FINAL
ENVIRONMENTAL IMPACT STATEMENT FOR
CONSTRUCTION OF
SEWAGE COLLECTION SYSTEM AND
WASTE WATER RECLAMATION PLANT
LAHAINA, MAUI, HAWAII

PREPARED BY PARK ENGINEERING, INC.

FOR DEPT. OF PUBLIC WORKS, COUNTY OF MAUI

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MAPS ARE LOCATED IN FILE

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PROJECT AREA DESCRIPTION AND OBJECTIVE OF THE PROPOSED PROJECT

I. PROJECT AREA DESCRIPTION

The Lahaina District is a small but rapidly growing resort community located on the western slope of the Island of Maui, encompassing a setting of spectacular natural grandeur, sweeping from the sea, through great plantations of cane and pineapple, to towering mountains. Until recent times, the Lahaina community was unique in that it has withstood the pressures of widespread speculative land development such as has occurred in Waikiki on the Island of Oahu. Like Waikiki Beach, the gentle tradewinds blowing across beautiful white sand beaches make this area extremely attractive for recreational activities.

The principle economic activity of Lahaina District had been primarily agricultural up until the early 1960's, with the pineapple and sugar cane industries providing for a way of life that was quiet and resourceful and rich in historical traditions. However, by the early 1960's, the Hawaiian sugar industry had begun to experience serious economic problems. In addition, the Hawaiian tourist industry began to grow until it is today the largest single industry in the State of Hawaii. In Lahaina, the economic problems of the sugar industry were

felt much more acutely than in other areas of the State because this industry provided a major economic input into the community. In fact, in the decades between 1940 and 1960, the resident population actually decreased from 8291 to 4844.

However, during the early 1960's, Maui County began to view this area as an important economic resource. The climate, beaches, and strong historical traditions make the area attractive for recreational purposes for both residents and visitors. During the decade from 1960 to 1970, the growth of the tourist industry in Lahaina resulted in an increase in the resident population from 4844 to 5524, a gain of 680 individuals.

Anticipating further development of this economic resource and in order to achieve controlled development with environmental preservation, Maui County, in 1968, developed and adopted a general plan within the framework of the General Plan for the Lahaina District in which emphasis has been placed on the restoration and preservation of the physical, biological and sociological aspects of the environment. Based on the general plan for the Lahaina District, resident population in 1990 is projected to be 28,500 with an anticipated hotel room count of 7,700 (population equivalent of 13,860) as shown in Table 1.1.

TABLE 1.1

	Projected Resident Population	Projected Hotel Units	Projected (1) Resort Population
1975	13,200	3,150	5,670
1980	19,200	4,900	8,820
1990	28,500	7,700	13,860

(1) Based upon 100% occupancy and 1.8 persons per unit.

On the other hand, ultimate development of lands so designated in the present general plan and county ordinances could result in a resident population of 41,200 with a resort population of 26,650. However, these are only projections and are subject to re-evaluation. Furthermore, the goal of the county is not the attainment of the projected population figures but rather to provide controlled growth in order that this resource is managed to that degree which would provide for its viability. Therefore, the general plan will be reviewed every five years to obtain additional data and through this review process gain flexibility in the planning process.

One of the existing conditions that poses potential public health as well as aesthetic problems in Lahaina District is the method of waste disposal currently being practiced. Wastewater disposal techniques currently being practiced in Lahaina District include 1) cesspool disposal, 2) secondary treatment with land disposal, and 3) disposal by ocean outfall. The major flow from the district (approximately 1.0 MGD) is generated in Lahaina Town, where it is collected by sewers and subsequently disposed of, untreated, at Ala Moana Sewage Pump Station through a 16-inch ocean outfall extending 1,500 feet from shore to a depth of 40 feet. The nearshores of this disposal area are used primarily for recreational fishing, although surfing has been observed also. Approximately 400

residences utilize cesspools for waste disposal while the resort development of Kaanapali provides secondary treatment with the effluent being utilized as irrigation water. The capacity of this plant is 1.0 MGD, with present flow about 60% of this value.

In developing an environmentally sound system for wastewater disposal, Maui County considered several treatment processes and disposal schemes. After considerable deliberation, the system selected included secondary treatment of the wastewater followed by land disposal of solids, and subsurface injection of treated effluent. It should be pointed out, however, that sursurface injection is only an interim measure, and that eventually this treated effluent will be reclaimed as irrigation water.

The selection of this alternative is consistent with several general planning guidelines for the area. First, to meet the State of Hawaii Water Quality Standards, minimum treatment of wastewater calls for secondary processes. Secondly, from a public health point of view, the discharges of untreated wastewater directly into nearshore waters is potentially dangerous. Although no specific health related incidences have been connected with individuals coming into contact with these nearshore waters, nevertheless, the potential for disease transmission does exist. Thirdly, important coral reefs in the area must be protected, as must also the total aquatic ecosystem of these receiving waters. These waters are an important recreational resource for Lahaina

District. Fourthly, the reclamation of wastewater is an important water resources management consideration because this area is dry with frequent water supply problems. Finally, Maui County is seeking to eliminate disposal by ocean outfall of either treated or untreated wastewater from all areas of the island, on the principle that such activity may result in the loss of a potentially valuable commodity while at the same time causing serious environmental alterations to the nearshore aquatic ecosystem.

