects on air quality would be associated with this project because fiber optic duct lines would be installed underground and would not generate emissions of pollutants regulated under the National and State AAQS.

Short-term impacts on air quality from construction activities would predominantly be associated with fugitive dust emissions and exhaust emissions from on-site construction equipment. Some fugitive dust emissions would inevitably arise from work associated with the opening and filling of trenches and to a lesser degree trenchless methods implemented such as directional drilling. The amount of fugitive dust emissions generated is expected to be relatively small since the size of trenches created would be relatively narrow and shallow. Consequently, construction activities for the installation of fiber optic cables are expected to have minimal impacts on the present air quality of the surrounding area. Furthermore, such impacts would be temporary, and should not create pollutant levels exceeding National or State air quality standards.

State air pollution controls prohibit visible emissions of fugitive dust from construction activities at the property line. Therefore, a dust control plan could be prepared as part of design plans, if required, to have the contractor minimize fugitive dust emissions in complying with these regulations. Adequate fugitive dust control can usually be accomplished by establishing a frequent watering program, and looking into other additional measures to address trenching activities.

4.6 NOISE

Under the State Department of Health's Community Noise Control regulations (Title 11, Chapter 46, HAR), a classification of zoning districts is established to regulate noise. Under this classification system, the maximum permissible sound levels for zoning districts for daytime (7:00 a.m. to 10:00 p.m.) and nighttime hours (10:00 p.m. to 7:00 a.m.) is prescribed for various types of activities such as construction activities. This zoning district classification consists of three classes which are Class A (residential, conservation, open space, etc.), Class B (multi-family, business, commercial, resort, hotel, etc.) and Class C (agricultural, industrial, country, or similar).

The fiber optic cable route proposed would cover several miles of roadway which passes by various types of land uses falling under all three of these district Classes. The maximum permissible sound levels for construction activities thus ranges from a low of 55 dBA during daytime hours along Class A areas, 60 dBA along Class B, and 70 dBA along Class C zoning district areas. These noise levels may not be exceeded at or beyond the property line for more than 10 percent of any continuous 20-minute period unless a permit is obtained. .

Noise levels along the cable route are primarily a function of the vehicular traffic present on the adjoining roadway. In the rural areas of the Hawaiian Home Lands subdivisions, the baseline noise level during the day is typically about 40 dBA during periods of moderate winds and slightly higher when gusty winds are present. Noise from passing vehicles increases this to 60 dBA or more. In more urban areas, such as the intersection of Kukui Street and the Kuhio Highway in Kapaa, the baseline noise level along the roadway tends to be approximately 60 dBA, with occasional excursions to 65 – 70 dBA. This reflects a more or less constant presence of normal automobile traffic, with the occasional passage of louder vehicles.

Impacts From Short-Term Construction Activities

Potential noise impacts associated with this project would only be associated with short-term construction activities. Long-term noise impacts would not occur since this project only involves the installation of underground fiber optic lines within the rights-of-way of existing State and DHHL roadways. As a result, the operation of these fiber optic lines would not generate audible noise which may inconvenience surrounding properties or activities being conducted since they would be situated underground.

However, any noise impact from these construction activities would be relatively short-term and minor given the type of utility being constructed which necessitates creating a relatively narrow trench. The actual noise levels generated would be dependent upon the construction methods and equipment employed during each stage of the construction process for various segments. Furthermore, pertinent construction equipment would be equipped with mufflers as required under DOH regulations.

In cases where construction noise may exceed the maximum permissible noise level allowable to property line limits, a permit would be obtained from the DOH to allow these activities. This noise permit would also be obtained if any construction work is conducted at night as requested for consideration by certain agencies to minimize disruptions on vehicular traffic. This permit includes restrictions to help mitigate potential noise impacts resulting from short-term construction activities. Such restrictions would be followed by the contractor.

4.7 AQUATIC AND MARINE RESOURCES

The proposed fiber optic route would cross several perennial and intermittent streams as well as gulches, drainage canals, and ditches located throughout Kauai since the fiber optic routes would be constructed along major highways. Most of these streams have been channelized at roadway crossings and in urbanized areas for flood control purposes and to limit or prevent erosion. This channelization typically involves the lining, partial lining, or alteration of a stream course.

Major perennial streams that would be encountered along existing highways affected by this project would include: Waimea River, Waipao, Akakui, Mahinauli, Hanapepe, Wahiawa, Lawai, Waikomo, Huleia, Puali, Nawiliwili, Hanamaulu, Kawailoa, Wailua River, Waikaea Canal, Moikeha Canal, Kapaa, Kumukumu, Anahola, Aliomanu, and Papaa Streams.

There are also several wetlands present along these highway facilities and stream areas. However, these wetlands are all outside the highway rights-of-way where the fiber optic cable would be installed. Table 4.3 identifies these wetland areas.

Table 4.3. Wetlands Near the Proposed Cable Route

Wetland Code		Wetland Code Description
1	R2-OW-H-x	Riverine-Lower Perennial-Open Water-Permanent-Excavated
2	P-FO3-C	Palustrine-Forested Broad-Leaved Evergreen-Seasonal
3	P-FO3-C	Palustrine-Forested Broad-Leaved Evergreen-Seasonal
4	P-EM1-C-x	Palustrine-Emergent Persistent-Seasonal-Excavated
5	P-FO3-C	Palustrine-Forested Broad-Leaved Evergreen-Seasonal
6	P-FO3-A	Palustrine-Forested Broad-Leaved Evergreen-Temporary
7	P-FO3-C	Palustrine-Forested Broad-Leaved-Seasonal
8	P-FO3-C	Palustrine-Forested Broad-Leaved-Seasonal
9	P-FO3-C	Palustrine-Forested Broad-Leaved-Seasonal
10	P-FO3-C	Palustrine-Forested Broad-Leaved-Seasonal
11	P-FO3-C	Palustrine-Forested Broad-Leaved-Seasonal
12	P-FO3-C	Palustrine-Forested Broad-Leaved-Seasonal
13	R3-EM1-A	Riverine-Emergent Persistent-Temporary
14	P-EM1-C-x	Palustrine-Emergent Persistent-Seasonal-Excavated
15	R3-OW-H	Riverine Upper Perennial-Open Water-Permanent
16	P-FO3-C	Palustrine-Forested Broad-Leaved Evergreen-Seasonal

Source: State of Hawaii Geographic Information System

4.7.1 Aquatic Resources

Hawaiian streams support a small, but unique aquatic fauna, including freshwater fish, mollusks, crustaceans, and insects. The diversity is typically low, but the resources can be important because some of the species are found only in the Hawaiian Islands. The most thorough inventory of these resources conducted to date is the *Hawaii Stream Assessment: A Preliminary Appraisal of Hawaii's Stream Resources* (HCPSU 1990).

The report notes that before human habitation of the islands most continuous streams may have been occupied by one or more native stream species. Many of these are amphidromous. This means that after the adults breed in streams or estuaries the larvae are swept out to sea where they become part of the marine zooplankton. After a prolonged period of maturation, the postlarval form of the organisms that survive predation return to the stream mouths and migrate upstream.

The *Hawaii Steam Assessment Report* notes that many of the native Hawaiian stream species are "rheophyllic" or "current-loving". This makes them well-suited to their native habitat, which has clear, well-oxygenated water that flows over boulders, cobbles, and gravel. Gobiid gobies that are found in Hawaiian waters are adapted to life in turbulent coastal waters and streams. The adaptations include fused ventral fins that allow them to "climb" waterfalls and to colonize stream sections that are inaccessible to other fishes (HCPSU 1990).

Due to the amphidromous nature of many of the species that the scientists who prepared the *Hawaii Stream Assessment Report* considered important, they considered each stream as a unit rather than in segments. They included a variety of survey information in the inventory, including the presence, abundance, and spawning of native species, the occurrence of introduced species, habitat factors, and information sources. The scientists classified eleven native species into two groups based on their relative scarcity. These aquatic species groups are described below:

> ***Native Species Group 1 (NG1):*** *Four native freshwater species were classified as "indicator species" and comprised the Native Species Group One (NG1). The committee considered these as representative of potentially high quality stream ecosystems. They included three gobies and a mollusk. Of the four NG species, only 'O'opu alamo'o (Lentipes concolor) is listed by the U.S. Fish and Wildlife Service as a candidate endangered species. However, the Aquatic Resources Committee believes that two other 'O'opu (Awaous stamineus and Sicyopterus stimpsoni), as well as hihiwai (Neritina granosa) may be declining in Hawaiian streams.*
>
> ***Native Species Group 2 (NG2).*** *The other seven native species considered more common comprised Native Species Group Two (NG2). These included two stream*

and two marine fishes, one shrimp, one prawn, and one snail. Presence of these species was considered typical of a healthy stream ecosystem.

Introduced Species Group One (IG1). *This group included noxious, non-native animals that may prey upon and/or out-compete with native species. Machrobrachium lar (Tahitian prawn), was not included in the group even though it may pose a threat to Hawaiian stream animals because it is believed to be present in almost all Hawaiian streams.*

Introduced Species Group Two (IG2). *This consists of the non-native species considered to be innocuous to Hawaiian streams* (HCPSU 1990).

To assess and compare the biological quality of individual streams, the Aquatic Resources Committee developed a ranking system that was based primarily on the presence and abundance of the four native species believed to be indicators of potentially outstanding habitat. Applying the Committee's ranking criteria to the streams crossed by the fiber optic cable route indicates that the Hanamaulu and Kumukumu Streams have "Limited" value for aquatic resources. The Lawai Stream and the South Fork of the Wailua River have "Moderate" value, and the Huleia Stream, Kapaa Stream, and Anahola Stream have "Outstanding" value as rated by this system. The major streams that would be encountered along existing highways and roadways affected by the proposed project are summarized in Table 4.4.

Impacts And Mitigation

The fiber optic duct line project is not expected to have any long-term adverse impacts to existing streams, wetlands, or aquatic resources that may be present. The fiber optic line would be buried within the rights-of-ways of existing State highways and DHHL roadways on Anahola or attached to existing bridge structures. Thus, once constructed, the operation of these fiber optic lines would not change the character of these streams nor impact wetlands or aquatic resources which may be present.

Short-term construction activities may have the potential to cause some minor impacts on streams depending upon the construction method utilized to cross them. Such impacts may involve erosion and sedimentation from runoff which could affect the water quality of streams or wetlands. However, such impacts would be temporary and are not expected to cause a significant deterioration in the current water quality of streams or negatively impact wetlands.

Table 4.4 Summary of Streams Along Proposed Fiber Optic Cable Route

DISTRICT	STREAM NAME	TYPE	AQUATIC RESOURCES*
West Kauai	1. Makaweli River	Perennial (Continuous)	Not Present
	2. Hanapepe	Perennial (Continuous)	Not Present
	3. Wahiawa	Perennial (Continuous)	Not Present
	4. Lawai	Perennial (Continuous)	Moderate
	5. Mohinouli Gulch	Intermittent	Not Present
	6. Umi Reservoir Ditch	Intermittent	Not Present
	7. Lawai Ditch	Intermittent	Not Present
South Kauai	1. Weoweopilau	Intermittent	Not Present
	2. Hulela	Perennial (Continuous)	Outstanding
	3. Halenanahu	Intermittent	Not Present
	4. Puhi Stream	Intermittent	Not Present
	5. Nawiliwili	Perennial (Continuous)	Not Present
	6. Omao	Intermittent	Not Present
	7. Koloa	Intermittent	Not Present
East Kauai	1. Hanamaulu	Perennial (Continuous)	Limited
	2. Wailua	Perennial (Continuous)	Moderate
	3. Moikeha Canal	Perennial (Continuous)	Not Present
	4. Kapaa	Perennial (Continuous)	Outstanding
	5. Kumukumu	Perennial (Interrupted)	Limited
	6. Anahola	Perennial (Continuous)	Outstanding
	7. Aliomanu	Perennial (Interrupted)	Not Present
	8. Hainakaunalehua	Intermittent	Not Present
	9. Homaikawaa	Intermittent	Not Present
	10. Kamalomaloa	Intermittent	Not Present
	11. Papaa	Intermittent	Not Present

Note:
* = As categorized in the HCPSU "Hawaii Stream Assessment – A Preliminary Appraisal of Hawaii's Stream Resources" (1990)

Crossings for streams, canals, and gulches would be determined on a case by case basis during the design phase associated with the various segments being implemented. The design method selected would consist of either bridge attachments or trenchless methods to minimize disturbance to stream bed and banks, wetlands in the immediate area, and aquatic resources present within them. Attaching the fiber optic cable to existing bridges would be done in accordance with State design standards. Trenchless methods may include direction drilling beneath streams or gulches to minimize impacts on sensitive resources present. Therefore, such construction methods implemented should not have significant impacts on streams, wetlands, or important aquatic resources. Design of the fiber optic cable route and construction methods developed would avoid any wetland areas present in the surrounding area.

To further minimize impacts, Best Management Practices would be considered for incorporating into design plans at such crossings. Such practices would be implemented by the contractor to minimize erosion and other impacts. Appropriate coordination would also be conducted with pertinent agencies during the normal construction plan review process to address

applicable regulations and other requirements to address concerns during the project's design. It should be noted that Department of the Army permits may not be required since construction activities may not affect jurisdictional waters. Nevertheless, appropriate consultation and coordination with the Department of the Army will be conducted during the design of the project to address jurisdictional applicability.

4.7.2 Marine Resources

The fiber optic project is not expected to have any long-term adverse impacts to existing marine resources that may be present in the area. The fiber optic line would be buried within the rights-of-ways of existing State highways and DHHL roadways or attached to existing bridge structures. Thus, once constructed, the operation of these fiber optic lines would not impact such resources which may be present.

Short-term construction activities may have the potential to cause some minor impacts on coastal areas depending upon the construction method utilized to cross them. Such impacts may involve erosion and sedimentation from runoff which could affect the water quality of shoreline areas. However, such impacts would be temporary and are not expected to cause a significant deterioration in the current water quality.

To further minimize impacts, Best Management Practices would be considered for incorporating into design plans at such bridge crossings or along roadway sections situated near coastal waters. Such practices would be implemented by the contractor to minimize erosion and other impacts. Appropriate coordination would also be conducted with pertinent agencies during the normal construction plan review process to address applicable regulations and other requirements to address concerns during the project's design.

4.8 Archaeological And Cultural Resources

An archaeological assessment was conducted for this project by Cultural Surveys Hawaii, Inc. (CSH). A copy of this report is included in Appendix B of this document. The objective of this assessment was to identify areas within the fiber optic route corridors that have potential for subsurface historic properties. This includes human burials and cultural deposits which may be encountered during installation of the proposed fiber optic line.

The following resources and activities were employed to identify areas of archaeological concern within the study route:

1. Inspection of soil surveys for presence of soils and sands under or immediately adjacent to the study route which are more likely to contain cultural deposits.
2. Inspection of tax maps and historic maps showing presence of Land Commission Award (LCA) parcels within or adjacent to the study route. Maps and other documents associated with these awards may give clues to settlement areas within and nearby the study route in the mid-1850s.

3. Review of Geographic Information System (GIS) data and archaeological reports at the State Historic Preservation Division.
4. Field inspection of the entire study route to evaluate the relationship of the study route to possible subsurface properties. Areas of anomalous sand deposits were examined to consider their potential for significant subsurface cultural deposits. Also noted were areas of fill and/or road cut in which the alignment has been brought significantly above grade.
5. Consultation with the State Historic Preservation Division (SHPD). Resources and expertise of the SHPD were utilized.
6. CSH staff's past experience of and familiarity with archaeological resources along the study route.
7. Consideration of any known community issues regarding culturally sensitive portions of the study route.

Historic Bridges

Information on historic bridges that may be affected by the fiber optic cable project was obtained using available information obtained from the State Department of Transportation after consulting with the SHPD. A listing of bridges which may be affected is provided below.

Hanapepe Bridge Lihue Mill Bridge Wahiawa Bridge Waipake Bridge
Lawai Stream Bridge Waimea Bridge Hoomana Overpass

4.8.1 Evaluation Of Fiber Optic Cable Routes

Based on the research conducted, all segments of the study route were evaluated based on four categories representing varied potential for yielding subsurface archaeological resources. The four categories are:

LOW	Low potential for subsurface deposits. This assessment is based on historic and archaeological data, soil survey data, and the absence of Land Commission Award parcels in the vicinity.
MODERATE	Area of known cultural activity but, based on other factors, probability of encountering archaeological resources is only moderate.
HIGH	Area contains sand and/or Land Commission Awards. Also present are historic properties based on researched archaeological data.
VERY HIGH	Area contains known burials or cultural layers.

The proposed fiber optic route has been subdivided into 19 sections based on the four categories of archaeological potential identified above. Figures 4.1 and 4.2 present the archaeological assessment of the study route identifying each of the segments by categories. Each section is identified below, and is organized by category type. Sections with a High or Very High category rating are discussed briefly. A full discussion of all sections is provided in Appendix B.

3. Review of Geographic Information System (GIS) data and archaeological reports at the State Historic Preservation Division.
4. Field inspection of the entire study route to evaluate the relationship of the study route to possible subsurface properties. Areas of anomalous sand deposits were examined to consider their potential for significant subsurface cultural deposits. Also noted were areas of fill and/or road cut in which the alignment has been brought significantly above grade.
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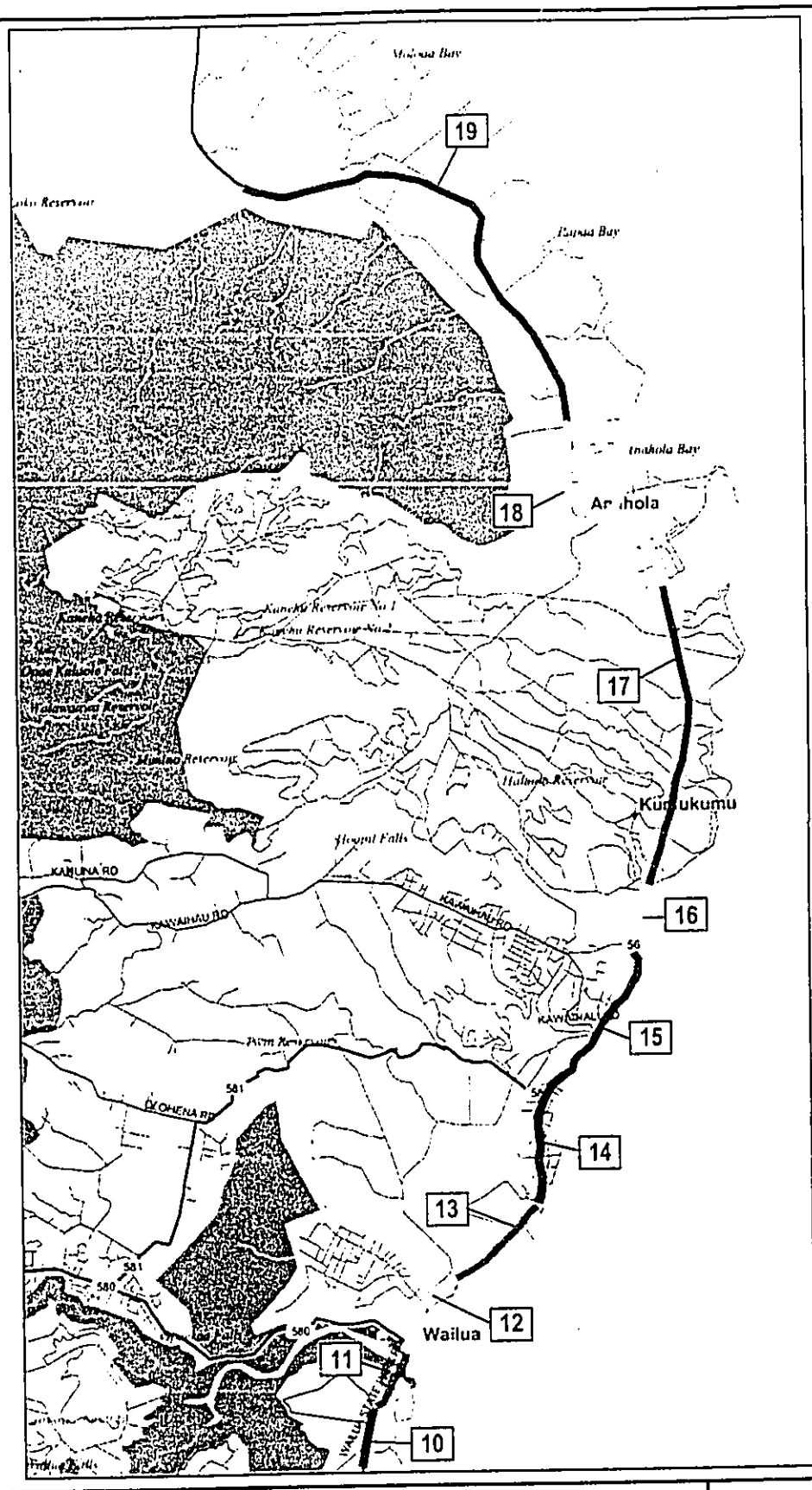
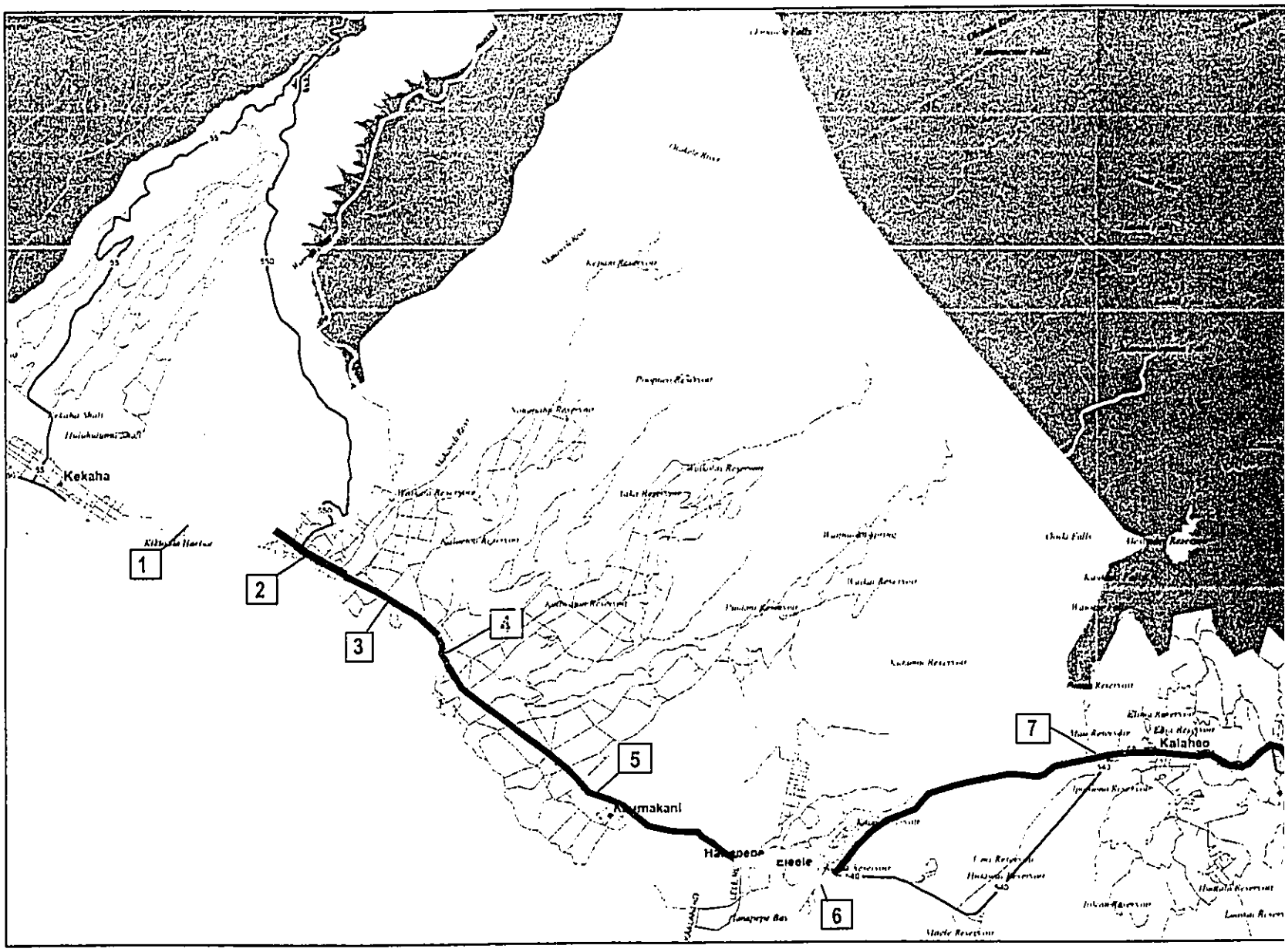


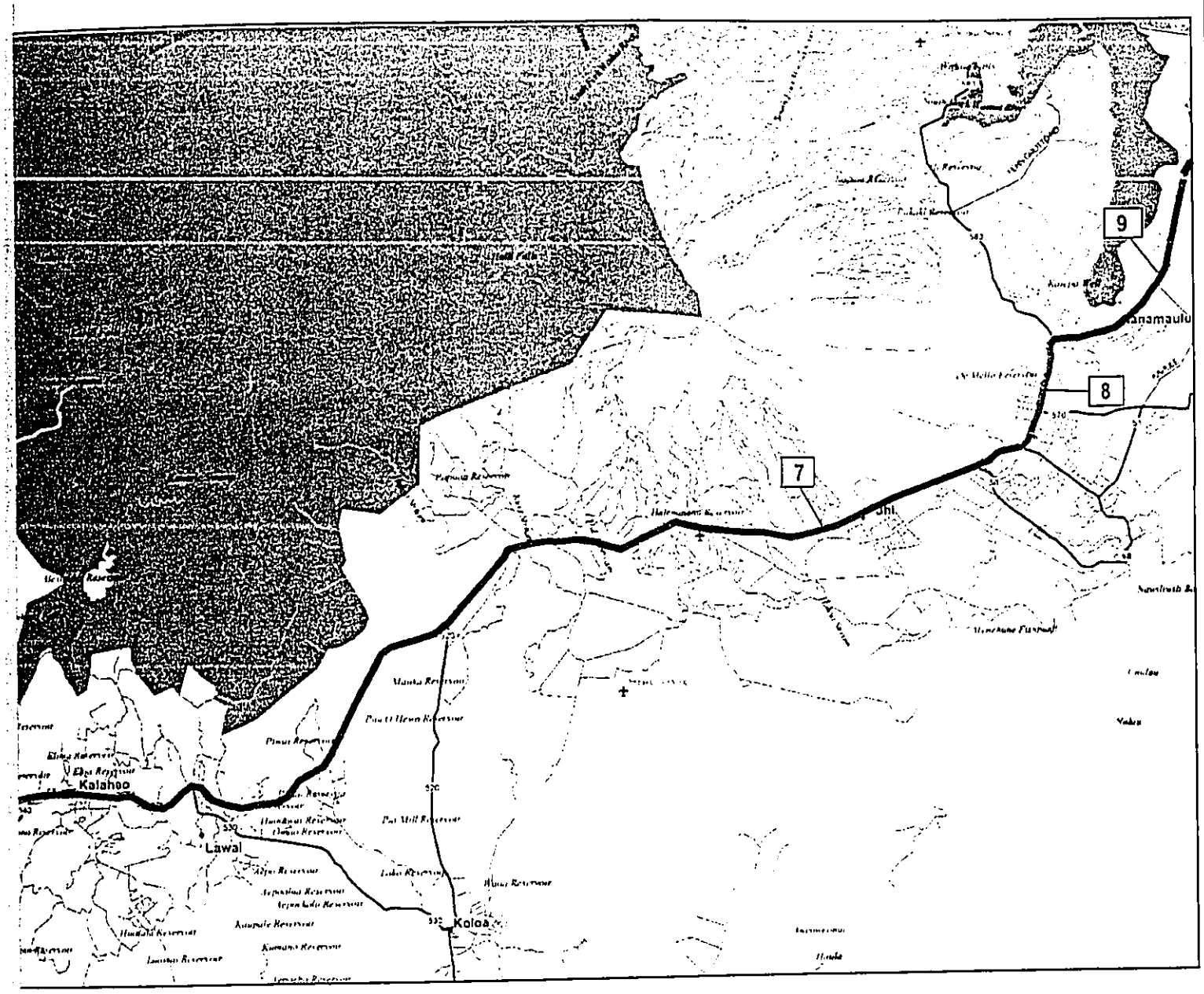
EAST KAUAI REGION ARCHAEOLOGICAL ASSESSMENT MAP

Figure 4.1

Kauai Rural Fiber Optics Duct Lines Project
Sandwich Isles Communications, Inc.



WEST KAUAI REGION ARCHAEOLOGICAL ASSESSMEN



L ASSESSMENT MAP

Figure 4.2

SSFM INTERNATIONAL

Low Potential

Segment 3: East End of Waimea River Bridge to Sand deposit Near Makaweli Landing
Segment 5: Makaweli Landing to the Hanapepe Public Cemetery.
Segment 7: East side of Hanapepe Valley to Rice Street, Lihue
Segment 9: Lihue Town to Southern Side of the Wailua Golf Course
Segment 15: North Edge of Kapaa Valley to Kealia
Segment 17: North of Kealia to Anahola Valley
Segment 19: North of Anahola Valley to the Project Terminus in Moloaa.

Moderate Potential

Segment 4: Sand Deposit Near Makaweli Landing.
Segment 8: Lihue Town.
Segment 11: North Side of Wailua Golf Course to the Wailua River
Segment 13: Haleilio Road to Waipouli Stream.

High Potential

Segment 1: Commencement at Kekaha to Waimea Athletic Field.

The entire section is in Jaucus sandy soil-type, with a number of previously discovered burials very near to Kaumualii Highway in Kekaha Town and records of a kuleana directly adjacent to the highway. Due to these factors, there is a possibility that archaeological remains could be discovered and/or damaged during the construction phase of this project. CSH rated this segment as having a HIGH potential for encountering archaeological resources during construction.

