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

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

March 11, 1999

REF:PB:LT

File No.: HA-2903
180-Day Exp. Date: 4/22/99

Mr. Gary Gill, Director
Office of Environmental Quality Control
235 S. Beretania St., Suite 702
Honolulu, Hawaii 96813

RECEIVED '99 MAR 11 P OFC. OF QUALITY CON...

Dear Mr. Gill:

Subject: **Conservation District Use Permit Application #HA-2903 for the Installation of a Transpacific Submarine Fiber Optic Cable System Linking Australia and New Zealand with the Islands of Hawaii and Oahu; TMK: 6-2-02: 08 and Submerged Lands at Spencer Beach Park, Kawaihae, Hawaii**

The Department of Land and Natural Resources has reviewed the comments received during the thirty (30) day public comment period which ended on January 22, 1999. We hereby issue a Finding of No Significant Impact and request that you publish this notice in the March 23, 1999 OEQC Bulletin.

Enclosed is a completed OEQC Bulletin Publication Form and four copies of the final environmental assessment. If you have any questions, please call Lauren Tanaka at 587-0385.

Aloha,

Dean Uchida, Administrator

Enclosures

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CDUP HA-2903 for the Southern Cross Cable Network System
Project Summary

GTE Hawaiian Telephone International, Inc. proposes to install a transpacific submarine fiber optic cable system linking the islands of Oahu and Hawaii, Hawaii to Australia and New Zealand, and Hawaii to California. The proposed telecommunications system, known as the Southern Cross Cable Network, will be developing new manholes, handholes, and ductlines in addition to using existing manholes and ductlines to connect the terrestrial portion of its fiber optic cable system.

The landing site on the island of Hawaii is Spencer Beach Park in Kawaihae. Construction of facilities at the shore-end will be comprised of two segments: Segment 1 will use existing manholes and ductlines at Spencer Beach Park and along the access road into the park to establish a connection to the GTE facility. Segment 2 will involve installation of the submarine cable.

The interisland connection that will link the island of Hawaii with the island of Oahu, will be reviewed in a separate application as the site proposed and methods for directional drilling have yet to be selected.

1999-03-23-HA-FEA-

MAR 23 1999

FILE COPY

FINAL ENVIRONMENTAL ASSESSMENT

SOUTHERN CROSS CABLE NETWORK
Spencer Beach Park/Kawaihae, Hawaii

TMK: 6-02-02: parcel 08

Prepared For:
GTE Hawaiian Tel International Incorporated
P.O. Box 2200
Honolulu, Hawaii 96841

Accepting Authority:
Department of Land and Natural Resources

R. M. TOWILL CORPORATION
420 Waiakamilo Road
Suite 411
Honolulu, Hawaii 96817

11 MARCH 1999

FINAL

ENVIRONMENTAL ASSESSMENT

FOR THE

SOUTHERN CROSS CABLE NETWORK

SPENCER BEACH PARK
ISLAND OF HAWAII

Prepared for:

GTE Hawaiian Tel International Incorporated
P.O. Box 2200
Honolulu, Hawaii 96841

MARCH 19, 1999

Prepared By:

R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

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PROJECT SUMMARY

Project System:	GTE Hawaii Tel International Incorporated Southern Cross Cable Network
Applicant:	GTE Hawaiian Tel International Incorporated International Division P.O. Box 2200 Honolulu, Hawaii 96841 Contact: Mr. Powell Onishi Phone: (808) 546-2889
Accepting Authority:	State of Hawaii, Department of Land and Natural Resources
Tax Map Key:	6-2-02:parcel 8 and submerged lands
Location:	Spencer Beach Park
Lot Area:	13.36 acres
Owner (6-2-02:8):	State of Hawaii Department of Land and Natural Resources P.O. Box 621 Honolulu, Hawaii 96809
Agent:	R. M. Towill Corporation 420 Waiakamilo Road, Suite 411 Honolulu, Hawaii 96817 Contact: Chester Koga Phone: (808) 842-1133
Existing Land Uses:	Recreational area, Beach Park
State Land Use District:	Conservation
General Plan Land Use Designation:	Open
County Zoning Designation:	Open, allows utility installations

SECTION 1
INTRODUCTION

1.1 PURPOSE AND OBJECTIVES

The purpose of this final environmental assessment (FEA) is to ascertain whether installing a fiber optic cable at Spencer Beach Park and across the submerged lands adjacent to the park will have a significant adverse impact upon the environment.

GTE Hawaiian Tel International Incorporated proposes to install a transpacific submarine fiber optic telecommunications system that will link Australia and New Zealand with Hawaii and California. A second part of the system will link the Island of Hawaii with the Island of Oahu. This project is known as the Southern Cross Cable Network.

In the early 1990's, GTE Hawaiian Tel installed at Spencer Beach Park a segment of the first interisland fiber optic cable system to enhance its existing interisland radio system. Information for this environmental assessment is derived from earlier reports written for GTE Hawaiian Tel by R. M. Towill Corporation (*January 1993, Environmental Assessment for the GTE Hawaiian Tel Interisland Fiber Optic Cable System; Spencer Beach Park, Hawaii*). In 1996, GST Telecom Hawaii install the second interisland fiber optic system with its Hawaii terminus at Spencer Beach Park.

The proposed system will include two transpacific submarine cable segments and one interisland cable segment to be landed on the Island of Hawaii at Spencer Beach Park (Figure 1). The main system will include a 8 strand main cable with linkage from New Zealand to Hawaii and Hawaii to California. The interisland portion of the system will connect Spencer Beach Park to Kahe Point Beach Park on Oahu. The proposed cable will be installed within a sand channel in the near shore water of Kawaihae. The bottom conditions are described in Section 3.

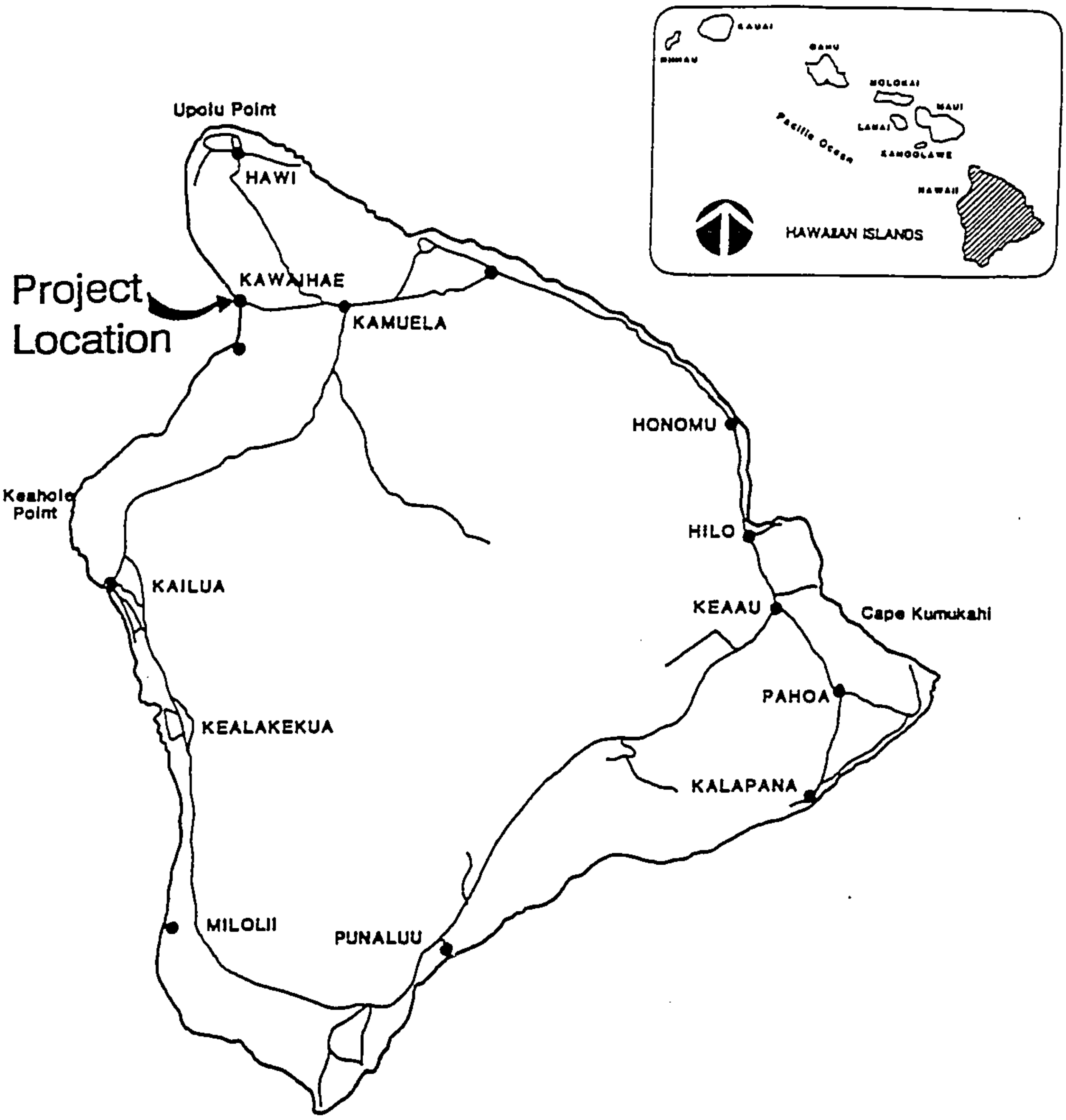


Figure 1
LOCATION MAP
Spencer Beach Park, Hawaii

GTE Hawaiian Tel International Inc.
The Southern Cross Project

R.M. Towill Corporation May 1998

The purposes of the proposed project are as follows:

- To provide the public with reliable telecommunication service between Australia and New Zealand with the United States;

- Enhance service now provided through analog cable systems which have limited bandwidth capacity to serve customers. A fiber optic linkage has higher capacity bandwidth which would allow use of high technology services such as telemedicine and real time video trafficking; and

- To provide an alternative to the existing interisland fiber optic system in the event of system failure or damage to the system.

1.2 PROJECT LOCATION

Spencer Beach Park is the proposed landing site for the New Zealand to Hawaii, Hawaii to California, and Hawaii to Oahu segments of the submarine fiber optic cable system. Spencer Beach Park, which is managed by the County of Hawaii (Figure 2), is located 1,000 feet directly south of the Kawaihae Harbor Breakwater, South Kohala District. Spencer Beach Park encloses one of the typical small pocket beaches along this coast. The beach within the park is approximately 400 feet long.

Surrounding land uses include the Puukohola Heiau National Historic Site owned by the United States of America and abuts Spencer Beach Park to the north, and vacant lands owned by the Queen Emma Foundation to the east and south. Kawaihae Harbor is located to the north and is a deep water port serving industrial and commercial uses and deep sea fishing activities. Shoreside of the harbor is the town of Kawaihae and harbor support uses.

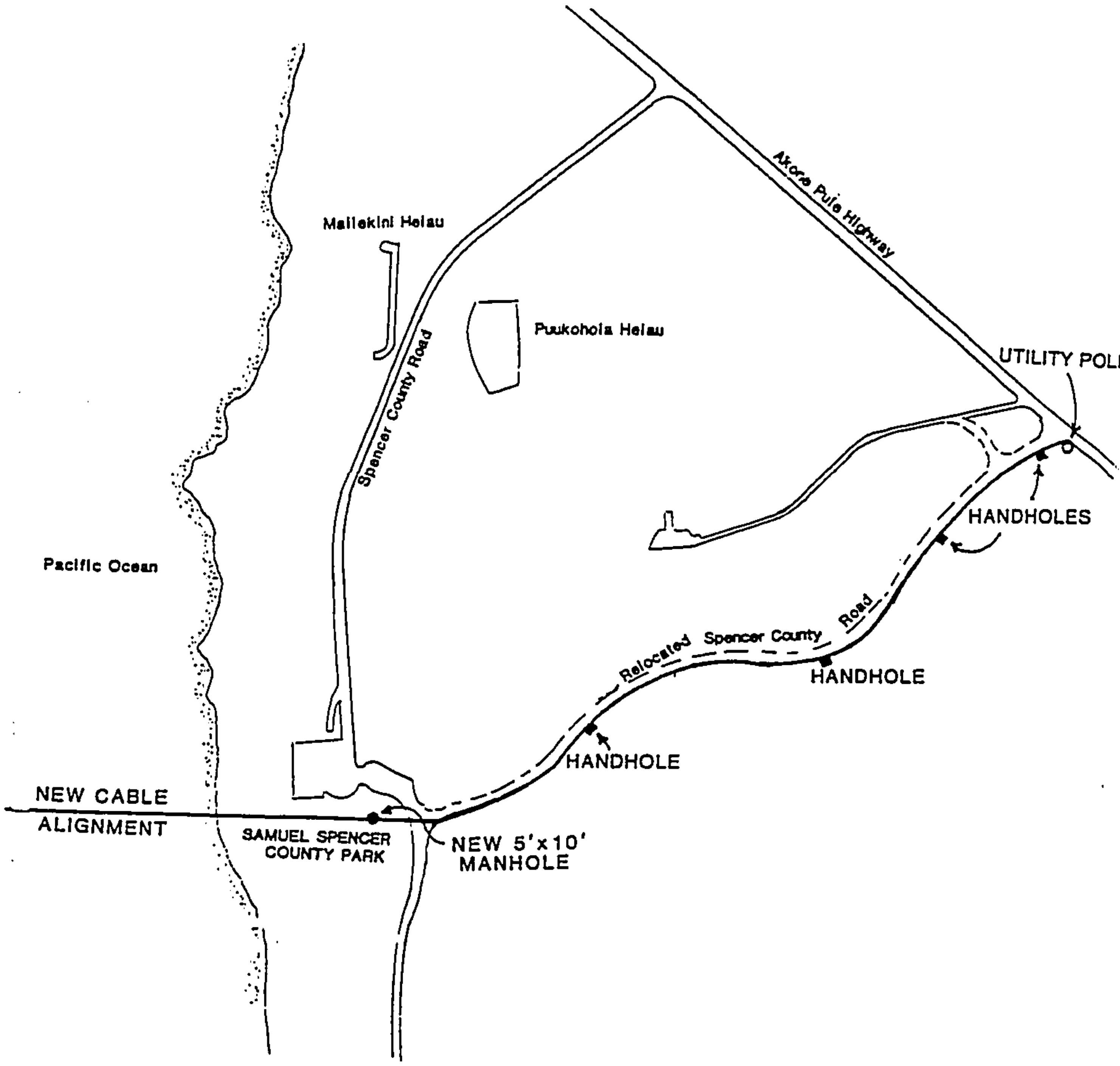


Figure 2
SITE MAP
Spencer Beach Park, Hawaii

GTE Hawaiian Tel International Inc.
The Southern Cross Project

R.M. Towill Corporation
May 1998

SECTION 2
PROJECT ACTIVITIES / PROPOSED ACTION

2.1 GENERAL

The Southern Cross Cable Network will be developing new manholes, handhole, and ductlines as well as using existing GTE Hawaiian Tel's and GST Telecom Hawaii's manholes and ductlines to land and connect the terrestrial portion of its fiber optic cable system. Construction of fiber optic cable landing facilities at the shore-end will involve two segments described below.