II. OBJECTIVE OF THE PROPOSED PROJECT

The proposed project provides for the construction of a sewer interceptor system for an area extending from Lahaina Town to Napili, and a wastewater reclamation plant at Honokowai. Previous experience has indicated that resort wastewater flow is approximately 200 gpcd, and domestic flow approximately 100 gpcd. Based on these figures and the project population, total projected domestic flows (excluding infiltration), would be as follows:

1975 --- 2.45 MGD

1980 --- 3.68 MGD

1990 --- 5.62 MGD

However, as discussed previously, the ultimate use of lands designated in the general plan could result in an ultimate resident population of 41,200, and a resort population of 26,650. Ultimate design flow therefore, including infiltration, would then be 13.4 MGD. However, this figure is

not anticipated to be approached in the foreseeable future, and will be subject to periodic reviews of the general plan.

Both the interceptor line and reclamation plant will be designed for this flow of 13.4 MGD. However, since this design flow is based solely on the ultimate development of land as proposed by Maui County for Lahaina District, construction will proceed in stages so as to parallel development throughout the design period. The interceptor line will be constructed in two stages, while the reclamation plant will be constructed in three stages. First stage construction of the interceptor line will proceed from Lahaina Town to Honokowai, with second stage construction proceeding from Napili to Honokowai. Reclamation plant capacity from each of the first two construction stages will be 3.2 MGD, with third stage construction allowing for an additional 7.0 MGD capacity, for a total plant capacity of 13.4 MGD.

The reclamation plant will provide secondary treatment by the complete-mixed activated sludge process. The process as designed is capable of producing an effluent with a 5-day biochemical oxygen demand (BOD_5) of 14 mg/l (95 percent BOD_5 removal), and with the aid of multi-media filters, a polished effluent with a suspended solids (SS) concentration of 0.2 mg/l (99 percent removal).

Initially, treatment plant effluent will be disposed of by deep well injection. Ultimately, effluent will be utilized as irrigation water for facilities such as parks, golf courses, highway landscaping, and, hopefully, sugar cane. The sludge produced in this plant will be dewatered by gravity and evaporation, with ultimate disposal in County landfills. However, it is hoped that a demand for this humus material as a soil conditioner will increase and non-productive agricultural lands could be converted to productive lands.

In summary, the objective of the proposed project is to provide for a level of public health and environmental management not now present in Lahaina District, through the construction of a system which includes wastewater collection, treatment and disposal.