Segment 6: Public Cemetery to East Ridge of Hanapepe Valley

There are no sandy soils and no kuleana along the highway in this region. However, no archaeological surveys have been performed close to this section of the highway. The nearest surveys that have been performed, in Hanapepe town and seaward of the highway, have identified, "relatively undisturbed pre-Contact primary deposit." (Spear 1992a: 21). Another cultural survey along the west bank of the Hanapepe River identified two (2) burial sites and other archaeological deposits. This section has been rated as having a HIGH probability of containing historic properties that could be affected during installation of the fiber optic cable. The rating is related principally to the identification of nearby deposits and burials and the further possibility of yet unidentified remains being impacted by the proposed construction.

Segment 12: North of the Wailua River to Haleilio Road

Fine loamy sands are present along this stretch of the fiber optic cable route, and half a dozen kuleana border the west side of the existing highway. Previous surveys (Soehren 1967; Ching 1968; Kikuchi 1984; Yent 1937, 1989; and Kawachi 1993) have established the existence in prehistoric times of a heiau complex near the mouth of the Wailua River. There are also

historic activity layers including an old rice mill (Site #-331). The Coco Palms site, where many burials and scattered human remains have been found, is also adjacent to this part of Kūhiō Highway. Because of the sandy soil conditions, the presence of nearby kuleana, the proximity to known and suspected cultural layers, and the community concern associated with the Coco Palms site, CSH judged that there is a HIGH potential for encountering historic properties during installation of this segment of the fiber optic cable.

Segment 16: Kealia

This section contains an extensive stretch of Mokuleia fine loamy sand from south of Kapaa Stream to the northern perimeter of Kealia Beach. Two kuleana are just to the west of the highway. Human burials have been found near the highway in Kealia, as well as in sand deposits makai of Kuhio Highway. Further reports have stated the existence of, "burials, historic artifacts, and traditional Hawaiian midden just west of the highway... " Because of the presence of the sandy soils, nearby kuleana, and reported burials, the potential for encountering historic properties is considered HIGH.

Segment 18: Anahola Valley.

There are no sandy soils along this segment of Kuhio Highway, but Mokuleia fine sandy loam is present along the spur line extensions within the project area surveyed by CSH. Kuleana are present along both sides of Kuhio Highway, as well as near the spur lines. Bennett (1931:129) identified Site 114, Paeaea Heiau at the back of Anahola Valley. Some of the proposed fiber optic cable spur lines also run near areas of archaeological concern, including Site 115, Kuhua Heiau, and Site 116, dune burials in the immediate area. A pre-contact cultural layer (Site 50-30-04:627) has also been identified northeast of Aliomanu Road. For reasons of soil type, the presence of kuleana, and community concern over the known presence of important cultural resources, the potential for historic properties to be encountered during installation of the fiber optic cable is rated HIGH.

Very High Potential

Segment 2: Waimea Athletic Field to just before the west end of Waimea River Bridge

This section is almost entirely Jaucus loamy fine sand. There are at least a dozen kuleana close to either side of the highway. Burials and subsurface cultural layers have been documented in Waimea Town. The SHPD has designated the archaeological subsurface deposits concentrated here site #-3250. CSH rated this segment as having a VERY HIGH potential for historic properties to be encountered during construction.

Segment 10: Along the Wailua County Golf Course

This section runs over Mokuleia fine sandy loam and Mokuleia clay loam soils. There are no kuleana near this section of the highway. However, several archaeological surveys have been conducted in this area because of its known status as a pre- and post-contact burial ground. The

presence of burials in the Wailua Golf Course is well known and a subject of particular concern to the Hawaiian community.

This area was designated an archaeological site by Bennett (1931), who described it as having, "many burials." Cox (1977) reported burials and scattered human remains during construction at the Golf Course. Erkelens and Welch (1993) interviewed a Wailua Golf Course groundskeeper who reported that hundreds of bones were disinterred when the main driving range was constructed in the mid-1960s. Folk et al. (1992, 1994) and Folk and Hammatt (1995) identified at least six additional burials during cable laying. Because of the soil conditions, community concern, and the known presence of extensive burial sites in the area, CSH rated the probability that historic properties might be encountered during installation of a fiber optic cable through this segment of the route as VERY HIGH.

Segment 14: Waipouli Stream to the North Edge of Kapaa Valley

There are three kilometers of sandy soils along the highway in this segment of the route. Three kuleana lie scattered along the mauka side of Kuhio Highway. Fifteen burials and an extensive cultural layer (Site 50-30-08-1836) have been documented on the makai side of this segment of Kuhio Highway. Site 50-30-08.1848 and Site 50-30-08-1849, which together contain 26 burials and cultural materials, are also present in this area. Human remains have also been discovered in central Kapaa Town. Due to the presence of the sandy soils, multiple kuleana, and three known subsurface archaeological sites, and in accord with previous recommendations and community concern, CSH rated the potential for encountering historic properties as being VERY HIGH.

4.8.2 Recommendations

The fiber optic fiber optic cable route for Kauai has been divided into 19 sections of which each section was assigned one of four levels of the potential for the presence of subsurface historic properties being encountered.

It should be emphasized that a Low potential assessment does not imply that there is no possibility of encountering subsurface deposits within a fiber optic route section. This assessment refers to a lessened possibility relative to other areas where documented evidence would suggest a heightened potential. It should also be emphasized that the fiber optic routes are limited to the portion of roadway or shoulder through areas that have already been altered to varied degrees by construction of the affected roadway itself. Consequently, the following recommendations are suggested for each level:

Based on the low potential for subsurface deposits, no further archaeological work is recommended in the sections of the study route that were given a Low category rating. On-call monitoring with periodic site inspections using a cultural monitor is recommended.

Areas determined to be of Moderate potential for encountering archaeological resources was recommended for a monitoring program with on-call monitoring. On-call monitoring with periodic site inspections using a cultural monitor is recommended.

Areas deemed of High potential for encountering archaeological resources based on presence of sand, Land Commission Awards, or historic properties were recommended for a monitoring program with continual on-site monitoring.

For areas assessed to have a Very High potential for encountering archaeological resources, continual on-site monitoring was recommended. Such areas merit more detailed consultation with SHPD before any determination is made on the specific archaeological mitigation measures to be implemented. Such sections should plan to anticipate delays or changes to excavation techniques based upon the likelihood of encountering burials or cultural layers. Consequently, consultation with the archaeological and burial staffs of the SHPD and Kauai Island Burial Council was recommended during the project's design phase when more design details and construction methods have been developed. Such consultation efforts would be intended to develop appropriate mitigative measures to address potential impacts on historic resources.

Affects On Historic Bridges

The proposed fiber optic cable route will be located within existing highways and roadways, and would thus inevitably cross some historic bridges. The crossing of such streams or gullies associated with historic bridges would be determined on a case-by-case basis during the route's design. Such crossings could involve utilizing bridge attachments in accordance with State DOT or County design standards. Another method may involve utilizing trenchless construction methods to cross under such streams or gullies and thus not affect historic bridges.

If bridge attachments are installed in accordance with State DOT or County design standards, the fiber optic lines would be located under such bridges as much as possible and will be out of public view where permitted. The lines installed would be on the order of about 8-inches in diameter and located about 12-inches under the bridge deck which is smaller and considerably lighter in comparison to water mains. Review of design plans will be conducted with either the State or County applicable agency. Therefore, installation of this fiber optic cable project would not negatively alter, directly or indirectly, any of the characteristics associated with historic bridges which qualified them for historic designation.

Section 106 Consultation

Since publication of the Draft EA, consultation efforts have been conducted with the SHPD and RUS to address compliance with Section 106 consultation under the National Historic Preservation Act. Such coordination included meetings, telephone conversations, correspondence, and the submittal of the archaeological assessment report prepared for the Island

of Kauai to SHPD for their review. The category ratings assessment developed for the proposed fiber optic cable route was reviewed by SHPD, and they had expressed general concurrence with the findings and recommendations.

Based upon this consultation with SHPD, a Memorandum of Agreement (MOA) will be prepared to avoid potential adverse impacts to cultural layers or burials that may be encountered during construction activities. This MOA is proposed to have two stipulations addressing mitigative measures of which SIC is committed to implementing.

The first stipulation would include an archaeological monitoring plan developed for construction of cable trenches associated with the project. Continuous on-site monitoring would occur for areas having a High and Very High rating potential for encountering burials of cultural layers. On-call monitoring with periodic site inspections would occur for other areas having a Low and Moderate rating probability of encountering burials during construction activities.

The second stipulation of the MOA would include a contingency plan specifying treatment steps to be implemented in the event burials are encountered. This contingency plan would be developed in consultation with the Kauai Island Burial Council. Presentations before the Kauai Island Burial Council are being scheduled along with appropriate consultation with them in developing an acceptable contingency plan for implementation.

4.8.3 Cultural Assessment

The archaeological assessment conducted an extensive literature research of areas affected by the fiber optic cable route along with field inspections. This research provided some background information and discussion of the area of which information was available to make a reasonable assessment of the likelihood of traditional Hawaiian cultural practices being significantly affected by the project.

Based on this investigation and study, this project is not expected to significantly affect traditional native Hawaiian cultural practices occurring in the project area or other traditional cultural practices. There are no known traditional cultural practices occurring within the existing rights-of-way of highways or roadways affected by the project since such corridors are heavily utilized for travel by vehicles. Surrounding properties along the majority of highways and roadways affected are also urbanized with various commercial, residential, or industrial uses.

The project would also not restrict access to surrounding areas which may be used for traditional native Hawaiian cultural practices since the fiber optic cables would be installed underground within the rights-of-way of existing State highways and DHHL roadways. Construction activities would result in temporary lane closures. However, this would not prevent access to shoreline areas or other potential cultural resources in the surrounding area which may be used for traditional gathering or other cultural practices.

The archaeological assessment did identify the potential likelihood of various fiber optic cable segments encountering cultural deposits or possible burials during construction work. This would be the only potential cultural resources which may be affected within roadways, however, whether any are actually encountered would only be determined during construction. If burials are encountered, necessary consultation and coordination would be conducted with the SHPD and Kauai Island Burial Council in compliance with Chapter 6E, HRS. Such activities may include the search and identification of lineal descendents to help determine the proper treatment of burials by the Kauai Island Burial Council. Therefore, consultation with the Kauai Island Burial Council and any lineal descendents recognized under Chapter 6E, HRS procedures is the most appropriate and practical recourse for addressing traditional native Hawaiian cultural practices and resources.

As previously discussed, a MOA would be developed under the Section 106 consultation process to establish necessary mitigative measures of which SIC is committed to implementing. This MOA is proposed to have two stipulations addressing mitigation which includes establishing an archaeological monitoring plan and developing a contingency plan specifying treatment steps to be implemented in the event burials are encountered. *This contingency plan* will be developed in consultation with the Kauai Island Burial Council beginning with a presentation with the Council, and continuing consultation efforts to address treatment.

4.9 SCENIC AND AESTHETIC RESOURCES

The fiber optic route for the proposed project offers views of several well-known sights of the island of Kauai. These include the Waimea Canyon, the Waimea and Wailua Rivers, and many striking coastline and mountain views. However, because the fiber optic cable alignment is underground within existing highway and road rights-of-way, it does not involve features of special scenic or aesthetic interest.

Potential impacts on important scenic and coastal views would only be associated with short-term construction activities. Long-term impacts on visual resources would not occur since this project involves the installation of underground fiber optic lines within the rights-of-way of existing State highways and DHHL roadways in the Anahola subdivision. As a result, these fiber optic lines would not be visible since they would be situated underground.

Construction activities may involve the presence of equipment and workers along roadways which may temporarily interfere with some coastal views from roadways. However, this would be a relatively minor disruption which inevitably happens as part of any construction project occurring along roadways. The project would not alter or damage any important scenic coastal landform or other visual resources in the surrounding area since work would generally be limited to existing State and DHHL roadway rights-of-way. Therefore, the proposed project is expected to have minimal if any impacts on visual resources or scenic views.

CHAPTER 5
INFRASTRUCTURE AND PUBLIC FACILITIES

This chapter addresses the project's probable effect on existing infrastructure within and adjacent to roadways affected by the proposed fiber optic route. This chapter also addresses public facilities affected by this project.

5.1 WATER FACILITIES

Water supply serving the Island of Kauai is provided by the County Department of Water Supply (DWS). Within the rights-of-way of both State highways and County roadways, the DWS has water mains and laterals located within paved travel lanes and along shoulder areas.

Potential impacts on the DWS's water facilities associated with the project would be limited to only short-term construction related activities. Since the project consists of fiber optic cables, this project would not have any long-term impacts on water facilities and supply once constructed.

The installation of the fiber optic cables would be designed to minimize impacts and disruptions to existing water mains and laterals present within roadways and shoulder areas. The specific location of fiber optic cables within roadway rights-of-way would be determined during the design of each particular route segment. As part of the design work, surveys and coordination with DWS and other pertinent parties would be conducted to determine the locations of existing water mains and laterals so that the design of fiber optic cables would not impact these facilities. Such coordination would also include the DWS review of construction plans developed. Therefore, the construction of the fiber optic cables should not have a significant impact on DWS water facilities.

5.2 WASTEWATER FACILITIES

Wastewater systems are present within both State and County roadway rights-of-way. These sewer systems consist of various sizes of sewer mains and pump station which are primarily owned and maintained by the County Department of Public Works (DPW), Division of Wastewater.

Potential impacts on the County's wastewater facilities associated with the project would be limited to only short-term construction related activities. Since the project consists of fiber optic cables, this project would not have any long-term impacts on these wastewater facilities once constructed.

The installation of the fiber optic cables would be designed to minimize impacts and disruptions to existing wastewater mains and pump stations present within roadways and shoulder areas. The specific location of fiber optic cables within roadway rights-of-way would be determined during the design of each particular route segment. As part of the design work, surveys and coordination with the County would be conducted to determine the locations of existing wastewater facilities so that the design of fiber optic cables would not impact these facilities. Such coordination would also include the review of construction plans developed. Therefore, the construction of the fiber optic cables should not have a significant impact on the County's wastewater facilities.

5.3 DRAINAGE FACILITIES

Storm water conveyance systems including culverts, inlets, catch basins, and storm sewer lines are present within State and County roadway rights-of-ways. The majority of these facilities are maintained by the County.

Potential impacts on drainage facilities associated with the project would be limited to only short-term construction related activities. Since the project consists of underground fiber optic fiber optic cables, this project would not have any long-term impacts on these facilities once constructed.

The installation of the fiber optic cables would be designed to minimize impacts and disruptions to existing drainage facilities present within roadways and shoulder areas. The specific location of fiber optic cables within roadway rights-of-way would be determined during the design of each particular route segment. As part of the design work, surveys and coordination with the County and State would be conducted to determine the locations of existing drainage facilities so that the design of fiber optic cables would not impact these facilities. Such coordination would also include the review of construction plans developed. Therefore, the construction of the fiber optic cables should not have a significant impact on existing drainage facilities.

5.4 SOLID WASTE FACILITIES

The proposed project will not create any long-term increases in the generation or disposal of solid waste. Short-term construction activities would not generate large quantities of solid waste since the trenches would be relatively small and shallow, and most of the materials excavated in trenching activities would be replaced after the duct lines are installed. Additionally, small amounts of construction debris in the form of packaging, remnants of conduit and fiber optic cable material will also be generated in small amounts throughout the project. Other solid waste such as vegetation along unpaved roadway shoulders will be properly disposed of by the contractor.

Unless otherwise specified, the contractors involved with the fiber optic cables installation would be responsible for the proper handling, storage, and/or disposal of all waste generated by installation activities. Any material brought to Kauai County landfills would be subject to existing controls and limitations. Therefore, construction of the fiber optic cable system will generate relatively small amounts of solid waste typical of normal construction related activities, and will thus not have a significant impact on existing solid waste disposal facilities. In addition, the operation and maintenance of the fiber optic system would not generate significant amounts of solid waste and would similarly have minimal, if any, effects on solid waste facilities.

5.5 TRANSPORTATION FACILITIES

The route for the proposed project follows the major transportation corridors from the southwestern Kekaha District to the northeastern extreme of the island. Between the southwestern end of the route and the Anahola Subdivision, the route is entirely contained within the State Highway system. Within the Anahola Subdivision, the branch routes are located on DHHL roadways.

The route begins in Kekaha and follows the Kaumualii Highway (State Highway 50) around the island to its intersection with the Kuhio Highway (State Highway 56) in Lihue. The route then follows the Kuhio Highway to its terminus in Moloaa; with the branching routes into the DHHL roads located approximately 4 miles south of the end of the route.

The proposed fiber optic cable project will not have any long-term impacts on both State highway facilities or DHHL roadways since the duct lines would be located underground. As a result, the project would not generate additional traffic volumes along roadways or increased congestion at particular intersections or areas during the peak commuter periods.

Potential short-term impacts on transportation facilities would inevitably be associated with temporary construction activities. Installation of the fiber optic duct lines would create a short-term impact on traffic flow in areas affected due to lane closures during construction activities. A traffic monitoring plan would be prepared during the project's design to minimize disruptions to travel lanes and vehicular traffic along roadways. This plan would be coordinated with either the applicable State or County agencies during the project's design for review and approval for implementation by the contractor. Consequently, the project is not expected to have a significant impact on transportation facilities.

5.6 ELECTRICAL AND COMMUNICATION FACILITIES

Electrical services are provided by Kauai Electric via their island-wide distribution network. Their electrical distribution system generally consists of overhead transmission lines. Overhead lines typically consist of 46 kilovolt (kV) or 12.47 kV primary circuits routed largely along highways and roadways.

Telephone services are available within various areas of the island. Such services are typically provided by Verizon Hawaii (formerly GTE Hawaiian Tel). Services are primarily distributed via both underground and overhead lines following highways and roadways.

The proposed project is not expected to have a significant impact on existing electrical facilities or HEC Kauai Electric's ability to provide electricity. The fiber optic cables installed should create minimal additional demands on Kauai Electric's electrical system. In addition, existing underground electrical, communication, and cable television facilities should not be affected by this project. Appropriate coordination with these utility companies would be conducted during the design and construction of this project to minimize disruptions to their services and existing underground lines.

5.7 RECREATIONAL FACILITIES

The proposed fiber optic cable project traverses nearby several large and smaller recreational facilities throughout Kauai. Such recreational facilities include beach parks, popular fishing and surfing spots, golf courses, and community parks.

The fiber optic cable project should not have any long-term impacts on recreational facilities since the duct lines would be located underground within the rights-of-way of State highways. As a result, the project would not restrict access to recreational facilities or the activities conducted there. Construction activities would inevitably have some minor short-term impacts on recreational facilities. Such impacts would typically involve construction noise, fugitive dust from trenching activities, and temporary closures of lanes.

To address traffic concerns in the area, a traffic monitoring plan would be prepared during the project's design to minimize disruptions to travel lanes and vehicular traffic along roadways. This plan would be coordinated with either the applicable State or County agency during the project's design for review and approval for implementation by the contractor. In addition, the contractor would be required to comply with other State DOH regulations covering construction noise and fugitive dust emissions. Consequently, the project is not expected to have a significant impact on recreational facilities.

5.8 EDUCATIONAL FACILITIES

The proposed fiber optic cable route would utilize major highways of which several educational facilities are either located along such roadways or at intersections. Consequently, there are some educational facilities situated in the immediate vicinity of the fiber optic cable route. These facilities include private and public pre-schools, elementary and middle schools, and high schools.

The fiber optic cable project should not have any long-term impacts on educational facilities since the duct lines would be located underground within the rights-of-way of State highways. The project would therefore not restrict access to educational facilities the activities

conducted there, or place additional demands staff requirements. Construction activities would inevitably have some minor short-term impacts on educational facilities. Such impacts would typically involve construction noise, fugitive dust from trenching activities, and temporary closures of lanes.

To address traffic concerns in the area, a traffic monitoring plan would be prepared during the project's design to minimize disruptions to travel lanes and vehicular traffic along roadways. This plan would be coordinated with either the applicable State agency during the project's design for review and approval for implementation by the contractor. In addition, the contractor would be required to comply with other State DOH regulations covering construction noise and fugitive dust emissions. The applicant will also require the contractor to provide at least two weeks advance notice to schools located in the immediate vicinity of construction activities. Consequently, the project is not expected to have a significant impact on educational facilities.

5.9 MEDICAL FACILITIES

The fiber optic cable project should not have any long-term impacts on medical facilities in the immediate vicinity of the project since the duct lines would be located underground within the rights-of-way of State highways. Therefore, the project would not restrict access to medical facilities or the activities conducted there. Construction activities would inevitably have some minor short-term impacts on these facilities. Such temporary impacts would typically involve construction noise, fugitive dust from trenching activities, and temporary closures of lanes.

To address traffic concerns in the area, a traffic monitoring plan would be prepared during the project's design to minimize disruptions to travel lanes and vehicular traffic along roadways. These medical facilities are also typically air conditioned which further reduces outside noise sources and minimizes dust or other air pollutants from entering the facility. This plan would be coordinated with either the applicable State or County agency during the project's design for review and approval for implementation by the contractor. In addition, the contractor would be required to comply with other State DOH regulations covering construction noise and fugitive dust emissions. Consequently, the project is not expected to have a significant impact on these facilities.

5.10 POLICE AND FIRE PROTECTION

The proposed fiber optic cables should not have any long-term adverse impacts on the Kauai Police or Kauai Fire Department's ability to provide protective services on Kauai. Once the fiber optic cable lines are installed, there would be no personal or business activities occurring with these underground cables which may require the need for police or fire protection services. These fiber optic cables would be installed underground within State highways.

Police staff may be hired to assist in conducting temporary traffic control during construction activities, but such services would be short-term, utilizing off-duty police officers. The contractor would be required to comply with applicable regulations and permit conditions governing construction activities to minimize disruptions to nearby residents and complaints to the police department. Best management practices would also be implemented to minimize dust, erosion, and other nuisances from short-term construction activities. Therefore, this project should not have a significant impact on the police department's ability to provide protective services.

Fire apparatus access would be provided throughout the construction work installing the fiber optic cable lines. The Fire Department's communication center would also be notified by the contractor of any interruption to the existing fire hydrant system during construction activities. Thus, construction activities associated with the project should have minimal impact on the Fire Department's operations or ability to provide protective services.

CHAPTER 6
ECONOMIC AND SOCIAL FACTORS

6.1 ECONOMIC AND FISCAL FACTORS

Construction of the fiber optic cable project should have a minor positive economic impact associated with the creation of short-term design-engineering and construction related jobs. Additionally, the maintenance and servicing of the fiber optic telecommunications lines will support several new permanent jobs including field and office positions.

Project-Related Jobs And Income

The projected preliminary construction budget for the fiber optic cable project is estimated to be approximately $10 million. As a result, the construction of this project would create several construction jobs over the anticipated 3-year construction period. Construction of the project would also generate additional personal income for construction workers. Personal income is defined as the wages paid to the direct construction workers or operational employees associated with a development.

Direct construction jobs created would typically consist of on-site laborers, tradesmen, equipment operators, supervisors, etc. Engineering jobs associated with the design and construction management work would typically consist of surveyors, design engineers, and administrative staff. It is anticipated that these project-related jobs would likely be filled by residents from the Island of Kauai or within the State employed within the engineering and construction fields.

It was estimated that a total of about 78 full-time direct construction jobs would be created over the entire construction period which translates into about 26 new construction jobs per year. Direct jobs created would also stimulate indirect and induced employment within other industries on the island such as retail, restaurants, material distributors, and other related businesses. This would also generate on the order of about 100 total additional indirect and induced jobs over the 3-year construction period resulting from the income spent by direct construction jobs.

Fiscal Factors

Fiscal impacts associated with this project would primarily involve additional tax revenue generated to the State resulting from the spending of money for the project's construction. Since County revenues are primarily limited to property tax revenues, there should be minimal changes to County revenues.

Tax revenue sources for State government is composed primarily of general excise taxes (GET) on development costs and construction materials, along with corporate income tax. In addition, GET taxes on indirect and induced income spent stimulated by the spending of direct income would also contribute new revenues to the State.

Based upon the $10 million construction budget estimate, this project would generate about $202,000 in additional State income tax revenue given the estimated new direct construction related jobs created. It was estimated that about $693,000 in GET revenue would be generated by the various State GET taxes which includes corporate tax and GET tax on construction materials, costs, along with direct, indirect, and induced income spent. Thus, additional State revenues generated by the project would amount to about $895,000.

This project is not expected to generate any new in-migrant residents to the Island of Kauai to fill short-term construction related jobs. As a result, there should not be any impact on State and County operational expenditures for public services serving the island.

6.2 SOCIAL IMPACT FACTORS

The proposed fiber optic cable route extends from Kekaha in the southwest of Kauai eastward and northward along the Kaumualii and Kuhio State Highways and terminates in the Moloaa DHHL homestead area. The route passes through lands currently used for urban, rural, and agricultural purposes. The following sections describe the planned uses in the five County Districts through which the route passes, and examines the impacts that the installation, operation, and maintenance would have on these uses and the social environment.

Waimea District

Waimea district is one of the districts addressed in the West Side Planning Districts section of the General Plan of Kauai County (County 2000). The West Side Planning Districts include Ele Ele-Hanapepe and the Waimea-Kekaha Planning Districts, which are generally dealt with and referred to as the "West Side". The majority of land use in the Waimea District is agricultural, with minor urban centers at Kekaha, Waimea, Kaumakani, and Hanapepe. These are all small communities with limited roadside development and an interest in maintaining a "small town" atmosphere. The only conservation designation is along the banks of the Waimea River. The route also passes through Waimea Valley, which is also a conservation area. Land use throughout is generally consistent with the designations provided.

As described above, most of the environmental impacts associated with the proposed project would be limited to minor disturbances associated with the installation of the cable system. The generally rural and "small town" character of these areas would not be disturbed. No substantial impacts to the land uses or communities in the Waimea District would be caused by the proposed system.

Koloa District

The Koloa District lies between the West Side Districts and the more urbanized district of Lihue, covering the area from Haupu Ridge in the west to its eastern extremity at Wahiawa gulch, thereby including most of the southern shore of the island. This district encompasses some of the most active concentrations of resort and agricultural development on the island. There are several small urban areas in this district, including Eleele, Kalaheo, and Lawai. Notable natural resources exist at Waimea-Koloa and Omoe Forest, which have been classified as conservation lands.

As described above, most of the environmental impacts associated with the proposed project would be limited to minor disturbances associated with the installation of the cable system. The resort and agricultural activities that characterize these areas would not be disturbed. No substantial impacts to the land uses or communities in the Koloa District would be caused by the proposed system.

Lihue District

Lihue District and Town are the population center of the island. From Haupu Ridge in the south, this District extends north to the Wailua River, encompassing the urban communities of Puhi, Nawiliwili, Hanamaulu, Kapaia, and Lihue. Kauai County has focused its urban growth on the Lihue area. Other than these urban centers, the land is designated agricultural, with the exception being the conservation lands that range from Hanamaulu-Kalepa to Mauna Kapu.

As described above, most of the environmental impacts associated with the proposed project would be limited to minor disturbances associated with the installation of the cable system. The urban and agricultural activities that characterize these areas would not be disturbed. No substantial impacts to the land uses or communities in the Lihue District would be caused by the proposed system.

Kawaihau District

This district covers the entire region from the Wailua River in the south to Moloaa homestead property in the north. This includes the Wailua-Kapaa basin, Anahola-Kamalomaloo homestead area, and Kealia. A significant portion of the island's population lives in the Wailua-Kapaa basin, in or around the community of Kapaa. A corridor exists along Kuhio Highway, from Haleilio Road to Kawaihau Road, designated for urban development in anticipation of this community's continued growth. This is the most urbanized sector of the island exhibiting the highest degree of roadside development, with urban designations at Wailua (Town and house lots), Kapaa, and from Kumukumu to Kamalomaloo homestead area.

As described above, most of the environmental impacts associated with the proposed project would be limited to minor disturbances associated with the installation of the cable system. The urban activities that characterize these areas would not be disturbed. No substantial

impacts to the land uses or communities in the Kawaihau District would be caused by the proposed system.

Hanalei District

The Hanalei district is part of the North Shore Planning Districts of the Kauai General Plan. This area extends from Moloaa in the east to Puanaiea Point to the west, thus including the entire Na Pali coast. The North Shore Planning District includes the urban communities of Ha'ena, Wainiha, Hanalei, Kalihi Wai, Kīlauea, and Princeville. However these communities do not lie on or near the proposed cable route, which terminates at Moloaa. Most of the land areas near the proposed cable route are used for agriculture and low-density residential developments.

As described above, most of the environmental impacts associated with the proposed project would be limited to minor disturbances associated with the installation of the cable system. The agricultural and residential activities that characterize these areas would not be disturbed. No substantial impacts to the land uses or communities in the Hanalei District would be caused by the proposed system.

6.3 SECONDARY AND CUMULATIVE IMPACTS

Interaction With Other Planned Projects

There are various State DOT highways or utility projects planned on the Island of Kauai over the next several years as part of their yearly implementation of programmed highway improvements. Such infrastructure projects typically include new roadway resurfacing and other highway-related improvements. In addition, there may be other private utility projects being implemented within highway facilities. As a result, some of these projects have implications for the proposed SIC fiber optic duct line project in terms of construction scheduling.

To address such interaction with other highway and utility projects, SIC is conducting appropriate coordination with the State DOT. SIC is a member of a committee established by the State DOT to also address coordination of utility projects on their highways. The objective of this committee is to better coordinate the scheduling of construction projects among utility companies to minimize construction-related disruptions to communities. SIC has been attending regular meetings with these committees, and is working with the involved parties to coordinate their construction of the fiber optic duct line project.

Secondary Impacts

Secondary impacts, or indirect effects, are effects which are caused by an action and are later in time or farther removed in distance, but are still reasonably foreseeable. Such effects may include growth inducing impacts and other effects related to changes in land use patterns, population density or growth rate, and related effects on air, water, and other natural systems. The proposed fiber optic duct line project is expected to have minimal secondary impacts on

resident population of the Island of Kauai, land use patterns, public facilities and infrastructure, and the natural environment.