Segment 1. Shore-End. This work involves use of the existing GTE Hawaiian Tel and GST Telecom Hawaii's manholes and ductlines at the Beach Park and along the access road into the Park. Construction to establish a connection from the Southern Cross Cable Network fiber optic cable to the GTE facility will entail excavation from the shoreline to the existing manhole. From the manhole the fiber optic cable would be routed largely underground along the existing utility right-of-way along the Park access road. A second manhole will be constructed adjacent to the existing GTE manhole to provide a diverse route for the cable..

Another part of this work will involve construction of a new duct line from the intersection of the park access road to the GTE Central Office located along the Queen Kaahumanu Highway. The cable will be placed underground along the east side of the Kawaihae Road and the Queen Kaahumanu Highway. The reason for choosing this alternative would be to achieve separation from other communications cables thereby assuring a certain level of diversity.

Segment 2. Submarine Cable. The work involved the installation of the submarine cable.

Project Phasing

Proposed construction will take place in two phases. The first phase involves landside construction activities including trenching of the beach and nearshore area, and placement of temporary landing targets. This phase will be described in section 2.2 LAND-SIDE ACTIVITY.

The second phase will involve actual landing of the cable, installation of the cable into an existing or new manhole, and beach restoration. Phase two will be described in section 2.3 NEARSHORE ACTIVITIES. Section 2.4 CABLE LANDING PROCESS provides a detailed description of the cable landing, and Section 2.5 SAFETY CONSIDERATIONS identifies precautions that will be exercised to ensure safety of the public.

2.2 LAND-SIDE ACTIVITY

Construction of new manhole and ductlines:

The first phase involves land-side construction which includes installation of a new manhole and approximately 500 lineal feet of underground ducts and cable to a manhole at the foot of the park entrance road. (Figure 3).

The new manhole (5' x 10' x 6' deep) will be constructed near the existing GTE manhole (Figure 4). The manhole will be the terminus of the land-side activities and shall be constructed to receive the submarine cable. Approximately 500 lineal feet of ductline will be installed in a trench from the manhole to a manhole at the foot of the park access road. The ductline will be comprised of two, 4 inch diameter conduits encased in concrete. Only one ductline will be used. The remaining vacant ductlines will be capped and retained should their future use be necessary.

Utilizing Existing GTE Hawaiian Tel Facilities:

Land-end construction activities will involve excavation of sand to expose the trench which contains the existing ductlines (Figure 3). This work will be done just prior to the landing of the cable. The existing ductlines are buried in the sand at a depth of 3 to 7 feet. The upper layer of sand will be removed by machinery (either clamshell or backhoe). Layers of the sand which are closer to the existing cable will be removed manually. The excavated sand will be stored on the beach adjacent to the work site for later placement back into the excavated trench.

Approximately 178 (6' x 248' x 9') cubic yards of sand and rubble excavated from the trench will be stored on the beach adjacent to the cable easement for later use as backfill.

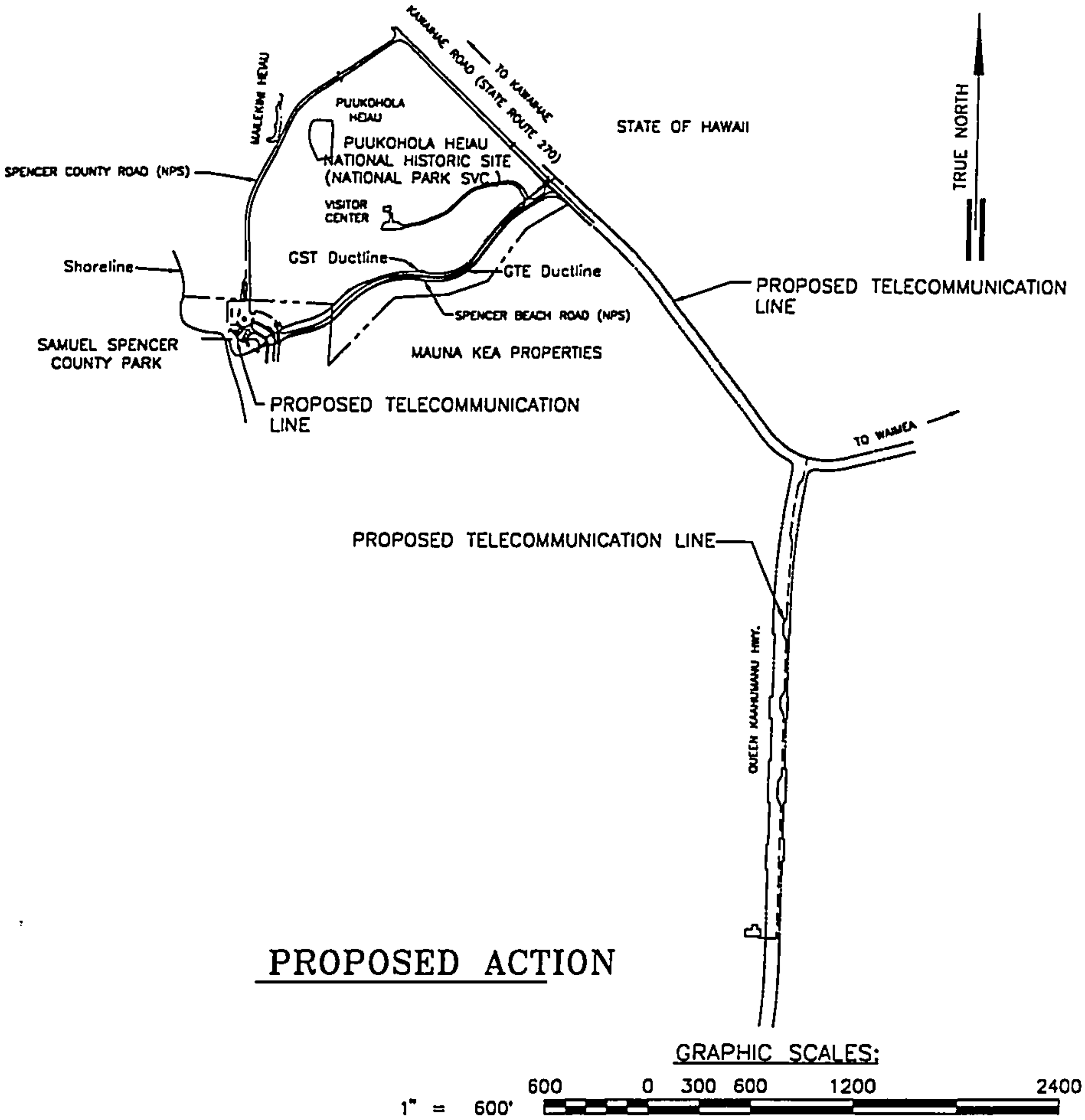


Figure 3
PROPOSED ACTION
Spencer Beach Park, Hawaii

GTE Hawaiian Tel International Inc.
The Southern Cross Project

R.M. Towill Corporation
May 1998

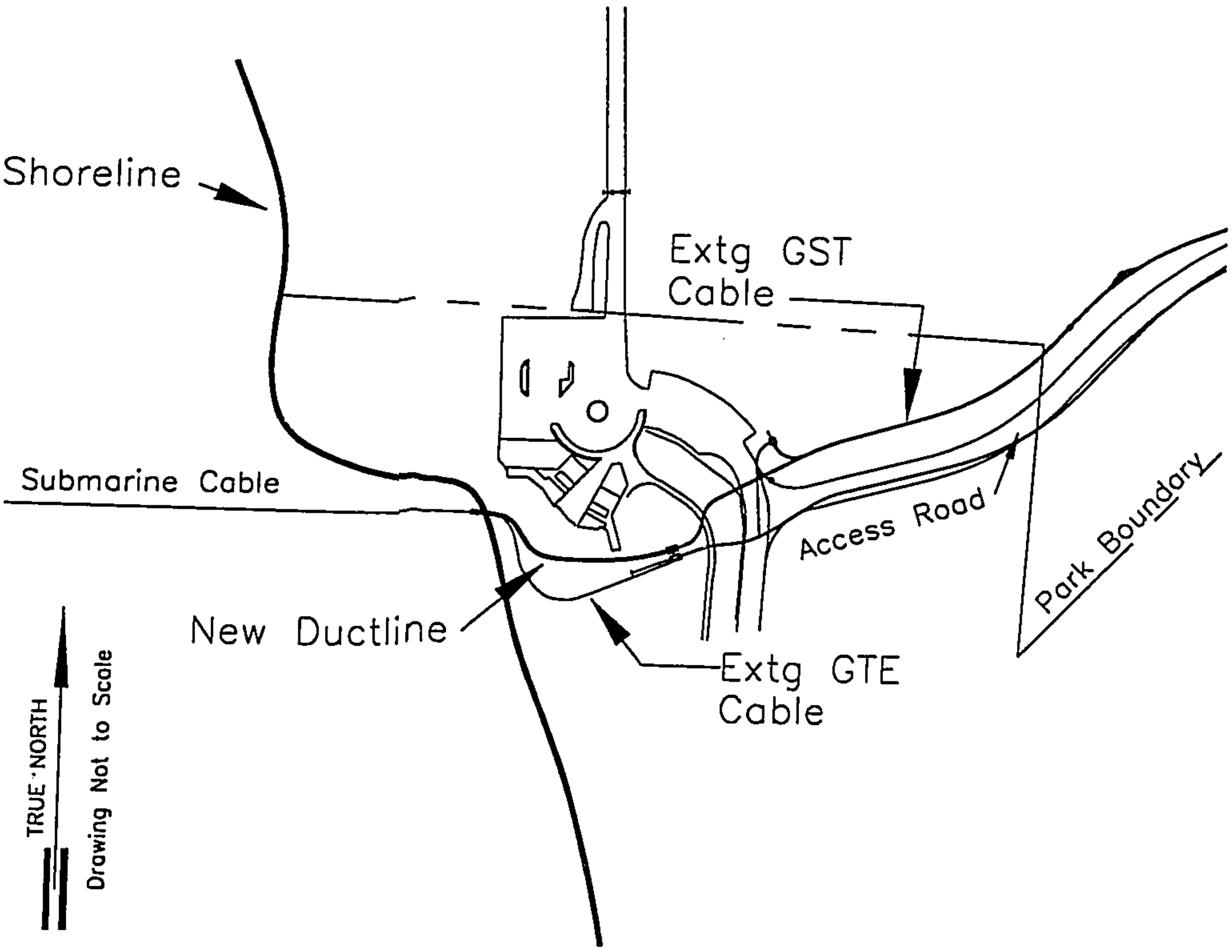
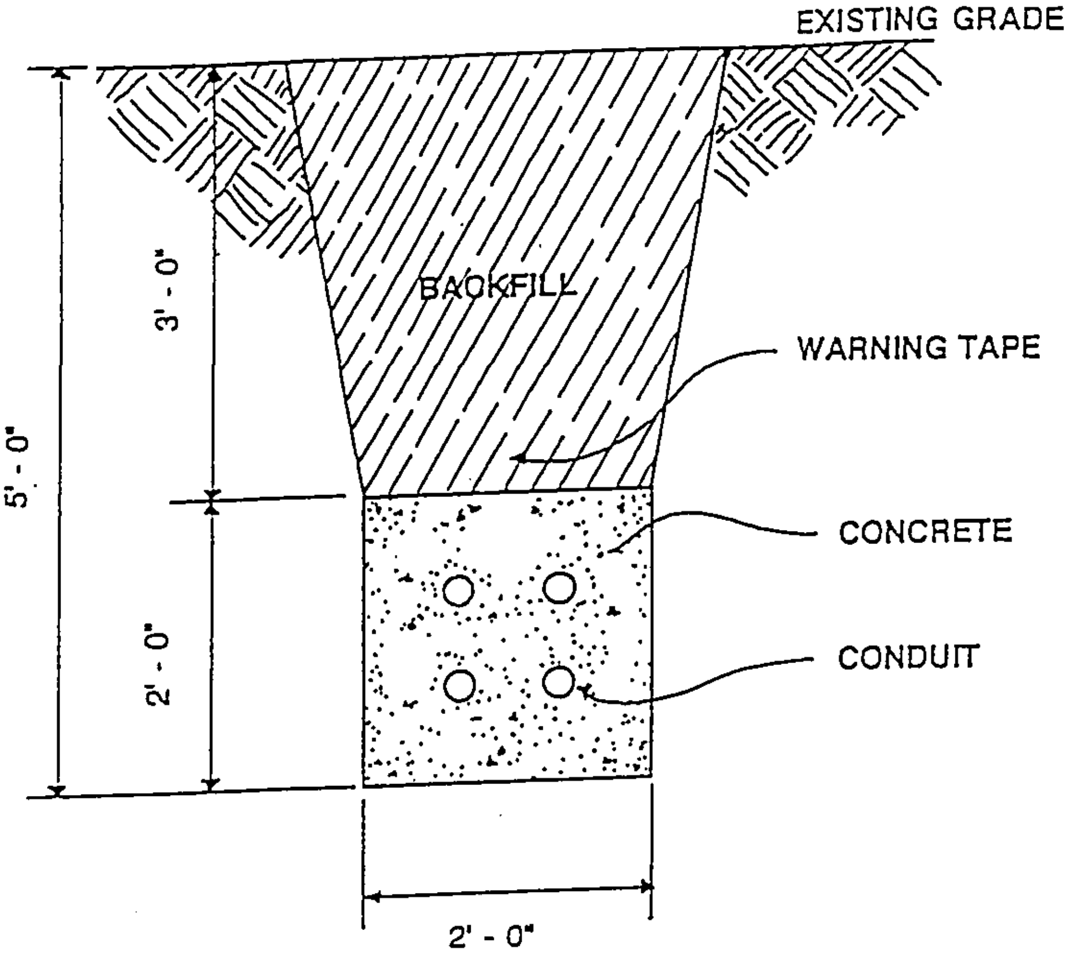


Figure 3A
PROPOSED ACTION
Spencer Beach Park, Hawaii

GTE Hawaiian Tel International Inc.
The Southern Cross Project

R.M. Towill Corporation May 1998



NEW MANHOLE AT SPENCER BEACH

Figure 4
TRENCH SECTION (Typical)
Spencer Beach Park, Hawaii

GTE Hawaiian Tel International Inc.
The Southern Cross Project

R.M. Towill Corporation May 1998

During the period of actual construction (excavation of the trench), that portion of the beach will be closed to beach users (approximately 5 to 7 days).

Two range targets (alignment markers) will be placed on land just prior to the landing of the cable to aid in the cable laying process. The range targets will be placed on temporary structures and will be removed following the cable landing. The range targets will not disrupt traffic movements along Spencer Road.