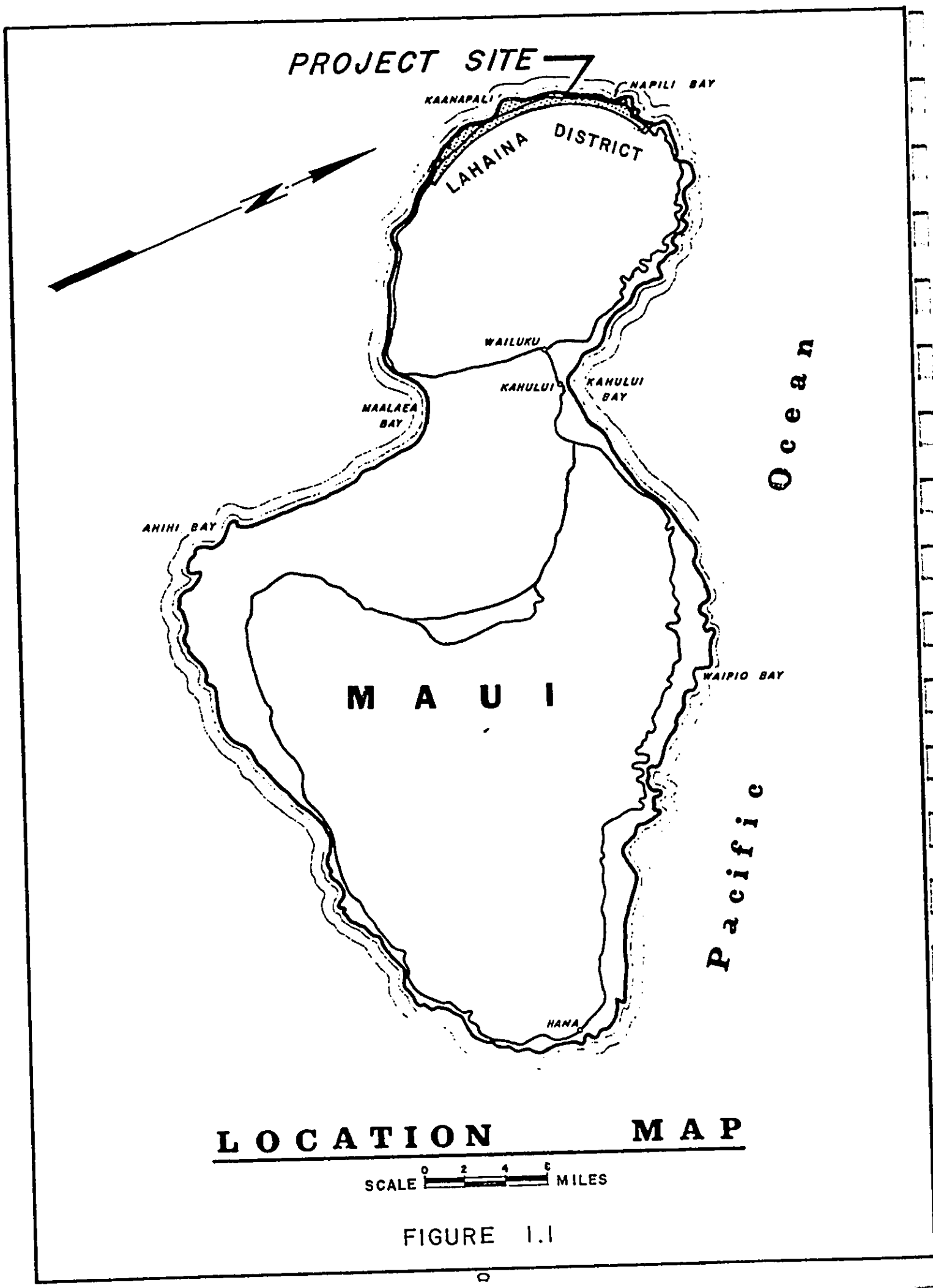
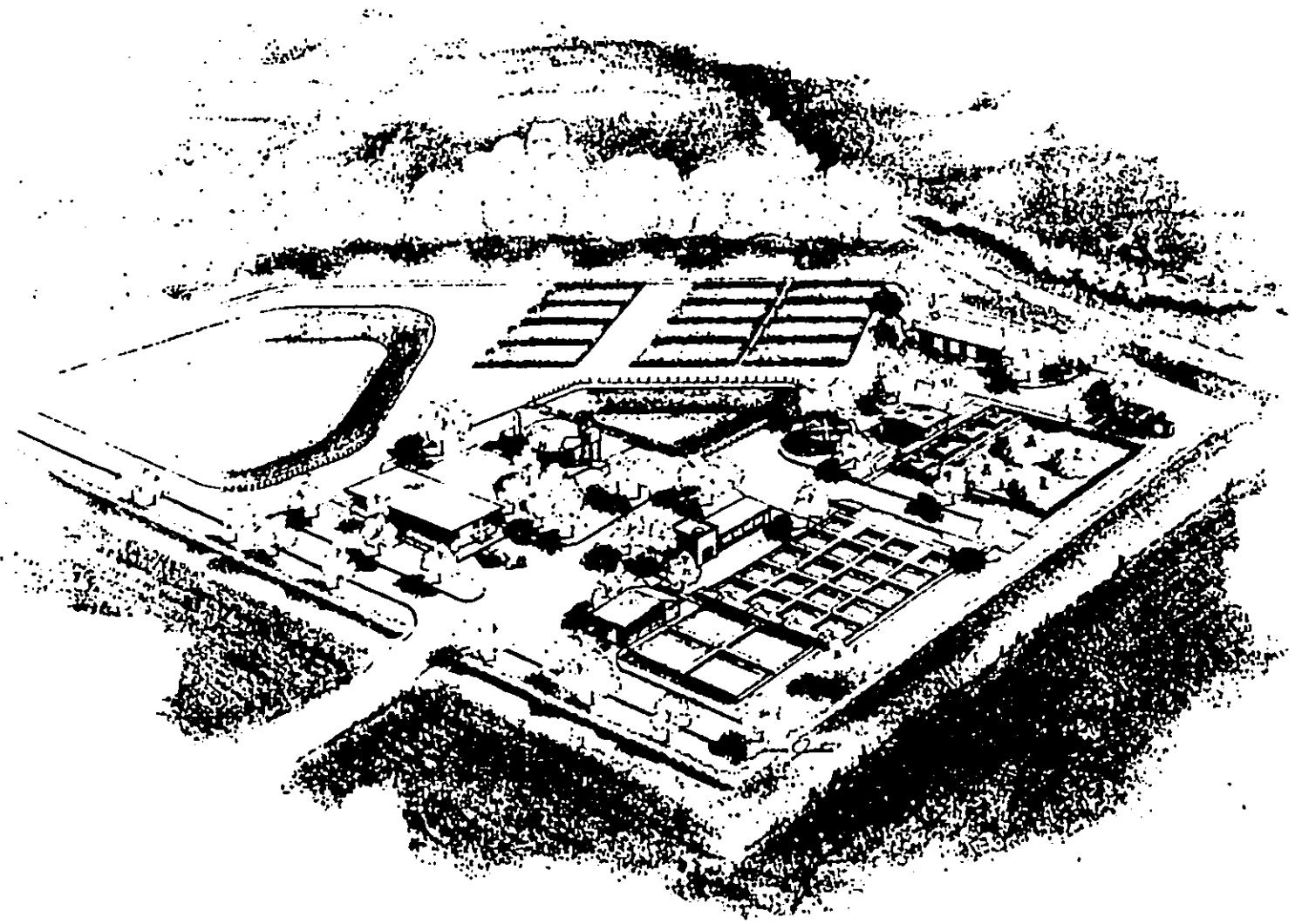