As mentioned before, SIC is licensed to provide emergency, basic, and advanced telecommunication services to DHHL properties at a cost regulated by the Public Utility Commission tariff. As a result, the impacts associated with this Kauai network are primarily associated with only short-term construction related activities. As previously discussed, this project would generate short-term construction-related and engineering jobs associated with the design and construction of the project. This project would also generate some full-time employment for the operation of the system.

However, creation of short-term construction jobs and some operational jobs are not expected to generate substantial in-migration to the Island of Kauai or State to fill these jobs generating a significant indirect increase in resident population, housing, and demand for public facilities. SIC is committed to fill positions using qualified local residents and qualified local contractors to construct the project.

This project is not expected to result in other indirect effects such as the development of several large high-tech centers on Kauai. Development and feasibility of such high-tech centers are dependent upon several complex and more important factors such as business climate, education, labor force, etc. The availability of fiber optic duct lines represents only one very small component that goes into such business decisions in light of the rapid changes occurring in this technology.

The project objective is to provide emergency, basic, and advanced telecommunication services to DHHL parcels, and this fiber optic duct line would allow SIC to provide such service. SIC has no immediate plans for the use of this network and availability to non-DHHL beneficiaries. A question of non-DHHL beneficiaries using this service is also not an issue since it would not generate significant secondary effects.

Cumulative Impacts

Cumulative impacts are impacts on the environment which results from the incremental impact of a project when added to past, present, and reasonably foreseeable future actions. The impacts associated with the fiber optic duct line project are primarily associated with construction related impacts. As already discussed, other State DOT and utility projects being implemented and programmed in the immediate future may involve similar construction related impacts on highways where the proposed fiber optic duct line is planned.

Since these effects are essentially construction related, the cumulative impact of them are not expected to be significant because they would be short-term and not create adverse impacts on the environment. Appropriate Best Management Practices would be incorporated to minimize impacts, construction plans would be reviewed by agencies as part of the normal

design review, and the contractor would need to meet all pertinent State and County requirements concerning construction activities.

This land based fiber optic system for Kauai is an independent system to provide emergency, basic, and advanced telecommunication services to DHHL properties. If for some reason one island system could not be constructed, it would not prevent the other islands from being constructed and operated independently. Therefore, potential cumulative impacts from development of the other island systems would not be significant or adverse as such impacts would similarly be short-term and construction related.

Construction related issues and mitigation are thus better addressed at each county level since they are more applicable to the communities there as well as being regulated by County agencies. Similarly, archaeological concerns such as burials during construction are addressed at the county or island level because established island burial councils have jurisdiction in addressing such issues. Based upon meetings held with the State OEQC in May and October of last year, this project was discussed and agreed that separate environmental assessment documents for each county were thus more appropriate and should be prepared as such. Environmental documents have been prepared and published for public comments for each county.

The landing sites would connect DHHL properties statewide to give SIC an opportunity to provide inter-island service for beneficiaries instead of using more costly existing carriers. There are no specific landing sites established at this time as SIC still needs to conduct planning and feasibility studies to evaluate them. Consequently, there are no specific locations or sites established at this time which can be reasonable or adequately addressed. Meetings held with the State OEQC last year discussed this, and it was agreed that an appropriate environmental document will be prepared later to address these landings sites once project details are established.

CHAPTER 7
CONFORMANCE WITH PLANS AND POLICIES

This chapter discusses the project's conformance with the State Land Use District regulations, the County's General Plan goals and policies, the Special Management Area objectives and policies, and Zoning District standards.

7.1 STATE LAND USE DISTRICT

Under Chapter 205, HRS, all lands in the State of Hawaii are classified into four major land use districts (State Land Use Districts) which are the Urban, Rural, Agricultural, and Conservation districts. The boundaries of these districts are shown on maps referred to as State Land Use District Boundary Maps.

The telecommunication lines are to be constructed within the rights-of-way of existing State highway and DHHL roadway facilities. These lines involve about 51 miles of fiber optic cable to be installed underground within roadway shoulder areas or paved travel lanes. The majority of existing highway facilities affected are located primarily within the State's "Agricultural District" and "Urban District" classified lands along with small pockets occurring through the "Rural District." However, there are a few roadway segments that are situated within the State's "Conservation District" lands.

Land uses and activities occurring within the Urban, Rural, and Agricultural Districts fall under the zoning jurisdiction of the County. Chapter 205, HRS also discusses permitted uses within the Agricultural District. The proposed fiber optic cable project is a permitted use under the County's comprehensive zoning ordinance discussed later. Discussion of the project in relation to the Agricultural District, Rural District, and Conservation District regulations are provided.

Agricultural District

The purpose of the State Agricultural District is to maintain a strong agricultural economic base and prevent unnecessary conflicts among compatible uses. Under Chapter 205, HRS, the accommodation of utilities is identified as one of various permissible uses within this district.

"Section 4.5 – Permissible uses within the agricultural district

(a)(7) Public, private, and quasi-public utility lines and roadways, transformer stations, communications equipment building, solid waste transfer stations, major water storage tanks, and appurtenant small buildings such as booster pumping stations, but not including offices or yard for equipment, material, vehicle storage, repair or maintenance, treatment plants, or corporations yards, or other like structures."

The rural fiber optic cable improvements being proposed by SIC would satisfy this condition because SIC is a rural telephone company regulated under the State Public Utilities Commission. Consequently, this project is a permitted use within the Agricultural District and its implementation will be consistent with the regulations and requirements described under this District.

Rural District

State Rural Districts include activities or uses as characterized by low density residential lots of not more than one dwelling house per one-half acre, except as provided by county ordinance. This includes areas where "city-like" concentration of people, structures, street, and urban level of services are absent, and where small farms are intermixed with low density residential lots.

Under §205-5, Zoning, HRS, the accommodation of telecommunication utilities is identified as a permissible use within this district which describes public, quasi-public, and public utility facilities. The rural fiber optic cable improvements being proposed by SIC would satisfy this condition because SIC is a rural telephone company regulated under the State Public Utilities Commission. Consequently, this project is a permitted use within the Rural District and its implementation will be consistent with these regulations.

Conservation District

A few short segments of the proposed fiber optic route within State highway rights-of-ways are situated along or within the State Conservation District. These areas are identified below:

1. Kaumualii Highway (Route 50) in Kekaha crosses Waimea River which is identified as Conservation District.
2. Along Kaumualii Highway between Eleele and Kalaheo, Conservation District lands associated with Hanapepe River Valley is located mauka (above) the highway.
3. Near Omao Homesteads, Conservation District lands are located mauka (above) Kaumualii Highway.
4. Kuhio Highway runs along Conservation District area situated makai (below) the highway associated with the Wailua Golf Course. This highway also crosses Conservation District area associated with the Wailua River just past this County golf course.
5. Kuhio Highway is routed along a short stretch of Conservation District area situated makai (below) of the highway just past Kapaa Stream.
6. Short sections of Conservation District designated areas includes portions of Kuhio Highway in the Anahola Subdivision area.

The Conservation District is generally intended to protect and preserve lands with natural resource and other values necessary to the future welfare of the State. According to Title13, Chapter 5, Subchapter 3, HAR, which governs uses within the State Conservation District, public purpose uses are permitted subject to a permit from the Board of Land and Natural Resources. Consequently, the proposed project would satisfy this use classification as a public purpose use because it is a communication system being constructed. According to Title 13, Chapter 5, Subchapter, P-6, HAR:

> *"P-6 Public Purpose Uses*
>
> *Land uses undertaken by the State of Hawaii or the counties to fulfill a mandated governmental function, activity, or service for public benefit and in accordance with public policy and the purpose of the conservation district. Such land uses may include transportation systems, water systems, communication systems, and recreational facilities."*

Discussions with Department of Natural Resources (DLNR) staff indicate that the proposed underground fiber optic cables may not necessarily require a Departmental or Board permit because it would be located within existing State rights-of-way. As a result, such utilities could be considered as an "accessory use" to the existing roadways. However, appropriate coordination would need to be conducted with DLNR during the design of various route segments to address the applicability of permit requirements and other coordination matters. Such coordination would include submittal of construction plans for route segments affecting Conservation District lands along with a letter request for their review and determination.

7.2 KAUAI COUNTY GENERAL PLAN

Section 2.1 of the Kauai General Plan, entitled "COMMUNITY VALUES" provides the philosophical foundation for the intended outcome of the General Plan itself (County 2000). The fiber optic cable project is consistent with respect to all of these values. In particular, the proposed project would indirectly support the following:

- Diverse job and business opportunities so that people of all skill levels and capabilities can support themselves and their families.
- Recognition of the uniqueness of our communities, supporting people with roots and history in those communities to continue to live and raise their families there.
- Safety for all citizens and visitors.
- Support for our youth, educating them to succeed.

The proposed fiber optic cable system would support the first two community values on DHHL lands in Kauai by providing widespread, non-centralized access to the rapidly developing opportunities that are based on high-speed telecommunications systems. The project would support the third community value by providing DHHL beneficiaries with high quality and

robust communication system with police and fire service providers and other organizations concerned with public safety. The project would support the last community value by providing for DHHL beneficiaries non-centralized and widespread access to the internet, libraries, and other sources of current educational information.

Telecommunications Provisions

Section 2.2 of the Kauai General Plan, entitled "VISION FOR KAUAI 2020," includes the following passage under the subsection entitled "High Technology" (County 2000):

> *"All parts of the island are served with fiber optic cable, allowing high-speed communications."*

The project would be consistent with this vision statement and would provide a significant contribution toward its achievement for serving DHHL homesteads well in advance of the target date of 2020.

Historic and Archaeological Resources

As discussed in Section 3.3 of the General Plan, the preservation of historic and archaeological resources is given a high priority, to ensure compliance with existing State and Federal law, but also to provide sources of enrichment for visitors and residents of the island.

The project would comply with all existing applicable laws and regulations, including Section 106 of the National Historic Preservation Act of 1966 and the Hawaii Historic Preservation Act (HRS Chapter 6E). Mitigative measures developed to minimize any disturbance of buried artifacts during the installation of the fiber optic system would also document any findings of historic or archaeological sites, thus contributing to the development of the County of Kauai Historic Resources Inventory and/or the general archaeological body of knowledge for the island.

Physical Infrastructure

Section 4.4.3 of the General Plan describes the County policy for encouragement of high technology business on Kauai. Item (c) in this section states:

> *"Build upon Kauai's existing resources in high technology, such as the Pacific Missile Range Facility and the fiber optic cable service that stretches from Mana to Wainiha, connecting Kauai with the U.S. mainland, and, via routing, to practically every industrial center in the world."*

The project will directly assist in the implementation of this policy objective by allowing for substantial extensions of the existing system on the island.

7.3 KAUAI COUNTY ZONING ORDINANCE

Section 8-1.4(d) of the County of Kauai Comprehensive Zoning Ordinance (CZO) states that the public utility transmission lines, when placed below 20 feet above allowable structure heights, shall not be subject to regulation under the CZO. SIC, as a duly commissioned rural telephone company, qualifies as a public utility. The proposed fiber optic system would be constructed entirely underground or placed out of view on bridge crossings and will therefore be less than 20 feet above allowable structure heights. Thus, the fiber optic project for this island would be a permitted use under the County of Kauai CZO.

7.4 SPECIAL MANAGEMENT AREA

This chapter discusses the project's conformance with the County's Special Management Area objectives and policies as prescribed under the Hawaii Revised Statutes, Chapter 205A Special Management Area.

A. Objectives:

1. *Provide coastal recreational opportunities accessible to the public.*
2. *Protect, preserve, and where desirable, restore those natural and man-made historic and pre-historic resources in the coastal zone management area that are significant in Hawaiian and American history and culture.*
3. *Protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources.*
4. *Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems.*
5. *Provide public or private facilities and improvements important to the State's economy in suitable locations.*
6. *Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, and subsidence.*
7. *Improve the development review process, communication, and public participation in the management of coastal resources and hazards.*

B. Policies

1. *Recreational resources:*
   b. *Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by;*

The telecommunication line project would not damage coastal resources having significant recreational value in the immediate area. The project would run fiber optic telecommunication cables along segments of the existing roadways and state highways. Therefore, it would have minimal affect to on these recreational resources.

2. *Historic Resources:*

   a. *Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.*

The project should not be expected to impact any historic or natural resources in the coastal zone management that are significant to the Hawaiian and American history as discussed in this document. The fiber optic cable will be located about three feet underground along State highways and some DHHL roadways. Therefore, following these existing routes should not affect any historic sites in the coastal area. Appropriate mitigative measures developed would address potential effects on potential cultural resources encountered during construction activities.

3. *Scenic and Open Space Resources:*

   a. *Protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources*

The project is not expected to adversely impact the shoreline, public views, or the surrounding environment as described under this policy. This fiber optic telecommunication line project will be constructed underground along State highways, therefore, it will not disrupt any scenic and open space resources.

4. *Coastal Ecosystems:*

   a. *Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems*

The project is expected to have minimal if any impact on existing coastal ecosystems of significant biological importance. There are no known rare, threatened or endangered species or habitats within the rights-of-way of existing highways utilized for the fiber optic cable route. Construction activities would be conducted utilizing Best Management Practices to minimize construction-related impacts. As a result, this project should not impact coastal water ecosystems and streams, and is consistent with the policy of promoting water quality planning and management practices.

5. *Economic uses;*

   a. *Provide public or private facilities and improvements important to the State's economy in suitable locations*

   b. *The development is important to the State's economy.*

The project is located within existing State right of ways in order to prevent environmental impacts. The fiber optic route utilizes existing transportation corridors to provide high-speed telecommunications capabilities to DHHL properties

throughout the island of Kauai. This proposed system will allow for internet education, health care, telecommuting, and state of the art technological capabilities to DHHL homestead areas on the island.

6. *Coastal hazards;*

   a. *Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.*

The project would be consistent with this policy. The fiber optic telecommunication line project will run along the State highways and will be buried underground. Therefore, it will not impact any coastal hazards that will reduce any life property from tsunami, storm waves, stream flooding, erosion, subsidence and pollution.

7. *Managing development:*

   a. *Improve the development review process, communication, and public participation in the management of coastal resources and hazards.*

Early consultation with review agencies and publication of this Applicant action will improve the development review process, communication, and public participation in the management of coastal resources.

8. *Public participation:*

   a. *Stimulate public awareness, education, and participation in coastal management.*

Early consultation with agencies and publication of this Applicant action should serve to stimulate public awareness, education and participation in coastal management. Also, the fiber optic telecommunication lines will make resource information and education available to every DHHL homestead area that is connected, thereby raising public awareness of coastal management issues.

9. *Beach protection:*

   a. *Protect beaches for public uses and recreation.*

The proposed project will occur within the existing right of ways of State highways, and consequently should have minimal if any impact on beaches or related recreational resources.

10. *Marine resources;*

   a. *Implement the State's ocean resources management plan.*

The proposed project does not involve the use of or impact on ocean resources.

CHAPTER 8
AGENCY AND PUBLIC CONSULTATION

Consultation with various State and County government agencies and community organizations was conducted to obtain their comments and concerns associated with the project as part of the environmental assessment process. Consultation efforts included sending early consultation letters providing preliminary project information to these parties, and the distribution of the Draft EA for agency and public review.

8.1 DRAFT EA EARLY CONSULTATION EFFORTS

The intent of early consultation efforts was to provide potentially interested parties of with *preliminary project details* and to solicit their concerns and comments during the early stages of the environmental assessment process. Early consultation letters were sent to these parties in November 2000. The consultation letters included preliminary site plans identifying affected roadways, and provided summary information on construction of the fiber optic duct system, required appurtenant structures such as man holes and pullboxes, proposed methods of installation, and anticipated positive impacts to Hawaiian Home Lands beneficiaries.

A listing of agencies and organizations for which consultation letters were sent is provided below. Those providing written response are identified with a "»" symbol. Copies of written comments received along with written responses are included in Appendix A.

Federal Agencies

- Fish and Wildlife Service, Department of the Interior
- » U.S. Army Engineer Division, Department of the Army

State of Hawaii Agencies

- Dept. of Business, Economic Development & Tourism
- » Department of Defense
- Department of Education, Kauai District Office
- » Department of Health
- Department of Land and Natural Resources, Aquatic Resources Division
- Department of Land and Natural Resources, Land Division
- » Department of Land and Natural Resources, Historic Preservation Division
- Department of Transportation, Highways Division
- Land Use Commission, Dept. of Business, Economic Development & Tourism
- Office of Hawaiian Affairs
- Office of Environmental Quality Control
- The Environmental Center, University of Hawaii at Manoa

County of Kauai Agencies

- » Department of Water
- » Kauai Civil Defense Agency
- » Office of Economic Development
- • Planning Department
- » Police Department
- » Department of Public Works

Community Organizations and Utilities

- • Sierra Club, Kauai Chapter
- » West Kauai Community Development Corp.
- • Kapaa Business Association

8.2 DRAFT ENVIRONMENTAL ASSESSMENT COMMENTS

The Draft EA for the proposed project was published in the March 23, 2001 issue of the State Office of Environmental Quality Control's *The Environmental Notice* initiating a 30-day public comment period which ended on April 23, 2001. Copies of this Draft EA were distributed to the following parties for review and comments. Those parties which submitted comments are indicated by a "»" next to them. Comment letters received from these parties along with corresponding response letters are included in Appendix A.

Federal Agencies

- • Fish and Wildlife Service, Department of the Interior
- » U.S. Army Engineer Division, Department of the Army
- • USDA Natural Resources Conservation Service

State of Hawaii Agencies

- • Department of Accounting and General Services
- » Department of Education
- • Department of Hawaiian Home Lands
- • Department of Health
- • Department of Land and Natural Resources, Land Division
- • Department of Land and Natural Resources, Historic Preservation Division
- • Department of Land and Natural Resources, Kauai Island Burial Council
- » Department of Transportation, Highways Division, Kauai District Office
- » Land Use Commission, Dept. of Business, Economic Development & Tourism
- » Office of Environmental Quality Control
- • Office of Hawaiian Affairs
- • Office of Planning

County of Kauai Agencies

- » Department of Water
- » Fire Department
- Kauai Civil Defense Agency
- Kauai County Council
- Office of Economic Development
- Office of the Mayor
- » Department of Planning
- » Police Department
- » Department of Public Works
- Department of Transportation

Community Groups and Organizations

- Lihue Public Library
- Kapaa Public Library
- Koloa Public Library
- Waimea Public Library
- Ahupua'a O Kauai
- Hui Malama I Na Kupuna 'O Hawaii Nei
- West Kauai Community Development Corporation
- State Commission of Hawaiian Homestead Association

CHAPTER 9
FINDINGS AND ANTICIPATED DETERMINATION

To determine whether a proposed action may have a significant effect on the environment, the Approving Agency needs to consider every phase of the action, the expected primary and secondary consequences, cumulative effect, and the short- and long-term effects. The Approving Agency's review and evaluation of the proposed action's effect on the environment would result in a determination whether: 1) the action would have a significant effect on the environment, and an Environmental Impact Statement Preparation Notice should be issued, or 2) the action would not have a significant effect warranting a Finding Of No Significant Impact (FONSI).

This chapter discusses the results of the assessment conducted for the proposed installation of the rural fiber optic duct lines in relation to the 13 Significance Criteria prescribed under the State Department of Health's Administrative Rules Title 11, Chapter 200. The purpose of this assessment was to consider the "significance" of potential environmental effects which includes the sum of effects on the quality of the environment along with the overall and cumulative effects. The resulting findings are discussed below for each criteria.

9.1 PRELIMINARY FINDINGS

1. Involves an irrevocable commitment to loss or destruction of any natural or cultural resource.

The proposed project would not result in the irrevocable commitment to loss or destruction of any natural or cultural resource. As discussed in Chapter 4, the project would not negatively impact any natural or cultural resources of significance or concern. The improvements would only involve the installation of underground fiber optic duct lines within the rights-of-way of existing State highway facilities and some DHHL roadways. These duct lines would only involve a trench typically about 1 foot wide by about 3 to 4 feet deep.

In the construction of the fiber optic routes, trenchless construction methods to minimize disturbances to existing roadways and the surrounding environment would be considered. Such trenchless methods would also be considered at streams or gully crossings to minimize disturbing stream bed and banks if bridge attachments is not feasible or practicable. Consequently, the project should not result in the destruction or loss of any significant, endangered, or threatened botanical, faunal, geological, or other natural resources. Design of the fiber optic cable routes would be in conformance with both State and applicable County design standards and requirements. Furthermore, appropriate coordination with applicable agencies would also be conducted during the design phase to allow for review of construction plans and design details.

In terms of archaeological and cultural resources, the assessment study conducted by Cultural Surveys Hawaii, Inc. identified potential areas along the route which may have a higher potential to encounter archaeological resources during construction. The design of fiber optic cable segments through these areas of higher potential would be closely coordinated with the SHPD to address appropriate mitigation given planned installation methods developed. Such efforts will include developing and executing a MOA under the Section 106 consultation process which will establish a monitoring plan and contingency plan developed in consultation with SHPD and Kauai Island Burial Council In addition, since the fiber optic cable would be installed within the rights-of-way of existing roadways, there should be no significant impact on traditional cultural or religious practices. Consequently, appropriate coordination with the SHPD and other pertinent agencies during the project's design would ensure natural or cultural resources are not adversely impacted.

2. *Curtails the range of beneficial uses of the environment.*

The proposed project will be contained within the rights-of-ways of existing State highways, and will therefore not prevent any beneficial uses of the environment. Such rights-of-way are presently used for either paved travel lanes, paved shoulder areas, or unpaved shoulder areas. Because the fiber optic cables would be installed underground, these shoulder and paved areas would continue to be used for their present use. Furthermore, it is common to install utilities or other infrastructure lines within such rights-of-way.

3. *Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders.*

The roadway improvements proposed under this project would not conflict with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS. This Final EA addressed the probable environmental impacts associated with the project of which most would be primarily associated with short-term construction activities. Thus, locating the fiber optic cables within the existing rights-of-ways of State highways helps to prevent conflicts with environmental policies, goals, or guidelines. The improvements are not expected to have a significant impact on natural resources or the surrounding environment. Consequently, the project would be consistent in conserving natural resources in the area, and enhancing the quality of life for DHHL beneficiaries by providing essential communication services.

4. *Substantially affects the economic, or social welfare, cultural practices of the community or State.*[1]

As discussed in this document, the project would not have any significant negative impacts on economic factors. This project would provide an economic benefit by creating short-term construction related jobs and correspondingly increased tax revenue which would have a positive affect on the overall economy of the County and State. This project would also create a small number of long-term technical support and maintenance positions on the island of Kauai which provides a small but positive long-term economic impact.

As discussed in this document, the project is also not expected to substantially affect the social welfare of the County. The project would have no impact on the existing character of neighborhoods or communities for which the fiber optic cables would be routed along existing roadways. There would be no additional housing units, increased resident population, or commercial uses associated with this project. This project is essentially a utility improvement project which would have fiber optic cables installed underground, thus, it would have minimal if any long-term impacts on the existing activities or land uses within surrounding areas.

There are no known traditional native Hawaiian cultural practices or other religious practices occurring within the rights-of-way of existing State highway facilities and DHHL-owned roadways. Because fiber optic cables would be located underground, this project would also not restrict access to cultural resources or areas in the vicinity that may be used for traditional cultural practices or other traditional gathering activities along the shoreline. These roadway shoulder areas and paved travel lanes are already used by other utility companies and agencies for their infrastructure facilities such as water mains, sewer lines, and electrical lines. Furthermore, appropriate coordination with the SHPD and Kauai Island Burial Council under Chapter 6E, HRS would be conducted during the project's design and through construction to address any issues which may arise.

5. *Substantially affects public health.*

The proposed project will be designed and installed in accordance with State and County design standards and other regulatory requirements which take into consideration public safety and health. Consequently, the fiber optic cable lines are not expected to constitute a public health or safety hazard. The only public health related concerns would involve short-term air, noise, and traffic impacts during construction activities. Potential impacts due to such construction activities will be minimized or brought to negligible levels by use of appropriate mitigation measures described in this document along with compliance with agency regulations.

[1] This significance criteria was modified to reflect the recent change to Chapter 343, HRS approved by the Governor as Act 50 on April 26, 2000. This Act added "cultural practices" as part of the factors considered in determining the significance of an effect.

6. *Involves substantial secondary impacts, such as population changes or effects on public facilities.*

The project is limited to the installation of fiber optic cables within existing rights-of-ways of State highways. This project would thus not include new housing units, commercial uses, or other activities which may affect the resident or visitor population. As a result, it will not have any secondary impacts on the social environment or other infrastructure and public facilities.

The project would benefit DHHL because it would reduce some utility infrastructure costs for their particular developments which can be used for other program priorities. However, the installation of these fiber optic cables would not significantly alter the types of developments planned for under their program, nor the feasibility of developing particular properties which are dictated more by the physical environment and other infrastructure requirements. Therefore, the project would not involve substantial secondary impacts such as major population changes or increased demands on existing public facilities.

7. *Involves a substantial degradation of environmental quality.*

The fiber optic cable project would not involve a substantial degradation to the quality of the surrounding environment. Chapters of this document discussed the probable impact of several environmental factors associated with these improvements. The results of this assessment and studies performed determined that the project would not substantially impact or degrade the environmental quality of the immediate environment.

8. *Is individually limited, but cumulatively has considerable effect upon the environment or involves a commitment for larger actions.*

This project involves the construction of fiber optic cables within about 51 miles of roadway throughout the island. Construction of these fiber optic cable routes would be conducted in phases within various areas of the island. This document has subsequently addressed the cumulative affect of this project by including the entire route planned for the island instead of addressing only portions of the route being implemented.

The result of the assessment conducted and discussed in this document has determined that this project is not expected to have a considerable impact on the environment. Improvements would be confined to the rights-of-way of existing roadways that are already used for other utilities and infrastructure facilities.

9. *Substantially affects a rare, threatened, or endangered species, or its habitat.*

As discussed in this document, there were no known endangered, threatened, or rare botanical resources present within the rights-of-way of roadways affected or in the

immediate vicinity along roadways. These improvements would also not substantially affect endangered or threatened faunal, avifaunal, and marine resources which may occur in the general surrounding area since construction activities would generally be limited to existing roadways and shoulder areas.

These roadway rights-of-ways are already used by other utility companies or government agencies to locate infrastructure facilities such as water mains, sewer lines, and electrical lines. Necessary control measures and best management practices would also be implemented to minimize runoff and other potential short-term impacts associated with construction activity. Thus, the project is not expected to substantially affect rare, threatened, or endangered species or potential habitat for such species.

10. Detrimentally affects air or water quality or ambient noise levels.

This project should not have a detrimentally significant impact on air, water quality, or ambient noise levels in the immediate vicinity of roadways where fiber optic cable routes would be located. Impacts associated with these factors would be limited to short-term construction activities, and are expected to be minor due to the relatively narrow trench area required for fiber optic cables. No grading and or other major forms of excavation work would be required. To further minimize impacts, construction activities would be subject to applicable State regulations as discussed under this document, and construction plans prepared would be reviewed by applicable government agencies to address potential concerns.

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

Portions of the fiber optic cable routes would be located within flood areas and tsunami inundation areas since the routes utilize coastal highways. However, the fiber optic cables would be buried underground within existing State rights-of-ways or attached to existing bridges in conformance with design standards and requirements. As a result, these improvements are not expected to be susceptible to much damage from various natural hazards nor would it affect existing environmental conditions making areas more prone to damage from such hazards. These roadway areas are already used for other utilities and infrastructure facilities.

12. Substantially affects scenic vistas and viewplanes identified in county or state plans or studies.

The proposed fiber optic duct lines would not affect scenic vistas or viewplanes because these lines would be installed underground within existing State highway rights-of-way.

13. Requires substantial energy consumption.

The project would not require substantial energy consumption or the need for additional electrical facilities because it only involves the installation and operation of fiber optic duct lines.

9.2 ANTICIPATED DETERMINATION

A Finding of No Significant Impact (FONSI) determination should be warranted for the Kauai Rural Fiber Optic Duct Lines project based upon the information provided in this Final EA document. The results of the assessments conducted along with technical study performed have determined that the installation and operation of the rural fiber optic duct lines should not have a significant impact on the surrounding environment. The preliminary findings supporting this anticipated determination are based upon the previous discussion of the project's affect on the environment in relation to the 13 Significance Criteria.

CHAPTER 10
BIBLIOGRAPHY

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APPENDICES

APPENDIX A

Early Consultation and Draft EA Comment Letters & Responses

Early Consultation
Comment Letters & Responses

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF

November 28, 2000

Regulatory Branch

Mr. Perry J. White
Project Planner, Planning Solutions
1210 Auahi Street, Suite 221
Honolulu, Hawaii 96814

Dear Mr. White:

This responds to your request dated November 20, 2000 regarding a request for written comments for a Draft Environmental Assessment (dEA) which will address activities proposed for the Underground Fiber Optic Telecommunication Cables Project, Kauai Island. The information provided with your Exhibit identifies a general study corridor from Moloa`a to Kekaha co-located within State highway and Department of Hawaiian Home Lands road right-of-ways. No specific locations of alternative realignment routes for the primary study corridor is indicated, nor are locations of waters of the U.S. such as streams, wetlands and navigable waters identified. *Until more detailed information is provided we can only offer general comments at* this time.

Our records indicate that waters of the United States, as represented by perennial or intermittent streams and wetlands may occur within the 51 mile general study area. It also appears that navigable waters spanned by road crossings occur. The dEA should also address the potential for waters of the U.S. and navigable waters of the U.S. to be affected, or not be impacted by construction and use of the proposed underground duct system. Finally, if studies for the dEA should identify that other waters of the U.S. are present and will be affected by the proposed project, consultation should take place with the Corps to determine whether a Department of Army permit application shall be submitted for the Least Environmentally Damaging Project Alternative (LEDPA) of the project that will entail ground disturbance, construction, and alteration as well as the placement of fill material within the limits of jurisdictional waters.

Please contact Mr. Farley Watanabe of my staff at 438-7701 if you have any questions or additional information. Please refer to File Number 200100062 in any future correspondence with us.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Consulting Engineers Council, Member

February 8, 2001

Mr. George P. Young, P.E., Chief
Regulatory Branch
U.S. Army Engineer District, Honolulu
Department of the Army
Ft. Shafter, Hawaii 96858-5440

Dear Mr. Young:

Subject: Sandwich Isles Communication, Inc.; County of Kauai Rural Fiber Optic Duct Lines Project
Early Consultation For Draft Environmental Assessment

Thank you for your letter dated November 28, 2000 regarding the subject project. Appropriate coordination would be conducted with your department during the design of the various cable segments to address applicable permit requirements.