2.3 NEARSHORE ACTIVITY

The greatest danger to a cable system is the submarine (underwater) portion of the route, and this necessitates more construction effort than the land-side activity. Protection of the cable and public safety are the major factors for ensuring the fiber optic cable is covered or anchored in nearshore waters. Approximately 50 to 60 feet of water will be required before wave forces diminish to levels where wave action does not affect the cable. Until the cable reaches this depth it must be protected. Trenching is preferred, because it provides maximum protection against wave forces and is best for public safety. Public safety is at risk if the cable is left exposed along the nearshore, because someone could hit their foot against and/or trip over it. Therefore, trenching or cable armoring should be used to protect the cable and for public safety.

<u>Construction of new manhole and ductlines</u>:

The second phase of work involves landing the submarine fiber optic cable and establishing a connection with the new manhole at Spencer Beach Park.

A 200-foot long trapezoidal shaped trench will be excavated between the end of the ductline and the mean low water mark. The trench will have a 2-foot base and be approximately 4 feet deep, with a 1:1 side slopes. Approximately 178 cubic yards of sand and rubble excavated from the trench will be stored on the beach adjacent to the cable easement for later use as backfill. The trench will be backfilled after completion of work.

During construction, which is projected for 7 to 10 days, the open trench will be barricaded from the public and a security guard may be required at night and weekends to ensure public safety and integrity of the trench site.

Sand and rubble covering the proposed cable segment may require removal below the level of the prevailing tides. For this process, a backhoe, shovels, or other mechanical means will be used to remove the upper layers. Remaining sand or rubble will be removed using a hydro-jet. If necessary, sandbags will be used to prevent sand from reentering the open trench. Rock outcrops and other hard substrate which cannot be avoided will also be removed using a backhoe or other similar mechanical means.

To reduce potential for turbidity due to construction related work, silt screens will be utilized. Upon completion of construction activities, the construction crew will make every reasonable effort to return the ground to the existing preconstruction contours through use of existing excavated materials for backfill.

Two range targets (alignment guide) will be placed on land just prior to the landing of the cables to aid in the cable laying process. The range targets will be placed on temporary structures and will be removed following the cable landing. The range targets will not disrupt traffic movements along Spencer Road.

The second phase of work involves landing the submarine fiber optic cable and establishing a connection to a new ductline emanating from a manhole at Spencer Beach.

A cable laying ship provided by the cable vendor will serve as the primary means of laying the fiber optic cable. The following procedures describe the activities involved during the cable landing operations:

The cable ship will approach the landing site using the two range targets to align the ship as it approaches the shore. The range targets will be placed by a cable receiving party according to previously surveyed coordinates. Once the ship approaches the shore landing to the minimum depth allowable, it will fix its position relative to the landing site using tugboats, side-thrusters, or other means. As the ship fixes its position, it will begin laying out cable.

The ship will lay cable while its personnel attach suspension floats at regular intervals to the cable. As the cable is lowered to the water, it will float, allowing it to be pulled toward shore using a winch, small motor boat, or other mechanical means.

The proposed cable alignment at the landing site will be directed through a sand channel, which connects the beach to a large offshore sand deposit. The water depth in the sand channel is typically 10 to 15 feet and there are many large coral formations within the channel which rise vertically up from the channel bottom to within a few feet of the surface.

The sand both in the inner channel and the offshore deposit, is relatively fine and has a high silt content. Besides the coral outcrops in the sand channel, there is also a 50-foot wide basalt shelf at the toe of the beach.

A straight line route was selected to avoid much of the coral formations in the channel. Most of the coral outcrops can be avoided by carefully maneuvering the cable between the formations. During the cable landing, the floats will be successively cut from the cable and allowed to sink. Several small boats may be used during the landing process to weave the cable into place between the coral formations prior to cutting the floats. All bends will be relatively gentle and well within the radius of the cable.

Depending on subsurface conditions coral, rock and other hard surfaces that cannot be avoided will have to be removed using various means such as:

1. Coral and limestone beds may need to be trenched to a width and

depth of approximately 1 to 2 feet, or more, to accept the fiber optic cable. If necessary, tremie concrete can be poured into the trench where it can harden under water. The impacts can be minimized depending on the depth of trenching necessary to accommodate the relatively narrow diameter of the cable. If tremie concrete is used, it will provide a new surface for growth of coral and other marine organisms; or,

2. Shielded cable may be laid with split pipe fastened around the cable and then bolted to the hard rock or coral bed using pneumatic or mechanically driven bolts. This practice will result in minimal environmental impact since little or no coral will have to be displaced to site the cable.

The shore landing will be specially prepared to accept the cable. As the cable nears the shore, it will be fed into the conduit previously buried in the sand and pulled to the manhole. When the cable is secured in the manhole, it will be temporarily anchored while the divers readjust the suspension floats in the water to obtain a proper nearshore to shoreline alignment.

Once the cable is aligned, the divers will cut the remaining floats away, allowing the rest of the cable to sink to the ocean bottom. Approximately 1,000 feet of the cable will be encased in an armor protection from the end of the conduit seaward. This encasement will provide the cable added protection in the nearshore area. The cable will be permanently installed in the manhole at this time.

Following this action, the cable ship will commence cable laying operations to the next landing site. The ship will follow a prescribed survey route until it reaches the other landing site where the end of the cable can be similarly connected.

Utilizing Existing GTE Hawaiian Tel facilities:

This phase of work involves landing the submarine fiber optic cable and establishing a connection at the manhole previously installed at Spencer Beach Park. Operations will be short-term, will be based on the need for public safety and protection of the cable, and will not constitute a long-term impact.

There will be no permanent storage of any construction equipment on the beach. Equipment will only be on the beach during the beach construction phase, approximately 1-2 days.

A 200-foot long trapezoidal shaped trench will be excavated between the end of the ductline and the mean low water mark. The trench will have a 2-foot base and be approximately 6 feet deep, with a 1:1 side slopes. Approximately 385 cubic yards of sand and rubble excavated from the trench will be stored on the beach adjacent to the cable easement for later use as backfill. The trench will be backfilled after completion of work.

Sand and rubble covering the proposed cable segment may require removal below the level of the prevailing tides. For this process, a backhoe, shovels, or other mechanical means will be used to remove the upper layers. Remaining sand or rubble will be removed using a hydro-jet. If necessary, sandbags will be used to prevent sand from reentering the open trench. Rock outcrops and other hard substrate which cannot be avoided will also be removed using a backhoe or other similar mechanical means.

The shore landing will be specially prepared to accept the cable. As the cable nears the shore, it will be fed into the conduit previously buried in the sand and pulled to the existing manhole. When the cable is secured in the manhole, it will be temporarily anchored while the divers readjust the suspension floats in the water to obtain a proper nearshore to shoreline alignment.

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Following this action, the cable ship will commence cable laying operations to the next landing site. The ship will follow a prescribed survey route until it reaches the other landing site where the end of the cable can be similarly connected.

2.4 CABLE LANDING PROCESS

The cable landing process includes the use of the landslide range targets (alignment markers) to assist in the alignment of the cable as it is being installed. The cable laying ship may be assisted by a tugboats to maintain proper alignment of the cable ship. This assistance is essential to ensure that the cable is placed within the cable easement. Once the cable laying ship is properly aligned, the cable will be towed from the ship by one of the tugs to a transfer location nearshore. At this location, the leading end of the cable will be attached to a rope connected to land based pulling equipment (i.e., winch) and pulled ashore. Once the cable is placed within the new PVC conduit, the leading end of the cable will be secured within the new manhole and spliced together with cable emanating from a central office.

Once the cable has been secured, the open trench will be backfilled and efforts taken to restore the beach as much as practicable to its original preconstruction condition.

2.5 SAFETY CONSIDERATIONS

During the construction phase on the beach (approximately 5 to 7 calendar days per site), the portion of the beach which contains the open trench will be barricaded from public entry. During the construction period, a security guard may be required at night and weekends to ensure public safety and integrity of the job site.

During the cable laying process (approximately 10-12 hours depending on the weather conditions), the nearshore waters will be closed to ocean activities (surfing, diving, boating, swimming) to ensure the safety of ocean users. The area that will be closed will be approximately 100 to 150 feet wide and 1,000 to 2,000 feet long. The actual area may be more or less depending on the tides. The period when the waters will be closed is not expected to be more than two days, weather permitting. This short-term "closure" of nearshore water areas will be achieved by publishing a notice to advise mariners to avoid the area. Further, during the cable laying process, project personnel will advise beach users to avoid the project site both on land and in the water via small powered water crafts.

2.6 SCHEDULE AND ESTIMATED COST

The first phase (land-side activities) of the project is scheduled tentatively for Fall 1998. The second phase (installation of the interisland cable and cable landing operation) is scheduled tentatively for Spring 1999. Construction cost for the first phase is estimated at + $250,000 and phase 2 is $150,000.

SECTION 3

DESCRIPTION OF THE AFFECTED ENVIRONMENT

3.1 PHYSICAL ENVIRONMENT

3.1.1 Climate

The project site and surrounding area is located on the leeward side of the island and is generally warm and dry. The mean annual temperature is between 74 and 77 degrees Fahrenheit and the annual rainfall is between five and twenty inches, most of it occurring during winter months.

3.1.2 Topography, Geology and Soils

The project area lies at the base of two geologic formations, the Kohala Mountains and Mauna Kea Volcano. Soils at the landing site consist of beach land type made of sand and gravel. Beaches and gravel have no value for agriculture but where accessible they are highly suitable for recreational uses.

Impacts

With respect to the segment of the cable to be installed subsurface, no long term surface impacts are anticipated since the project involves temporary excavation and filling with the same material. The excavated portions will be returned, as much as practicable, to its original preconstruction condition.

3.1.3 Hydrology

There are no perennial streams in the area. The major drainage features for the area are Makeahua Gulch to the north and an unnamed gulch approximately 2,000 feet to the south both of which are dry except for the rainy season. Groundwater for the area is brackish and is not a source for domestic use.

Impacts

No adverse impacts are anticipated on surface water or groundwater since the project will not alter existing drainage patterns or have any water requirements.

3.1.4 Terrestrial Flora/Fauna

The area's flora is classified as lowland dry shrubland and typically contain plant species such as kiawe, piligrass, ilima, and fingergrass. Cattle pasture is the most common use for this type of plant environment. No rare or endangered species of plants are known to inhabit the site.

With respect to animal wildlife for the area, no rare or endangered animals are known to inhabit the site. Although a single siting of the hoary bat has been recorded at Spencer Beach Park, the area is a dry climate and sparse in vegetation and does not provide good habitats for rare animals known to exist in the area.

Impacts

Because the project area is not known to contain any rare plants or animals, adverse impacts are not anticipated. As part of the proposed development the exposed areas within the cable easement will be replanted to ensure stability of the site.

3.1.5 Marine Flora and Fauna

Sea Engineering conducted a qualitative marine biological reconnaissance of Spencer Beach Park on 17 July 1991 and a quantitative sampling on 16 January 1992 (see Marine Environmental Analysis of Selected Landing Sites, Sea Engineering, Inc., and Environmental Assessment Co. Jan. 1992). The qualitative survey extended from shore to about the 90 foot isobath approximately 3,900 feet from shore. In this area three major zones or biotopes were defined. In general, the biotopes parallel the shore but in the proposed cable alignment, the most seaward biotope (the biotope of sand) extends into shallow water towards the beach. The presence of sand was an important factor in the selection of the proposed route. The biotopes recognized in the vicinity of the proposed cable alignment at Spencer Beach Park are: 1) the biotope of sand; 2) the biotope of emergent hard substratum and corals, and 3) the biotope of scattered corals. The biotope of emergent hard substratum and corals lies to the north and south of the proposed cable alignment. The biotope of sand is situated primarily seaward of the project area but encroaches as a 160 to 325 foot wide channel well into the study site to within 1400 feet of shore. Shoreward of the biotope of sand is the elongate biotope of scattered corals which is restricted to a sand channel that is oriented perpendicular to shore and cuts through the biotope of emergent hard substratum and corals. Inshore of the biotope of scattered corals on the proposed cable alignment is an area of sand that extends to the shoreline with a small area of scoured emergent hard substratum just seaward of the beach.

The Biotope of Sand

The biotope of sand lies principally seaward of the project site. It occurs as a "pie-shaped wedge" towards the shoreline in the area proposed for the cable alignment. As the name implies, the substratum in the biotope of sand is dominated by sand. Because of its shifting nature, the benthic species found in sand habitats are generally adapted for life on an unstable and frequently abrading environment. Many species that are found in this habitat will bury into the sand to avoid predators and the abrasion that occurs with storm waves. Thus many species in the sand biotope are cryptic and difficult to see; among those are many of the molluscs and crustaceans such as the Kona crab (Ranina serrata). Hence, without considerable time spent searching in the sand many species in the sand habitat will not be seen. The biotope of sand is best developed at greater depths; where it enters the shallow water, many of the characteristic species become less abundant. Therefore, the inshore boundary of this biotope is arbitrarily shown well offshore (Figure 5) despite the presence of considerable sand shoreward of this point.