PROJECT SITE
KAANAPALI
NAPILI BAY
LAHAINA DISTRICT
WAILUKU
KAHULUI
KAHULUI BAY
MAALAEA BAY
AHIHI BAY
Ocean
WAIPIO BAY
M A U I
Pacific
HANA
LOCATION MAP
SCALE 0 2 4 6 MILES

FIGURE 1.1



PERSPECTIVE

FIGURE 1.2

SECTION 2

DESCRIPTION OF PROPOSED ACTION

I. INTRODUCTION

The project provides for construction of a sewage collection system and water reclamation plant for an area extending from Lahaina Town to Napili. The proposed site of the reclamation plant is at Honokowai as shown in Figure 2.1 and the treatment plant will be designed to meet the demands for the next 10 to 20 years in accordance with plans as specified in "A General Plan for the Lahaina District" (December, 1968). Provisions have been made for expansion of the plant when needed, as shown in Figure 2.4.

II. DETAILED DESCRIPTION OF COLLECTION SYSTEM

The proposed sewage interceptor system and waste water reclamation plant are illustrated on Figure 2.1 & 2.2. This system serves the project area from Lahaina to Honolua as illustrated on the Tributary Area Map, Figure 2.3. The total length of the sewage interceptor system is approximately 10.2 miles. The system will be constructed within the Hawaii State and County of Maui roadway right-of-way wherever possible.

Lahaina-Honokowai System. First stage construction of pump stations and force mains will be designed for only Lahaina Town sanitary flows because AMFAC Properties is not committed at this time to incorporate the sanitary flows from its Kaanapali

Development into the County system. However, provisions will be made in the design of the first phase construction to incorporate the sanitary flows from the Kaanapali system into the County system when the need develops. In the area from Lahaina Town to Kaanapali Development, the tributary areas above Honoapillani Highway will be intercepted by gravity sewer constructed along Lahainaluna Road, Dickenson Road and Honoapiilani Highway to Sewage Pump Station No. 3. A separate gravity line flowing in the opposite direction of the interceptor system will be required to serve tributary areas 15 and 16.

As for the tributary areas located below Honoapiilani Highway, the sewage will be intercepted by the existing sewage system along Front Street and by Pump Station No. 4. The pump station will be a two pump, factory-built type installation and constructed on land owned by the State of Hawaii. The sewage will then be pumped through a 14 inch force main located along Front Street and Kahoma Stream into the sewer line located along Honoapiilani Highway.

The sewage from the previously mentioned tributary areas will then flow through sewerline "A" into Pump Station No. 3 located within the State of Hawaii Honoapiilani Highway right-of-way. The pump station will be a three pump, factory-built type installation. Furthermore, provisions will be made at this pump station for installation of equipment for the control of hydrogen sulfide should the need arise. From this pump station, the sewage is then transported along Honoapiilani Highway through a 20 inch force main and a 27 inch gravity main to Pump Station No. 2 located within the Kaanapali Resort Development.

Pump Station No. 2 will be located mauka of Honoapiilani Highway in the vicinity of the existing Kaanapali Waste Water Treatment Plant. No conflict with the resort activity is anticipated for the location conforms to the requirements of the Kaanapali Master Plan prepared by Belt, Collins and Associates. First stage construction will provide for a peak flow of 4,950 gallons per minute (GPM) and will be a three pump, factory-built type installation with a 20 inch force main. In the event the flows from the Kaanapali Development are introduced into the County system at a later date,

additional pumping capacity will be required at this site either by increasing the capacity of the existing station, adding a factory-built installation or replacing the first stage facility. In any event, conversion of this pump station to handle the additional load can be accomplished at a later date.

The sewage from Pump Station No. 2 will then be transported along the makai shoulder of Honoapiilani Highway through a 20 inch force main and 30 and 36 inch gravity lines to Pump Station No. 1. In the event that Kaanapali sewage is placed into the County system at a future date, provisions can be made for the placement of a parallel line.

Pump Station No. 1 is located mauka of Honoapiilani Highway and adjacent to the proposed waste water reclamation plant site. Initially, this pump station capacity will be for a peak flow of 4,950 GPM and will be a three pump, factory-built type installation with a 20 inch force main to the waste water reclamation plant inlet structure.