The installation of fiber optic duct lines at stream crossings would be designed to minimize impacts and alterations to existing stream beds and banks. Such installation methods considered would include directional drilling under stream beds or attaching the conduit system cables to existing bridges in accordance with State design requirements. The Draft Environmental Assessment will address the potential project impact on waters of the U.S. and navigable waters of the U.S.

Thank you for your time and interest on this important project. Please give me a call at 531-1308 should you have any other further questions. Thank you.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Project Planner
Email: rsato@ssfm.com

BENJAMIN J. CAYETANO
GOVERNOR

MAJOR GENERAL EDWARD L. CORREA, JR.
DIRECTOR OF CIVIL DEFENSE

EDWARD T. TEIXEIRA
VICE DIRECTOR OF CIVIL DEFENSE

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE DIRECTOR OF CIVIL DEFENSE
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

PHONE (808) 733-4300
FAX (808) 733-4287

December 13, 2000

TO: Mr. Perry White
Planning Solutions
1210 Auahi Street, Suite 221
Honolulu, Hawaii 96814

FROM: Edward T. Teixeira
Vice Director of Civil Defense

SUBJECT: EARLY CONSULTATION FOR DRAFT ENVIRONMENTAL ASSESSMENT, SANDWICH ISLE COMMUNICATIONS, INC., UNDERGROUND FIBER OPTIC TELECOMMUNICATIONS CABLE–ISLAND OF KAUAI

Thank you for the opportunity to comment on the underground fiber optic telecommunications cables for DHHL on the island of Kauai, Early Consultation for Draft Environmental Assessment.

We are pleased with Statement #3, "Telecommunications equipment and essential services would be made available for emergency, public and official DHHL purposes," and would like to work closely with you or your design consultant on this project or to determine any specifics that may be required.

Just as parks, schools, fire hydrants, underground/overhead utilities and sidewalks are planned as integral parts of planned developments, an emergency warning system and support infrastructure must be purchased and installed by the developer for the safety and well-being of the residents and/or guests.

We appreciate your consideration and interest in this matter. Our planners and technicians are available to discuss any questions your staff may have. Please contact Mr. Norman Ogasawara, State Civil Defense, at 733-4300, ext. 531.

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, planners, & Engineers
American Consulting Engineers Council, Member

February 8, 2001

Mr. Edward T. Teixeira, Vice Director
Office of the Director of Civil Defense
Department of Defense
State of Hawaii
3949 Diamond Head Road
Honolulu, Hawaii 96816-4495

Dear Mr. Teixeira:

Subject: Sandwich Isles Communication, Inc.; County of Kauai Rural Fiber Optic Duct Lines Project
Early Consultation For Draft Environmental Assessment

Thank you for your letter dated December 13, 2000 regarding the subject project.

We would like to clarify that this project is to provide DHHL homestead properties with basic and advanced broad band telecommunications services. Accordingly, the telecommunication equipment and essential services for emergency purposes are those associated with DHHL homestead properties only as a condition of the license agreement between DHHL and Sandwich Isles Communication, Inc. However, Sandwich Isles Communication, Inc. would be willing to discuss such opportunities with your agency at the appropriate time.

Thank you for your time and interest on this important project. Please give me a call at 531-1308 should you have any other further questions. Thank you.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Project Planner
Email: rsato@ssfm.com

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:

00-233A/epo

January 4, 2001

Mr. Perry J. White
Planning Solutions
1210 Auahi Street, Suite 221
Honolulu, Hawaii 96814

Dear Mr. White:

Subject: Early Consultation for Draft Environmental Assessment
Sandwich Isles Communications, Inc.
Underground Fiber Optic Cables
Island of Kauai, Hawaii

Thank you for allowing us to review and comment on the subject project. We have the following comments to offer:

Water Pollution

1. The applicant should contact the Army Corps of Engineers to identify whether a federal permit (including a Department of Army permit) is required for this project. If a federal permit is required, then a Section 401 Water Quality Certification is required from the State Department of Health, Clean Water Branch.

2. A National Pollutant Discharge Elimination System (NPDES) general permit is required for the following discharges to waters of the State:

   a. Storm water discharges relating to construction activities, such as clearing, grading, and excavation, for projects equal to or greater than five years;

   b. Construction dewatering activities;

   c. Hydro testing water.

   Any person requesting to be covered by a NPDES general permit for any of the above activities should file a Notice of Intent with the Department's Clean

Water Branch at least 30 days prior to commencement of any discharge to waters of the State.

Any questions regarding these comments should be directed to Mr. Denis Lau, Branch Chief, Clean Water Branch at 586-4309.

Noise Concerns

Activities associated with the construction phase of the project must comply with the Department of Health's Administrative Rules, Chapter 11-46, "Community Noise Control."

a. The contractor must obtain a noise permit if the noise levels from the construction activities are expected to exceed the allowable levels of the rules as stated in Section 11-46-6(a).

b. Construction equipment and on-site vehicles requiring an exhaust of gas or air must be equipped with mufflers as stated in Section 11-46-6(b)(1)(A).

c. The contractor must comply with the requirements pertaining to construction activities as specified in the rules and the conditions issued with the permit as stated in Section 11-46-7(d)(4).

Should there be any questions on this matter, please call Mr. Russell Takata, Environmental Health Program Manager of the Noise, Radiation and Indoor Air Quality Branch at 586-4701.

Sincerely,

GARY GILL
Deputy Director
Environmental Health Administration

c: CWB
NRB

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Consulting Engineers Council, Member

February 8, 2001

SSFM 2000_075 010

Mr. Gary Gill, Deputy Director
Environmental Health Administration
Department Of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801

Subject: Sandwich Isles Communication, Inc.; County of Kauai Rural Fiber Optic Duct Lines Project
Early Consultation For Draft Environmental Assessment

Dear Mr. Gill:

Thank you for your letter dated January 4, 2001 regarding the subject project. We have the following responses to comments provided from your branches.

Appropriate coordination would be conducted with the Army Corps of Engineers to identify whether a federal permit (including a Department of Army permit) is required for this project. A Section 401 Water Quality Certification from the State Department of Health, Clean Water Branch would subsequently be obtained if necessary.

A National Pollutant Discharge Elimination System (NPDES) general permit would be obtained if required, and a Notice of Intent would be filed at least 30 days prior to commencement of any discharge to waters of the State.

Construction activities conducted for this project would comply with your department's Administrative Rules, Chapter 11-46, Community Noise Control.

Thank you for taking the time to review this project. If you have any questions, please give me a call at 531-1308.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Project Planner
Email: rsato@ssfm.com

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

GILBERT COLOMA-AGARAN, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DEPUTIES
JANET E. KAWELO
LINNEL NISHIOKA

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS
WATER RESOURCE MANAGEMENT

December 19, 2000

LOG NO: 26698 ✓
DOC NO: 0012NM07

Mr. Perry White
Planning Solutions
1210 Auahi St., Suite 221
Honolulu, Hawaii 96814

Dear Mr. White:

SUBJECT: **Historic Preservation Review -- Early Consultant for Draft EA for Sandwich Isles Communications, Inc. Underground Fiber Optic Telecommunication Cables for Island of Kaua'i**

Thank you for the opportunity to comment on the proposed work in mainly DHHL and DHHL ROW and other State ROW land on Kauai. We recommend that you hire a qualified consulting archaeologist (a) to evaluate the routes and identify which areas are likely to include significant historic sites and (b) to then propose actions in these areas which will appropriately identify and treat any such sites that might be found (such as archaeological monitoring trench construction, and contingency burial treatment plans). To give an example, there is a high probability that subsurface burials and habitation deposits could be discovered in areas such as the Wailua Golf Course, Kapaa, Kekaha and Waimea Towns and below the Belt Highway where the original sand surface still exists. Both types of sites have been found in these areas. These proposals would need to be sent to our office for review.

Also, if the routes pass through previously identified burial sites, this project would also need to get the concurrence of the Kauai/Ni'ihau Island Burial Council on the plan of action.

Any monitoring that is proposed would need a monitoring plan approved by our office before the work could begin. An acceptable monitoring plan (scope of work) needs to spell out a process for documenting any sites that are found, for evaluating significance in consultation with our Division and for developing and executing mitigation work with the approval of our Division. It must be clear that if historic sites, including burials, are uncovered during the monitoring, construction must stop in the immediate vicinity, the archaeologist consulting archaeologist shall be allowed sufficient time to evaluate the site, and our office be contacted to decide on site significance and any needed mitigation. The plan must include provisions for an acceptable monitoring report, documenting all the findings, to be approved by our Division.

A contingency burial treatment plan is likely to be needed to handle any burial discoveries encountered during the project. In addition to consultation with the appropriate ethnic groups, the procedures outlined in Chapter 6E-43 will need be followed.

It is necessary for the treatment plan to be prepared after consultation with native Hawaiians, such as the Kaua'i Island Burial Council and the Office of Hawaiian Affairs.

If you have any questions, please call Nancy McMahon at 742-7033.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

NM:amk

c. Brian Takeda, RM Towill (fax 842-1937)

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Consulting Engineers Council, Member

February 8, 2001

Mr. Don Hibbard, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Hibbard:

Subject: Sandwich Isles Communication, Inc.; County of Kauai Rural Fiber Optic Duct Lines Project
Early Consultation For Draft Environmental Assessment

Thank you for your letter dated December 19, 2000 regarding the subject project. An archaeological assessment of the proposed fiber optic cable route was conducted by our archaeological consultant, and a copy of your letter was forwarded to them for their use. Appropriate consultation will be conducted with your Division to address necessary mitigative measures. The project would also be coordinated with the Kauai/Niihau Island Burial Council.

A monitoring plan necessary for the construction of various segments of the project would be coordinated with your department for review and approval. If cultural layers or burials are uncovered during construction activities, work would stop in the immediate vicinity, and your office contacted to address evaluation and proper treatment of the site. The monitoring plan developed will include provisions for an acceptable monitoring report. A contingency burial treatment plan would also be prepared in compliance with Chapter 6E-43 and necessary consultation.

Thank you for your time and interest on this important project. Please give me a call at 531-1308 should you have any other further questions. Thank you.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Project Planner
Email: rsato@ssfm.com

DEPARTMENT OF WATER
County of Kauai

"Water has no Substitute – Conserve It!"

December 20, 2000

Mr. Perry J. White
Planning Solutions
1210Auahi Street, Suite 221
Honolulu, HI 96814

Dear Mr. White:

Subject: Sandwich Isles Communication, Inc. Underground Fiber Optic Telecommunication Cable – Island of Kauai, Early Consultation For Draft Environmental Assessment.

This is in response to your letter dated November 20, 2000. We have no objections to the proposed underground fiber optic telecommunication cable. However, it is recommended that in the process of designing the proposed underground fiber optic telecommunication cable that appropriate personal be made aware that the Department of Water has existing pipelines located along State and County roadways. The applicant is welcomed to review available construction drawings of our existing pipelines.

The applicant can submit construction drawings for the installation of the proposed underground fiber optic telecommunication cable to the Department of Water for review and approval. Areas for review by the Department should be pertinent to the Department's existing domestic water systems on Kauai.

If you have any questions regarding the construction drawings please call Mr. Michael Hinazumi of my staff at 808-245-5413 and for all other questions please call Mr. Edward Doi of my staff at 808-245-5417.

Sincerely,

for/ Ernest Y.W. Lau
Manager and Chief Engineer

— 4398 Pua Loke Street, Lihue, Kauai, Hawaii or P. O. Box 1706, Lihue, HI 96766-5706 —
Phone No. (808) 245-5400 – Administration FAX No. (808) 246-8628 – Engineering/Fiscal/Shop FAX No. (808) 245-5813

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Consulting Engineers Council, Member

February 8, 2001

Mr. Ernest W.Y. Lau, Manager & Chief Engineer
Department of Water
County of Kauai
4398 Pua Loke Street
Lihue, Hawaii 96766

Dear Mr. Lau:

Subject: Sandwich Isles Communication, Inc.; County of Kauai Rural Fiber Optic Duct Lines Project
Early Consultation For Draft Environmental Assessment

Thank you for your letter dated December 20, 2000 regarding the subject project. We note that your department does not have objections to the proposed project.

Appropriate coordination with your department would be conducted during the design of the fiber optic cable routes to identify the location of existing waterlines within roadways. Further coordination would also be conducted with your department as part of the normal review of construction plans to minimize impacts on your water system.

Thank you for your time and interest on this important project. Please give me a call at 531-1308 should you have any other further questions. Thank you.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Project Planner
Email: rsato@ssfm.com

KAUAI CIVIL DEFENSE AGENCY

Maryanne W. Kusaka
Mayor/Deputy Director of Civil Defense
mayor@aloha.net

Mark B. Marshall
Administrator
mmarshall@kcda.state.hi.us

4396 Rice Street 107
Lihue, HI. 96766
Bus: (808) 241-6336 Fax: (808) 241-6335
emops@kcda.state.hi.us

November 29, 2000

Mr. Perry J. White
Planning Solutions
1210 Auahi Street 221
Honolulu, HI. 96814

Subject: **Sandwich Isles Communications, Inc. Underground Fiber Optic Telecommunications Cables – Island of Kaua'i Early Consultation For Draft Environmental Assessment**

Dear Mr. White,

The offering of telecommunication equipment and essential services for emergency purposes as part of this project is welcomed by this agency.

The Kauai Civil Defense Agency has a need to connect to the Pacific Missile Range Facilities and a handful of other facilities for the purpose of disaster mitigation, planning, response and recovery. There was no mention on the extent of services that would be offered for "emergency ... purposes" or the cost. We do hope that the cost would be negligible and the use of equipment and services generous.

Thank you for allowing us to comment.

Sincerely,

Mark Marshall, CD Administrator

CI:

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Consulting Engineers Council, Member

February 8, 2001

Mr. Mark Marshall, CD Administrator
Kauai Civil Defense Agency
County of Kauai
4396 Rice Street, Suite 107
Lihue, Hawaii 96766

Dear Mr. Marshall:

Subject: Sandwich Isles Communication, Inc.; County of Kauai Rural Fiber Optic Duct Lines Project
Early Consultation For Draft Environmental Assessment

Thank you for your letter dated November 29, 2000 regarding the subject project.

We would like to clarify that this project is to provide DHHL homestead properties with basic and advanced broad band telecommunications services. Accordingly, the telecommunication equipment and essential services for emergency purposes are those associated with DHHL homestead properties only as a condition of the license agreement between DHHL and Sandwich Isles Communication, Inc. However, Sandwich Isles Communication, Inc. would be willing to discuss such opportunities with your agency at the appropriate time.

Thank you for your time and interest on this important project. Please give me a call at 531-1308 should you have any other further questions. Thank you.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Project Planner
Email: rsato@ssfm.com

MARYANNE W. KUSAKA
MAYOR

VIRGINIA M. KAPALI
DIRECTOR

COUNTY OF KAUAI
OFFICE OF ECONOMIC DEVELOPMENT
4444 Rice Street, Suite 200, Lihue, HI 96766
Tel: 808-241-6390 Fax: 808-241-6399

November 22, 2000

Planning Solutions
1210 Auahi Street Suite 221
Honolulu, Hawaii 96814

Attn: Perry J. White

Subject: Sandwich Isles Communication, Inc. Underground Fiber Optic Telecommunications Cables – Island of Kauai

Thank you for the opportunity to provide pre-consultation comments on the subject matter, however, we do not have any comments to offer at this time.

Should you have any questions please email me at gini@kauaioed.org or call the office at (808) 241-6390.

Sincerely,

Virginia M. Kapali

Virginia M. Kapali
Director

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Consulting Engineers Council, Member

February 8, 2001

Ms. Virginia M. Kapali, Director
Office of Economic Development
County of Kauai
4444 Rice Street, Suite 200
Lihue, Hawaii 96766

Dear Ms. Kapali:

Subject: Sandwich Isles Communication, Inc.; County of Kauai Rural Fiber Optic Duct Lines Project
Early Consultation For Draft Environmental Assessment

Thank you for your letter dated November 22, 2000 regarding the subject project. We note that your department does not have any comments on the project at this time.

Thank you for your time and interest on this important project. Please give me a call at 531-1308 should you have any other further questions. Thank you.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Project Planner
Email: rsato@ssfm.com

AN EQUAL OPPORTUNITY EMPLOYER
OUR REFERENCE

YOUR REFERENCE

POLICE DEPARTMENT

COUNTY OF KAUAI

3060 UMI STREET
LIHUE, HAWAII 96766
TELEPHONE (808) 241-6711
FAX (808) 241-6774

ADDRESS ALL COMMUNICATIONS TO
GEORGE FREITAS
Chief of Police

December 7, 2000

Mr. Perry J. White
Planning Solutions
1210 Auahi Street, Suite 221
Honolulu, HI 96814

Re: Sandwich Isles Communications, Inc. Underground Fiber Optic Telecommunications Cables – Island of Kauai – Early Consultation For Draft Environmental Assessment.

Dear Mr. Perry:

We recommend that the necessary control of traffic be initiated if there will be a disruption of traffic flow at anytime during the construction phase, especially if there is crossing onto the road lanes or if the lanes require any sort of closure.

Please feel free to call Lieutenant Stanton Koizumi of our Traffic Safety Unit at (808) 241-6761 for further information or assistance.

Sincerely,

George Freitas

GEORGE FREITAS
Chief of Police

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (608) 521-7348

Project Managers, Planners, & Engineers
American Consulting Engineers Council, Member

February 8, 2001

Mr. George Freitas, Chief of Police
Police Department
County of Kauai
3060 Umi Street
Lihue, Hawaii 96766

Dear Mr. Freitas:

Subject: Sandwich Isles Communication, Inc.; County of Kauai Rural Fiber Optic Duct Lines Project
Early Consultation For Draft Environmental Assessment

Thank you for your letter dated December 7, 2000 regarding the subject project.

A traffic control plan would be developed as part of the design for the various fiber optic cable routes for implementation by the contractor to minimize disruptions to traffic flow of affected roadways.

Thank you for your time and interest on this important project. Please give me a call at 531-1308 should you have any other further questions. Thank you.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Project Planner
Email: rsato@ssfm.com

MARYANNE W. KUSAKA
MAYOR

WALLACE G. REZENTES, SR.
ADMINISTRATIVE ASSISTANT

CESAR C. PORTUGAL
COUNTY ENGINEER
TELEPHONE 241-6600

IAN K. COSTA
DEPUTY COUNTY ENGINEER
TELEPHONE 241-6640

AN EQUAL OPPORTUNITY EMPLOYER
COUNTY OF KAUA'I
DEPARTMENT OF PUBLIC WORKS
4444 RICE STREET
MO'IKEHA BUILDING, SUITE 275
LIHU'E, KAUA'I, HAWAI'I 96766

November 28, 2000

Planning Solutions
1210 Auahi Street Suite 221
Honolulu, HI 96814

ATTENTION: MR. PERRY WHITE

SUBJECT: SANDWICH ISLES COMMUNICATION, INC.
UNDERGROUND FIBER OPTIC TELECOMMUNICATION CABLES
ISLAND OF KAUAI, EARLY CONSULTATION FOR
DRAFT ENVIRONMENTAL ASSESMENT PW11.194

We reviewed the subject consultation letter dated November 20, 2000. It appears that the proposed fiber optic telecommunication cables will all be located within State Highways and the Department of Hawaiian Home Lands. This being the situation we have no comments at this time.

Thank you for this opportunity to provide our comments. Should you have any questions, please feel free to contact Wallace Kudo of my staff at (808) 241-6620.

Very truly yours,

CESAR C. PORTUGAL
County Engineer

wk

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Consulting Engineers Council, Member

February 8, 2001

Mr. Cesar C. Portugal, County Engineer
Department of Public Works
County of Kauai
Moikeha Building, Suite 275
4444 Rice Street
Lihue, Hawaii 96766

Dear Mr. Portugal:

Subject: Sandwich Isles Communication, Inc.; County of Kauai Rural Fiber Optic Duct Lines Project
Early Consultation For Draft Environmental Assessment

Thank you for your letter dated November 28, 2000 regarding the subject project.

We note that your department does not have any comments at this time because the fiber optic cable routes planned would not be located within County roadway rights-of-way.

Thank you for your time and interest on this important project. Please give me a call at 531-1308 should you have any other further questions. Thank you.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Project Planner
Email: rsato@ssfm.com

WEST KAUA'I
COMMUNITY DEVELOPMENT CORPORATION

December 5, 2000

Mr. Perry J. White
Planning Solutions
1210 Auahi, Street, Suite #221
Honolulu, HI 96814

SUBJECT: **Sandwich Isles Communications, Inc.**
Pre-Consultation, Island of Kauai

West Kauai Community Development Corporation (WKCDC) is fully supportive of the development of telecommunication infrastructure and data handling for West Kauai. In the preparation of your Environmental Assessment (EA) for the proposed project, we would like to have the following issues addressed:

1. Placing utilities underground is costly. Why is it feasible with this project?

2. The proposal appears to create an exclusive system for Department of Hawaiian Home Lands (DHHL) beneficiaries. What about co-location opportunities for other telecommunication providers serving the general public, as well as public emergency management systems such as Civil Defense or Project Impact?

3. Your map seems to indicate that the facilities terminate at Waimea, and does not serve the larger DHHL lands in Kekaha.

4. Provide a description of Sandwich Isles Communications, Inc. Who are the principals, and what are their backgrounds and expertise?

5. What kinds of direct benefits can be expected for the west Kauai community? What kinds of employment and training opportunities can be expected from this project?

Thank you for the opportunity to comment on your project. We reserve the opportunity to make additional comments upon the completion of the Draft Environmental Assessment. Please call me at 808-338-1900 should you have any questions.

Sincerely yours,

Owen S Moe

Owen Moe
President

cc: WKCDC Board

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Consulting Engineers Council, Member

February 8, 2001

Mr. Owen Moe, President
West Kauai Community Development Corporation
P.O. Box 548
Waimea, Hawaii 96796

Dear Mr. Moe:

Subject: Sandwich Isles Communication, Inc.; County of Kauai Rural Fiber Optic Duct Lines Project
Early Consultation For Draft Environmental Assessment

Thank you for your letter dated December 5, 2000 regarding the subject project. We appreciate your corporation's support for the proposed project.

Placing the fiber optic duct lines underground is a design requirement being implemented by Sandwich Isles Communication, Inc. (SIC) and would minimize future risks from damages along with maintenance costs as compared with overhead utility lines. It is feasible because SIC's business case and committed financing include the underground design requirement costs.

SIC was assigned a State Department of Hawaiian Home Lands (DHHL) license agreement to provide the installation of essential communications services to homestead properties on the Island of Kauai. Therefore, co-location opportunities for other telecommunication providers are not being included at this time. However, it is SIC's intent, through an affiliated company, to provide open access to any service provider between DHHL parcels and they would be willing to discuss such opportunities with others at the appropriate time.

While the fiber optic route would terminate in the town of Kekaha, service coverage to all of the DHHL homestead property there will not be a problem. The Draft EA published would provide more details of the fiber optic route in West Kauai.

Pertinent information associated with Sandwich Isles Communications, Inc. is that it is a native Hawaiian-owned corporation that was incorporated in 1995, and has been serving native Hawaiians since 1998. SIC is duly commissioned and regulated by the Federal Communications Commission and the State of Hawaii Public Utility Commission as a rural telephone company. The SIC Principal is Mr. Albert Hee. He is a developer of power plants and other utilities. The Chief Executive Officer, and co-founder with Mr. Hee, is Mr. Robert Kihune. The Chief Network Officer is Mr. Kauhi Keliiaa who built out the GST network in Hawaii.

The purpose for the project is to provide DHHL homestead properties with broad band telecommunications services. As a result, DHHL beneficiaries of homestead properties in the West Kauai region would have access to cost-competitive telephone service. Potential economic benefits to businesses in West Kauai would typically include the expenditure of income from workers involved in construction activities along with other construction-related expenditures. Employment and training opportunities for DHHL beneficiaries are planned in the future, however, no specific programs have been developed at this time.

Thank you for your time and interest on this important project. Please give me a call at 531-1308 should you have any other further questions. Thank you.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Project Planner
Email: rsato@ssfm.com

Draft EA
Comment Letters & Responses

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF

April 13, 2001

SSFM INTERNATIONAL, INC.
RECEIVED
APR 17 2001
√RAS
FILE

Regulatory Branch (1145-b)

Mr. Ronald A. Sato, AICP
Project Planner
SSFM International, Inc.
501 Sumner Street, Suite 502
Honolulu, HI 96817

Dear Mr. Sato:

This responds to your request dated March 20, 2001 for written comments to the Draft Environmental Assessment (dEA) prepared for Sandwich Isles Communication, Inc. which addresses activities proposed for the Kauai Rural Fiber Optic Duct Lines Project, Kauai Island. The information provided in the dEA locates numerous waters of the United States within a 19-segment, 51 mile long study corridor from Moloa'a to Kekaha. The dEA correctly notes that for each potential crossing coordination will take place with the Corps on a case-by-case basis to determine whether a Department of Army (DA) permit will, or will not be, required. We look forward to assisting you with these jurisdictional determinations when engineering design solutions become available.

Please contact Mr. Farley Watanabe of my staff at 438-7701 if you have any questions or additional information. Please refer to File Number 200100062 in any future correspondence with us.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Consulting Engineers Council, Member

SSFM 2000_075.010

May 22, 2001

Mr. George P. Young, P.E., Chief
Regulatory Branch
U.S. Army Engineer District, Honolulu
Department of the Army
Fort Shafter, Hawaii 96858-5440

Dear Mr. Young:

Subject: *Sandwich Isles Communications, Inc.; Kauai Rural Fiber Optic Duct Lines Project*
Draft Environmental Assessment Comment Letter

Thank you for your letter dated April 13, 2001 on the Draft Environmental Assessment for the Oahu Rural Fiber Optic Duct Lines Project.

The proposed route for the fiber optic duct line will follow existing highways and roadways that will cross several perennial and intermittent streams. The crossing of streams would be either via bridge attachments or using directional drilling under such streams to minimize impacts to beds and banks. Consequently, a Department of the Army permit may not be required since construction activities may not affect jurisdictional waters. Nevertheless, appropriate coordination with your agency will be conducted during the design of the project to address the applicability of Department of the Army permits.

If you have any questions, please give me a call at 531-1308. Thank you.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Senior Project Planner
Email: rsato@ssfm.com

BENJAMIN J. CAYETANO
GOVERNOR

PAUL G. LeMAHIEU, Ph.D.
SUPERINTENDENT

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

SSFM INTERNATIONAL, Inc.
RECEIVED
APR 2001
JRS
FILE

April 4, 2001

Mr. Ronald A. Sato, AICP
SSFM International, Inc.
501 Sumner Street, Suite 502
Honolulu, Hawai`i 96817

Dear Mr. Sato:

Subject: Sandwich Isles Communication
Oahu and Kauai Rural Fiber
Optic Duct Lines Draft Environmental Assessment

The Department of Education requests that two-weeks advance notice be provided to any school in the immediate vicinity of the trenching. The advance notification will allow the affected school to prepare for possible noise and traffic disruptions.

Thank you for the opportunity to comment.

Very truly yours,

Paul G. LeMahieu, Ph.D.
Superintendent of Education

PLeM:hy

cc: P. Yoshioka, DAS
M. Amuro, DOT
G. Salmonson, OEQC

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Consulting Engineers Council, Member

May 22, 2001

SSFM 2000_075.010

Dr. Paul LeMahieu, Superintendent of Education
Office of the Superintendent
Department of Education
State of Hawaii
Queen Liliuokalani Building
1390 Miller Street
Honolulu, Hawaii 96813

Dear Dr. LeMahieu:

Subject: Sandwich Isles Communications, Inc.; Kauai Rural Fiber Optic Duct Lines Project
Draft Environmental Assessment Comment Letter

Thank you for your letter dated April 4, 2001 on the Draft Environmental Assessment for the Kauai Rural Fiber Optic Duct Lines Project.

The applicant will require the contractor to provide at least two weeks advance notice to schools in the immediate vicinity of construction activities.

If you have any questions, please give me a call at 531-1308. Thank you.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Senior Project Planner
Email: rsato@ssfm.com

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
KAUAI DISTRICT
3060 EIWA STREET, ROOM 205
LIHUE, HAWAII 96766

BRIAN K. MINAAI
DIRECTOR

DEPUTY DIRECTORS
GLENN M. OKIMOTO
JADINE Y. URASAKI

IN REPLY REFER TO:

HWY-K 4.010415

SSFM INTERNATIONAL, INC.
RECEIVED
APR 11 2001

April 10, 2001

Mr. Ronald Sato
SSFM International, Inc.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817

Dear Mr. Sato:

Subject: SIC Kauai Rural Fiber Optic Duct Lines Project
Manhole Frame & Cover Information
Kuhio Highway (Anahola to Hanamaulu)

Review of the details for proposed manhole frame & covers that are proposed for use in the Kuhio Highway travelway and paved shoulder areas have been completed and we find them acceptable for use on the State Highways.

However, we reiterate that pullboxes and manholes for the proposed fiber optic system shall be placed in the travelway, and/or, paved shoulder areas only as a "last resort" option, (i.e., Pullboxes and manholes will be permitted within the travelway, and/or, paved shoulder areas only after all alternatives have been investigated to locate the conduit, cables, pullboxes & manholes outside of the paved areas of the highway)

Required adjustments of utility pullboxes and manhole frame & covers in conjunction with our resurfacing projects contributes a significant increase to the overall cost of all resurfacing projects.

Thank you for letting us review the manhole frame & cover details and if you have any questions, please call Steve Morikawa at 274-3118.