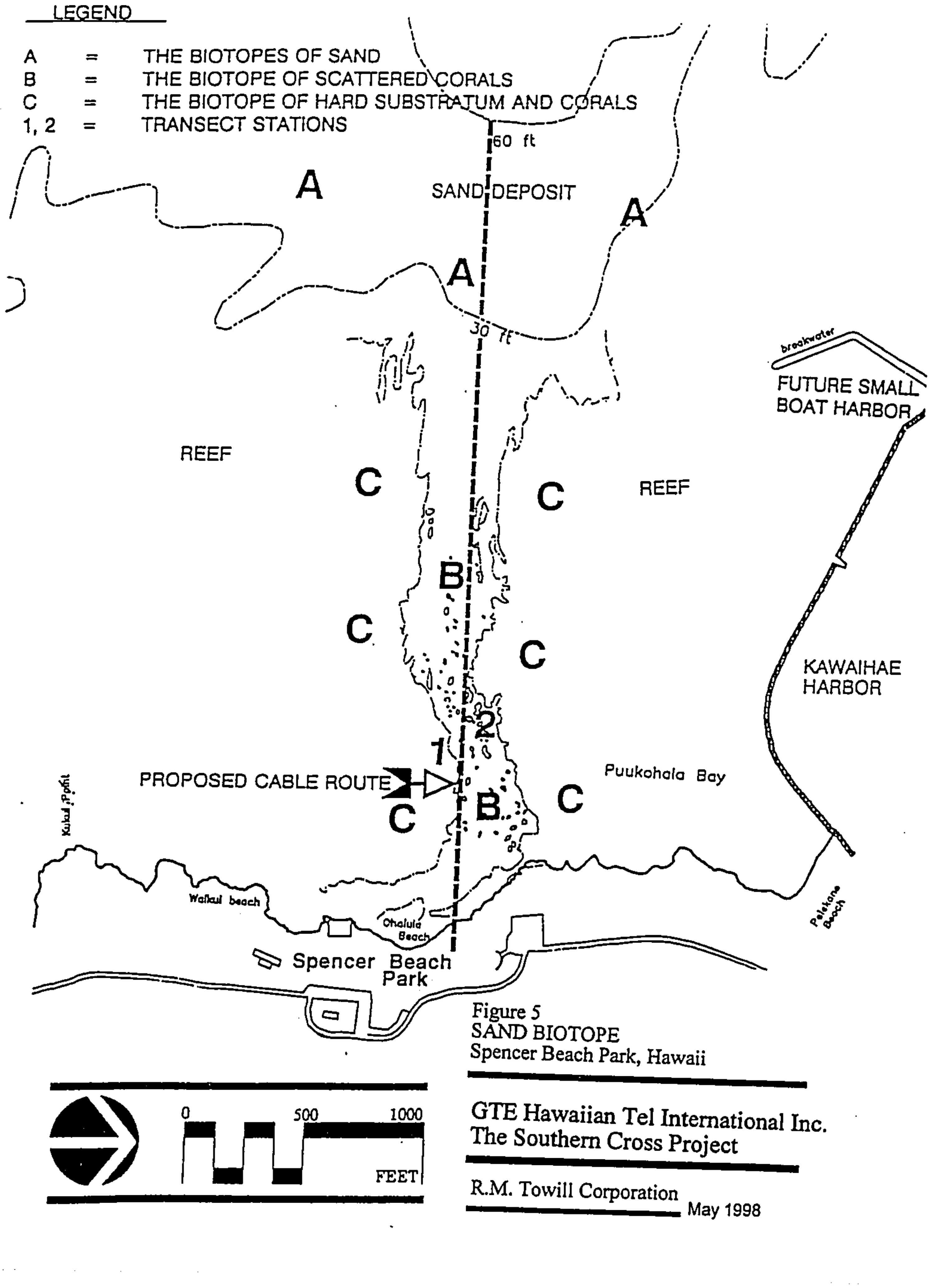

Figure 5
SAND BIOTOPE
Spencer Beach Park, Hawaii

GTE Hawaiian Tel International Inc.
The Southern Cross Project

R.M. Towill Corporation
May 1998

Because of constraints with bottom time at the depth of which the biotope of sand is found as well as very poor water clarity on 16 January 1992, this biotope was not quantitatively sampled but rather the data gathered in a qualitative reconnaissance of the habitat on 17 July 1991 in waters from 80 to 90 feet in depth was utilized. Species frequently seen in the biotope of sand include a number of molluscs: the helmet shell (Cassis cornuta), augers (Terebra crenulata, T. maculata and T. inconstans), the leopard cone (Conus leopardus) and flea cone (Conus pulicarius) as well as the sea hare (Brissus sp.), starfish (Mithrodia bradleyi), brown sea cucumber (Bohadschia vitiensis), opelu or mackeral scad (Decapterus macarellus), nabeta (Hemipteronotus umbrilatus), the goby-like fish (Parapercis schauslandi), uku or snapper (Aprion virescens), hihimanu or sting ray (Dasyatis hawaiiensis) and the weke or white goatfish (Mulloides flavolineatus). Undoubtedly, with greater searching, many more fish species would be encountered in this biotope.

The Biotope of Emergent Hard Substratum and Corals

Both to the north and south of the channel alignment is the biotope of emergent hard substratum and corals. This biotope is characterized as a hard substratum reef flat that is quite shallow, ranging from about 3 to 8 feet in depth. The biotope extends for a considerable distance both north and south of the study area. Although the proposed cable alignment does not cross this biotope, it was sampled because of its proximity to the proposed alignment.

The substratum in the biotope of emergent hard substratum and corals is comprised of both basalt rock (pahoehoe) and limestone as well as corals. There are scattered depressions and small channels on this substratum; the depressions are from 3x3 feet to about 12x30 feet in dimensions and are up to 2 feet in depth. These depressions are spaced from 8 to 30 feet apart and between them are small channels no more than 4 feet in width, up to 15 feet in length and to about 1 foot in depth. The small channels have a general orientation approximately perpendicular to shore. The channels, depressions and corals provide ample cover for fishes and invertebrates yet, few organisms were seen in the quantitative survey.

The Biotope of Scattered Corals

The proposed cable alignment passes through the biotope of scattered corals. This biotope may be described as occurring in a sand channel that has an orientation perpendicular to shore. The dominant substratum in this biotope is sand; spaced from 2 to 75 feet apart are areas of corals. These coral "mounds" range in size from about 3x3 feet to 20x50 feet and are up to 8 feet in height. Common coral species seen in this biotope include Porites lobata, Porites compressa and Montipora verrucosa. Few macroinvertebrates are seen on the sand substratum but there are a number of burrows or holes created by a number of species including the commensal goby-shrimp, unidentified crustaceans, echinoderms, etc.

A survey station was established approximately 40 feet north of the proposed alignment in water about 15 feet in depth. The transect at this station sampled both the hard substratum with corals as well as the open sand substratum. The sand at this station had a surface layer of very fine sedimentary material over it; below this 0.25 inch layer was the usual coarser beach sand. Water visibility at the time of censuring was about 6 feet.

Common species included coral species (Porites lobata, Porites compressa and Montipora verrucosa), one macroinvertebrate species, the Hawaiian rock oyster (Spondylus tenebrosus), commensal gobies and shrimps, and other small unidentified burrows. The fish census noted four species, the most common of which were the alo'ilo'i or whitespot damselfish (Dascyllus albisella) and the small eleotrid (Asterropteryx semipunctatus).

In the vicinity of the survey station were seen the algae or limu (Desmia hornemannii and Cladymenia pacifica), corals (Porites evermanni, Leptastrea purpurea and Pocillopora meandrina), the Christmas-tree worm (Spirobranchus gigantea), oak cone (Conus quin), the butterfly fish or kikakapu (Chaetodon auriga), lizard fish or 'ulae (Synodus binotatus), the brown surgeonfish or ma'i'i'i (Acanthurus nigrofuscus) and goldring surgeonfish or kole (Ctenochaetus strigosus).

Inshore of the biotope of scattered corals (commencing 325 feet offshore) is an area of sand that extends from that point to within 80 feet of the shoreline. Inspection of this area on the 16 January 1992 survey noted no macrofauna present. Undoubtedly, with enough search time one would note fishes crossing this sand area such as juvenile jacks or papio (family Carangidae) as well as other species. Between the sand area and the shore in the vicinity of the proposed cable alignment is a small "finger" of emergent basalt (pahoehoe). This hard bottom commences about 15 feet offshore of the sand beach (about 3 feet deep) and continues seaward to a maximum extent of about 80 feet offshore in 8 feet of water. Most of this hard substratum was partially covered with a veneer of sand at the time of sampling and appeared to be quite scoured with no obvious macrobiota present in the area of the proposed alignment. However about 50 feet to the north the hard substratum rises further from the sand (i.e., is shallower) and has a veneer of microalgal species. In a short inspection of this area, the alga (Microdictyon setchellianum) was seen as well as the green sea urchin (Echinometra mathaei), the boring urchin (Echinostrephus aciculatum), the long spined urchin or wana (Echinothrix diadema), green wrasse or 'omaka (Stethojulis balteata) and the saddleback wrasse or hinalea lauwili (Thalassoma duperrey). Also noted were broken live loose fragments of the corals Porites lobata and Pocillopora meandrina.

The intertidal region at this proposed cable landing site is a sand beach. No fauna or flora were encountered on this beach..

Only one small green sea turtle (Chelonia mydas) was seen in the biotope of scattered corals about 900 feet from shore in about 15 feet of water during the 16 January 1992 survey. This turtle was estimated to be about 55cm in straight line carapace length. It could not be determined if this turtle bore any unusual features (i.e., tumors, tags or deformities). Offshore of Spencer Beach Park appears to have appropriate shelter for green turtles (i.e., undercuts, ledges and caves) at a size and scale appropriate for green turtle resting areas. However little macroalgae were present in the area that could be utilized as forage. No other turtles were sited in the vicinity of the proposed cable landing site but one individual (Mr. Patrick Cunningham) familiar with the area noted that about one-quarter mile to the south small green turtles are frequently seen in the nearshore waters. We have found no information to suggest that nesting of sea turtles at Spencer Beach Park has occurred in historical times (Brock, 1990).

The biological survey of the proposed cable alignment at Spencer Beach Park did not find any rare or unusual species or communities other than the single threatened green sea turtle noted above. Another protected species, the humpback whale (Megaptera novaeangliae), was not seen offshore of the study area during the period of the field effort. As noted by Herman (1979), humpback whales tend to be found in regions remote from human activities and the proposed Spencer Beach Park cable alignment is in relatively close proximity to Kawaihae Harbor which has been the major commercial port serving West Hawaii for many years.

Impacts

The potential for impact to the shallow marine communities will probably be greatest with the construction phase of this proposed project. From the sea, the proposed cable alignment enters the shallows through the biotope of sand. As a substrate to support marine communities, sand is inappropriate for many coral reef forms because many species require a stable bottom (e.g.,corals and many of the associated invertebrates). Thus the species usually encountered in sand areas are usually those that are adapted to exist in an ever-changing, moving substratum. Similarly, much of the benthic production on coral reefs occurs on hard substratum, (i.e., macroalgae require a solid substratum for attachment). Because sand substrates are subject to movement, they may abrade and scour organisms on this substratum. Thus the characteristics of most species encountered in Hawaiian sand communities are (1) that they typically burrow into the substrate to avoid scouring, (2) that they frequently occur in low abundance which may be related to food resources, and (3) that they are mobile because of the shifting nature of the substratum and potential for burial. Since these forms are motile, deployment of the cable across such a substratum presents little chance of negative impact to resident species because they would probably "just move out of the way as the cable was deployed". Additionally since the substratum shifts, it is probable that the deployed cable will "sink into" the substrate. Personal observations made on other deployed cables shows them to often be partially buried by the natural movement of the sand.

As the cable enters the shallows offshore of Spencer Beach Park, there are areas where the scattered coral mounds will lie in the direct path of the cable. Cutting or trenching through these mounds, which are up to 8 feet above the surrounding bottom, would be difficult and would result in loss of the benthic community in the alignment path. Other impacts would be those associated with the generation of turbidity during the trenching process.

Spencer Beach Park was selected as the cable landing site based upon the assumption that the fiber optic cable would be routed as necessary to avoid the scattered coral mounds. The anticipated placement method was discussed in an earlier section of this chapter. At most, it is anticipated that trenching will only have to be undertaken in shallow water across approximately 50 feet of scoured pahoehoe adjacent to the beach. Since this scoured substratum supports few, if any, benthic organisms in the proposed path, there should be little or no impact to marine organisms. Previous experience with the laying of the GTE Hawaiian Tel fiber optic cable suggests the current project would similarly result in little to no adverse impact to coral and associated benthic communities.

Other construction methods to protect the cable in shallow water range from just laying the cable directly on the basalt shelf without any specific attachment, to placing it inside of a protective pipe that is bolted to the shelf. This strategy has been used at the Natural Energy Laboratory of Hawaii facility at Keahole Point, Hawaii to secure pipes coming ashore through a subtidal region that is frequently subjected to extreme high energy conditions. Bolting a pipe to the substratum significantly reduces the impact to surrounding benthic communities over the alternative of trenching and backfilling. This alternative may provide low impact to marine communities but it will have an obvious visual impact to any underwater observer. If the trenching and backfilling strategy is used, the tremie concrete cap will probably be colonized by corals, algae and other benthic forms. Studies on substrate selection in Hawaiian coral larvae have shown concrete to be second only to limestone/coral as an appropriate substratum for settlement (Fitzhardinge and Bailey-Brock 1989). Laying the cable directly on the basalt without attachment may result in cable abrasion, and is not an acceptable alternative.

Our 16 January 1992 survey noted considerable turbidity in the region of the proposed cable alignment. Offshore in the biotope of sand, visibility was less than 1 foot at the 80 foot depth. Inshore in the biotope of scattered corals, visibility was about 6 feet. For two days preceding the survey, considerable rainfall had occurred on the West Hawaii coast (Mr. Patrick Cunningham, personal communication). Inspection of the mouth of Waimea Stream (which is intermittent in its lower reaches) revealed a large amount of water had reached the sea bringing a considerable amount of terrigeneous material with it. Waimea Stream is south of the project site but it is surmised that the stream was the source of much of the turbid water encountered in the study area because of the brown (possibly terrigeneous) color. The second source of turbidity was from surf on the reef. During the month of January 1992 there was a near-continuous westerly swell impacting this coastline. The high surf resuspends fine sediments making the water turbid. These occasional natural inputs of turbidity serve to reduce light levels and potentially impact benthic communities. The communities present in the vicinity of the proposed alignment have evolved under this occasional impact. Construction activities related to the cable landing probably would not begin to match the level of turbidity both in terms of scale or intensity that were encountered on the 16 January 1992 field effort.

No direct impacts to the threatened green sea turtle or to endangered humpback whales (Megaptera novaeangliae) are anticipated.

The most probable source of local impact to whales would be noise generation by the cable laying ship, the support tugs and the small boats. There are variable and conflicting reports as to the impact of vessel traffic on whales (Brodie, 1981; Matkin and Matkin, 1981; Hall, 1982; and Mayo, 1982). With respect to the response of individual humpback whales, there is sufficient information to demonstrate that boating and other human activities do have an impact on behavior (Bauer and Herman, 1985). Thus it is probably valid to assume that impact to whales could occur if individuals are within several kilometers of the deployment site. However, as noted above, these impacts are of short duration, and all activity will be concentrated in a small area. The potential impacts also need to be evaluated in light of the proximity of the site to Kawaihae Deep Draft Harbor, the second largest harbor on the island.

Sea turtles are permanent residents in inshore Hawaiian habitats. Although the potential exists for problems during the construction phase if it entails dredging, the generation of fine particulate material from dredging appears not to hinder the green turtle in Hawaiian waters; at West Beach, Oahu, green turtles moved from an offshore diurnal resting site about 3,300 feet offshore to a point about 600 feet from the construction site within days of the commencement of dredging and the generation of turbid water. The turtles appeared to establish new resting areas in the turbid water directly offshore of the construction site (Brock 1990a). The reason(s) for this shift in resting areas is unknown but may be related to the

turtles seeking water of poor clarity to possibly lower predation by sharks (a major predator on green sea turtles).