Napili-Honokowai System. The preliminary plans for the interceptor system begins at Pump Station No. 8 in Napili and is composed of a series of pump stations,

force mains and gravity lines along Honoapiilani Highway which then terminates at the Waste Water Reclamation Plant at Honokowai.

The sewage flows from the area mauka of Honoapiilani Highway can be intercepted by the proposed system. However, a majority of the existing development makai of Honoapiilani Highway cannot be served by gravity connections. It will be necessary to construct collection systems with pump stations and force mains to serve these low lying areas. An improvement district project may be initiated for these areas in the future.

Sewage pump stations and force mains were designed for the anticipated year 2000 sanitary flows and the gravity lines were sized for ultimate flows based on the present land use master plan. Since these facilities are scheduled for second stage construction, they will be reviewed for current land use and development prior to final design in the future.

Cost Estimates. The estimated costs of the first and future construction stages of the interceptor system are shown in Table 2.1. The estimates are based on 1972 costs and include a 10 percent allowance for contingencies.

These costs are for the interceptor system only and do not include service connections or laterals from the interceptor to the property lines. Nor do they include the cost of construction of collection systems.

The costs of sewage pump stations are based on factory-built type installations except for Sewage Pump Station No. 1. For Sewage Pump Station No. 1, the cost is based on a factory-built type installation for first stage construction, with a peak flow capacity of 4,950 gallons per minute. The future construction cost is based on replacement of this facility with a built-in-place type installation, with a peak flow capacity of 9,900 gallons per minute, together with an additional 20 inch force main to the waste water reclamation plant.

TABLE 2.1

COST ESTIMATE

LAHAINA DISTRICT INTERCEPTOR SYSTEM

DESCRIPTION	FIRST STAGE	FUTURE STAGE	TOTAL
Gravity Lines:			
"A"	$ 354,000	-0-	$ 354,000
"B"	119,000	-0-	119,000
"C"	343,000	-0-	343,000
"D"	157,000	-0-	157,000
"E"	-0-	$ 18,000	18,000
"F"	-0-	387,000	387,000
"G"	-0-	324,000	324,000
Sewage Pump Stations And Force Mains:			
No. 1	279,000	730,000	1,009,000
No. 2	278,000	50,000	328,000
No. 3	386,000	-0-	386,000
No. 4	148,000	-0-	148,000
No. 5	-0-	250,000	250,000
No. 6	-0-	190,000	190,000
No. 7	-0-	175,000	175,000
No. 8	-0-	156,000	156,000
SUB-TOTAL	$2,064,000	$2,280,000	$4,344,000
10% Contingency	206,000	228,000	434,000
TOTAL CONSTRUCTION COST	$2,270,000	$2,508,000	$4,778,000

III. DETAILED DESCRIPTION OF WASTE WATER TREATMENT PLANT

The proposed waste water reclamation plant will serve the Lahaina-Honokowai-Napili Area and will be constructed in three stages. The first two stages will each be capable of treating 3.2 million gallons per day (mgd). The third stage will treat an additional 7.0 mgd, for a total plant capacity of 13.4 mgd.

The reclamation plant will provide secondary treatment by the complete-mixed activated sludge process. The process is capable of producing an effluent with a 5-day biochemical oxygen demand (BOD_5) of 14 mg/l (95% BOD_5 removal) and with multi-media filters, a polished effluent with a suspended solids (SS) concentration of 0.2 mg/l (99% SS removal).

Plant Site. The plant will be located approximately one-half mile inland from Honokowai point and is approximately five miles north of Lahaina Town. The plant site is approximately 15 acres, slopes eastward to westward at 1 to 6 percent grade and is approximately 30 feet above sea level.

The site is presently utilized for growing sugar cane and is owned in part by AMFAC and the State of Hawaii. Generally, the site is underlaid by approximately 20 feet of nonexpanding soil before consolidated lava is encountered.

Treatment Requirements. The pollutional substances present in domestic and commercial sewage is commonly measured in terms of amount of suspended solids (SS) and the amount of oxygen required to maintain aerobic conditions during decomposition of the waste by microbiological action. The amount of oxygen required to stablize the waste is a measure of the organic content of the waste and is termed biochemical oxygen demand (BOD).

The present requirements established by the Environmental Protection Agency and State Department of Health mandate a minimum of secondary treatment prior to surface or subsurface discharge of the treatment plant effluent. Therefore, the treatment objectives considered during design were secondary treatment reductions of 90 to 98% of the suspended solids (SS) and BOD_5.

Treatment Process. A modified form of the activated sludge process will be used for the basic biological treatment system. The treatment process accomplishes aerobic stabilization of organic material by complete mixing in the aeration basin the incoming waste water with activated sludge in the presence of oxygen supplied by mechanical aerators. The activated sludge containing the microorganisms, is maintained in sufficient concentration in the aeration basin by returning settled sludge from the final clarifier to the aeration basin. The excess activated

sludge is concentrated and sent to the aerobic digesters for additional decomposition and stabilization prior to dewatering in the sludge drying beds. Additional suspended solids and BOD removal will be achieved by filtration after chlorination. Initially, the treatment plant effluent will be disposed of by deep well injection. In the near future, the effluent will be utilized as irrigation water for facilities such as parks, golf courses, highway landscaping and sugar cane.