Sincerely,

STEVEN M. KYONO, P.E.
District Engineer

SM:es

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
KAUAI DISTRICT
3060 EIWA STREET, ROOM 205
LIHUE, HAWAII 96766

BRIAN K. MINAAI
DIRECTOR

DEPUTY DIRECTORS
GLENN M. OKIMOTO
JADINE Y. URASAKI

IN REPLY REFER TO:

HWY-K 4.010353

March 23, 2001

SSFM INTERNATIONAL, INC.
RECEIVED
MAR 26 2001
FILE

Mr. Ronald Sato
SSFM International, Inc.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817

Dear Mr. Sato:

Subject: Draft Environmental Assessment (Draft EA)
Sandwich Isles Communication, Inc. Kauai
Rural Fiber Optic Duct Lines Project

Review of the subject Draft EA for the project has been completed and we have the following comments:

1. Refer to attachment Figure 2.1:
For work within the State Highway R/W, the Typical Trench Section for Two 4-Inch Ducts (under pavement) shall be similar to the Typical Section for the Single 4-Inch Ducts (under pavement) shown on Figure 2.1.

2. Refer to attachment Figure 2.2:
Make revisions to the Typical Trench Sections noted in red on Figure 2.2.

3. Our previous review comments on the Draft EA (that was sent to our Highway Rights of Way Branch) is attached for your information. All of our requirements/comments shall be addressed either in the Environmental Assessment document, or in the contract plans and specifications.

4. This office reserves the right to add, or impose, additional requirement/conditions that are necessary to avoid, and/or, mitigate adverse impacts to State Highway facilities.

If you have any questions, please call Steve Morikawa at 274-3118.

Sincerely.

STEPHEN K. MORIKAWA, P.E.
Acting District Engineer

SM:es
Encl.

State of Hawaii
Highways Division
3060 Eiwa Street, Room 205
Lihue, Kauai, Hawaii 96766
Phone: (808) 274-3111 Fax: (808) 274-3116

MEMORANDUM

HWY-K 4.010247

Date: February 27, 2000

To: HWY-R

From: Steven M. Kyono, P.E.
District Engineer

Subject: Draft Environmental Assessment
Kauai Rural Fiber Optics Duct Lines Project
Telecommunications Cable Lines
SSFM (On behalf of Sandwich Isles Communications, Inc. (SIC)

Review of the Draft EA for the subject project has been completed and we have the following comments:

1. Between now and fiscal year 2003 (July 2002-June 2003), we intend to complete the following highway resurfacing projects on Kaumualii Highway and Kuhio Highway.

   The specific limits for resurfacing are as follows:

   Kaumualii Highway:

   a. Huleia Bridge to Maluhia Road;
   b. Maluhia Road to Omao Road;
   c. Omao Road to Koloa Road;
   d. Koloa Road to West of Wahiawa Bridge;
   e. West of Wahiawa Bridge to Laulea Street;
   f. Laualea Street to Lele Road.

   Kuhio Highway:

   a. Kaumualii Highway/Rice St. to Eha Street;
   b. Vicinity of Kealia (MP 10+/- to MP 11+/-);
   c. Kumukumu to Anahola (MP 10+/- to MP 15+/-);

   It is the policy of the Highways Division to restrict trenching across newly resurfaced roadways for a period of one-year after completion of the resurfacing project. Therefore, depending on when the actual laying of the fibre optic system installation will begin, there may be restriction on trenching within newly resurfaced roadways and especially within the travelway.

An noted in the Draft EA, as much as possible, the fiber optic installation will be located in the unpaved shoulder areas of the highway. However, due to existing water lines and fiber optic systems already existing within the unpaved shoulder areas, there are many locations where the only alternative remaining is to lay the fiber optic system within the travel way of the highway.

When designing the proposed fiber optic system, all existing utility facilities within the highway Right of Way must be shown on the plans. All areas where the proposed duct system will be in the highway travel way must be delineated clearly on the plans.

2. Pavement section for trench repairs in the paved shoulder and travel way shall consist of the following:
   a. 4" Asphalt Concrete, Mix IV;
   b. 8" Aggregate Base;
   c. 12 Aggregate Subbase.

   Fig. 2.1 should be revised to reflect the above pavement repair requirements. Use of slurry mix for trench backfill will not be permitted.

3. Where trench must be located within the travelway, the entire travel lane must be cold-planed and resurfaced. Trench cut lines within the travel way will not be permitted.

4. All manholes and pullboxes shall be located outside of the travelway.

5. At all bridges, details of the method of bridge crossings shall be shown on the plans.

6. Traffic Control Plans (TCP) shall be included as part of the construction plans. TCP shall be prepared in accordance with the latest edition of the MUTCD and in accordance with State Standards.

7. All damages to existing State Highway facilities occurring as a result of the fiber optic duct installation shall be repaired at no cost to the State.

8. State Highways Division reserves the right to impose additional conditions, and/or, requirements upon review of the construction plans. Construction plans shall be submitted to the State Highways Division for review/approval.

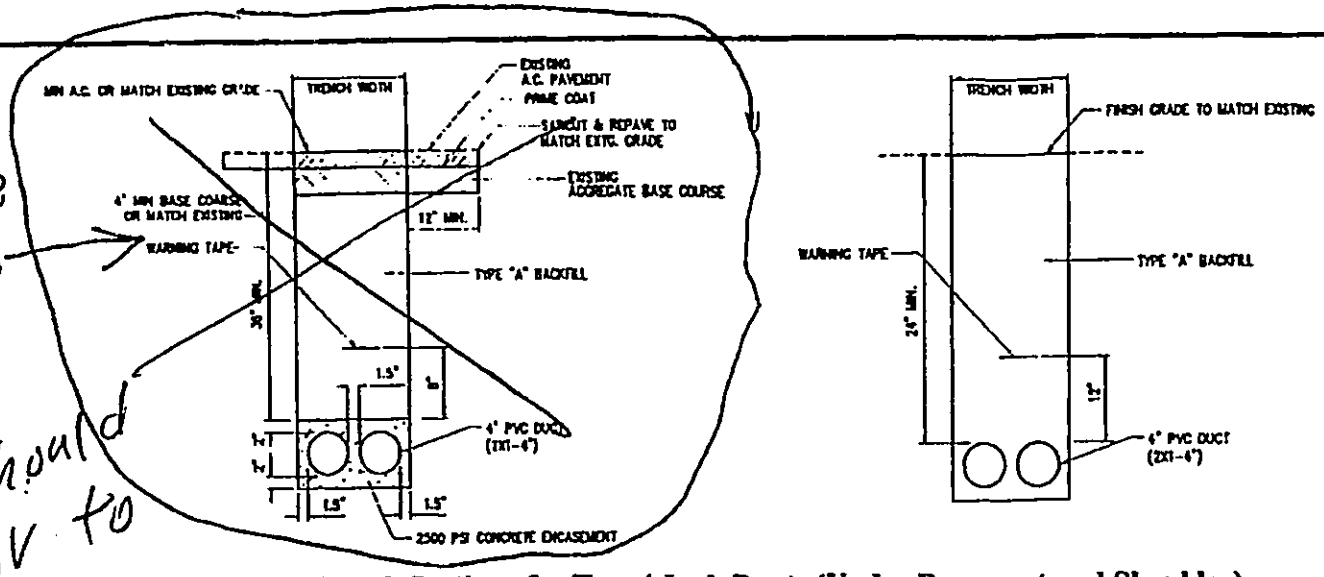
9. No work shall within the State Highway Right of Way shall commence unless, and until, a "Permit to Perform Work Upon State Highways" has been issued.

If you have any questions, please call Steve Morikawa at 274-3118.

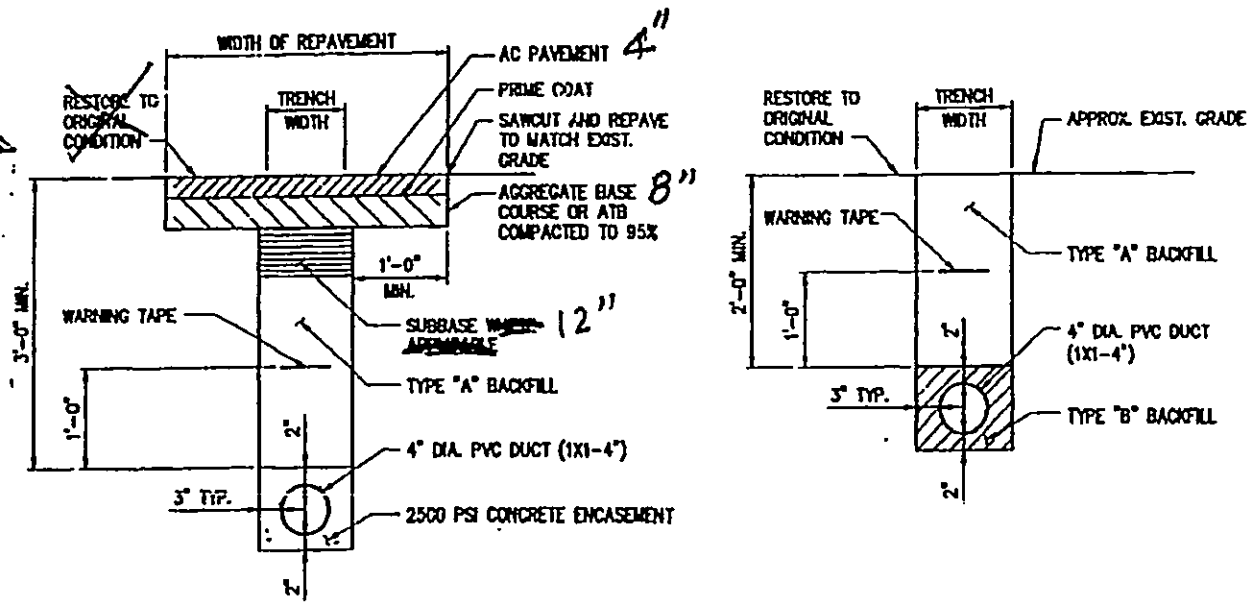
SM:es

No Good For. State Highways

Trench Repair Detail should be similar to this



Typical Trench Sections for Two 4-Inch Ducts (Under Pavement and Shoulder)



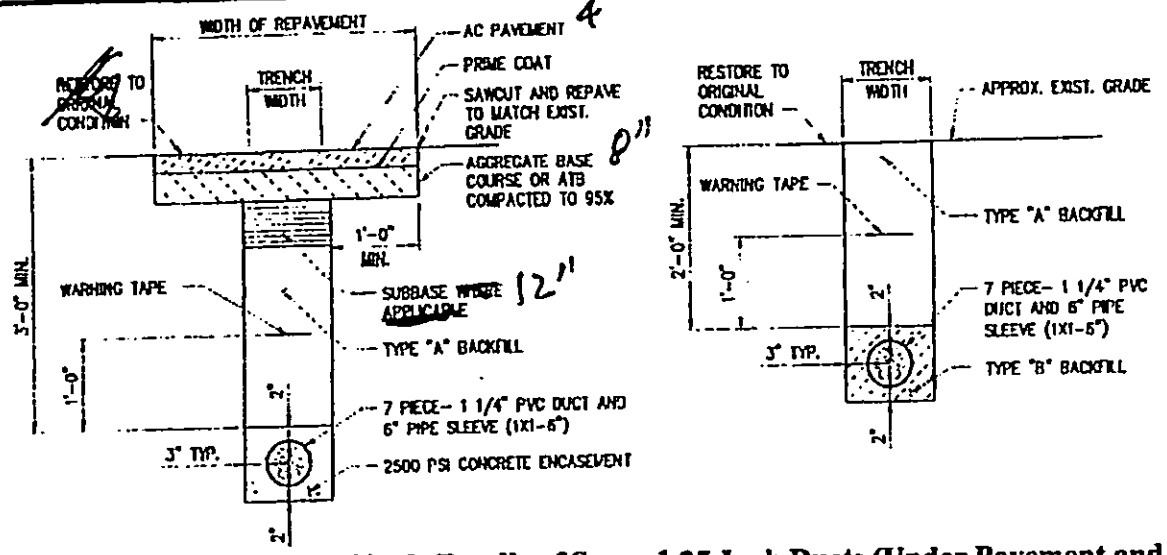
Typical Trench Sections for Single 4-Inch Ducts (Under Pavement and Shoulder)

PRELIMINARY TYPICAL TRENCH DESIGN

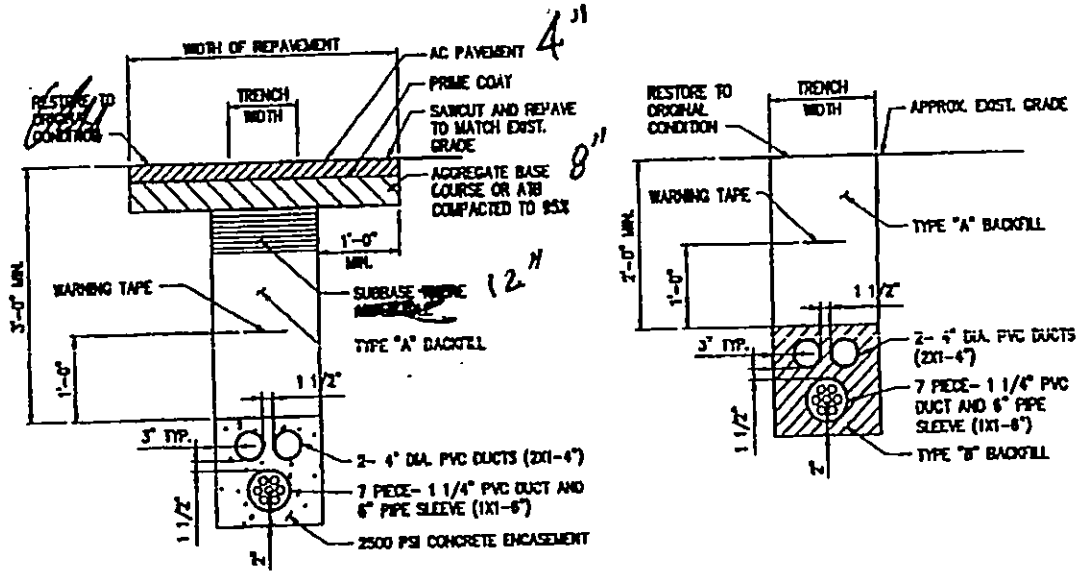
Figure 2.1

Kauai Rural Fiber Optic Duct Lines Project
Sandwich Isles Communication, Inc.

Source:
SSFM International, Inc.



Typical Trench Sections for Single Bundle of Seven 1.25-Inch Ducts (Under Pavement and Shoulder)



Typical Trench Sections for Combination of Ducts (Under Pavement and Shoulder)

PRELIMINARY TYPICAL TRENCH DESIGN

Figure 2.2

Source:

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Consulting Engineers Council, Member

SSFM 2000_075.010

May 22, 2001

Mr. Steven M. Kyono, P.E., District Engineer
Kauai District Office
Highways Division
Department of Transportation
State of Hawaii
Lihue, Kauai 96766

Dear Mr. Kyono:

Subject: Sandwich Isles Communications, Inc.; Kauai Rural Fiber Optic Duct Lines Project
Draft Environmental Assessment Comment Letter

Thank you for your letters dated March 23, 2001 and April 10, 2001 on the Draft Environmental Assessment for the Kauai Rural Fiber Optic Duct Lines Project.

The design for trench sections would be consistent with your comments indicated on the marked-up Figure 2.1 which concerns pavement, aggregate base, and subbase. Figure 2.2 will also be revised to reflect your comments.

We have the following responses to your comments included in the February 27, 2001 memorandum to the Highways Division, Rights-of-Way Branch. As indicated, these comments will be addressed in the Final Environmental Assessment or in construction plans and specifications. Construction plans would also conform to additional conditions or requirements your department may have to mitigate impacts on State highway facilities. For ease of reference, our responses are numbered to correspond to the comments in this memorandum.

1. We note your Highways Division's policy restricting trenching activities across newly resurfaced roadways for a period of one year after completion of resurfacing projects. Thank you for providing us with your department's scheduled highway resurfacing projects over the next few years. We note that several of these resurfacing projects may affect the planned construction of the fiber optic duct lines. Consequently, the applicant is committed to working closely with your department to coordinate a mutually acceptable schedule to prevent conflicting highway resurfacing activities with the proposed project. If necessary, exemption requests will be submitted for consideration by the Director.

   All publicly known existing utility facilities within the highway rights-of-way would be identified during design work and shown on construction plans. Areas where the duct system enters into the travel lane will be delineated clearly on the plans.

2. Pavement sections for trench repairs in the paved shoulder and travel way will meet the requirements stated in your letter. Figure 2.1 will be revised to reflect these requirements. The applicant will use suitable backfill material as approved by State DOT.
3. SIC is committed to continue working closely with your department to address cold-planed and resurfacing requirements for trenches. If necessary, exemption requests will be submitted for your department's consideration.
4. The intent is to locate all manholes and pullboxes outside of the travel way. Only if no other alternatives are practicably available will manholes and pullboxes then be located within the travel way. Such manholes will be designed to meet your department's sizing and design requirements.
5. Details of the method of bridge crossings will be shown on design plans at all bridges.
6. Traffic control plans will be included as part of all construction plans and will be prepared in accordance with the latest edition of the MUTCD and in accordance with State Standards.
7. All damages to existing State Highway facilities that occur as a result of the proposed project shall be repaired at no cost to the State.
8. We acknowledge that all construction plans shall be submitted to the State Highways Division for review and approval, and that the State reserves the right to impose additional conditions, and/or, requirements upon review of the plans.
9. A "Permit to Perform Work Upon State Highways" will be obtained first before any construction work within the State highway's rights-of-way occurs.

We have the following response to your April 10, 2001 letter on manhole frame and cover information. Thank you for your quick review and response to the information sent you.

We confirm that the manhole frames and covers that are planned to be used within the travelway of your highways are acceptable. In addition, such pullboxes and manholes would only be located within the highway travelway as a last option if no other practicable alternatives are available. The intent is to place such facilities outside of the travelway. Continued coordination with your department would occur as this project is implemented to minimize additional costs to your resurfacing projects from such utility equipment.

If you have any other questions, please give me a call at 531-1308. Thank you.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Senior Project Planner
Email: rsato@ssfm.com

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
P.O. Box 2359
Honolulu, HI 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

April 24, 2001

Mr. Ronald A. Sato, AICP
Project Planner
SSFM International, Inc.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817

Dear Mr. Sato:

Subject: Draft Environmental *Assessment (DEA)*
Sandwich Isles Communication, Inc., Underground Fiber Optic
Telecommunication Cables – Island of Kauai

We have reviewed the subject DEA as transmitted by your letter dated March 20, 2001.

Based upon our review of the subject DEA, we have the following comments:

1. The fiber optic routes shown on the West, South, and East Kauai Fiber Optic Route Maps appear to be in the State Land Use Conservation, Agricultural, Rural, and Urban Districts as described in Table 1.1 Summary Information.

2. In regard to Section 4.8, Archaeological and Cultural Features, the Final Environmental Assessment should clarify if the Applicant will alter the route of the subject lines if burials or very high yielding resources are encountered.

If you have questions regarding this matter, please contact me or Russell Kumabe of our office at 587-3822.

Sincerely,

BERT SARUWATARI
Acting Executive Officer

c: DOT, Highways Division, Right-of-Way Branch
Attention: Mike Amuro
Office of Environmental Quality Control

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Consulting Engineers Council, Member

May 22, 2001

SSFM 2000_075.010

Mr. Anthony Ching, Executive Officer
Land Use Commission
Department of Business, Economic Development and Tourism
State of Hawaii
P.O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Ching:

Subject: Sandwich Isles Communications, Inc.; Kauai Rural Fiber Optic Duct Lines Project
Draft Environmental Assessment Comment Letter

Thank you for your letter dated April 24, 2001 on the Draft Environmental Assessment for the Kauai Rural Fiber Optic Duct Lines Project.

The proposed fiber optic route will be located within portions of the State Land Use Conservation, Agricultural, Rural, and Urban Districts. A detailed discussion of the project's conformance with the State Land Use District regulations was presented in Section 7.1 of the Draft Environmental Assessment.

An archaeological monitoring plan and contingency treatment plan will be developed as part of mitigative measures to address burials or very high yielding resources that may be encountered during construction of this project. These measures would be developed for implementation as part of a Memorandum of Agreement executed under a Section 106 consultation being undertaken. If necessary, the route would be modified due to the presence of burials. Further discussion of such efforts will be discussed in the Final Environmental Assessment.

If you have any other questions, please give me a call at 531-1308. Thank you.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Senior Project Planner
Email: rsato@ssfm.com

BENJAMIN J. CAYETANO
GOVERNOR

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

April 23, 2001

Mr. Larry Fukunaga
Sandwich Isles Communications, Inc.
Pauahi Tower, 27th Floor
1001 Bishop Street
Honolulu, Hawai'i 96813

Mr. Raymond Soon, Chairperson
Department of Hawaiian Home Lands, State of Hawai'i
1099 Alakea Street, Suite 2000
Honolulu, Hawai'i 96813

Mr. Brian Minaai, Director
Department of Transportation, State of Hawai'i
869 Punchbowl Street
Honolulu, Hawai'i 96813-5097

Dear Messrs. Fukunaga, Soon and Minaai:

This letter is written with respect to your filings of anticipated findings of no significant impact and draft environmental assessments for rural fiber optic duct lines projects in the counties of Honolulu, Maui, Hawai'i and Kaua'i. Please instruct your consultants to include a copy of this letter and your responses to these questions in each of the four environmental assessments being processed.

1. Cumulative Impacts Must Be Assessed: One draft environmental assessment cites the provisions of section 11-200-8(a), Item 3(d), Hawai'i Administrative rules, stating that "construction and location of single, new, small facilities or structures and the alteration and modification of the same and installation of new, small, equipment and facilities and the alteration and modification of same including but not limited to: ... (b) (w)ater, sewage, electrical, gas, telephone, and other essential public utility services extensions to serve such structures or facilities..." is exempt from the preparation of an environmental assessment. We do not believe that the exemption applies at all due to the many cumulative impacts of the project which have yet to be assessed. We respectfully call to your attention the language of section 11-200-8(b), which states in pertinent part that "[a]ll exemptions under the classes ... are inapplicable when the cumulative impact of planned successive actions in the same place, over time, is significant, or when an action that is normally insignificant in its impact on the environment may be significant in a particularly sensitive environment" [underscoring supplied] and request that your consultants review the overall statewide project and in each draft environmental assessment discuss the cumulative impacts of the overall project. Some questions to guide you in assessing the cumulative impacts of the project include the following:

   a. We understand that a primary component of the project is to link the various properties of the Hawaiian Homes Land Trust. Once such a land-based fiber optic trunk has been established, to what extent will persons or entities proximal to the network and who are not beneficiaries of the Hawaiian Homes Land trust be allowed to use the fiber optic network?
   b. Interisland cable landings which fall in the shoreline setback area (under County jurisdiction) and submerged lands (under the jurisdiction of the Department of Land and Natural Resources) will eventually connect the statewide system. Although the project is focusing on the land based components under the jurisdiction of

the Department of Transportation, what possible sites will SIC use to connect the system? Will new sites be used? Has SIC spoken to utilities Verizon and GST for the possibility of collocation? What kinds of impacts (i.e., cultural, archaeological, historical, biological) will result from the use of existing as opposed to new sites? What mitigative measures will be taken? What alternatives are available?

2. Use of Federal Funds and Compliance with Federal Requirements: We understand that the project will be making use of federal funds through the Rural Utilities Service of the United States Department of Agriculture. Please provide documentation of compliance with section 106 of the National Historic Preservation Act. Please also provide documentation that the disbursement of funds for this purpose has been categorically exempted or issued a finding of no significant impact under the National Environmental Policy Act.

3. Interaction with Other Planned Projects: Each environmental assessment must discuss the project's interaction with other planned projects along the corridor routes for each island (see page S2 of the DEA for the County of Hawai'i Rural Fiber Optic Duct Lines project for an example).

4. Secondary (or Indirect) Impacts: Chapter 343 Hawai'i Revised Statutes and its implementing administrative rules define three types of impacts: direct, indirect and cumulative. While direct impacts are normally discussed, the latter two are often neglected or given cursory review in environmental documents. It should be realized that actions that involve the construction of highways, airports, utility corridors, water resource projects, etc., may well stimulate or induce secondary or indirect effects. These indirect effects may be equally important as, or more important than direct impacts. Discuss the indirect impacts of the project using the following question as a guide: will development (such as high-tech parks) grow as a result of this project? What impacts will such growth and development have? We are aware of one such case - Sandwich Isles Network Operation Center on 100 + acres of land (zone agricultural) in Waikakalua, Oahu.

5. Cultural Impact Requirements of Act 50, SLH 2000: Act 50 of the Session Laws of Hawai'i for 2000 require that projects subject to Chapter 343, Hawai'i Revised Statutes assess the impact of project on cultural practices. The inclusion of an archaeological assessments with no reference to current cultural practices or resources does not fulfill the requirements of Act 50. The environmental assessment for the Hawaii County Fiber Optic Line Project was the only one of the four that actually attempted to assess cultural impacts. Please advise your consultants to comply with Act 50, if they have not done so already. In light of the new information you will obtain in response to our requests above which you should transmit to them for their use in revising your documents. A copy of the cultural impact assessment guidance is enclosed.

Thank you for the opportunity to comment. If you have any questions, please call Mr. Leslie Segundo of my staff at (808) 586-4185.

Sincerely,

GENEVIEVE SALMONSON
Director of Environmental Quality Control

Enclosures

c: Mr. Michael Amuro, Department of Transportation, State of Hawai'i
Munekiyo & Hiraga, Inc.
Ron Terry, Ph.D.
Mr. Ronald Sato, AICP, SSFM International, Inc.

GUIDELINES FOR ASSESSING CULTURAL IMPACTS

Adopted by the Environmental Council, State of Hawaii
November 19, 1997

I. INTRODUCTION

It is the policy of the State of Hawaii under Chapter 343, HRS, to alert decision makers, through the environmental assessment process, about significant environmental effects which may result from the implementation of certain actions. An environmental assessment of cultural impacts gathers information about cultural practices and cultural features that may be affected by actions subject to Chapter 343, and promotes responsible decision making. Articles IX and XII of the State Constitution, other state laws, and the courts of the state require government agencies to promote and preserve cultural beliefs, practices, and resources of native Hawaiians and other ethnic groups. Chapter 343 also requires environmental assessment of cultural resources, in determining the significance of a proposed project.

The Environmental Council encourages preparers of environmental assessments and environmental impact statements to analyze the impact of a proposed action on cultural practices and features associated with the project area. The Council provides the following methodology and content protocol as guidance for any assessment of a project that may significantly affect cultural resources.

II. CULTURAL IMPACT ASSESSMENT METHODOLOGY

Cultural impacts differ from other types of impacts assessed in environmental assessments or environmental impact statements. A cultural impact assessment includes information relating to the practices and beliefs of a particular cultural or ethnic group or groups.

Such information may be obtained through scoping, community meetings, ethnographic interviews and oral histories. Information provided by knowledgeable informants, including traditional cultural practitioners, can be applied to the analysis of cultural impacts in conjunction with information concerning cultural practices and features obtained through consultation and from documentary research.

In scoping the cultural portion of an environmental assessment, the geographical extent of the inquiry should, in most instances, be greater than the area over which the proposed action will take place. This is to ensure that cultural practices which may not occur within the boundaries of the project area, but which may nonetheless be affected, are included in the assessment. Thus, for example, a proposed action that may not physically alter gathering practices, but may affect access to gathering areas would be included in the assessment. An ahupua'a is usually the appropriate geographical unit to begin an assessment of cultural impacts of a proposed action, particularly if it includes all of the types of cultural practices associated with the project area. In some cases, cultural practices are likely to extend beyond the ahupua'a and the geographical extent of the study area should take into account those cultural practices.

The historical period studied in a cultural impact assessment should commence with the initial presence in the area of the particular group whose cultural practices and features are being assessed. The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs.

The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural, including submerged cultural resources, which support such cultural practices and beliefs.

The Environmental Council recommends that preparers of assessments analyzing cultural impacts adopt the following protocol:

(1) identify and consult with individuals and organizations with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or ahupua'a;

(2) identify and consult with individuals and organizations with knowledge of the area potentially affected by the proposed action;

(3) receive information from or conduct ethnographic interviews and oral histories with persons having knowledge of the potentially affected area;

(4) conduct ethnographic, historical, anthropological, sociological, and other culturally related documentary research;

(5) identify and describe the cultural resources, practices and beliefs located within the potentially affected area; and

(6) assess the impact of the proposed action, alternatives to the proposed action, and mitigation measures, on the cultural resources, practices and beliefs identified.

Interviews and oral histories with knowledgeable individuals may be recorded, if consent is given, and field visits by preparers accompanied by informants are encouraged. Persons interviewed should be afforded an opportunity to review the record of the interview, and consent to publish the record should be obtained whenever possible. For example, the precise location of human burials are likely to be withheld from a cultural impact assessment, but it is important that the document identify the impact a project would have on the burials. At times an informant may provide information only on the condition that it remain in confidence. The wishes of the informant should be respected.

Primary source materials reviewed and analyzed may include, as appropriate: Mahele, land court, census and tax records, including testimonies; vital statistics records; family histories and genealogies; previously published or recorded ethnographic interviews and oral histories; community studies, old maps and photographs; and other archival documents, including correspondence, newspaper or almanac articles, and visitor journals. Secondary source materials such as historical, sociological, and anthropological texts, manuscripts, and similar materials, published and unpublished, should also be consulted. Other materials which should be examined include prior land use proposals, decisions, and rulings which pertain to the study area.

III. CULTURAL IMPACT ASSESSMENT CONTENTS

In addition to the content requirements for environmental assessments and environmental impact statements, which are set out in HAR §§ 11-200-10 and 16 through 18, the portion of the assessment concerning cultural impacts should address, but not necessarily be limited to, the following matters:

1. A discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints or limitations which might have affected the quality of the information obtained.

2. A description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken.

3. Ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained.

4. Biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area.

5. A discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken. This discussion should include, if appropriate, the particular perspective of the authors, any opposing views, and any other relevant constraints, limitations or biases.

6. A discussion concerning the cultural resources, practices and beliefs identified, and, for resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site.