Fishery Considerations. Access to the shoreline at Spencer Beach Park is excellent and has probably been since prehistoric times; the Kawaihae area was an important center in the Hawaiian culture. The beach at Spencer is heavily used by people interested in beach going and probably fishing. Fishermen catch fish both from shore as well as offshore from small boats. In all probability, some commercial fishing occurs offshore of the proposed cable alignment. We are unaware of any individuals that specifically and exclusively use Spencer Beach Park area for subsistence fisheries. Probably most of the fishing activity in and around Spencer Beach Park is by recreational fishermen. With most Hawaiian recreational fisheries, species targeted include papio and ulua (family Carangidae), o'io or bonefish (Abula vulpes), moi (Polydactylus sexfilis), goatfishes (family Mullidae), snappers (family Lutjanidae), surgeonfishes (family Acanthuridae), parrotfishes (family Scaridae), and a host of smaller species such as the aholehole (Kuhlia sandvicensis), aweoweo (Priacanthus cruentatus) and menpachi (Myripristes amaenus). Fishing methods used include nets, spears, traps as well as hook and line.

The Sea Engineering survey noted a paucity of fishes or invertebrates. One reason for this may be related to the high turbidity present at the time of sampling. Turbidity may temporarily cause motile species to leave; when conditions improve, they may return. Some comparative information for the Spencer Beach area is available from a study carried out by Brock (1991) where three stations were established seaward of Kawaihae Small Boat Harbor in May 1991. The closest station to the proposed cable alignment is approximately 1,000 feet to the north in water 8 to 12 feet deep. A fish census at this station resulted in 26 species and 231 individuals encountered. The census methods were identical to those used here.

The standing crop of fishes on coral reefs is usually in the range of 2 to $200g/m^2$ (Brock 1954, Goldman and Talbot 1975, Brock et al. 1979). Eliminating the direct impact of man due to fishing pressure and/or pollution, the variation in standing crop appears to be related to the variation in local topographical complexity of the substratum. Thus habitats with high structural complexity affording considerable shelter space usually harbor a greater estimated standing crop of coral reef fish; conversely, transects conducted in structurally simple habitats (e.g., sand flats) usually result in a lower estimated standing crop of fish (2 to $20g/m^2$). Goldman and Talbot (1975) note that the upper limit to fish biomass on coral reefs is about $200g/m^2$. The present study found extremely low estimated standing crops at both stations especially when viewed with respect to the availability of shelter space. It is probable that both fishing pressure as well as high turbidity have played a role in the low estimated biomass at these stations.

Water Quality Considerations. With any disturbance to the seafloor, sediment will be generated which will manifest itself as turbidity. This may occur through natural events such as storm surf resuspending fine material that had previously come into the area through natural events and settled, or by human activities including the directing of storm water runoff into the ocean or by underwater construction activities. Underwater construction may generate fine particulate material that could impact corals. The generation of fine sedimentary material could have a negative impact to corals and other benthic forms if it occurs in sufficient quantity over sufficient time. Studies (e.g., Dollar and Grigg 1981 noted above) have found that the impact must be at a high level and chronic to affect adult corals.

The small scale of the trenching activities that would be necessary to protect the cable in shallow water (if used) would probably produce little sediment. This statement is supported by the fact that only 50 lineal feet of hard substratum would be disturbed. The small scale and anticipated short duration of the project suggest a minimal impact. High water motion will keep fine particulate and sedimentary material suspended in the water column, reducing the settlement on benthic organisms in shallow water habitats thus assisting in the advection of this material out of these areas (less than 100m in depth) where corals are found.

The turbidity generated by the construction activity will be short in duration and relatively small in quantity. Numerous studies have provided observations showing the relationship between increased suspended or deposited sediment with reduced coral growth rates, cover and species diversity (Roy and Smith 1971, Maragos 1972, Loya 1976, Bak 1978, Randall and Birkeland 1978, Cortes and Risk 1985, Grigg 1985, Hubbard and Scaturo 1985, Kuhlman 1985, Muzik 1985, Hubbard 1987). In contrast, Glynn and Stewart (1973) found no correlation between these parameters on reefs off the Pacific side of

Panama.

Turbidity is a an optical property that is related to the scattering of light by the suspended particles in the water column. The finer the particles, the longer they may remain in suspension (Ekern 1976) and if fine materials are associated with much water motion (waves, currents) the actual deposition rates in these turbid waters may be quite low. However, if the suspended particles (i.e., turbidity) is great enough to reduce light levels, impacts to corals may be low.

The deposition of sediment on coral reefs has been measured and correlated with the "condition" of the reef corals. Loya (1976) defined a "high" sedimentation rate as 15mg/cm^2/day and a "low" rate as 3mg/cm^2/day for Puerto Rican reefs. Low cover and species diversity were associated with reefs exposed to "high" sediment deposition rates. In contrast, "high" sediment deposition rates on Guamian reefs was defined in the range of 160- 200mg/cm^2/day and this rate of deposition limited coral cover and diversity (here less than 10 species and 2% cover; Randall and Birkeland 1978). A "low" rate was defined as 32 mg/cm^2/day and was associated with rich coral communities (more than 100 species and 12%+ coral cover). These comparisons demonstrate the relative nature of sedimentation rates; the rate considered to be low in Guam is more than twice the high rate from Puerto Rico. Reasons for this disparity relate to differences in how rates are measured (i.e., lack of a standardized methodology) as well as difficulty in relating environmental factors such as water motion and sediment deposition in sediment traps. Water motion may mitigate or enhance the deleterious effects of sedimentation on the diversity and cover of corals in a given area. Hopley and Woesik (1988) note a chronic sedimentation rate of 129mg/cm^2/day (7 month mean) did not negatively impact an Australian coral reef with high cover and species diversity.

These data suggest that if there is need to protect the proposed fiber optic cable in shallow water by small-scale trenching, the short term disturbance (probably less than two weeks) will be a minor impact.

3.1.6 Scenic and Visual Resources

The project area is generally void of man-made structures except for telephone poles along main roads and beach park amenities such as toilet facilities. The Kawaihae Harbor and related shoreside facilities are visible towards the north and the two heiaus along the park access road. Views at the shoreline are towards mauka and along the shoreline north and south.

Impacts

For 5 to 7 days there will be a temporary impact on coastal views due to construction activities. During construction, the beach portion of the project will have construction equipment and a mound of sand from the excavated trench.

The beach will be returned to its existing condition at the conclusion of the cable installation. Excess material not utilized for fill will be removed and disposed of in accordance with applicable County and State regulations.

Based on the relatively small scale and nature of proposed construction, no long-term or significant impacts are anticipated.

3.1.7 Historic/Archaeological Resources

There are no known archaeological sites existing within the cable easement. Although there are some features in the vicinity of the project site, they will not be affected by the proposed action as work will be confined to the same nearshore and shoreline segments which were encountered during a previous cable landing. The proposed cable will traverse through heavily graded portions of Spencer Beach Park.

Impacts

No short or long term impacts are expected from the development of the proposed project. However, should any unidentified cultural remains be uncovered during cable installation, work in the immediate area will cease and the appropriate government agencies will be contacted for further instructions.

3.1.8 Beach Erosion and Sand Transport

Spencer Beach Park is located immediately south of the Kawaihae Deep Draft Harbor and encloses one of the typical small pocket beaches along this coast. The beach within the park is Ohaiula Beach, and is approximately 400 feet long. Ohaiula Beach has been stable over the past 30 years and the vegetation line has experienced little erosion or accretion. Oceanward of the beach, a shallow, fringing reef extends offshore, and shelters the shoreline from waves. A narrow sand channel extends through the reef at the northern end of the beach and will serve as the nearshore route for the proposed fiber optic cable.

The nearshore fringing reef extends 2500 feet from the shore. The fringing reef is cut by a sand channel, which connects the beach to a large offshore sand deposit. The water depth at the seaward limit of the reef is approximately 20 feet. The water depth in the sand channel is typically 10 to 15 feet, and much of the reef is within a few feet of the surface. There are many large coral formations within the channel. The coral formations rise vertically up from the channel bottom to within a few feet of the surface.

Seaward of the fringing reef the bottom is entirely sand, out to at least the 100 foot depth, the limit of the visual survey. A prior R. M. Towill Corporation bathymetric survey shows a large reef formation south of the cable route, in water depths of 35 to 110 feet. The route was selected to avoid this formation, and the closest point of approach is 100 feet. The sand, both in the inner channel and the offshore deposit, is relatively fine and has a high silt content.

Impacts

The proposed project is not expected to negatively impact beach processes. The proposed cable route will seek to utilize the sand channel which passes through the shallow fringing reef, and therefore will not impair the ability of the reef from continuing to protect Ohaiula Beach. Seaward of the fringing reef it is expected that after laying the fiber optic cable that it will soon settle into the sand. Because of the small surface area of the cable and this settling action, no adverse impacts are anticipated. At the landing site, once all construction activities are completed, the work crew will make every reasonable effort to return the ground to existing preconstruction contours through use of excavated materials for backfill.

3.1.9 Noise From Construction Activity

Noise will be generated during the construction phase of the project. Cable laying and excavation equipment and machinery will be used, which will be sources of noise.

Impacts

Noise generated from machinery can be mitigated to some degree by requiring contractors to adhere to State and County noise regulations. This includes ensuring that machinery are properly muffled. Some work at night may be required. Night activities include cable splicing, cable pulling, operation of machinery, etc.

Boats (tugs and a small craft) that are used during the construction period will also be a source of noise. The impact of noise from these vessels cannot be mitigated.

The noise impact will be temporary in nature and will not continue beyond the construction and cable laying period.

3.1.10 Air Quality

Construction vehicles are expected to emit pollutants in the area during construction. However, due to good offshore trades and wind circulation, the area is virtually free of urban air pollutants other than occasional automobile traffic from park users. Therefore, any amount of emissions generated from construction activities is anticipated not to exceed the governing air quality standards of the State Department of Health or the Environmental Protection Agency.

Impacts

Dust is anticipated to be generated during construction. However, the amounts will be minimal since the excavation will occur in sand and porous soil. The release of sand into the air can be prevented by requiring the contractor to periodically wet down the work area. The areas that are used for the placement of the range targets will also be exposed during the construction period. The target sites should be similarly wetted to control fugitive dust. The work sites will be returned to their original state after the cable laying process is completed.

3.1.11 Water Quality

Nearshore waters are rated Class "A" by the State Department of Health. Shallow waters experience considerable turbidity even when surf is minimal. Offshore waters are very clear with excellent underwater visibility over reef slopes. Water temperature and salinity are normal for ocean water with evidence of fresh water inflow along the shore.

Impacts

It is anticipated that nearshore waters of the project sites may be clouded during the trench excavation and backfilling operations. Silt screens may be erected by the construction crew to lessen and minimize effects of turbidity.

3.2 SOCIO-ECONOMIC ENVIRONMENT

3.2.1 Population

Although the population within the Kawaihae area numbers 150, the population of Hawaii County as of 1994 was 120,317 and is projected to increase to 206,100 by 2010.

Impacts

No adverse impact on existing resident and worker populations of Kawaihae are expected. The project will be beneficial to these communities by providing high bandwidth capacity to a number of communications carriers on an equal basis. This will give them the capability to provide additional communication services to their customers.

3.2.2 Surrounding Land Use

Spencer Beach Park and the surrounding coastal land, which is owned by the Queen Emma Foundation, is primarily in recreational use. Lands mauka of the coastal beach areas are generally vacant. The Mauna Kea Resort is located about one mile to the south. The Puukohola National Historic Site is adjacent to the north of Spencer Beach Park. Kawaihae Harbor is less than 2,000 feet beyond the historic site.

Impacts

No long term impacts are expected from the development of the proposed project. However, development will temporarily impact land and shore side recreational uses. During construction the portions of the shore side area will have to be closed for safety reasons. Lateral access will be provided in designated areas. When completed the cable route will result in very little to no visible impact to the surrounding area.

3.3 PUBLIC FACILITIES AND SERVICES

3.3.1 Transportation Facilities

The project site is accessible by the new Spencer County Road, which is owned by the United States of America. The new Spencer road connects to Akoni Pule Highway, a major thoroughfare which connects to Queen Kaahumanu Highway.

Impacts

The proposed project is expected to have no impact on the existing traffic. Construction will take 5 to 7 days and will be limited to nearshore work to install the fiber optic cable.

3.3.2 Recreational Facilities

The proposed landing site is within a developed beach park. Existing features of Spencer Beach Park include restrooms, picnic tables, showers, tennis courts, a pavilion, a camping area, and parking lot. The beach park is used for tennis, camping, swimming, sunbathing, snorkeling, and picnicking.

The proposed action will only marginally disrupt recreational activity on a small portion of the beach while the excavation activity takes place. *During the cable landing phase of the project,* activity in the water will need to be suspended for approximately two days for safety of the beach and ocean users.

Impacts

No long term impacts are expected from the development of the proposed project. However, development will temporarily impact recreation uses on the beach. During construction, part of the park will have to be closed for safety reasons. Construction will take approximately 5 to 7 days. This impact will be short term, lasting only until construction is completed.

SECTION 4
RELATIONSHIP TO STATE AND COUNTY LAND USE PLANS AND POLICIES

4.1 THE HAWAII STATE PLAN

The Hawaii State Plan (Chapter 226, Hawaii Revised Statutes) provides a guide for the future of Hawaii by setting forth a broad range of goals, objectives, and policies to serve as guidelines for growth and development of the State. The proposed project is consistent with the Hawaii State Plan. The following objectives of the State Plan are relevant to the proposed project:

Section 226-10.5: Economy - Information Industry
The proposed project assists in the State's objective of positioning Hawaii as the leader in providing information services in the Pacific. The proposed project will continue development and expansion of Hawaii's telecommunications infrastructure and will help to accommodate future growth in the information industry.

Section 226-14 Facility Systems - In General
The proposed project supports the State's goals for achieving telecommunications systems necessary for Statewide social, economic, and physical objectives.

Section 226-18: Facility System - Energy/Telecommunications
The proposed project will help to ensure adequate and dependable telecommunication services for Hawaii by promoting efficient management of existing and proposed facilities, and by promoting installation of new telecommunications cables.

4.2 STATE FUNCTIONAL PLANS

The Hawaii State Functional Plan (Chapter 226) provides a management program that allows judicious use of the State's natural resources to improve current conditions and attend to various societal issues and trends. The proposed project is generally consistent with the

State Functional Plans. The following objectives of the State Functional Plans are relevant to the proposed project:

Education Implementing Action A(4)(c):
The proposed project will help to ensure adequate telecommunication services necessary for Hawaii's schools.

Education Implementing Action B(3)(d):
The proposed project serves to promote and expand the appropriate use of telecommunications to deliver distance education as well as enhance the learning process and communication competencies of students.

Education Implementing Action(3)(e):
The proposed project enables school library media centers to effectively manage and provide access to information and knowledge through telecommunications.

4.3 STATE LAND USE LAW

The project site is designated within the State Land Use Conservation District (Figure 5). Because the proposed activity involves installation of a utility line no land use district change will be required. However, because the proposed project will require work in the water, a Conservation District Use Permit (CDUP) will be necessary. In addition, further coordination with the State Department of Transportation (DOT), Harbors Division, and the U.S. Coast Guard will be required to advise mariners of the proposed action.