Plant Structures and Description. The general layout for first stage construction and ultimate expansion of the proposed treatment plant is shown in Figure 2.4. Design criteria for sizing individual treatment structures is shown in Figure 2.4. The treatment structures were sized and oriented on site to obtain maximum treatment and operational efficiency. The following is a brief description of the individual treatment structures:

1. Influent Structure and Shredder

A shredder will be provided to screen and shred solids. This will result in fewer floating solids in the aeration basin and secondary sedimentation basin. This will also increase biological activity. The shredder will be designed to pass the peak hydraulic flow. Slide gates will be provided to divert

the incoming sewage around the shredder whenever the unit is temporarily out of service. Coarse screening will be accomplished during the by-pass operation.

2. Aerated Grit Chamber

This unit separates inorganic solids, such as sand, from the wastewater down to 0.21 mm size. The separated grit is washed free of organic solids as it is mechanically removed from the unit and trucked to a landfill. The grit chamber is designed to handle both first and second stage flows.

The purpose of this unit is preventive maintenance. The grinding of large organics and the removal of inorganics prevents excessive pump wear, pipe clogging, and aerator fouling.

3. Aeration Basin

This unit provides intimate contact of the raw wastewater and return activated sludge. Mixing and aeration is provided with four floating aerators, 40 horsepower each, driven by two-speed motors. A single aeration basin will be capable of treating the wastewater with one aerator out of operation. The basin will operate in the complete mix mode. A deep basin was chosen to conform to the site requirements and minimize land use.

4. Sedimentation Basin

Two parallel units provide for gravity separation of the activated sludge from the wastewater. The wastewater in the sedimentation basin is in a relatively quiescent state and the activated sludge flow, being comparatively heavy, settles to the bottom. Each basin will be mechanically cleaned by chain driven scrapers to move the settled sludge on the bottom to a sludge hopper at the inlet end and to push floatable material on the water surface to the skimmers.

These scrapers consist of two heavy endless chains, one on each side of each sedimentation basin across which are mounted redwood or fiberglass boards called flights. These chains and flights are driven about one foot per minute by a geared motor drive unit mounted at the inlet end of each basin. This sludge is further collected into a pump suction hopper by means of a cross collector which normally operates only when the sludge pumps are operating.

The lighter solids which have floated to the surface of the liquid are collected by means of two scum skimmers - one which is close to the inlet end, collecting the fast rising solids, and the second, which is immediately ahead of the effluent weir,

collects the remainder. These skimmers are provided with automatic control which periodically rotates the skimming troughs so that they skim the surface of the water, collecting the scum for a given period of time, then rotating deeper to give a flushing action to the scum skimmers and piping. This scum liquid is carried by gravity to a scum tank.

Effluent from the sedimentation basin passes over level V-notch weirs and is collected in a series of troughs. The troughs are collected in a single channel where the flow is metered with a large V-notch weir.

5. Scum Decant Tank

Scum skimmed from the sedimentation basin flows by gravity to the scum tank which is located adjacent to the sludge recirculation pump station. The scum tank is divided into two sections and separated by baffling. The first section receives the scum from the sedimentation basin and holds the scum until there is enough to pump. The second section separated by the baffling serves as a means of decanting, or removing, the excess liquid from under the scum layer. Each section of the tank has its own hopper and the scum hopper is connected directly to the scum pump,

which flows by gravity to the backwash surge tank. The scum will be pumped out of the decanting tank periodically and hauled to a landfill.

6. Sludge Recirculation Pump Station

This pump station is located at the front end of the sedimentation basin. The station houses the scum decanting pump and the sludge recirculation pumps. Activated sludge is recycled to the aeration basin to maintain a high suspended-solids concentration in the basic for BOD removal. Portions of the activated sludge must be wasted periodically to prevent solids buildup. Sludge recycle rates can be provided to 100% of influent flow.

7. Aerobic Sludge Digestion

The waste activated sludge is thickened and then aerated for a period of 10 days to stabilize the sludge. After the aeration (digestion) period, the digested sludge is pumped to drying beds. The dried sludge will be removed from the drying beds periodically and hauled to a landfill or used as a soil conditioner. The digesters are a series of four cells. Each cell is aerated with a submerged turbine aerator. The turbines are equipped with two speed drive motors for operational economy. These digesters may serve the second stage plant, pending data on the digestability of the waste sludge.

8. Thickener

Excess activated sludge will be pumped to the thickener, concentrated, and pumped to the aerobic digesters. Decanted liquid from the thickener will be returned to the backwash surge tank.