7. A discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project.

8. An explanation of confidential information that has been withheld from public disclosure in the assessment.

9. A discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs.

10. An analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place.

11. A bibliography of references, and attached records of interviews which were allowed to be disclosed.

The inclusion of this information will help make environmental assessments and environmental impact statements complete and meet the requirements of Chapter 343, HRS. If you have any questions, please call us at 586-4185.

SSFM INTERNATIONAL, INC.
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Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Consulting Engineers Council, Member

May 22, 2001

SSFM 2000_075.010

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
State of Hawaii
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

Subject: Sandwich Isles Communications, Inc.; Kauai Rural Fiber Optic Duct Lines Project
Comment Letter for Draft Environmental Assessments

Thank you for your letter dated April 23, 2001 on the Draft Environmental Assessment for the above-referenced project. For ease of reference, our responses are numbered to correspond to the comments in your letter.

1. Cumulative Impacts. In light of your comments concerning the discussion of exemption provisions, the Final Environmental Assessment (Final EA) will be revised to remove this discussion.

The Final EA will expand the discussion on the cumulative impacts associated with this project. This discussion will address the interaction of other projects being implemented of which their impacts may have the potential to interact with those of the proposed project in producing cumulative impacts.

Based upon meetings held with your office in May and October of last year, this project was discussed and it was agreed that separate environmental assessment documents for each county were appropriate and should be prepared. Impacts associated with the fiber optic duct line project would mainly be related to construction activities such as traffic congestion, dust, underground archaeological sites, noise, etc. Thus, construction related impacts were more appropriately addressed at the individual county level. The cumulative impact discussion will thus be framed to address other major utility projects being implemented that have the potential to cause similar impacts or generate conflicts during construction.

The project objective is to provide emergency, basic, and advanced telecommunication services to State Department of Hawaiian Home Land (DHHL) parcels, and this fiber optic duct line would allow Sandwich Isles Communications, Inc. (SIC) to provide such service. SIC has not developed any plans for services outside of DHHL.

With regard to the comment on cable landing sites, there are no specific landing sites established at this time as SIC still needs to conduct planning and feasibility studies to evaluate them. SIC would like to pursue landing sites in Moloaa and Kekaha. However, there are no specific locations or sites

established at this time which can be adequately and reasonably addressed. Thus, addressing possible co-location of landing sites, new sites, or alternatives is premature at this time. As discussed and agreed to at the meetings held with your office last year, an appropriate environmental document will be prepared to address these landings sites once project details are established.

2. Use of Federal Funds and Compliance with Federal Requirements. The Rural Utilities Service (RUS) is an agency within the U.S. Department of Agriculture that provides long-term, low interest loans to rural telephone companies like SIC for projects such as that proposed to serve DHHL. Under the RUS's Environmental Policies and Procedures, the proposed project is "Categorically Excluded" under the National Environmental Policy Act. A copy of a letter from RUS confirming this is enclosed with this response letter. SIC is presently conducting a Section 106 consultation review for the project, and has already been coordinating such efforts with the State Historic Preservation Division.

3. Interaction with Other Planned Projects. The Final EA will address this project's interaction with the other utility projects that would be implemented along the corridor routes. SIC is an active participant at utility coordination meetings conducted by the State DOT for Kauai. SIC is also meeting other telecommunication companies to coordinate similar construction activities.

4. Secondary (or indirect) Impacts. The Final EA will better clarify potential secondary impacts that may result from this fiber optic cable project. SIC's main focus is to provide emergency, basic, and advanced telecommunication services to DHHL properties. The project could improve the existing communication service being provided by other utility companies. However, we do not expect adverse impacts on the environment from this potential improvement in telecommunication service. The network operation center proposed by SIC in Mililani is not an example of the secondary effect resulting from the fiber optic cable, but rather the headquarters for the company that wishes to establish such service. An appropriate environmental document is being prepared to address this development. The springing up of large high-tech centers on Kauai as a result of this fiber optic cable project is highly unlikely. Development and feasibility of such high-tech centers are dependent upon several complex and more important factors such as business climate, education, labor force, etc. The availability of fiber optic duct lines represents only one very small component that may not even be suitable in the future given the rapid changes in technology occurring.

5. Cultural Impact Requirements. The Draft EA did address the project's likely impact on traditional cultural practices. The fiber optic cables would be installed within existing developed roadways and rights-of-way where no known traditional cultural practices are occurring since these roadways are actively used for vehicular traffic. The project would also not prevent access to shoreline or other areas that may be used for traditional cultural practices. The archaeological assessment also included research and field inspections of the routes to determine the likely presence of archaeological or cultural resources within existing roadways or adjacent to the rights-of-way.

Consequently, the only potential traditional cultural resource that may be affected are burials during construction activities which were addressed in the archaeological assessment. To mitigate potential impacts, Section 106 consultation is being conducted along with consultation with the State Historic Preservation Division (SHPD) and Kauai Island Burial Council. In the event burials are encountered, consultation with SHPD and the Kauai Island Burial Council would be conducted in compliance with Chapter 6E, HRS. This may include the search for lineal descendents and consultation with the Kauai Island Burial Council to address proper treatment.

If you have any other questions, please give me a call at 531-1308. Thank you.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Senior Project Planner
Email: rsato@ssfm.com

Attachment

United States Department of Agriculture
Rural Development

Rural Business–Cooperative Service • Rural Housing Service Rural Utilities Service
Washington, DC 20250

Mr. Kauhi Keliiaa
Chief Network Officer
Sandwich Isles Communications, Inc
Pauahi Tower, Suite 2750
1001 Bishop Street
Honolulu, Hawaii 96813

Dear Mr Keliiaa.

We are sending this in response to your letter of November 13, 2000, requesting confirmation of National Environmental Policy Act (NEPA) procedures under our regulations

We confirm that your proposed construction of buried telecommunications lines, cables, and related facilities are categorically excluded projects requiring the preparation of an environmental report (ER) These projects require no action under NEPA environmental assessment and environmental impact statement procedures

As indicated in our letter of September 20, 2000, to your company, we have approved the generic ER submitted in support of your "C" loan application The environmental assessments that you are preparing under your state requirements will be adequate to serve as the required site-specific ERs for our review and approval prior to the start of construction of each project.

If you should have any questions, please feel free to contact Mr Randy Jenkins, RUS Field Representative, or this office

Sincerely,

Peter Aimable

PETER AIMABLE, Chief
Southwest Area Engineering Branch
Telecommunications Program

cc:
Mid-State Consultants, Inc

MARYANNE W. KUSAKA
MAYOR

WALLACE G. REZENTES, SR.
ADMINISTRATIVE ASSISTANT

CESAR C. PORTUGAL
COUNTY ENGINEER
TELEPHONE 241-6600

IAN K. COSTA
DEPUTY COUNTY ENGINEER
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AN EQUAL OPPORTUNITY EMPLOYER
COUNTY OF KAUA'I
DEPARTMENT OF PUBLIC WORKS
4444 RICE STREET
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SSFM INTERNATIONAL, INC
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2001
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March 27, 2001

SSFM International. Inc.
501 Sumner Street, Suite 502
Honolulu, HI 96817

ATTENTION: Mr. Ronald Sato

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR
SANDWICH ISLE COMMUNICATION, INC.
KAUAI RURAL FIBER OPTIC DUCT LINES PROJECT PW 3.174

We reviewed the subject draft environmental assessment and offer the following comments:

A. Draft Environmental Assessment

1. The following street names are incorrectly labeled on sheet 10 and 12 of the DEA:

   a. Anahole Road needs to be corrected to *Anahola Road.*
   b. Kawaihao Road needs to be corrected to *Kawaihau Road.*
   c. Kamalomaloo Road needs to be corrected to *Kamolomalo'o Place.*

Thank you for this opportunity to provide our comments. Should you have any questions, please feel free to contact Wallace Kudo of my staff at 241-6620.

Very truly yours,

CESAR C. PORTUGAL
County Engineer

wk
cc: Mike Amuro, DOT Highways
OEQC

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Consulting Engineers Council, Member

SSFM 2000_075.010

May 22, 2001

Mr. Cesar C. Portugal, Director
Department of Public Works
County of Kauai
4444 Rice Street
Moikeha Building, Suite 275
Lihue, Kauai 96766

Dear Mr. Portugal:

Subject: Sandwich Isles Communication, Inc.; Kauai Rural Fiber Optic Duct Lines Project
Draft Environmental Assessment Comment Letter

Thank you for your letter dated March 27, 2001 on the Draft Environmental Assessment for the Kauai Rural Fiber Optic Duct Lines Project.

Thank you for providing us with the corrections to the names of Anahola Road, Kawaihau Road, and Kamolomalo'o Place.

If you have any questions, please give me a call at 531-1308. Thank you.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Senior Project Planner
Email: rsato@ssfm.com

DEPARTMENT OF WATER

County of Kaua'i

"Water has no Substitute – Conserve It!"

SSFM INTERNATIONAL, INC
RECEIVED
APR [illegible] 2001
FILE

March 30, 2001

SSFM International, Inc.
Attn: Mr. Ronald A. Sato
501 Sumner Street, Suite 502
Honolulu, HI 96817

Dear Mr. Sato:

Subject: Draft Environmental Assessment for the Sandwich Isles Communication, Inc., Kauai Rural Fiber Optic Duct Lines Project

In reply to your letter dated March 20, 2001, the Department of Water's comments are as follows:

We have no objections to this Draft Environmental Assessment.

If you have any questions, please contact Mr. Keith Aoki of my staff at 808-245-5418.

Sincerely,

for Ernest Y. W. Lau
Manager & Chief Engineer

cc: DOT
OEQC

KA/lao
[illegible]

— 4398 Pua Loke Street, Lihue, Kauai, Hawaii or P. O. Box 1706, Lihue, HI 96766-5706 —
Phone No. (808) 245-5400 – Administration FAX No. (808) 246-8628 – Engineering/Fiscal/Shop FAX No. (808) 245-5813

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 502
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Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Consulting Engineers Council, Member

May 22, 2001

SSFM 2000_075.010

Mr. Ernest Y.W. Lau, Manager and Chief Engineer
Department of Water
County of Kauai
P.O. Box 1706
Lihue, Kauai 96766-5706

Dear Mr. Lau:

Subject: Sandwich Isles Communications, Inc.; Kauai Rural Fiber Optic Duct Lines Project
Draft Environmental Assessment Comment Letter

Thank you for your letter dated March 30, 2001 on the Draft Environmental Assessment for the Kauai Rural Fiber Optic Duct Lines Project.

We acknowledge that your department had no objections to the proposed project..

If you have any other questions, please give me a call at 531-1308. Thank you.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Senior Project Planner
Email: rsato@ssfm.com

MARYANNE W. KUSAKA
MAYOR

COUNTY OF KAUA'I

FIRE DEPARTMENT
MO'IKEHA BUILDING
4444 RICE STREET, SUITE 295
LIHU'E, KAUA'I, HAWAI'I

DAVID K. SPROAT
FIRE CHIEF

March 28, 2001

Ronald A. Sato
SSFM International, Inc.
501 Summer Street, Suite 502
Honolulu, HI 96817

RE: Draft EA

Dear Mr. Sato,

After reviewing the assessment report on the propose Kauai Rural Fiber Optic Duct Line project by Sandwich Isles Communication, Inc., we feel it will have no impact upon our Department.

Sincerely,

Dennis P Aquino
Captain
Fire Prevention Bureau

Approved

David K Sproat

cc: DOT Highways Div, DOH (QEQC)

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Consulting Engineers Council, Member

May 22, 2001

SSFM 2000_075.010

Mr. Dennis P. Aquino, Captain
Fire Prevention Bureau
Fire Department, County of Kauai
Mo'ikeha Building
4444 Rice Street, Suite 295
Lihue, Kauai 96766

Dear Mr. Aquino:

Subject: Sandwich Isles Communications, Inc.; Kauai Rural Fiber Optic Duct Lines Project
Draft Environmental Assessment Comment Letter

Thank you for your letter dated March 28, 2001 on the Draft Environmental Assessment for the Kauai Rural Fiber Optic Duct Lines Project.

We acknowledge your comment that the proposed project will have no impact on your department.

If you have any questions, please give me a call at 531-1308. Thank you.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Senior Project Planner
Email: rsato@ssfm.com

MARYANNE W. KUSAKA
MAYOR

DEE M. CROWELL
PLANNING DIRECTOR
SHEILAH N. MIYAKE
DEPUTY PLANNING DIRECTOR
TELEPHONE (808) 241-6677
FAX (808) 241-6699

PLANNING DEPARTMENT

April 26, 2001

Sandwich Isles Communications, Inc.
Attn: Larry Fukunaga
1001 Bishop Street
Pauahi Tower, 27th Floor
Honolulu, Hawai'i 96813

RE: Underground Fiber Optic Telecommunication Cables – County of Kaua`i
Draft Environmental Assessment

Thank you for the opportunity to review the Draft Environmental Assessment (EA) for the subject project. The proposed route of underground lines is within State highway rights-of-way from Kekaha to Moloa`a, and in Department of Hawaiian Home Lands roadways in the Anahola area. Specific location of cables within the rights-of-way will be determined in construction plan development. Aboveground appurtenances, if needed, will generally be four feet or less in height, and within or adjacent to the described rights-of-way.

Installation of underground utility lines and appurtenant aboveground fixtures less than four feet in height along existing corridors does not require a Special Management Area Permit. As noted in the EA, a Shoreline Setback Variance Permit may be required for work within forty feet of the certified shoreline, such as in Kekaha, Wailua, or Kapa`a sections of the route. We suggest wherever possible that work be done on the mauka side of the road outside of the Shoreline Setback area.

Should you have any questions, please contact planner Barbara Pendragon at 241-6677.

DEE M. CROWELL
Planning Director

cc: Department of Transportation Highways Division; SSFM International, Inc.; OEQC

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Consulting Engineers Council, Member

May 22, 2001

SSFM 2000_075.010

Mr. Dee M. Crowell, Director
Department of Planning
County of Kauai
4444 Rice Street, Suite 273
Lihue, Kauai 96766

Dear Mr. Crowell:

Subject: Sandwich Isles Communications, Inc.; Kauai Rural Fiber Optic Duct Lines Project
Draft Environmental Assessment Comment Letter

Thank you for your letter dated April 26, 2001 on the Draft Environmental Assessment for the Kauai Rural Fiber Optic Duct Lines Project.

We acknowledge your determination that the installation of underground utility lines and appurtenant aboveground fixtures less than four feet in height along existing corridors proposed do not require a Special Management Area Permit.

A Shoreline Setback Variance Permit would also be required for work within 40 feet of the certified shoreline. Wherever possible, the design of the fiber optic cable will be located on the mauka side of roadways outside of Shoreline Setback areas. Appropriate coordination of design plans will be conducted with your department for the areas of Kekaha, Wailua, and Kapaa to confirm the applicability of a Shoreline Setback Variance Permit.

If you have any other questions, please give me a call at 531-1308. Thank you.

SSFM INTERNATIONAL, INC.

Ronald A. Sato, AICP
Senior Project Planner
Email: rsato@ssfm.com

APPENDIX B

Archaeological Assessment Of The Proposed Sandwich Isles Communication Fiber Optic Cable Project

Prepared By:
Cultural Surveys Hawaii, Inc. (January 2001)

ARCHAEOLOGICAL ASSESSMENT OF THE PROPOSED SANDWICH ISLES COMMUNICATION FIBEROPTIC CABLE PROJECT WITHIN AN APPROXIMATELY 51-MILE (82-KILOMETER) ROAD CORRIDOR BETWEEN KEKAHA AND MOLOA`A ON THE ISLAND OF KAUA`I

by
Hallett H. Hammatt, Ph.D.

Prepared for

SSFM INTERNATIONAL, INC.

CULTURAL SURVEYS HAWAI`I, INC.
January 2001

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I. INTRODUCTION

A. Project Background

Cultural Surveys Hawai`i, Inc. has completed an archaeological assessment of approximately 51 miles (82 kilometers) of road corridor between Kekaha and Moloa`a on the island of Kaua`i (Figure 1). The road corridors are proposed for the installation of a telecommunications cable system connecting Department of Hawaiian Home Lands (DHHL) properties on Kaua`i. The lines are to be installed entirely within state Department of Transportation rights-of-way consisting of existing pavements or road shoulders at an approximate depth of three feet (0.9 m), typically in the *mauka* shoulder.

The objective of this assessment is to identify areas within the corridors that have potential for subsurface historic properties — including human burials and cultural deposits — which may be encountered during installation of the proposed cable system. The assessment is thus presented for preliminary planning purposes only. Final assessment of the levels of archaeological concern within the project area is the purview of the State Historic Preservation Division which determines necessary mitigation measures prior to and during construction activities.

B. Project Area Description

The study route commences on Kaumuali`i Highway in the immediate vicinity of Kekaha Public Cemetery in Kekaha. It proceeds approximately 27 miles (43.5 kilometers) along Kaumuali`i Highway to Līhu`e, and approximately 17 miles (27.4 kilometers) along Kūhiō Highway terminating at Moloa`a near Kalaina Ridge. The project area includes an additional approximately 7 miles (11.3 kilometers) of spur routes in Anahola running along Kalalea Road, Konona Road, Hokualele Road, Kamalomaloo Road, `Aliomanu Road, and Anahola Road.

C. Methodology

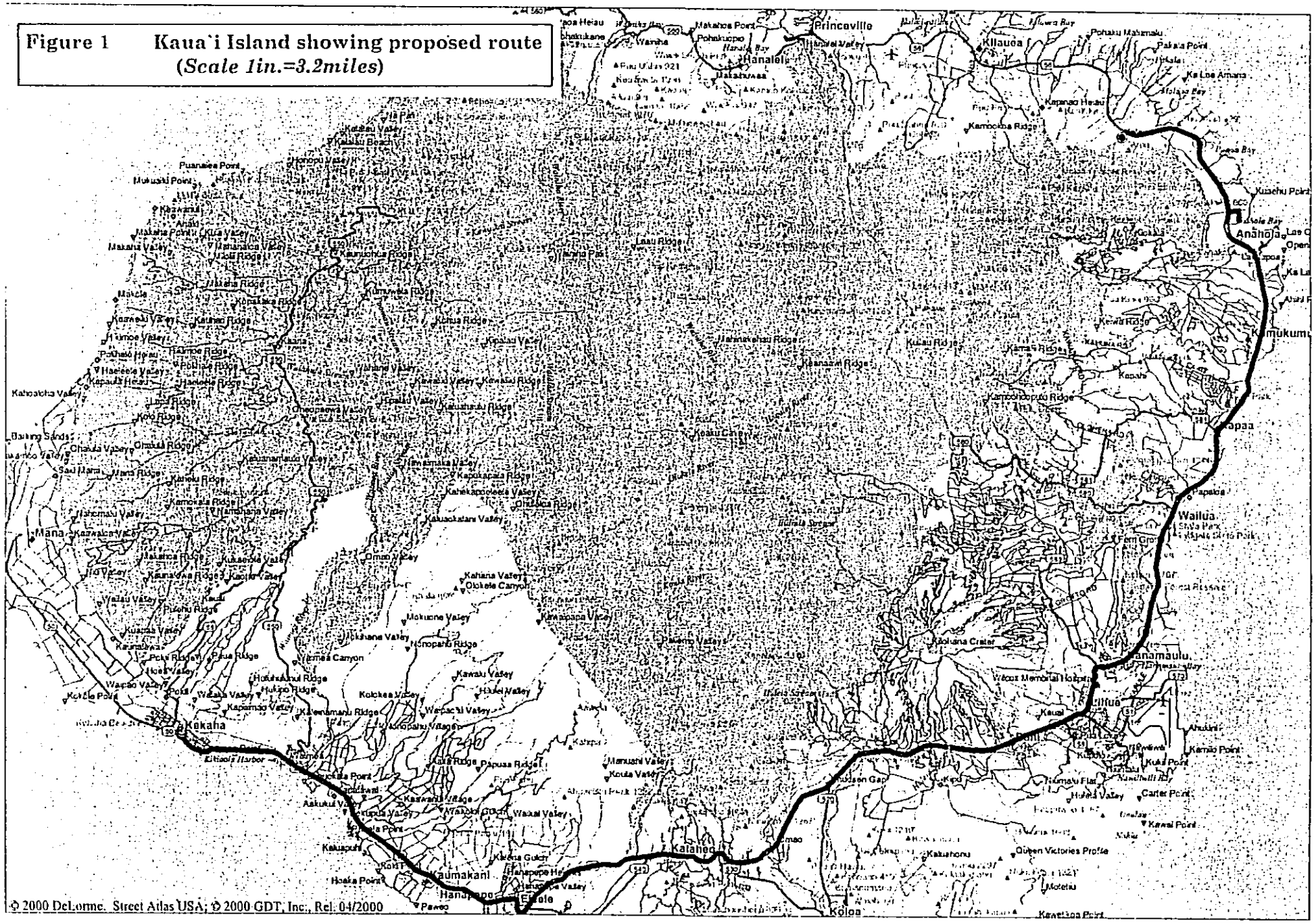
The following resources and activities were employed to identify areas of archaeological concern within the study route:

1) Inspection of soil surveys for presence of soils and sands — under or immediately adjacent to the study route — which, based on past experience, are more likely to contain cultural deposits.

2) Inspection of tax maps and historic maps showing presence of Land Commission Award (LCA) parcels within or adjacent to the study route.

   Toward the mid-19th century, the Organic Acts of 1845 and 1846 initiated the process of the *Māhele* — the division of Hawaiian lands — which introduced private property into Hawaiian society. In 1848 the crown, the Hawaiian government, and the *ali`i* (royalty) received their land titles. *Kuleana* awards for individual parcels within the *ahupua`a* were subsequently granted in 1850. These Land Commission Awards (LCAs) were presented to tenants — native Hawaiians, naturalized foreigners, non-Hawaiians born in the islands, or long-term resident foreigners — who could prove occupancy on the parcels before 1845.

Figure 1 **Kaua`i Island showing proposed route**
(Scale 1in.=3.2miles)



Maps and other documents associated with these awards may give clues to settlement areas within and nearby the study route in the mid-1850s. These areas may represent, in turn, traditional Hawaiian settlement areas.

3) Review of Geographic Information System (GIS) data and archaeological reports at the State Historic Preservation Division. The GIS data and archaeological reports may give specific information on the location and distribution of previously-recorded surface sites within or near the study route which may be associated with subsurface historic properties. Additionally, archaeological reports may present results of subsurface testing in proximity to the study route.

4) Field inspection of the entire study route. The primary purpose of the field inspection is to evaluate the relationship of the study route to possible subsurface properties. Areas of anomalous sand deposits are examined to consider their potential for significant subsurface cultural deposits. Also noted are areas of fill and/or road cut in which the alignment has been brought significantly above grade. In many areas of potential archaeological sensitivity, the nature of the road bed — either graded or filled — effectively eliminates archaeological concern, given the shallow penetration of the proposed trenching.

   Areas adjacent to streams and wetlands are examined for possible archaeological potential. These areas, although often undocumented in archaeological literature, are more likely to have been foci of human endeavor. The field inspection also examines urban areas which have the potential for historic deposits over fifty years old.

5) Consultation with staff of the State Historic Preservation Division (SHPD). Resources and expertise of the SHPD will be utilized. However, all evaluations and findings of the assessment report are those of Cultural Surveys Hawai`i, and should not be interpreted as reflecting those of the SHPD.

6) Cultural Surveys Hawai`i staff's past experience of and familiarity with archaeological resources along the study route.

7) Consideration of any known community issues regarding culturally sensitive portions of the study route. Community groups in areas throughout the Hawaiian Islands have voiced concern for cultural resources in specific areas which may have to be addressed during the course of the present project.

This report presents the results of the research conducted by Cultural Surveys Hawai`i, Inc. Section II summarizes findings on soils, Land Commission Awards, and previous archaeological data in the immediate vicinity of the study route. These three research components are the primary basis for determining potential for encountering further subsurface historical properties along the route. Section III presents Cultural Surveys Hawai`i's assessment of archaeological potential for all portions of the route.

Finally, based on the background research and the route assessment, Section IV offers recommendations for further archaeological mitigation.

II. SOIL, LAND COMMISSION AWARD AND ARCHAEOLOGICAL DATA

Three research components — soils, Land Commission Awards, and previous archaeological research — are the primary indicators of possible archaeological potential within the study route. Results of the examination of these components are presented below.

Soils

There are four areas on Kauai along the proposed route containing sands or sandy soils. Figures 2 and 3 show the locations of these areas.

The first area (Figure 2) lies between Kekaha and Waimea, stretching from approximately the Kekaha Public Cemetery to the west side of the Waimea River Bridge. The soils maps indicate that sand is present on both sides of the highway. This soil is JkB, or Jaucus loamy fine sand [dark variant] and is described as calcareous soils found on coastal plains near the ocean (Foote *et al.* 1972). On several islands, Jaucus sands are known to contain burials.

The second area (Figure 2) is *northeast (mauka)* of Makaweli Landing and consists of a small area of Jaucus sand (JfB, Jaucus loamy fine sand) extending from the shoreline to just northeast *(mauka)* of the highway. Adjacent to the Jaucus sand is a patch of Dune Land, also consisting of sand.

The third area (Figure 3) is a relatively large area on the east side of the island extending from just south of the Wailua Golf Course to north of Kealia Beach. The soils here are from the Mokuleia series and consist of the Mokuleia fine sandy loam (Mr) and Mokuleia clay loam (Mt). The Mokuleia soils are well-drained soils formed in alluvium overlying coral sand (Foote *et al.* 1972). In most areas along this sensitive eastern segment, the Mokuleia loams extend from the beach sand to just *mauka* of the highway.

The fourth area (Figure 3) is in Anahola and encompasses the *makai* portions of Anahola and Aliomanu Roads. Mokuleia fine sandy loam (Mr) underlies these roads on the coastal flats.

Land Commission Awards

Inspection of tax maps and historic maps indicated a limited number of *kuleana* Land Commission Awards (LCAs) along the study route. The only significant concentration of *kuleana* awards adjacent to or in the immediate vicinity of the route occurred in Waimea, Wailua and Waipouli. Locations of these LCAs are indicated on Figure 4.

Previous Archaeological Study

Locations of previous archaeological studies along the study route are shown on Figures 5-7.