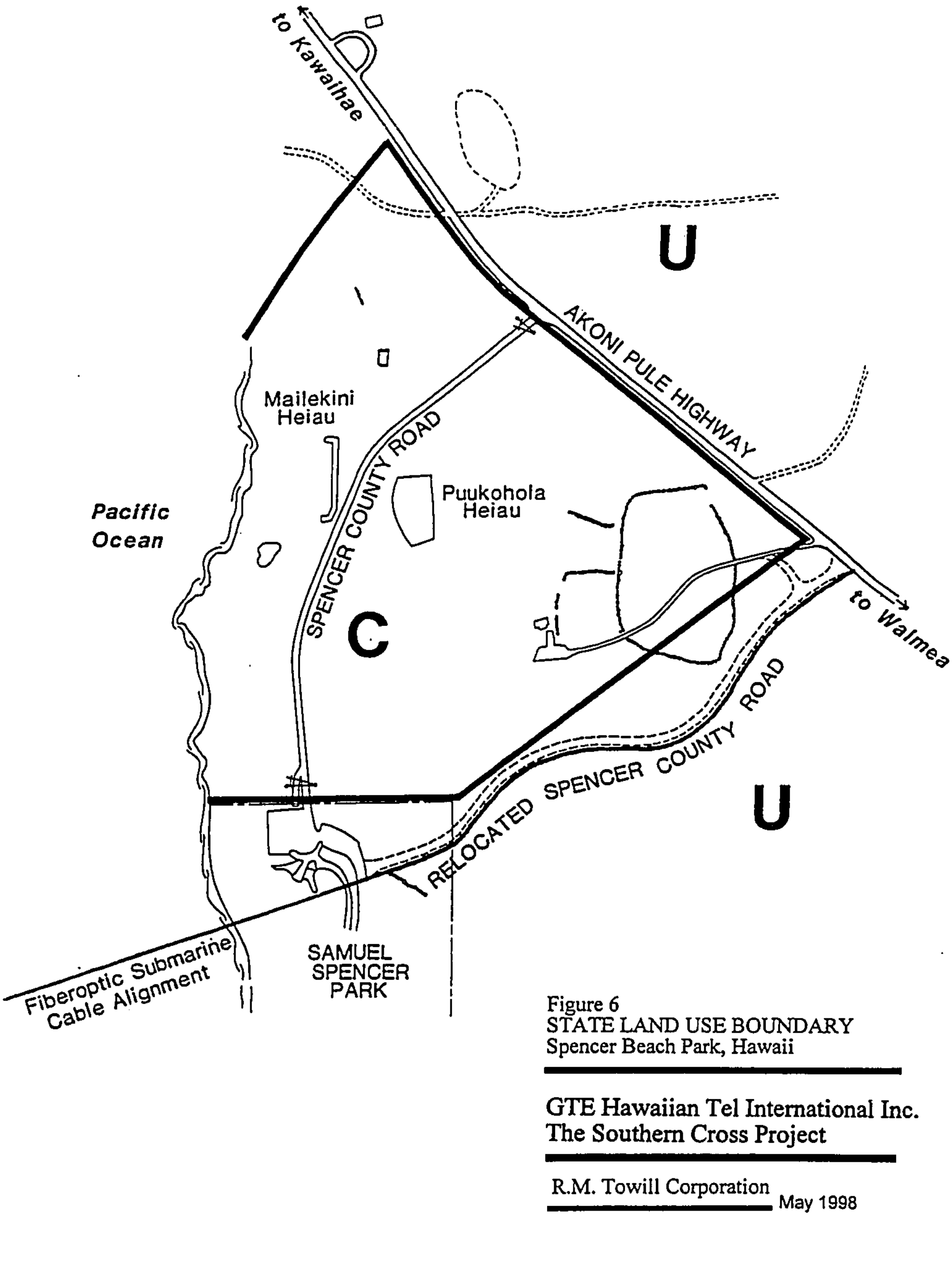

Figure 6
STATE LAND USE BOUNDARY
Spencer Beach Park, Hawaii

GTE Hawaiian Tel International Inc.
The Southern Cross Project

R.M. Towill Corporation
May 1998

4.4 COUNTY ZONING

The County of Hawaii zoning for the project site is Open which permits utility installations (Figure 6). The site is also within the Special Management Area (Figure 7) and will require a Special Management Area Permit and a Shoreline Setback Variance. All required county permits will be obtained before construction begins.

4.5 HAWAII COUNTY GENERAL PLAN

The Hawaii County General Plan provides a statement of long range social, economic, environmental, and design objectives for the Island of Hawaii and a statement of policies necessary to meet these objectives. A specific objective of the General Plan relating to the proposed project is to maximize efficiency and economy in the provision of public utility services. The proposed project is generally in conformance with the goals and objectives of the Hawaii County General Plan.

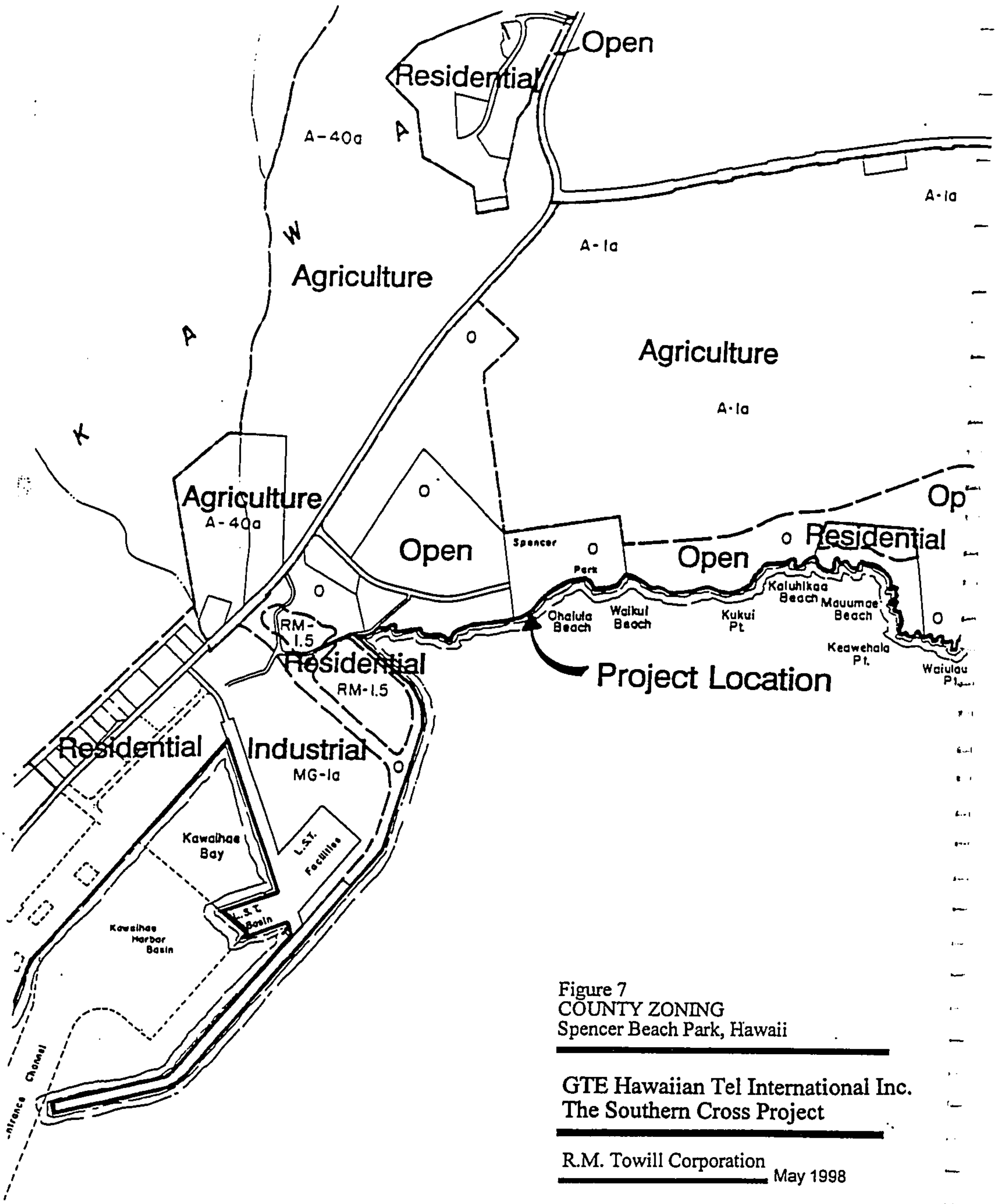

Figure 7
COUNTY ZONING
Spencer Beach Park, Hawaii

GTE Hawaiian Tel International Inc.
The Southern Cross Project

R.M. Towill Corporation
May 1998

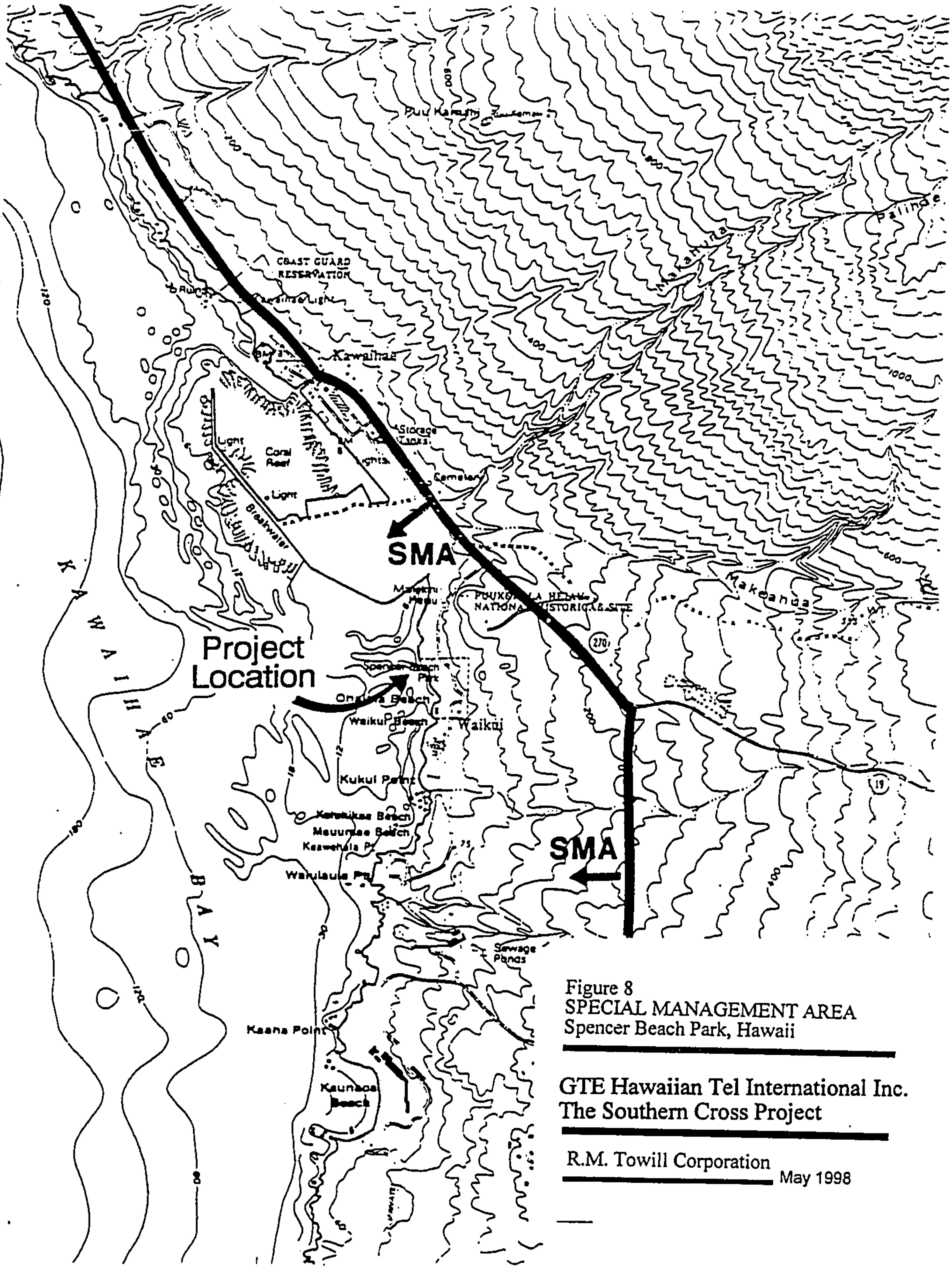

Figure 8
SPECIAL MANAGEMENT AREA
Spencer Beach Park, Hawaii

GTE Hawaiian Tel International Inc.
The Southern Cross Project

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May 1998

SECTION 5

ALTERNATIVES TO THE PROPOSED ACTION

5.1 NO ACTION

The no action alternative would result in the lost opportunity to provide an alternative to existing interisland telecommunications service which is now provided solely by a single vendor. A major feature would be the loss of a new competitor to the marketplace that could benefit both government and the private sector through competitive pricing.

In addition to the lost opportunity imposed by no action, the following would also result:

- Lost employment opportunities which would have been realized in connection with the cable laying procedure, maintenance and operation activities;

- Lost tax revenue for the State government from the cable vendor, and increased public and private telecommunication usage; and

- Lost attainment of the Hawaii County General Plan's objective of expansion of utilities systems.

5.2 ALTERNATIVE SITES

In August of 1991 a study was conducted to select landing sites for the GTE Hawaiian Tel Hawaii Interisland Cable System (HICS) connecting the islands of Kauai, Oahu, Maui, and Hawaii. A set of criteria was used to reduce the field of potential landing sites. The advantages and disadvantages of each site were evaluated to provide a basis for comparison.

The following is a brief discussion of criteria for determining landing sites:

5.2.1 Shoreline/Nearshore Conditions

The shoreline and nearshore conditions are a consideration because the depth of the water from the landing site towards the ocean must be deep enough to protect the cable. Approximately 50 to 60 feet of water will be required before wave forces diminish to levels where wave action does not affect the cable. Areas with extensive shallow water far from shore (i.e. 4,000'+) were considered difficult or suboptimal in providing protection during storms and other high wave conditions.

The composition of bottom conditions limits acceptable landing sites. Sandy bottoms are preferred in order to minimize any possible environmental impacts of anchoring, armoring, or trenching through rock or coral in order to securely fasten the fiber optic cable. Also if the ocean bottom has extensive sand deposits, especially adjacent to the shoreline, the cable can eventually be covered by sand, providing maximum protection against wave forces.

5.2.2 Public Use Considerations

It is anticipated that impacts to public recreational areas will be minimal given the short-term and relatively minor requirements for installing a fiber optic cable. However, because of potential for difficulties with area users, landing sites in areas of major public use are considered a constraint to selection.

Areas of potential historical and archaeological significance in close proximity to cable landing sites are also considered a constraint to selection, due to the possibility of destroying a historic site.