9. Chlorine Contact Chamber

Treated effluent from the secondary sedimentation basin flows to the contact chamber where chlorine is added to kill objectional bacteria and other micro-organisms. The contact period will be 30 minutes at peak flow rate.

The contact chamber consists of two parallel tanks designed to be convertible to flocculation-sedimentation basins should the need for chemical treatment arise in the future. The contact chamber will be equipped with skimmers in the event additional floatable material is generated by chlorination. The chambers will also be drainable in the event that sludge deposits accumulate on the bottom.

10. Filter Pump Station

Treated effluent from the chlorine contact chamber will be lifted by the filter pumps to the flow-splitter box located in front of the multi-media filters. The pumps will be capable of handling the peak flow through the plant.

11. Multi-Media Filters

Filtration will be provided to control suspended solids prior to well injection. Multi-media filters are capable of removing approximately 90% of the suspended solids from the secondary effluent. Removal efficiency of the overall suspended solids across the entire plant would be 98 to 99%. The effluent from the filters is of a quality suitable for final disposal by irrigation, or to injection wells located in permeable aquifers.

The filter media will consist of coal and sand, uniformly graded from coarse to fine, from top to bottom. The multi-media filters are capable of handling greater suspended solids loads than other type filters and therefore will consistently produce longer filter runs before plugging. Back flushing will be required to remove the captured solids from the filters.

12. Clearwell

The clearwell stores the product water from the filter prior to discharge into the injection wells. A short detention time is used in the clearwell to prevent regrowth of microorganisms. Post-chlorination will also be provided at the clearwell. The clearwell will be covered to prevent algae growth.

13. Backwash Surge Tank

The primary purpose of this tank is to provide holding for the filter backwash. In addition, floor drainage and skimming will flow to the backwash surge tank prior to pumping back into the inlet of the treatment plant. The surge tank allows return pumping to proceed at a constant rate.

14. Emergency Holding Pond

In the event a unit must be drained or bypassed temporarily for plant maintenance, the storage pond is available to accept the drainage. The pond will be inter-connected to the backwash surge tank so that a single pump station will serve both the storage pond and the surge tank.

15. Chlorination Building

The chlorinator and miscellaneous related equipment will be housed in a separate enclosed building for safety reasons. Storage space will be provided for storing one-ton cylinders of chlorine gas. An overhead monorail will be provided to handle the chlorine cylinders.

16. Operations Building

The operations building will consist of a laboratory, restrooms, control monitoring center and a

combination conference-lunchroom. The control center will face toward the treatment plant so the operator may view the plant in operation.

17. Maintenance Building

The maintenance building will consist of a shop, garage, storage area, shower and restrooms.

18. Emergency Power

A 350 KW pad-mounted diesel-electric generator unit will be provided for emergency power whenever normal electric service in interrupted. Emergency power will be provided for the recycle pumps, chlorinators, water pumps, sludge collectors, floating aerators, turbine aerators, backwash surge pumps, and filter pumps.

TABLE 2.2

DESIGN CRITERIA

	DESIGN DATA
FLOW, MILLION GALLONS PER DAY (MGD)	
Design, Minimum Daily Flow	1.3
Design, Average Dry Weather Flow	2.4
Design, Average Daily Flow	3.2
Design, Peak Hourly Flow	7.1
Peak Flow Ratio	2.2
Design, Average Daily Flow (Ultimate)	13.4
DESIGN LOADINGS	
Design, Population (Equivalent)	32,000
Design, Population Ultimate (Equivalent)	134,000
Suspended Solids, lbs. per capita	0.2
Biochemical Oxygen Demand, lbs. per capita	0.2
HEADWORKS AND BYPASS	
Bar Screen–Mechanically Cleaned, MGD	7.1
Shredder, MGD	7.1
Bypass Bar Screen–Manually Cleaned, MGD	7.1
GRIT CHAMBER – AERATED	
Number	2
Width – Feet	11
Length – Feet	20
Depth – Feet	7
Grit – Mesh Size	65 (0.21 mm)
Detention Time, Average, DWF, Minutes	67
Detention Time, Peak Flow, Minutes	30
Maximum Hydraulic Capacity, MGD	7.1
Design Loading – GPD/ft.^{2}	40,000
AERATION BASIN	
Number	1
Length – Feet	82
Width – Feet	82
Average Water Depth – Feet	20
Maximum Hydraulic Capacity, MGD	10.3
BOD Loading, lbs. applied BOD/1000 cubic feet	47
Basin Volume feet^3	136,000
BOD Removal, ADF	93%
Sludge Loading lbs. BOD/lb. Sludge	0.3
MLVSS, mg/1	2,500

TABLE 2.2 (continued)