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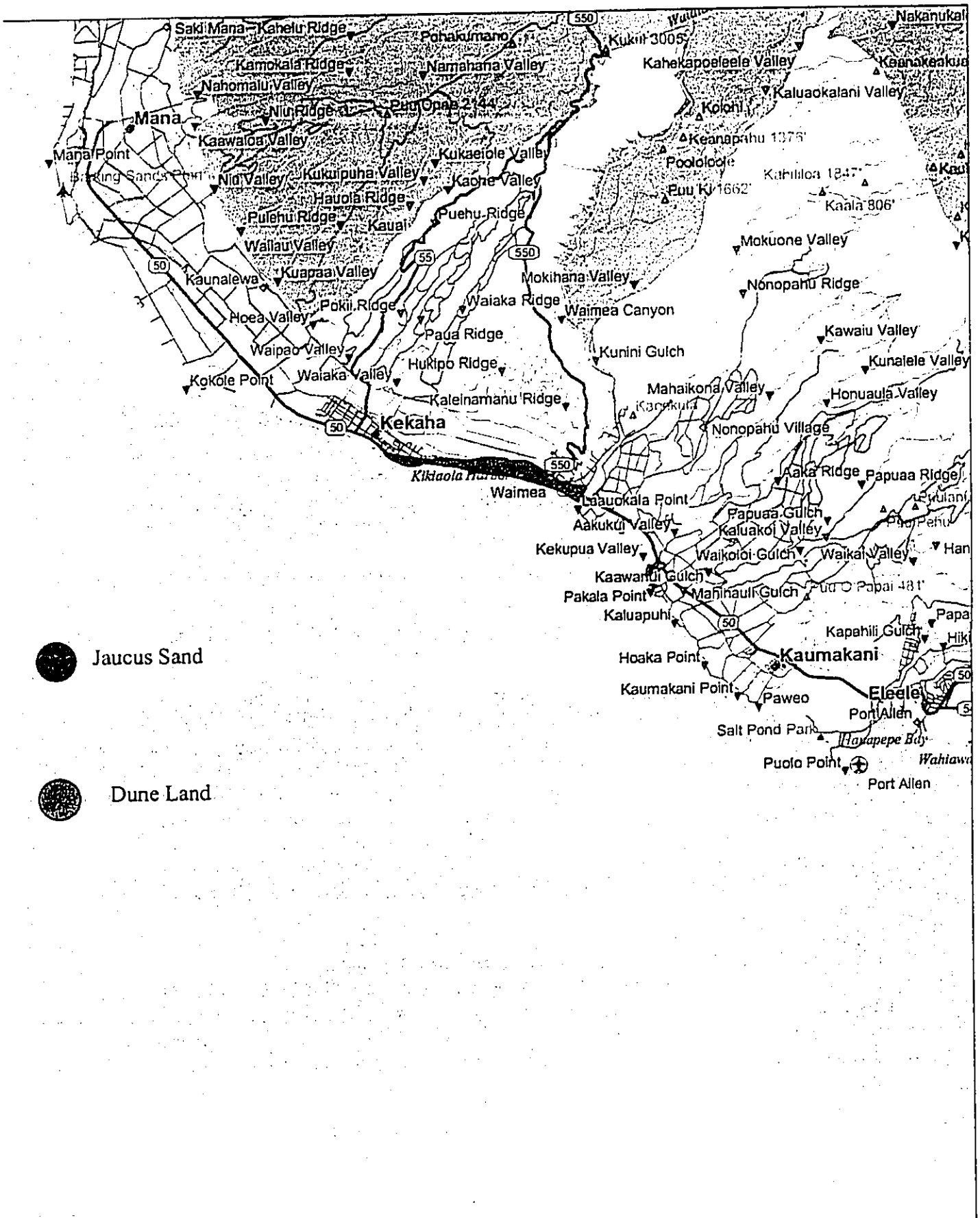


Figure 2 Sandy soils (Map 1)

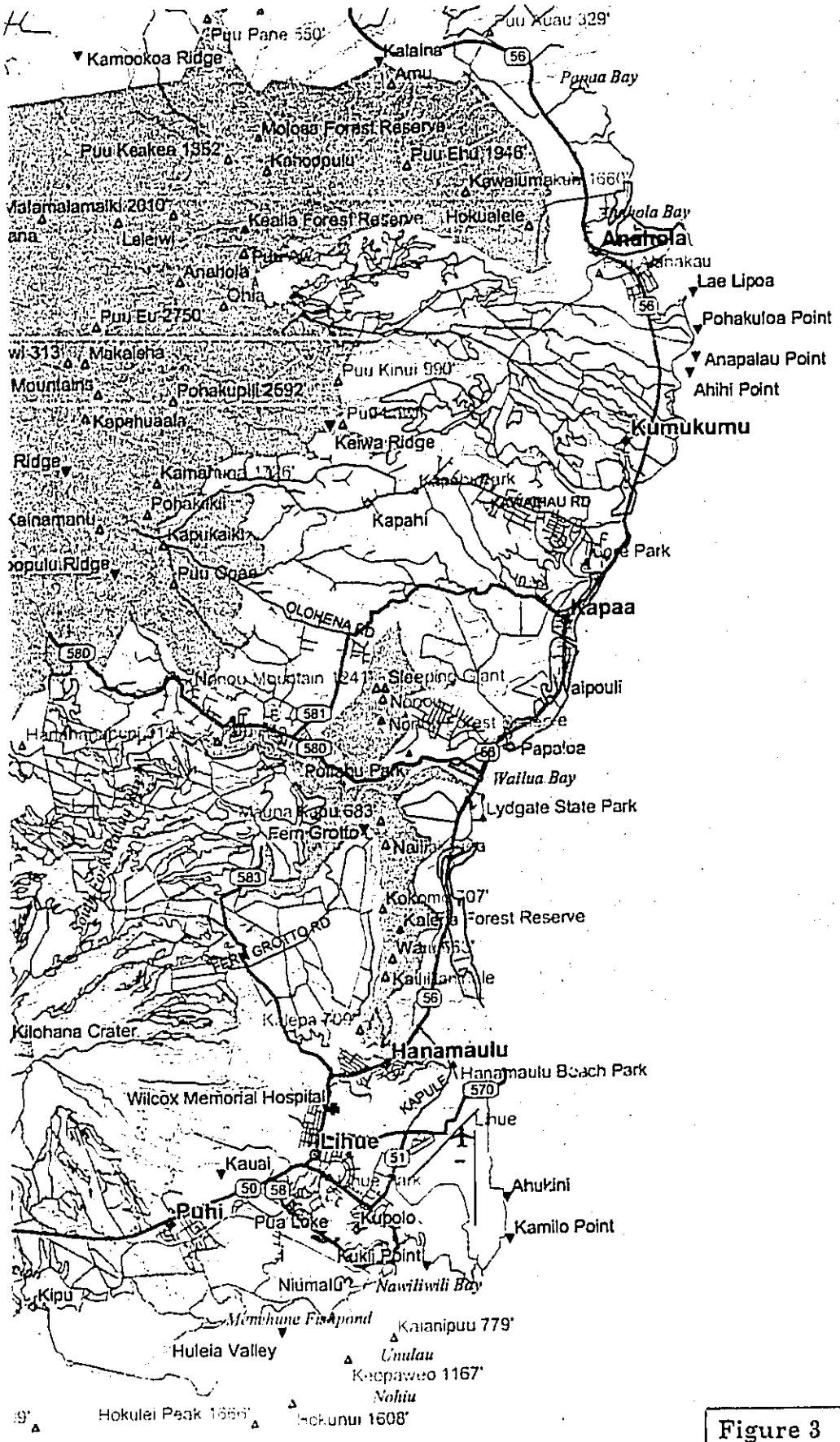
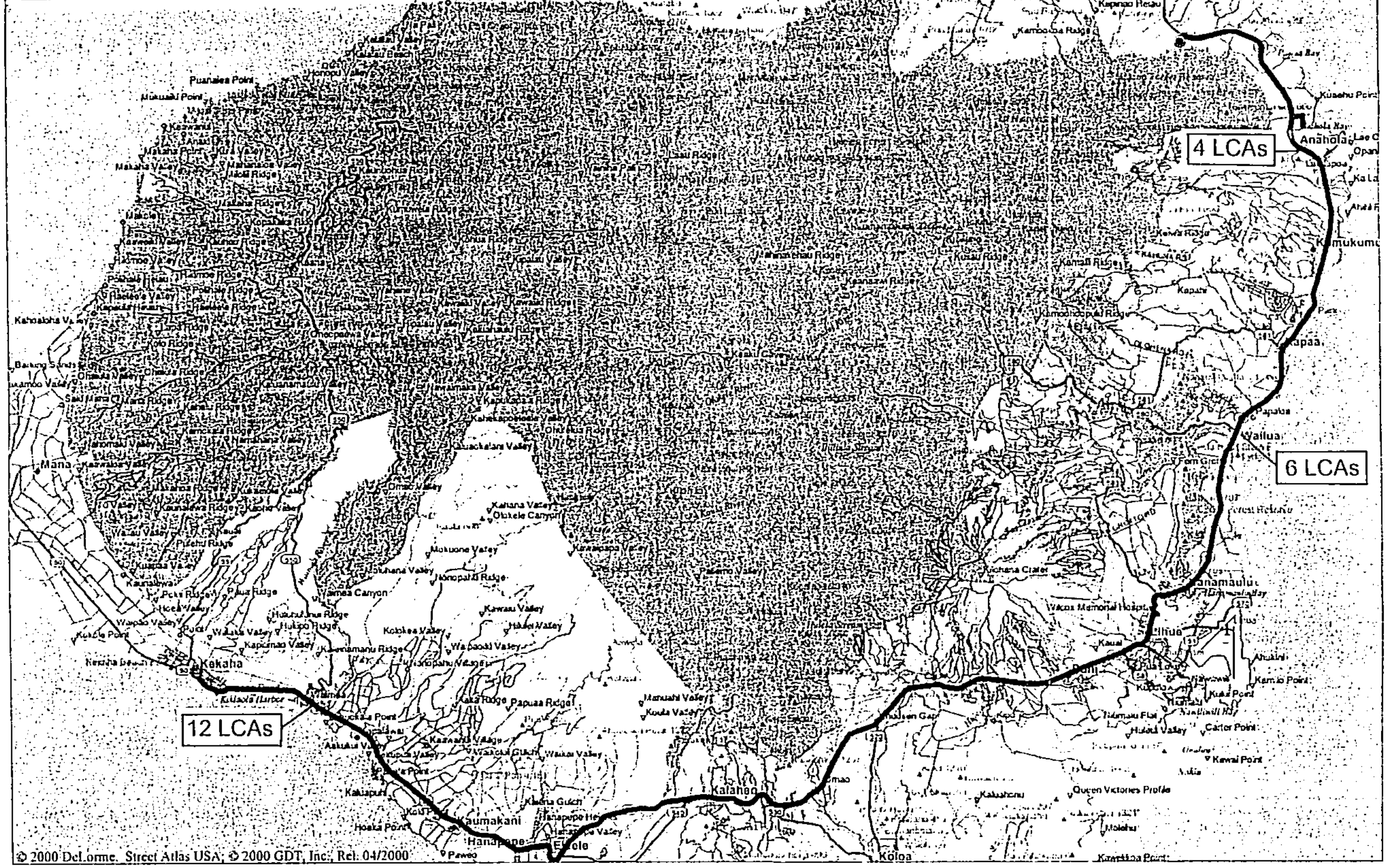


Figure 3 Sandy soils (Map 2)

Figure 4 Land Commission Award (LCA) localities along proposed route (*Scale 1in.=3.2miles*)



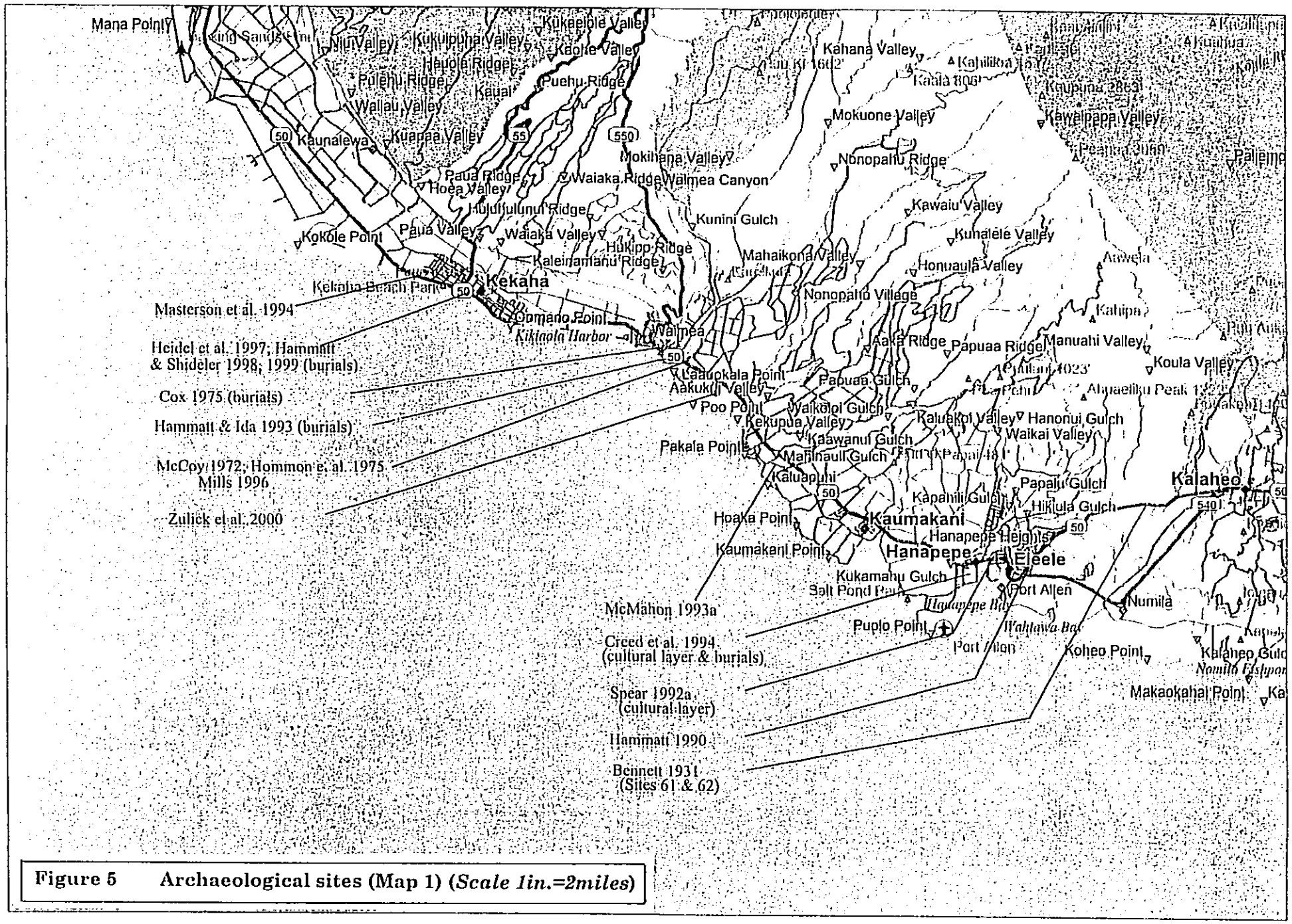


Figure 5 **Archaeological sites (Map 1) (*Scale 1in.=2miles*)**

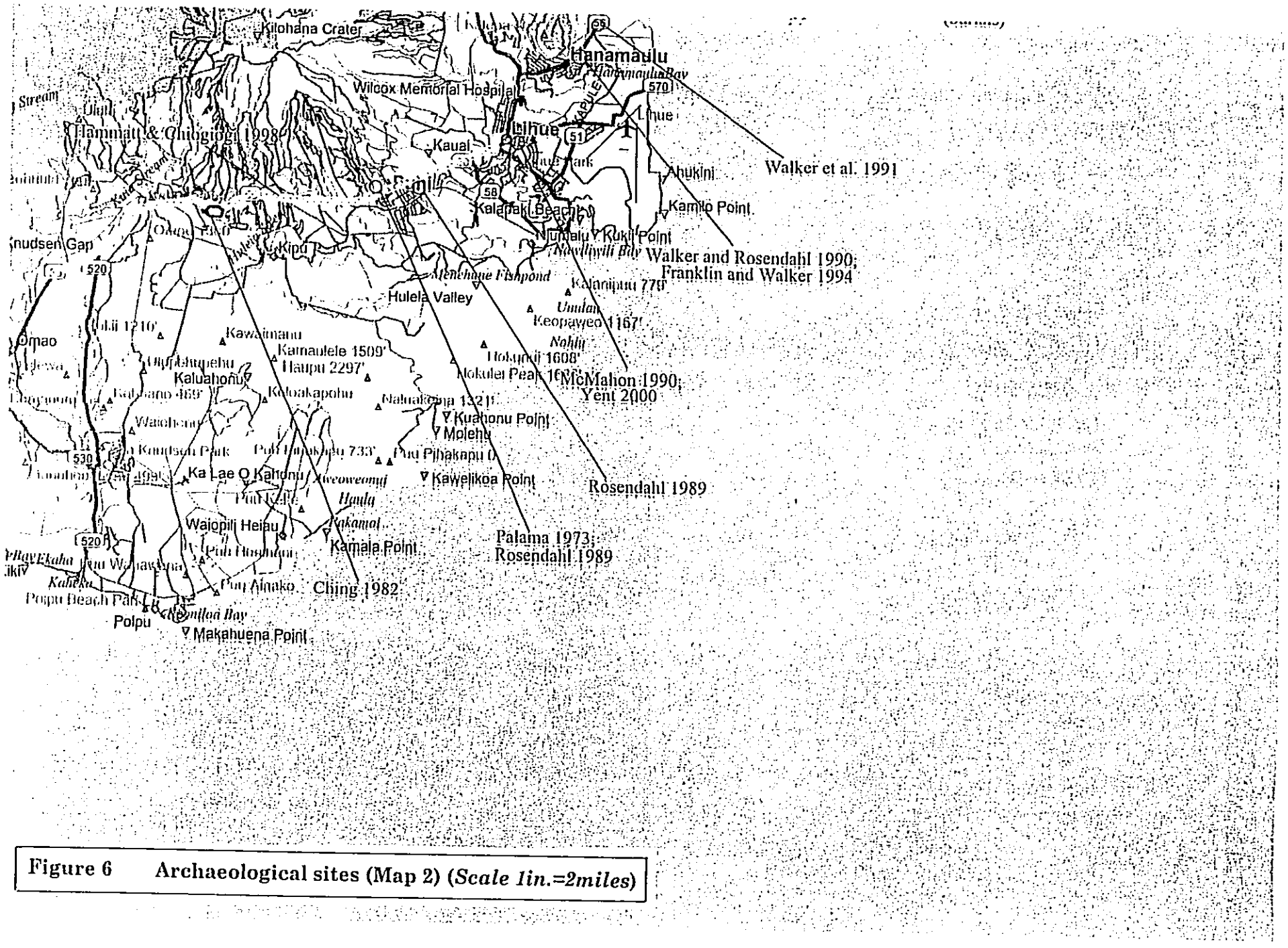
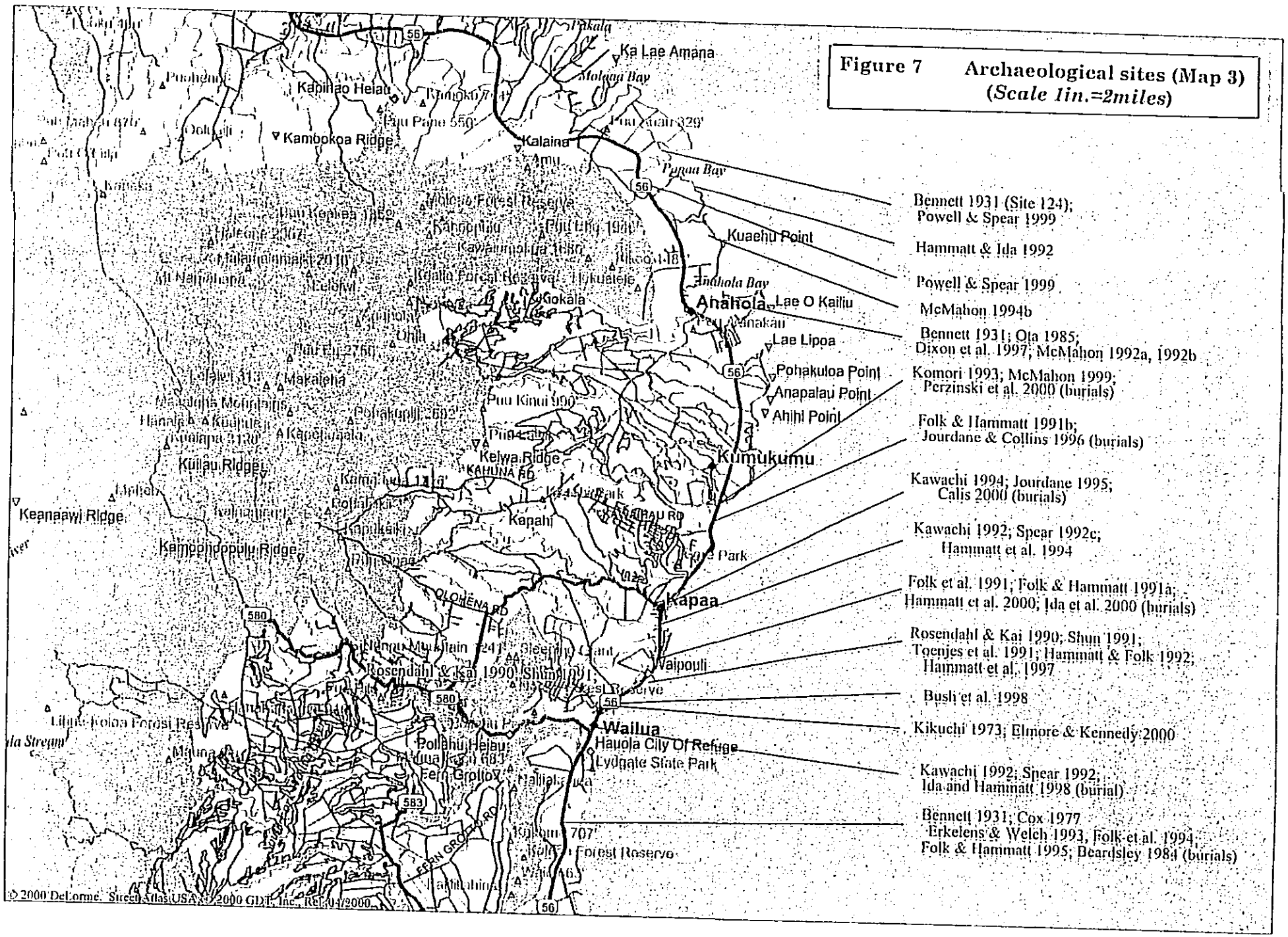


Figure 6 **Archaeological sites (Map 2) (*Scale 1in.=2miles*)**

Figure 7 **Archaeological sites (Map 3)**
(Scale 1in.=2miles)



III. ASSESSMENT AND DISCUSSION

Based on the research procedures detailed in sections I and II above, all portions of the study route were evaluated according to a scale representing four levels of potential for yielding subsurface archaeological resources. The four levels are:

LOW	Low potential for subsurface deposits. This assessment is based on historic and archaeological data, soil survey data, and the absence of Land Commission Award parcels in the vicinity.
MODERATE	Area of known cultural activity but, based on other factors, probability of encountering archaeological resources is only moderate. Other factors include information in the soil survey and the history of ground disturbance in the area.
HIGH	Area contains sand and/or Land Commission Awards. Also present are historic properties, based on historic and archaeological data.
VERY HIGH	Area contains known burials or cultural layers.

The route has been subdivided into nineteen sections based on the four levels of archaeological potential. Each section is discussed briefly below. Figures 8-10 show the nineteen sections and their assessments.

Section 1 Commencement at Kekaha to Waimea Athletic Field — HIGH POTENTIAL

Kaumuali`i Highway in this approximately 2.5 mile (4 kilometer) stretch runs almost entirely over Jaucas loamy fine sand.

One *kuleana* award lies immediately adjacent to the north of the highway on the east side of Kekaha Town.

There have been a number of burial finds reported in close proximity to Kaumuali`i Highway in Kekaha Town. Archaeological studies document what appear to be traditional Hawaiian burials (Masterson *et al.* 1994 and Heidel *et al.* 1997) while unmarked historic burials, understood as part of a former Japanese cemetery, have also been reported (Hammatt and Shideler 1998, 1999). No archaeological studies are known in the lands between Kekaha and Waimea.

The field check indicated that Kaumuali`i Highway was constructed over the natural soil surface, with little in the way of cut and fill technique having been utilized through this stretch.

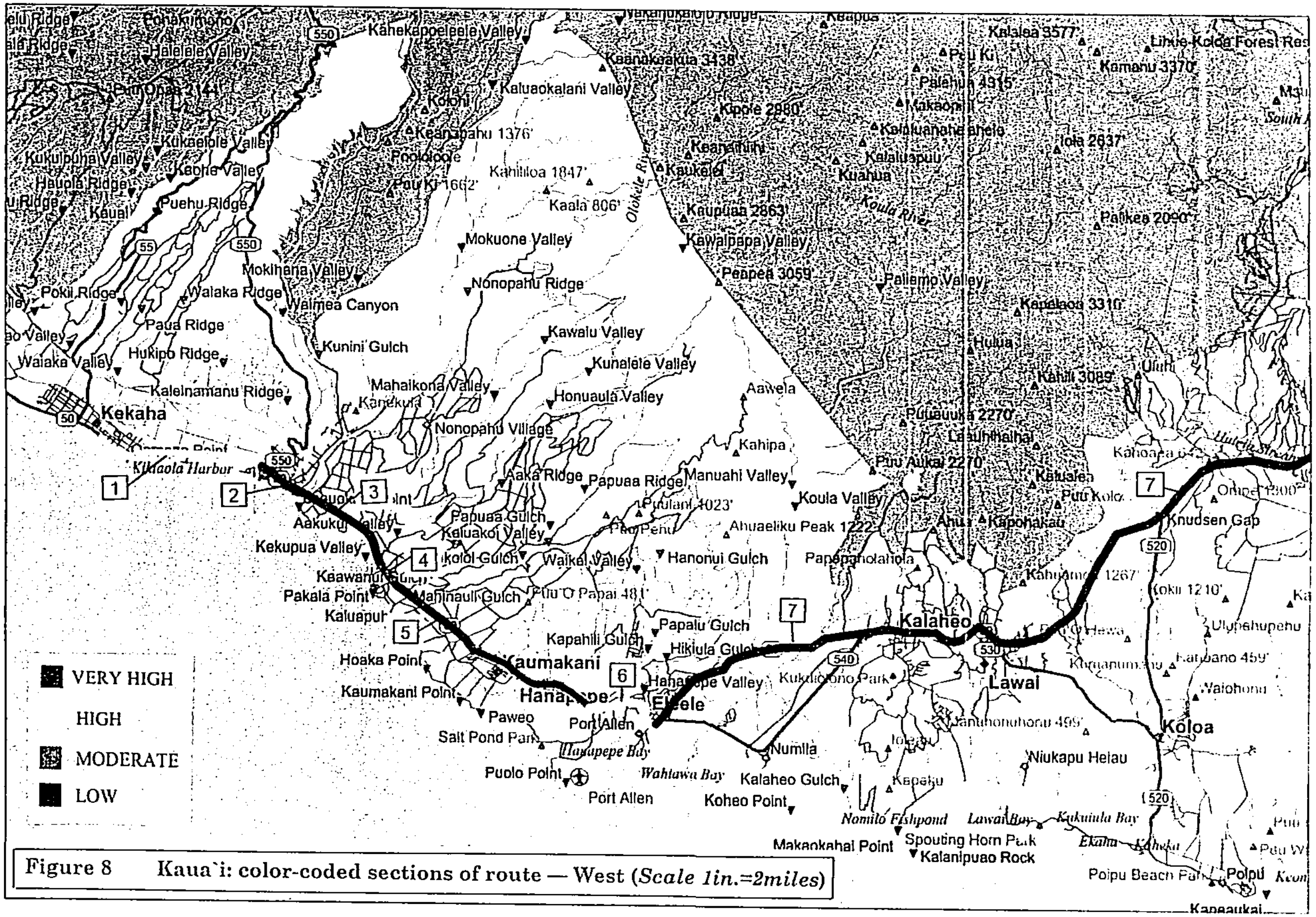
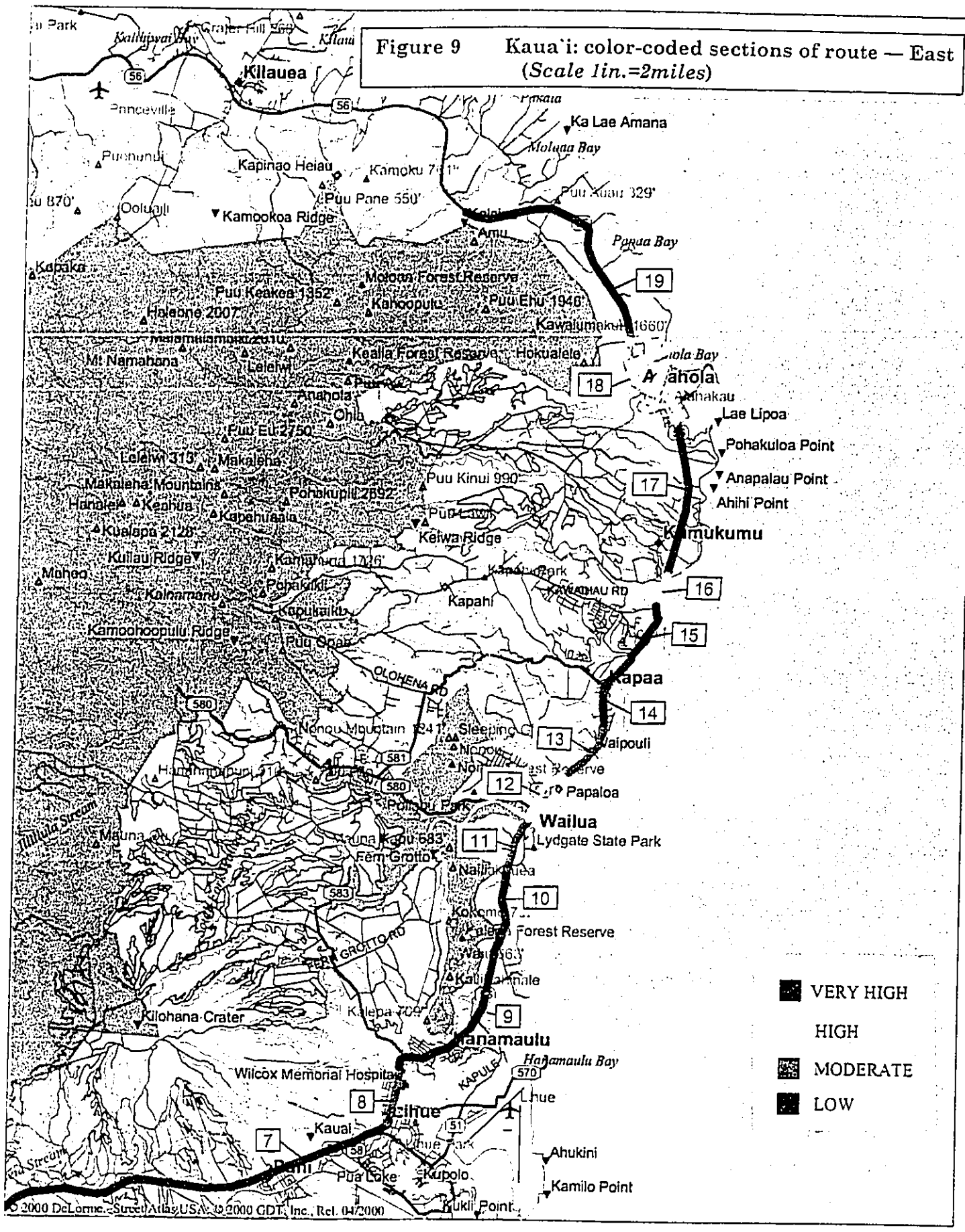


Figure 8 Kaua`i: color-coded sections of route — West (*Scale 1in.=2miles*)

Figure 9 Kaua`i: color-coded sections of route — East
(*Scale 1in.=2miles*)



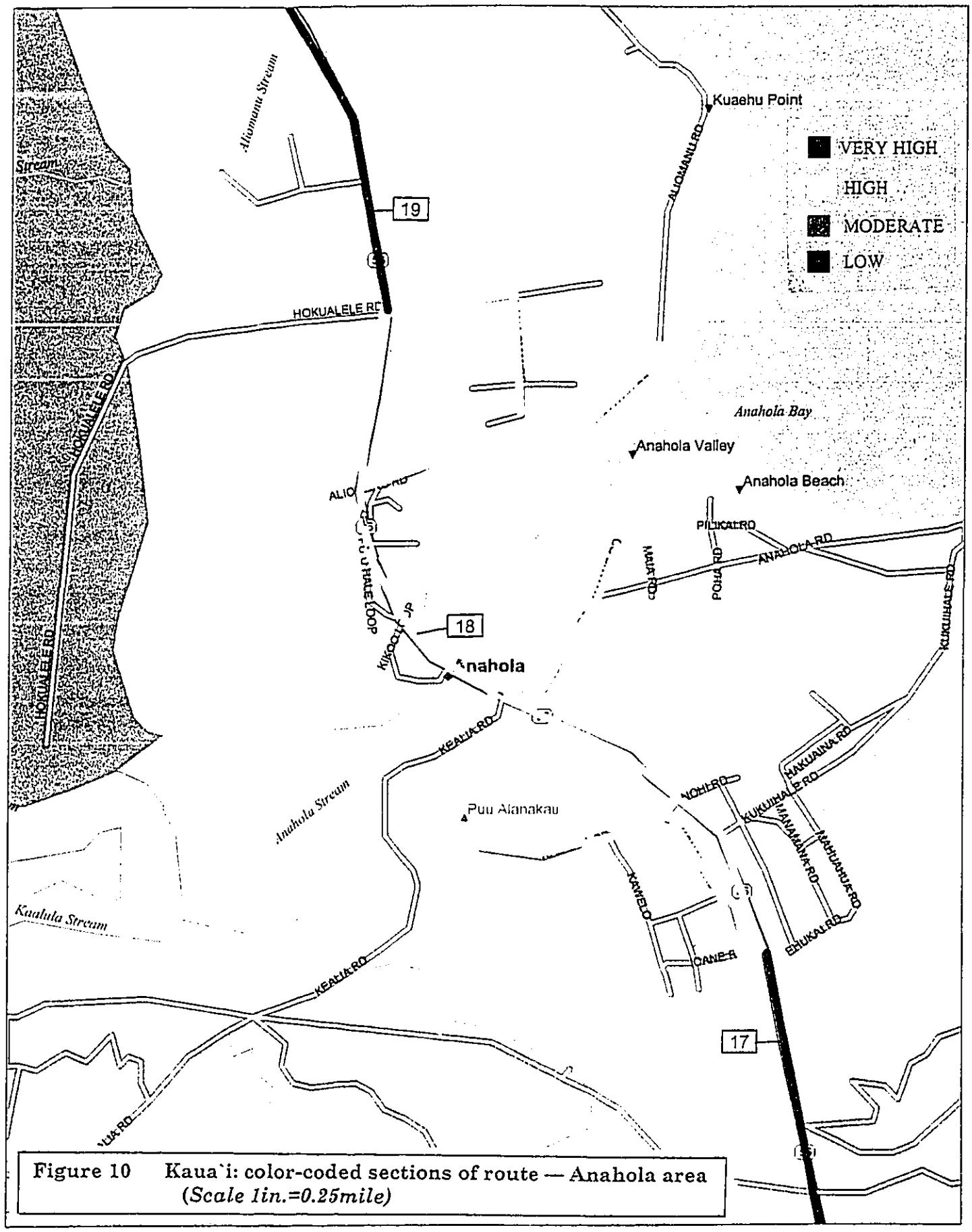


Figure 10 Kaua`i: color-coded sections of route — Anahola area
(Scale 1in.=0.25mile)

Due to the extensive sand deposits, the existence of *kuleana* adjacent to the highway and multiple reports of burials in Kekaha Town, the potential to encounter historic properties is high in Section 1.