5.2.3 Environmental/Natural Resource Considerations

The landing sites should not be within proximity to rare or endangered species or their habitats. Impacts to shoreline and ocean water quality should also be kept to a minimum. Sites which would require extensive ocean anchoring and cable protection work (i.e., shielding/dredging) and/or on-shore excavation in ground conditions which promote soil erosion should be avoided.

Three possible Hawaii landing sites for the Big Island where underwater geology would be most suitable are Spencer Beach, Hapuna Beach, and Mauna Kea Beach. Spencer Beach is proposed as the preferred landing site because it was previously disturbed by the existing cable and there would be minimal disturbance to the area. The existing nearshore alignment avoids most of the reef and coral heads which lie alongside and within a sand channel leading away from the shoreline to the ocean.

Should Spencer Beach be removed from consideration, Hapuna Beach is recommended as an alternative site. Hapuna Beach possesses positive site features including a sandy bottom with available access to shore. Coral heads and finger coral are usually found in deeper water, and may potentially be crossed with minimal disturbance to the area. In addition, historic and archaeological sites are not expected to be discovered (Discussion with DLNR, Historic Sites Office). However, the single most important constraint with Hapuna Beach, is its heavy use by the public for scenic and recreational uses.

Should Spencer Beach be removed from consideration, Hapuna Beach is recommended as an alternative site. Hapuna Beach possesses positive site features including a sandy bottom with available access to shore. Coral heads and finger coral are usually found in deeper water, and may potentially be crossed with minimal disturbance to the area. In addition, historic and archaeological sites are not expected to be discovered (Discussion with DLNR, Historic Sites Office). However, the single most important constraint with Hapuna Beach, is its heavy use by the public for scenic and recreational uses. This concern, combined with the existing, readily available landing at Spencer Beach, discounts this site from selection.

Mauna Kea Beach is not considered a viable alternative because the route would cross several areas of prolific coral growth. A cable route could be selected which would provide a sand bottom out to the 45 foot depth. However, from that point to the 80 foot depth, the route would cross several large beds of coral. In this area, approximately half of the route would be located on the coral beds.

5.3 SUBMARINE CABLE ROUTE

Most of the proposed near shore alignment follows the previous route used by GTE Hawaiian Tel. The submarine cable route selection process involved identification of areas warranting study, based on a set of minimum evaluation criteria. The criteria included consideration of rapid erosion, giant landslides, drowned coral reefs, seismic activity, dumping areas, ship and airplane wrecks, other cables, and the length of routes.

In August 1991 a study was conducted by Seafloor Surveys International (SSI) to preliminarily identify an ocean route for the GTE Hawaiian Tel Submarine Fiber Optic Cable System. The route selected was one that minimized potential hazards to the installation, and eased maintenance and operation of the cable over a projected 25 year lifetime.

The following provides a detailed description of each of these criteria:

5.3.1 Rapid Erosion

The greatest danger to the cable system is in the submarine portion of the route as it is related to the geologically young age of the "Hawaiian Islands and the resulting extremely high erosion rates. Rapid erosion places large volumes of unconsolidated sediment into the shallow waters surrounding the islands. These sediment deposits move rapidly down the steep island slopes when they become unstable. This down-slope sediment movement can be initiated by earthquakes, storm runoff, and storm waves. Installation of cables on steep, sediment-covered submarine slopes should be avoided if possible. Where these slopes cannot be avoided, the cable should traverse as directly up the slope as possible (SSI, August 1991)."

5.3.2 Giant Landslides

Over the past several years, mapping of the Hawaiian Exclusive Economic Zone by the U.S. Geological Survey through the use of the long range Gloria sonar system, a relatively low-resolution, reconnaissance sonar, has discovered a series of large landslides surrounding the Hawaiian Islands (Moore, et.al., 1989). "The primary danger presently posed to the cable by these inactive landslides is their extremely rough surface. The seafloor in the slide areas is known to be littered with huge volcanic boulders. These boulders have been observed from submersibles to often be the size of a house. These slide surfaces pose a serious threat by producing unacceptable cable spans where the cable is draped over individual blocks, as well as the possibility of having the cable getting tangled if it had to be retrieved for repair (SSI, August 1991)."

5.3.3 Drowned Coral Reefs

A series of drowned coral reefs surrounding the islands are considered dangerous to the fiber optic cable system. "Locally steep slopes associated with these reefs could cause unacceptable cable spans in areas where strong bottom currents can be expected (SSI, August 1991)."

5.3.4 Seismic Activity

"The greatest danger to the cable from earthquakes is not the actual fault displacement itself, but the possibility they will initiate movement of unstable sediment deposits on the slopes of the islands. Epicentral locations of earthquakes with a magnitude of 3 or larger in the Hawaiian region should be avoided by the fiber optic cable (SSI, August 1991)."

"Seismic activity in the Hawaiian Islands is concentrated in the vicinity of the active volcanoes on the Island of Hawaii, where it is primarily related to the on-going volcanic activity. There are also earthquakes related to the tectonic subsidence of the islands due to the load that the growing volcanoes is putting on the earth's crust. These tectonic earthquakes are also concentrated in the area surrounding the island of Hawaii, where the greatest subsidence is taking place (SSI, August 1991)."

5.3.5 Dumping Areas

"A large, presently inactive, explosive dump is located west of Oahu. This dump will have to be avoided by the fiber optic cable. Navy authorities maintain this area has not been used for ordinance disposal since shortly after World War II. However, they advise against laying cables through the area (SSI, August 1991)."

"Dredge Spoils disposal sites authorized by the U.S. Army Corp of Engineers are also located close to all major island harbors and should be avoided by the cable route (SSI, August 1991)."

5.3.6 Ship and Airplane Wrecks

A complete, high resolution side-scan survey of the proposed cable route should be carried out to determine that the route is free of man-made hazards such as ship wrecks and lost airplanes. There have been numerous ships and airplanes lost at sea in the Hawaiian area which have never been located.

5.3.7 Other Cables

The recently installed GTE Hawaiian Tel Hawaii Interisland Fiber System and the GST Telecom Hawaii systems are providing service to Hawaii.

Along parts of the proposed route the cable will have to be laid in close proximity to other existing communications cables. In these areas, the recommendations of the International Cable Protection Committee (ICPC) should be used as a guideline. At their 1985 Plenary Meeting in Sydney, Australia, ICPC recommended that no previously existing cable be crossed at less than a 45 degree angle, the closer the crossing can be to a right angle the better, and where possible a spacing of five miles should be maintained.

The proposed Souther Cross cable in some nearshore segments will be laid roughly parallel to the existing GTE Hawaiian Tel and GST Telecom Hawaii cables. Wherever possible the ICPC guidelines for separation will be followed for all other crossings in deep ocean water.

Prior to making final decisions on cable placement, ICPC also recommends that American Telephone and Telegraph (AT&T) be contacted to determine if there are conflicts with military or other government cables.

5.4 ALTERNATIVE TECHNOLOGY

The following describes the alternative to fiber optic cable technology:

5.4.1 Satellites

Satellites are not a feasible alternative based on the extreme disadvantages associated with the use of satellites which include:

- Transmission delays due to technical and atmospheric limitations involving the distance the radio waves must travel;

- Visual and aesthetic intrusion caused by the need for ground stations and radio antennas that must be constructed to accept the satellite transmissions; and

- Difficulties associated with "double hops" which occur when data must be re-transmitted in order to establish a secure voice circuit.

In comparison with satellites, fiber optic technology is the only means of providing the bandwidth necessary for interisland digital circuits without transmission delays and major visual and aesthetic problems.

5.4.2 Copper Versus Fiber Optic Cables

The alternative to fiber optic cable is the use of copper wire cable. Copper wire cables function using a large number of plastic-coated copper wires housed within a plastic or synthetic outer casing. If necessary, steel or other protective materials are added to ensure strength and resistance to abrasion and breakage. In order to receive a voice transmission an electrical signal must be sent through a pair of copper wires to a receiver, where the electrical signal is converted back into sound. A typical cable, approximately 4 inches in diameter (without the outer protective casing), would house 600 copper wires with the capacity of approximately 3,600 voice circuits.

Copper wire cables require use of a repeater to boost electrical signals over long distances to ensure adequate signal strength at the receiving station. Repeaters are necessary every ±6,000 feet and require a high voltage power source to operate. Repeater dimensions for a 1,200 voice circuit will be approximately 1 to 2 feet in diameter by 3 feet long.

In contrast, fiber optic technology relies on the use of optical fibers and the transmission of light pulses which are converted into voice or data signals by the telephone company receiving station. The proposed fiber optic cable would contain approximately 24 fiber optic strands and would be housed in a plastic casing no more than approximately 17 to 51 mm in diameter. Like the copper cable, steel or other protective materials would be added as needed for strength. Each pair of fiber optic strands would be capable of handling approximately 8,000 voice circuits, for a combined total on the order of 48,000 voice circuits (2 strands = 1 pair, 12 strands = 5 pairs working plus 1 pair spare, and 6 pairs x 8,000 voice circuits = 48,000 voice circuits). In addition, in order for a copper cable to achieve the capacity of a fiber optic cable, it would have to approach a diameter of approximately 10 to 20 feet, would require repeaters, and a high-voltage power line in addition to the copper cable.

A summary of reasons for selection of fiber optic technology includes:

- Fiber optic cables provide superior capacity and do not require high-voltage repeaters;

- The smaller diameter fiber cable ensures there will be minimal disturbance necessary to site the cable. There is less land needing to be graded, cleared and stockpiled in order to site a 17 to 51mm diameter cable.

- Sensitive areas that might otherwise be disturbed because of larger equipment, increased mobilization, and noise problems would be greatly reduced; and

- Length of time on site would be greatly minimized. Sensitive public or open space areas would not require a lengthy stay by the construction contractor and therefore would minimize potential hardships on beach users including swimmers, fishermen, surfers and other users.

5.5 RECOMMENDED ACTION

The recommended action is to proceed with the establishment of a submarine fiber optic cable system with a landing at Spencer Beach Park.

SECTION 6
RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

No short-term exploitation of resources resulting from development of the project site will have long-term adverse consequences. The appearance of the land portion of the existing site will not be altered. The cable may be visible on the ocean bottom portion of the project site and will alter its appearance.

Once construction activities are completed there will be no affect on recreational activities, marine life, or wildlife.

Long-term gains resulting from development of the proposed project include provision of more effective State telecommunications systems (by means of fiber optic cables). The proposed project will maintain and enhance economic productivity by increasing telecommunications service between islands.

SECTION 7
IRREVERSIBLE/IRRETRIEVABLE COMMITMENT OF RESOURCES BY THE PROPOSED ACTION

Development of the proposed project will involve the irretrievable loss of certain environmental and fiscal resources. However, the costs associated with the use of these resources should be evaluated in light of recurring benefits to the residents of the region, the State of Hawaii and the County of Hawaii.

It is anticipated that the construction of the proposed project will commit the necessary construction materials and human resources (in the form of planning, designing, engineering, construction labor, landscaping, and personnel for management and maintenance functions). Reuse for much of these materials and resources is not practicable. Although labor is compensated during the various stages of development, labor expended for project development is non-retrievable.

SECTION 8
NECESSARY PERMITS AND APPROVALS

8.1 STATE

Department of Land and Natural Resources

- Conservation District Use Permit
- Right-of-Entry
- Establishment of Offshore Easement

Office of State Planning

- Coastal Zone Management Consistency Review

Department of Health

- Section 401, Water Quality Certification

Department of Transportation

- Permit to Work in Ocean Waters

8.2 COUNTY OF HAWAII

Department of Planning

- Shoreline Management Area Permit
- Shoreline Setback Variance

8.3 FEDERAL

U.S. Army Corps of Engineers

- Department of the Army Permit, Section 404/Section 10

SECTION 9
CONSULTED AGENCIES AND PARTICIPANTS IN THE PREPARATION OF THE ENVIRONMENTAL ASSESSMENT

9.1 STATE AGENCIES

Department of Land and Natural Resources,
Land Division

Department of Health

Department of Transportation

Department of Business, Economic Development & Tourism

9.2 COUNTY OF HAWAII

Department of Planning

Parks and Recreation Department

9.3 FEDERAL AGENCIES

U.S. Army Corps of Engineers

National Marine Fisheries Service

U.S. Fish and Wildlife Service

9.4 COMMENTS RECEIVED

The following are comments received during the comment period.

1-18-96

Suspense Date: late November

State of Hawaii
Department of Land and Natural Resources
DIVISION OF AQUATIC RESOURCES

Date December 2, 1998

TO: William S. Devick, Acting Administrator
FROM: Francis G. Oishi, Aquatic Biologist
SUBJECT: Comments on CDUA HA-2903

Comment Requested by: D. Uchida, Land Div.	Date of:	Request	Receipt	Referral
		10/27	11/2	11/6

Summary of Proposed Project

Title: Fiberoptic cable installation
Project by: GTE Hawaiian Telephone International
Location: Spencer Beach Park, Hawaii

Brief Description: The applicant is seeking a conservation district use permit to install a fiberoptic telecommunications cable in waters off of the subject location. The submarine cable would then run onto shore nearby but not using the applicant's existing cable alignments. Installation would involve construction (trenching on the beach) to reach existing cable junctions inland, trenching in the shallow coastal waters, and armoring of the cable at deeper depths thus utilizing basically the same (previous) alignment, but still requiring new trenching and construction. Onshore construction would deny public use of the beach for 5-7 days, and offshore construction would prohibit ocean use for an addtional 1-2 days.

Comments: To reduce the damage to our nearshore physical environment, I have suggested that when companies like the applicant receive approval and install cable, that they install more than one cable, leaving enough length on additional cables on the seaward end deposited offshore for

LAND MANAGEMENT DIV. ID:808-587-0455 JAN 08.99 16:44 No.007 P.02

future use. I suggested this in 1993 when the applicant first applied for a statewide cable installation. Their response to this was that one cable was sufficient, that it had an expected service life of 20 years. Also, no further dredging was needed since future cable additions need only be slipped in through the existing conduits. Yet in this application, the applicant states that in 1996, a second cable was installed at the Spencer Park location, and with this application, it would, if approved make a total of three cable installations at one site in 6 years, or one cable every three years. Had the applicant installed additional cables in 1993, these subsequent additions would have only required splicing new cables in an operation isolated offshore, thereby reducing harm to the nearshore coral reefs and not impacting ocean users on the shore.

It is suggested that the Department consider delaying the permit's issuance until it can be assurred that long-range planning needs for cable telecommunications is identified, as well as the consolidation of landing sites and alignments for the State of Hawaii to ensure minimizing of impacts to the marine environment and the public's use of the shoreline.