Section 2 Waimea Athletic Field to just before the west end of Waimea River Bridge — VERY HIGH POTENTIAL

Kaumuali`i Highway in this approximately 0.7-mile (1.1-kilometer) stretch runs almost entirely over Jaucas loamy fine sand.

The LCA documentation indicates a dozen *kuleana* awards lie along this stretch on both sides of the highway.

Burials and subsurface cultural layers have been documented in Waimea Town (Cox 1975; Hammatt and Ida 1993. The Cox study identified nine burials and cultural materials during Waimea Town Sewerage System phase II work along Kaumuali`i Highway between Onaona Road (on the west side) and the Waimea River to the east. Working just north of the highway, Hammatt and Ida (1993), documented a burial and a cultural layer dated to AD 910-1275. The State Historic Preservation Division has designated the concentration of subsurface archaeological deposits in Waimea Town as site number -3250.

The field check indicated that Kaumuali`i Highway appears to be a low berm just above grade through most of this stretch with a large area of apparent fill to ramp up just before the bridge over Waimea River.

Due to the extensive sand deposits, the existence of numerous *kuleana* adjacent to the highway, the numerous burials previously encountered, the designation of a subsurface site containing burials and cultural deposits, and the historical importance of Waimea Town, the potential to encounter historic properties is very high in Section 2.

Section 3 East end of Waimea River Bridge to the sand deposit in the vicinity of Makaweli Landing — LOW POTENTIAL

Kaumuali`i Highway in this approximately 1.4-mile (2.3-kilometer) section includes road cuts and traverses over terriginous soils. No sandy soils lie in this section of Kaumuali`i Highway.

No *kuleana* (LCA) lie along the highway in this stretch.

The Russian Fort Elizabeth on the east bank of Waimea River and just south of the Highway has been a focus of several archaeological studies (McCoy 1972; Hommon *et al.* 1975; Mills 1996) which have primarily focused on the fort itself and adjacent areas along the river and shore. Excavations near Kaumuali`i Highway in the proposed Russian Fort parking lot were reported in Hommon *et al.* (1975). These excavations averaged 5.7 feet deep but "exhibited no change from the surface to the greatest depth...No archaeological material was found"(Hommon *et al.* 1975:102, 113). Mills (1996:323) notes: "Our research

and previous surveys in the 1970s (McCoy 1972; Hommon *et al.* 1975) show that most of the deposits outside the fort were heavily affected by sugarcane cultivation."

An archaeological inventory survey at Kapalawai extending along the south side of Kaumuali`i Highway identified historic walls near the highway (Zulick *et al.* 2000). No subsurface concerns adjacent to the highway were indicated.

The field check indicated an extensive road cut on the east side of the Waimea River and extensive modification for agriculture on both sides of the highway in this section.

Due to the absence of sand deposits, the absence of any known *kuleana*, the absence of documented archaeological sites or concerns and the extensive land modification, the potential to encounter historic properties is low in Section 3.

Section 4 Sand deposit in the vicinity of Makaweli Landing — MODERATE POTENTIAL

Kaumuali`i Highway in this approximately 0.1-mile (200-meter) section runs over sand. The soil study indicated a patch of Jaucus loamy fine sand extending from the coast under Kaumuali`i Highway on the eastern margin of Kekupua Valley.

No *kuleana* are known near the highway in this area.

No archaeological studies have been conducted in this area and to our knowledge no concerns have been previously raised about this area.

The field inspection confirmed that the sand deposit extends northeast (*mauka*) of the highway in this area. While, for much of this short stretch of sand, the highway is elevated on a fill causeway a meter or more high, in the southeastern portion of the sand area the highway is only slightly elevated.

Due to the presence of the sand deposit, and the proximity to the coast, the potential to encounter historic properties is moderate in Section 4.

Section 5 From sand deposit near Makaweli Landing to the Hanapēpē public cemetery near the intersection of Kaumuali`i Highway and Lele Road — LOW POTENTIAL

Kaumuali`i Highway in this approximately 4-mile (6.5-kilometer) section runs across terriginous soils.

No *kuleana* are known in this section of Kaumuali`i Highway

A burial and exposed cultural deposit were reported near the mouth of Mahinauli Gulch and 20 feet from the sea (McMahon 1993a) but this site lies well seaward of Kaumuali`i Highway.

To our knowledge no archaeological studies have been undertaken near Kaumuali`i Highway between Mahinauli Gulch and Hanapēpē Town.

The field check indicated substantial land modification for agriculture.

Due to the absence of sand deposits, known *kuleana*, documented archaeological sites or concerns, and the extensive land modification, the potential to encounter historic properties is low in Section 5.

Section 6 Public cemetery to east edge of Hanapēpē Valley — HIGH POTENTIAL

This approximately 1.3-mile (2.1-kilometer) stretch of Kaumuali`i Highway through Hanapēpē Town does not cross any sandy soils.

No *kuleana* are located close to the highway.

While there have been a number of archaeological studies in Hanapēpē Town, many of these (*e.g.* McMahon 1993b, 1994a) have been well seaward of the highway. The closest studies to the highway in Hanapēpē Town are Spear (1992a) and Creed *et al.* (1994). The Spear (1992a) study area at the First United Church of Christ parcel, on the east bank of the Hanapēpē River just north of the highway, identified "a relatively undisturbed pre-Contact primary deposit" (Spear 1992a: 21). The Creed *et al.* (1994) study of a houselot seaward of the highway on the west bank of the Hanapēpē River identified cultural deposits and two human burials.

The field inspection indicated that the highway runs quite close to grade through Hanapēpē Town.

Due to the historic importance of Hanapēpē Town, and the identification of cultural deposits and burials in proximity to the highway, the potential to encounter historic properties is high in Section 6.

Section 7 East side of Hanapēpē Valley to Rice Street in Līhu`e — LOW POTENTIAL

This approximately 14.6-mile (23.5-kilometer) stretch of Kaumuali`i Highway from just east of Hanapēpē Town into Līhu`e Town does not cross any sandy soils.

No *kuleana* are located close to the highway.

Two parcels immediately adjacent to the highway as it ascends and skirts along the east wall of Hanapēpē Valley were studied by Hammatt (1990). Most of this total 72 acres of land had formerly been in sugar cane or residential use. No sites were identified and no subsurface concerns were raised.

From Eleele all the way to Puhi only three archaeological studies were conducted. Bennett (1931:115) identified two sites (site 61 taro terraces and site 62 Waiopili *Heiau*)

which appear to have been near Kaumuali`i Highway where it crosses in Wahiawa Valley. Bennett (1931:115) placed Waiopili *Heiau* "in Wahiawa Valley on the bluff on the east side, a short distance on the seaward side of the government road [i.e Kaumuali`i Highway]. A reconnaissance of the area around the Kaumuali`i Highway Hulē`ia Bridge was carried out by Ching (1982) but there were no finds or subsurface concerns expressed in this area. An archaeological assessment (Hammatt and Chiogioji 1998) was carried out on an 11.5-kilometer long portion of Kaumuali`i Highway extending from approximately 1 kilometer west of Maluhia Road (to Kōloa), through Puhi, east to the Līhu`e Mill Bridge. This project was particularly relevant as it specifically focused on the highway alignment. This study (Hammatt and Chiogioji 1998: 35) noted that this portion of the highway was a simple dirt road until the 1920s, and was incrementally paved, widened and landscaped during the 1930s and 1940s. No subsurface concerns immediately adjacent to the highway were noted.

Three additional relevant studies in the Puhi area include Palama (1973), Rosendahl (1989), and Henry *et al.* (1993). Palama (1973) carried out a reconnaissance for the Kaua`i Community College but found no sites near the highway and recommended no further work. Rosendahl (1989) discussed an area just north of the highway and just southwest of Kaua`i Community College in an addendum to an earlier archaeological inventory survey but there were no findings or concerns expressed in this area (designated "survey area 1"). A parcel on the south side of the highway just northeast of Puhi Town was reported on by Henry *et al.* (1993). This study conducted backhoe trenching (Backhoe Test Trenches 4 and 5) near the highway but noted: "No subsurface cultural deposits were present in any of the trenches" (Henry *et al.* 1993: 22).

The field inspection examined the crossing of Wahiawa Stream and concluded there was little likelihood of encountering significant historic properties owing to the length of the span of the highway crossing the stream. The same situation was the case at the Lāwa`i, `Ōma`o, and Hulē`ia crossings — the road spans the wetlands in such a manner that stream deposits do not underlie the road. Extensive land modification was the rule.

Due to the absence of sand deposits, the absence of any known *kuleana*, the absence of documented archaeological sites (with the exception of Wahiawa Valley) or concerns and the extensive land modification, the potential to encounter historic properties is low in Section 7.

Section 8 Līhu`e Town — MODERATE POTENTIAL

The route across the northern 0.8 miles (1.3 kilometers) of Līhu`e Town does not cross any sandy soils.

No *kuleana* are known near the route in this area.

While a number of archaeological studies have been conducted in Līhu`e Town most of these have been well seaward of the highway. The two studies that appear most relevant in terms of proximity are McMahon (1990) and Yent (2000). McMahon (1990) carried out a field check of three relatively large (20+ acre) parcels, each lying as close as 700 meters southeast of Kaumuali`i Highway, in Līhu`e Town but expressed no subsurface

concerns. Yent (2000) reported on subsurface testing at the former Sheriff's Building in the County Building complex. She noted that "the testing did not indicate the presence of any cultural use of the site prior to the construction of the Sheriff's Building [1913]" and recommended no further work.

Due to the absence of sandy soils, *kuleana* and archaeological findings along this section of highway, the likelihood of pre-contact or early historic (pre-1850) historic properties is exceedingly low. However, a number of early twentieth century properties lie along this section of the project area and because of the possibility of trash pits or other features relating to late nineteenth or early twentieth century use, the potential to encounter historic properties is moderate in Section 8.

Section 9 Līhu`e Town to the Wailua County Golf Course (near Kokomo Ridge) — LOW POTENTIAL

This approximately 2.3-mile (3.7-kilometer) section of Kaumuali`i Highway from Līhu`e Town to the Wailua County Golf Course at the south edge of Kokomo Ridge does not cross any sandy soils.

No *kuleana* are known along this stretch of highway.

Three archaeological studies (Walker and Rosendahl 1990; Walker *et al.* 1991; and Franklin and Walker 1994) have been undertaken adjacent to the Kūhiō Highway between Hanamā`ulu and the Wailua County Golf Course. The Walker and Rosendahl (1990) and Franklin and Walker (1994) studies appear to have included the same parcel on the southeast side of the highway just north of Hanamā`ulu Town. The later study included some backhoe testing near the highway but neither study reported any significant archaeological remains of any kind in this Hanamā`ulu parcel. The Walker *et al.* (1991) study covered two large tracts (designated parcels 7 & 8) just east and west of the Kūhiō Highway between Hanamā`ulu Town and the Wailua Golf Course but identified no sites near the highway and expressed no particular subsurface concerns.

Due to the absence of sandy soils, *kuleana*, and archaeological findings, the potential to encounter historic properties is low in Section 9.

Section 10 Along the Wailua County Golf Course — VERY HIGH POTENTIAL

For approximately 1 mile (1.5 kilometers) Kūhiō Highway runs over Mokuleia fine sandy loam and Mokuleia clay loam soils.

No *kuleana* are known along this stretch of highway.

The vicinity of Wailua County Golf Course has been the subject of a number of archaeological studies owing to the identification of numerous pre-contact and post-contact burials. Effectively this golf course is both a pre-contact and post-contact burial ground. Bennett (1931:125) was referring to this area when he designated Site 103, writing: "In the sand dunes that run along the shore half way between Hanamā`ulu and Wailua River are many burials." Cox (1977: vii) reported a "total of thirteen burials and scattered

human remains" during force main and effluent holding pond construction activities at the Wailua Golf Course. Erkelens and Welch (1993) report an account from a Wailua Golf Course ground staff member that: "hundreds" of bones were unearthed when the central driving range was built in the mid 1960s. Studies by Folk *et al.* (1992, 1994) and Folk and Hammatt (1995) identified at least six additional burials during a fiberoptic cable landing project. An archaeological inventory survey (Hammatt *et al.* 1997) for a Kūhiō Highway widening and bypass study, examined three corridors running to the west (*mauka*) of the highway from the south end of the Wailua Golf Course north through Kapa`a Town. The study recommended archaeological monitoring in the vicinity of the Wailua Golf Course and Kaua`i Community Correctional facility (Hammatt *et al.* 1997: 128). Beardsley (1994) identified one burial during a Wailua Golf Course Sewage Force Main project and many more burials have been recently identified during irrigation line installation. The State Historic Preservation Division GIS plotting system shows burials on both sides of Kūhiō Highway with some quite close to the highway in the Wailua Golf Course area.

The field check confirmed the presence of extensive sand deposits along both sides of the highway.

The presence of burials in the Wailua County Golf Course is well known and a subject of particular concern to the Hawaiian Community.

Due to the extensive sandy soils, the number of burials associated with the golf course and community concern, the potential to encounter historic properties is high in Section 10.

Section 11 North of the Wailua Golf Course to the Wailua River — MODERATE POTENTIAL

From the northern end of the Wailua Golf Course to the Wailua River, a distance of approximately 1.1 miles (1.7 kilometers) Kūhiō Highway crosses only terrigenous sediments.

No *kuleana* are known along this stretch of highway.

Hammatt (1991b: 53) carried out subsurface testing along this section of Kūhiō Highway and recommended "on-call" archaeological monitoring.

Although there is an absence of sandy soils and *kuleana* along this section, because of previous recommendations for "on-call" monitoring, the potential to encounter historic properties is moderate in Section 11.

Section 12 North of the Wailua River to Hale`ilio Road — HIGH POTENTIAL

Kūhiō Highway in this approximately 0.4-mile (0.7-kilometer) section runs over Mokuleia fine sandy loam soils.

Half a dozen *kuleana* lie on the west side of the highway along this section.

An archaeological inventory survey for a Kūhiō Highway widening and bypass study (Hammatt *et al.* 1997:128) recommended archaeological monitoring during any sand moving along Wailua River and for ground disturbance along the Coco Palms area.

The vicinity of the mouth of the Wailua River has been the subject of a number of archaeological studies focused on the *heiau* complex there (Soehren 1967; Ching 1968; Kikuchi 1984; Yent 1987, 1989; Kawachi 1993). Three other studies have focused on the north side of the river mouth. Kawachi (1992) examined a parking area adjacent to the southeast side of Kūhiō Highway just north of the Wailua River mouth and, although she reports no particular findings, archaeological monitoring was specifically recommended. Spear (1992b) conducted extensive subsurface investigations in this same parking area, but identified no significant cultural material and recommended no further work. Ida and Hammatt (1998) reported human remains just north of the Wailua River mouth. This area was also a focus of a good deal of historic activity including an old rice mill (site # -331).

The Coco Palms property adjacent to the northwest side of Kūhiō Highway is well known for burial and cultural layer finds. A number of burials were unearthed during the original construction of the hotel and an additional thirty-four burials were disturbed during construction of a new wing (Kikuchi 1973). Recently, additional human remains have been reported at this site (Elmore and Kennedy 2000). Subsurface testing of a shoreline parcel on Papaloa Road (Bush *et al.* 1998) yielded no significant findings.

Due to the extensive sandy soils, the presence of adjacent *kuleana*, the number of burials associated with the adjacent Coco Palms property, previous recommendations and community concern, the potential to encounter historic properties is high in Section 12.

Section 13 Hale`ilio Road to Waipouli Stream — MODERATE POTENTIAL

Kūhiō Highway in this approximately 1.1-mile (1.7-kilometer) section traverses an extensive stretch of Mokuleia fine sandy loam soils.

No *kuleana* have been identified near the highway in this area.

From the vicinity of the intersection with Highway 580, just north of the mouth of the Wailua River, northeast through Kapa`a is a stretch which has had very intensive archaeological study in close proximity to Kūhiō Highway. Of particular importance for the present study are the work of Hammatt (1991b) and Creed *et al.* (1995) which were carried out for the Kapa`a sewerline project. "On call" monitoring was recommended for this section (Hammatt 1991b:46).

Spear (1992b) conducted testing along a stretch of Kūhiō Highway from Hale`ilio road on the south to Uhelekawawa Stream on the north. Spear recommended no further work for most of this stretch but noted that possible isolated burials might be encountered and recommended monitoring near the Uhelekawawa Bridge.

Rosendahl and Kai (1990) carried out a study of two parcels designated Sites 4 and 6, in Olohena and Waipouli *Ahupua`a* on the seaward side of Kūhiō Highway identifying burials and cultural layers at both parcels. Further data recovery work (Hammatt 1991a; Toenjes *et al.* 1991) was carried out at the northernmost parcel but the cultural layer apparently did not extend within 200 meters of the highway (Toenjes *et al.* 1991: 8). Shun (1991) studied a parcel between the two Rosendahl and Kai parcels and adjacent to the highway but all of the trenches were culturally sterile and no further work was recommended. Hammatt and Folk (1992) carried out subsurface testing on the west corner of Kūhiō Highway and Waipouli Road but identified no cultural deposits.

Due to the presence of sandy soils and the close proximity of areas of extensive cultural use on the coast and in light of archaeological findings and recommendations the potential to encounter historic properties is moderate in Section 13.

Section 14 Waipouli Stream to the North Edge of Kapa`a Valley — VERY HIGH POTENTIAL

Kūhiō Highway in this approximately 1.9-mile (3.1-kilometer) section runs over Mokuleia fine sandy loam soils.

Three *kuleana* lie scattered along the *mauka* side of the highway.

Just seaward of Kūhiō Highway in Waipouli *Ahupua`a*, four studies (Folk *et al.* 1991; Folk and Hammatt 1991a; Hammatt *et al.* 2000; Ida *et al.* 2000) of a twelve-acre parcel document fifteen burials and an extensive cultural layer. This cultural layer designated site 50-30-08-1836 is believed to underlie a small portion of Kūhiō Highway just northeast of Waipouli Stream (Hammatt 1991: 8).

Work associated with the Kapa`a sewerline project identified two sites: site 50-30-08-1848 extended from Wana Road to the south to the Waikaea Drainage Canal on the north and site 50-30-08-1849 extending from Inia Street on the south to Kauwila Street on the north. These two sites were found to contain a large number of burials (26) and other cultural materials (Hammatt 1991; Creed *et al.* 1995).

Just south of the Waikaea Canal, Spear (1992c) encountered subsurface features and recommended monitoring but in neighboring parcels, two studies (Hammatt *et al* 1994; McMahon 1996) had minimal findings and recommended no further work.

In central Kapa`a Town, just seaward of Kūhiō Highway, Kawachi (1994) and Jourdane (1995) both reported the discovery of human remains on Inia Street. Additionally, Callis (2000) reported human remains closer to the beach.

Due to the extensive sandy soils, the presence of adjacent *kuleana*, the designation of three subsurface sites containing burials and cultural layers under Kūhiō Highway, previous recommendations and community concern, the potential to encounter historic properties is very high in Section 14.

Section 15 North Edge of Kapa`a Valley to Keālia — LOW POTENTIAL

This 0.7-mile (1.2 kilometer) section of Kūhiō Highway from the northern edge of the Kapa`a valley flood plain to the cemetery just south of Kapa`a Stream crosses no sandy soils.

No *kuleana* are known in the area immediately adjacent to the highway.

There are no known archaeological studies adjacent to the highway in this short stretch.

The field check indicated that the highway in this section is a major road cut through a point of land that juts out into the sea.

In the absence of sandy soils, *kuleana*, or any other indication of historic properties close to the highway the potential to encounter historic properties is low in Section 15.

Section 16 Keālia — HIGH POTENTIAL

This approximately 0.8-mile (1.3-kilometer) stretch of Kūhiō Highway from the cemetery just south of Kapa`a Stream to the northern edge of Keālia Beach crosses an extensive area of Mokuleia fine sandy loam.

Two *kuleana* lie just west of the highway and north of Kapa`a Stream.

In Keālia there have been a number of reported burials near Kūhiō Highway. Five burials have been reported from coastal sand deposits seaward of Kūhiō Highway (Komori 1993; Perzinski *et al.* 2000; McMahon personal communication 1999). There are also two reports (Folk and Hammatt 1991b; Jourdane and Collins 1996) of burials, historic artifacts and traditional Hawaiian midden just west of the highway and just north of Kapa`a Stream.

Due to the extensive sandy soils, the presence of neighboring *kuleana*, and the burials reported nearby, the potential to encounter historic properties is high in Section 16.

Section 17 North of Keālia to Anahola Valley — LOW POTENTIAL

This approximately 2.9-mile (4.7-kilometer) section of Kūhiō Highway does not cross any sandy sediments.

No *kuleana* are known near the highway in this area.

There are no known archaeological studies adjacent to the highway in this short stretch.

In the absence of sandy soils, *kuleana*, or any other indication of historic properties close to the highway, the potential to encounter historic properties is low in Section 17.

Section 18 Anahola Valley — HIGH POTENTIAL

The project area here consists of approximately a 0.6-mile (1 kilometer) section of Kūhiō Highway, spur line extensions on the west (*mauka*) side of the highway along Kalalea Road and Konona Road, and spur line extensions on the east (*makai*) side of the highway along Hokualele Road, Kamalomaloo, `Aliomanu Road, and Anahola Road.

There are no sandy soils under Kūhiō Highway but the spur line extensions to the east enter areas of Mokuleia fine sandy loam.

Kuleana are known on both sides of Kūhiō Highway in this stretch and close to the spur lines as well.

North of Keālia, the only archaeological sites designated near Kūhiō Highway until Pāpa`a *Ahupua`a* are Bennett-designated sites for which the precise location is often uncertain. Bennett (1931: 129) describes site 114, Paeaea *Heiau*, as "back of Anahola Bay inland from the government road [i.e. Kūhiō Highway] on the north side of the valley". While the distance from the highway is unclear the *heiau* does not appear to have been adjacent to the "government road". Present plans call for a number of lateral spur lines at Anahola Subdivision. The west (*mauka*) lines on Kalalea Road and Konona Road do not appear to run near any areas of archaeological concern. The eastern (*makai*) alignments along Hokualele Road, Kamalomaloo, `Aliomanu Road, and Anahola Road, however, do run near previously identified sites. Bennett (1931:129) identified two sites (site 115 Kuhua *Heiau* and Site 116 dune burials) in this immediate area. While Bennett's geographic locations are somewhat vague, previous archaeologists (Denham *et al.* 1992; Dixon *et al.* 1997) have understood the site of Kuhua *Heiau* to be just north of the midpoint of `Aliomanu Road (virtually adjacent to the `Aliomanu Road spur line). Ota 1985 confirmed the previous destruction of Kuhua *Heiau* but we cannot rule out the possibility of associated subsurface deposits. Previous archaeologists (Denham *et al.* 1992 and Dixon *et al.* 1997) have understood the location of McAllister's dune burials site 116 to be primarily on the south side of the Anahola Stream mouth. McMahon (1992a & 1992b) also identified two burials just north of the Anahola Stream mouth. A pre-contact cultural layer (site 50-30-04:627) was identified (Dixon *et al.* 1997) just to the north of the northeast terminus of the `Aliomanu Road spur and monitoring was recommended in this area.

Due to the presence of sandy soils, numerous *kuleana*, reports of burials and cultural layers, previous recommendations and community concern, the potential to encounter historic properties is high in Section 18.

Section 19 North of Anahola Valley to the Project Terminus in Moloa`a — LOW POTENTIAL

This approximately 4.1-mile (6.6-kilometer) section of Kūhiō Highway does not cross any sandy sediments.

No *kuleana* are known along this stretch of Kūhiō Highway.

While burials have been reported from coastal `Aliomanu *Ahupua`a* (Hammatt and Ida 1992; McMahon 1994b), these were well to the east of Kūhiō Highway.

In Pāpa`a *Ahupua`a*, Bennett (1931:130) describes site 121, a walled enclosure, as "in the pineapple fields half way between the forest line and the government road [i.e. Kūhiō Highway] on the first main branch of Pāpa`a Stream to the south". While the precise location is uncertain this enclosure does not appear to be close to the highway. Also in Pāpa`a *Ahupua`a*, Powell and Spear (1999) conducted an archaeological inventory survey that abutted a length of Kūhiō Highway but no sites were identified near the highway. Just to the north, in Pāpa`a and Moloa`a *Ahupua`a*, McGerty and Spear (1998) carried out another archaeological inventory survey that abutted a length of Kūhiō Highway but identified no new sites near the highway. They do however note that Bennett's site 124, Pāpa`a *Heiau*, which Bennett (1931:131) described as "at the junction of a side road and the government highway [i.e. Kūhiō Highway]" lay within their project area but had since been destroyed.

Due to the absence of sandy soils, neighboring *kuleana*, or other indicators of likely cultural deposits adjacent to the highway, the potential to encounter historic properties is low in Section 19.

IV. RECOMMENDATIONS

As detailed above, the 51-mile (82-kilometer) study route on Kaua`i island has been divided into nineteen individually-assessed sections. Each section was assigned one of four levels of potential — low, moderate, high, or very high — for presence of subsurface historic properties (see Figures 8-10 above). The following recommendations are suggested for each level of concern:

LOW (Blue)

Based on the low potential for subsurface deposits, no further archaeological work is recommended in the following sections of the study route:

Section 3	East end of Waimea River Bridge to the sand deposit in the vicinity of Makaweli Landing
Section 5	From Sand Deposit near Makaweli Landing to the Hanapēpē public cemetery near the intersection of Kaumuali`i Highway and Lele Road
Section 7	*East Side of Hanapēpē Valley to Rice Street, Līhu`e*
Section 9	Līhu`e Town to the Wailua County Golf Course (near Kokomo Ridge)
Section 15	North Edge of Kapa`a Valley to Keālia
Section 17	North of Keālia to Anahola Valley
Section 19	North of Anahola Valley to the Project Terminus in Moloa`a

MODERATE (Green)

Areas deemed of moderate potential for encountering archaeological resources are recommended for a monitoring program with on-call monitoring. Spot checking or on-call monitoring with a cultural monitor are other options. Sections of the route where this recommendation is applicable are:

Section 4	Sand Deposit in the Vicinity of Makaweli Landing
Section 8	Līhu`e Town
Section 11	North of the Wailua Golf Course to the Wailua River
Section 13	Hale`īlio Road to Waipouli

HIGH (Yellow)

Areas deemed of high potential for encountering archaeological resources — based on the presence of sand, Land Commission Awards, or historic properties — are recommended for a monitoring program with continual on-site monitoring. Sections of the route where this recommendation is applicable are:

Section 1	Commencement at Kekaha to Waimea Athletic Field
Section 6	Public Cemetery to East Edge of Hanapēpē Valley
Section 12	North of the Wailua River to Hale`ilio Road
Section 16	Keālia
Section 18	Anahola Valley

VERY HIGH (Red)

Based on the known presence of burials and cultural layers, areas assessed "very high" in this report may merit more detailed investigation and/or consultation before any determination is made on the specific archaeological mitigation steps to be followed.

In "very high"-designated areas, the client should anticipate delays and/or changes in excavation technique, based on likelihood of encountering burials, cultural layers.

"Very high"-designated areas might involve heightened, pro-active consultation with the State Historic Preservation Division (SHPD), the SHPD burials program staff, and the Kaua`i Island Burial Council.

Sections of the study route for which these considerations apply are:

Section 2	Waimea Athletic Field to just before the west end of Waimea River Bridge
Section 10	Along the Wailua County Golf Course
Section 14	Waipouli to the North Edge of Kapa`a Valley

We recommend consultation with the archaeology and burial staffs of the State Historic Preservation Division, and the Kaua`i Island Burial Council be conducted during the project's design phase when more design details and construction methods are developed. Such consultation efforts would be intended to develop appropriate mitigative measures needed to be implemented by the contractor during construction to address potential impacts on cultural resources.

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