420 Waiakamilo Road
Suite 411
Honolulu Hawaii 96817-4941
Telephone 808 842 1133
Fax 808 842 1937
eMail rmtowill@i-one.com

R. M. TOWILL CORPORATION
SINCE 1930

Planning
Engineering
Environmental Services
Photogrammetry
Surveying
Construction Management

March 10, 1999

Mr. William S. Devick, Acting Administrator
Division of Aquatic Resources
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Devick:

SUBJECT: CDUA No. HA-2903. Southern Cross Cable Network
Kawaihae, Island of Hawaii

The following is in response to your comments of January 18 regarding the subject project.

1. Providing Additional Cables. This suggestion is not practical because of several reasons. a) Earlier cables were non-powered (DC) whereas the Southern Cross cables are powered, b) All cables proposed for installation plus those already installed are for different telecommunication purposes and are "owned" by different users thus making it difficult to install ahead of actual need, 3) all fiber optic cables are not made the same, and terminal equipment made for one cable may not work on another. For these reasons, the addition of additional cables is not considered.

2. Cable Laying. There will not be any trenching in the near shore waters. The only trenching that will occur will be on the beach. For this project, additional PVC ducts will be installed, thus the need for the trenching.

3. The cables in the near shore area are within a sand channel and therefore we are ensuring that no harm will come to the reefs. Post construction surveys performed indicate that no impacts were recorded.

4. Consolidation of Landing Sites. Generally, most cable systems require diversity by separation, therefore it is often not possible to place all the cable in one location. The reason for separation is to prevent a catastrophic event from destroying all the cables

thereby effectively cutting Hawaii off from the rest of the world.

5. Long-Range Planning. I, personally, would be willing to work with your office to identify cable landing sites that would not be damaging to the environment. We have attempted in our work to minimize impacts in the near-shore areas. I foresee that with the booming of this communications age there will be an increased need to provide more capacity (additional cables) to accommodate the needs for real-time video conferencing, new advances on the internet and faster handling of data, plus commercial uses not yet in the public forefront. As was shown by the original inter-island cable installed by GTE in 1992, its capacity was all used within 5 years of its availability date indicating that the people of Hawaii have a need for more communications outlet.

Thank you for your comments. Please contact me if you have any questions.

Very truly yours,

Chester Koga, AICP
Project Manager

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

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

MICHAEL D. WILSON, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
GILBERT COLOMA-AGARAN
TIMOTHY E. JOHNS

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

December 1, 1998

MEMORANDUM

LOG NO: 22575
DOC NO: 9812PM01

TO: Dean Uchida, Administrator
Land Division

FROM: Don Hibbard, Administrator
State Historic Preservation Division

SUBJECT: **Conservation District Use Application (File No. HA-2903)**
Southern Cross Cable Network at Spencer Beach Park
Kawaihae, South Kohala, Hawaii Island
TMK: 6-2-02:08

Our apologies for the delay in responding to your request for comments. As you know, the recent move to our new office at Kapolei has created some problems with regard to our normal work routine.

We have reviewed the Environmental Assessment that was prepared for the subject project and also checked our files on this area. There are as far as we know no historic sites within the proposed cable easement, which is located in a graded portion of Spencer Beach Park. We thus believe that the proposed project will have "no effect" on significant historic sites.

PM:amk

c. Jim Nierman, R.M. Towill

LP

4973

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

RECEIVED
98 DEC 23 P 1:50
DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

REPLY TO
ATTENTION OF

December 21, 1998

Operations Branch

Mr. Michael D. Wilson
State of Hawaii
Department of Land and Natural Resources
Attention: Ms. Lauren Tanaka
P.O. Box 621
Honolulu, Hawaii 96809

RECEIVED
DIVISION OF
LAND MANAGEMENT
Dec 23 3 56 PM '98

Dear Mr. Wilson:

This is in response to your letter of December 11, 1998, requesting comments on the proposed project, Southern Cross Cable Network Linking Australia and New Zealand with the Islands of Hawaii and Oahu at Spencer Beach, Kawaihae, Hawaii.

For your information, a Department of the Army permit is currently being processed. Upon issuance of the permit, a copy of the permit will be sent to your office.

Should you require additional information or have further questions, please feel free to contact Ms. Lolly Silva of my staff at 438-9258, extension 17. Please refer to file number 980000295.

Sincerely,

for George P. Young, P.E.
Chief, Operations Branch

BENJAMIN J. CAYETANO
GOVERNOR

LD

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

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

IN REPLY REFER TO:

STP 8.8941

RECEIVED
DIVISION OF
LAND MANAGEMENT
DEC 24 2 47 PM '98

December 22, 1998

TO: THE HONORABLE MICHAEL D. WILSON, CHAIR
BOARD OF LAND AND NATURAL RESOURCES
DEPARTMENT OF LAND AND NATURAL RESOURCES

FROM: KAZU HAYASHIDA
DIRECTOR OF TRANSPORTATION

SUBJECT: CONSERVATION DISTRICT USE PERMIT APPLICATION #HA-2903 FOR THE SOUTHERN CROSS CABLE NETWORK LINKING AUSTRALIA AND NEW ZEALAND WITH THE ISLANDS OF HAWAII AND OAHU; TMK: 6-2-02: 08 + SUBMERGED LANDS AT SPENCER BEACH PARK, KAWAIHAE, HAWAII

Thank you for your letter HA-2903 of December 11, 1998, requesting our review and comments on the subject Conservation District Use Permit application and environmental assessment.

The subject project is not expected to have a significant impact on our State transportation facilities. However, construction plans for any work within our highway right-of-way must be submitted to our Highways Division for review and approval.

We appreciate the opportunity to provide comments.

RECEIVED
98 DEC 24 A10: 08
DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

ENGINEERING BRANCH

COMMENTS

We have no objections to the Chairperson signing the subject application.

We suggest that the proposed telecommunication line at Spencer Beach Park be constructed according to Chapter 27 of the Hawaii County Code (sections related to construction in a flood zone).

For your information; the shoreline area of the proposed project site at Spencer Beach Park, according to FEMA Community Panel Map No. 15002 0139 C, is located in Zone VE. This is an area located within the 100-year flood plain where coastal flooding occurs with velocity hazard (wave action), and base flood elevations determined. The area adjacent to the shoreline area is located in Zone AE. This is an area located within the 100-year flood plain with base flood elevations determined. The remainder of the project site is located in Zone X (unshaded), areas determined to be outside the 500-year flood plain.

Division of Forestry & Wildlife

1151 Punchbowl Street, Rm. 325 • Honolulu, HI 96813 • (808) 587-0166 • Fax: (808) 587-0160

November 2, 1998

MEMORANDUM

TO: Lauren Tanaka, Planner
Land Division

THRU: Dean Uchida, Administrator
Land Division

FROM: Michael G. Buck, Administrator
Division of Forestry and Wildlife

SUBJECT: **CDUP File #HA-2903, Install transpacific submarine fiber optic telecommunications system linking Australia and New Zealand with Hawaii and California. TMK (3) 6-2-02:08, Spencer County Beach Park, Kawaihae, Hawaii.**

We have reviewed this proposal with respect to its impacts on the natural resources and endangered species in particular and have no objections to this CDUP, HA-2903 by GTE Hawaiian Tel Incorporated.

Attachment

C: Hawaii DOFAW Branch

TO:
— ADMINISTRATOR
— ASST. ADMIN.
— DEV BR.
— PLAN BR
— RES MGT BR
— PROJ CONTROL
— SW REC. PLAN.
— CLERICAL STAFF
— ADMIN. ASST.
— INTERP. BR.

FOR:
— ... /POST/STAFF RM
— ... & REC.

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Land Division
Planning Branch
Honolulu, Hawaii

October 27, 1998

REF: PB:LT

In reply, please refer to:
File No.: HA-2903
Suspense Date: 21 days

MEMORANDUM

TO: Aquatic Resources; Conservation & Resources Enforcement; Forestry & Wildlife; Historic Preservation; Hawaii District Land Office; Engineering Branch; State Parks

FROM: DEAN UCHIDA, Administrator
Land Division

SUBJECT: **Request for Authorization from the Department to Process a Conservation District Use Application Located on State Lands**

All Conservation District Use Permit (CDUP) applications must be signed by the landowner prior to the submission of the application to the Department. Applications involving the use of State lands require the signature of the Chairperson on behalf of the Board of Land and Natural Resources.

Please review the attached application and provide comments with respect to your division's present and future programs. Your comments will then be forwarded to the Chairperson for consideration on whether to sign the application as landowner. (Note: the Chairperson's signature on the application does not constitute the Department's endorsement of the proposed use).

General information regarding the attached application is provided below:

APPLICANT: GTE Hawaiian Tel International Incorporated

AGENT: Chester Koga, R.M. Towill Corporation

LANDOWNER: STATE OF HAWAII

No comments.

RALSTON NAGATA, State Parks Administrator

Date: 11/6/98

Stephen K. Yamashiro
Mayor

Virginia Goldstein
Director

Russell Kokubun
Deputy Director

County of Hawaii
PLANNING DEPARTMENT
25 Aupuni Street, Room 109 • Hilo, Hawaii 96720-4252
(808) 961-8288 • Fax (808) 961-8742

July 23, 1998

Mr. Chester T. Koga, AICP
Project Manager
R.M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

Dear Mr. Koga:

Preliminary Draft Environmental Assessment (EA)
Special Management Area (SMA) Use Permit No. 339 (SMA 339)
Shoreline Setback Variance No. 644 (SSV 644)
Applicant: GTE Hawaiian Tel International Incorporated
Subject: Southern Cross Project
Tax Map Key: 6-02-02: 08

This is in regards to the preliminary Draft EA, SMA Use Permit Application and SSV letter received by our office for the proposed Southern Cross Project at Spencer Beach Park. This letter also includes information as discussed by telephone between you and Susan Gagorik of our office.

According to information and documents received, GTE Hawaiian Tel (GTE) proposes to install an additional fiber optic cable segment at Spencer Beach Park through an existing and new manhole, handhole and ductlines within the subject property. Landside construction activities include excavation of sand from within the shoreline setback area to the existing or new manhole in order to land the cable and establish a connection; and installation of a new manhole and approximately 500 lineal feet of underground ducts and cable which will run along both sides of Spencer Beach Park Road to a manhole at the foot of the park entrance road. One new interisland cable will be added to the existing manhole and ductlines on the southern side of Spencer Beach Park Road within existing GTE ductlines. Four PVC duct lines to accommodate two new transpacific cables will be installed through a new manhole and routed through an underground utility corridor previously approved for HELCO, as discussed further below. The second manhole, to be installed adjacent to the existing manhole, provides a diverse route for these cables.

From Kawaihae Road, the cable will be installed in a new ductline along the east side of Queen Kaahumanu Highway and terminate at the GTE's Central Office. Work to be conducted within the highway right-of-ways are not located within the SMA.

As related to this request, in March 1993, the Planning Commission approved SMA Use Permit No. 339 and SSV No. 644 for GTE on the subject and adjacent parcels. These permits allowed the installation of an interisland submarine fiber optic cable and related improvements within the 40-foot shoreline setback area and mauka along Spencer Beach Park Road up to Kawaihae Road. Subsequently, in December 1997, the Planning Director determined that the installation of underground utility lines for HELCO along the northern side of Spencer Beach Park Road were permitted within the SMA by virtue of SMA Use Permit No. 339, as the same utility corridor established by GTE would be used.

Upon review of your submitted documents and discussion with you, we have determined that all improvements proposed to be conducted for the installation of fiber optic cables and related improvements for the Southern Cross Project, fall within the purview of existing SMA Use Permit No. 339 and SSV No. 644. As such, we are returning 5 copies of the Draft EA, 14 copies of the SMA Use Permit Application and $200 check for filing fee. We are retaining one copy of each for our files.

Please be advised that GTE, the applicant, shall be responsible for complying with all applicable conditions of approval of SMA Use Permit No. 339 and SSV No. 644 for the duration of the proposed project. We have attached the approval letter for both permits for your reference. Please pay close attention to all conditions, particularly, to conditions regarding Final Plan Approval, restoration plan, hours of construction activity and public notice in the newspaper, among others.

Mr. Chester T. Koga, AICP
Project Manager
R. M. Towill Corporation
Page 2
July 23, 1998

Should you have any questions regarding this matter, please contact Susan Gagorik or Alice Kawaha at 961-8288.

Sincerely,

VIRGINIA GOLDSTEIN
Planning Director

SKG:jc
f:\wpwin60\susan\lkogac01.skg

Enclosures

cc: West Hawaii Office

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF LAND MANAGEMENT

P.O. BOX 936
HILO, HAWAII 96721-0936

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

November 5, 1998

COMMENTS

Applicants need to obtain perpetual, non-exclusive easements from Land Division. Are we going to process easement request simultaneously? Otherwise, no comments.

Mahalo.

NOV 5 1 37 PM '98

SECTION 10
FINDINGS AND SIGNIFICANCE

10.1 NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT (EIS)

Because no long term adverse impacts are anticipated resulting from the proposed action it has been determined that an environmental impact statement is not required.

10.2 SIGNIFICANCE CRITERIA

According to the Department of Health Rules (Chap. 11-200-12), an applicant or agency must determine whether an action may have a significant impact on the environment, including all phases of the project, its expected consequences, both primary and secondary, its cumulative impact with other projects, and its short and long-term effects. In making the determination, the Rules establish "Significance Criteria" to be used as a basis for identifying whether significant environmental impacts will occur. According to the Rules, an action shall be determined to have a significant impact on the environment if it meets any on of the following criteria:

(1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resources;

The proposed action will not entail the loss or destruction of any natural or cultural resource.

(2) Curtails the range of beneficial uses of the environment;

The proposed cable project is being built within a previously developed. The project site limits the type of development that is allowed, therefore the project is appropriate for the site.

(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 proposed action does not conflict with the State's long-term environmental polices or goals and guidelines.

(4) Substantially affects the economic or social welfare of the community or state;

The proposed action will not have a substantial affect on the economic or social welfare of the community or state.

(5) Substantially affects public health;

The proposed action will not have a substantially affect on public health. The facility will be placed underground.

(6) Involves substantially secondary impacts, such as population changes or effect on public facilities;

The proposed action will not have adverse secondary impacts.

(7) Involves a substantial degradation of environmental quality;

The proposed action will not have a substantial degradation of environmental quality. The proposed site is within areas previously developed.

(8) Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment for larger actions;

The proposed project is part of a larger project, however, evaluated in total, the project will not have a considerable impact on the environment.

(9) Substantially affect a rare, threatened or endangered species or its habitat;

The proposed project will not impact any rare, threatened or endangered species or its habitat.

(10) Detrimentally affects air or water quality or ambient noise levels;

The proposed project will not detrimentally impact air or water quality.

(11) Affects or is likely to suffer damage buy being located in an environmentally sensitive

area, such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters;

The proposed project will not be developed in an environmentally sensitive area.

(12) Substantially affects scenic vistas and view planes identified in county or state plans or studies; and

The proposed project will not impact any scenic vistas or view planes.

(13) Requires substantial energy consumption.

The proposed development will require the consumption of energy, both during its construction and for its operations. The project, however, cannot be considered a substantial energy user.

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