	DESIGN DATA
AERATION EQUIPMENT	
Aerator Type – Floating Surface	
Aerators (Number)	4
Motor Horsepower (O_2 Transfer)	40
Oxygen Transfer lbs. O_2/HP Hr.	1.88
Average Mixed Liquor O_2 Concentration mg/1	2.0
SECONDARY SEDIMENTATION BASIN	
Number	2
Length, Feet	100
Width, Feet	40
Average Water Depth, Feet	14
Average Detention Time, Hours	6.3
Average Overflow Rate, Gallons/S.F./Day	600
Average Overflow Rate, Gallons/L.F./Day	10,000
DISINFECTION (Chlorine Contact Chamber)	
Number	2
Length, Feet	42
Width, Feet	34
Average Water Depth, Feet	7
Chlorine Detention Time–Minutes	
3.2 Average Daily Flow	67
7.1 Peak Hourly Flow	30
Sludge Thickener	
Waste Sludge Production dry solids lbs/day	6,540
Number	1
Solids Loading, Avg. lbs/ft^2	9
Max. lbs/ft^2	18
Liquid Loading gpd/ft^2	82
AEROBIC DIGESTERS	
Number	4
Average Water Depth, Feet	20
Length, Feet	19
Width, Feet	23.3
Minimum Detention Time, Days	10
Aerator Type–Submerged Turbine	
Aerators–Number	4
Oxygen Requirements lbs. 0_2/lbVSS Destroyed (For approximately 50% VSS Destruction)	1.0 to 1.5
Motor Horsepower, 60, 40, 25, 15, Total	140
Compressor Horsepower, Total	150
Oxygen Transfer Efficiency, lbs O_2/HP Hr.	1.70
Average Digester O_2 Concentration mg/1	2.0

TABLE 2.2 (continued)

	DESIGN DATA
SLUDGE DRYING BEDS	
Number	8
Length – Feet	100
Width – Feet	30
Depth – Inches	8
Drying Time – Days	30
SECONDARY TREATMENT EFFICIENCY	
BOD Reduction Percent	93
Suspended Solids Reduction Percent	90
MULTI-MEDIA FILTRATION	
Design Flow, MGD	3.2
Solids Loading to Filters, mg/1	40
Percent Suspended Solids, Removal	90
Surface Loading, GPM/ft.^{2}	3
Maximum Head Loss – ± feet	5
Filter Run, Hours	24
BACKWASH STORAGE TANK	
Depth – Feet	10
Surface Area – Square feet	1590
Volume – Feet^3	15,900
EMERGENCY HOLDING POND	
Depth – Feet	5.0
Surface Area – Feet^2	52,800
Volume–Feet^3	260,000
TOTAL TREATMENT EFFICIENCY	
BOD Reduction – Percent	95
Effluent BOD mg/1	14
BOD in Effluent – lbs/day	374
Suspended Solids Reduction – Percent	99
Suspended Solids in Effluent – mg/1	2
Suspended Solids in Effluent – lbs./day	54
CHEMICAL TREATMENT	
Chlorinators – Number	2
Capacity Range lbs/day	0–400
Space Reserved for	
Alum Storage (monthly delivery) ft^3	6690
Lime Storage (biweekly delivery) ft^3	3600

Cost Estimates. Cost estimates are based on experience. Construction costs vary over a wide range because of variable factors such as availability of labor and materials, efficiency and pay scales, job efficiency, competitive conditions, management, mechanization and many other intangibles affecting construction costs at the time the work is actually performed. Actual costs cannot be known until bids are received, and even these may be subject to adjustment because of changed conditions.

Construction costs were estimated from prices obtained from various sources, including contractors, manufacturers and suppliers of materials and equipment, together with office cost data available from bid tabulations of other similar projects. In considering these estimates, it is important to realize that changes during final design quite possibly will alter the totals to some degree and future changes in the cost of material, labor and equipment, will have a direct bearing on costs presented. To provide for this possibility, a construction contingency is included in construction costs.

The construction costs used in this report are based on an Engineering News Record Cost Index for 1972. The estimated construction cost developed by this study must be adjusted in accordance with the project index for any construction considered after 1972.

The first stage treatment facilities proposed to be constructed in 1973 are shown in Figure 2.4 and are capable of handling sewage flows to year 1980. The cost estimates for Stage 1 Construction are tabulated in Tables 2.3 and 2.4.

TABLE 2.3

STAGE 1 CONSTRUCTION COST ESTIMATE

HONOKOWAI WASTEWATER RECLAMATION PLANT

Sitework, Roads, Landscaping, etc.	$ 180,000
Pretreatment Facility	85,000
Aeration Basin & Sludge Transfer Room	509,000
Blower Building and Aeration Equipment	81,000
Sludge Thickener	55,000
Secondary Clarifiers	445,000
Sludge Recycle Pump Station	110,000
Sludge Drying Beds	70,000
Chlorine Contact Chamber	152,000
Chlorinator & Storage Facility	55,000
Filter Pump Station	135,000
Filter Backwash Tank	115,000
Emergency Holding Pond	110,000
Diesel Generator, Building & Transformer Bldg.	84,000
Operations Building	86,000
Maintenance Shop	36,000
Lab Equipment & Instrumentation	15,000
Major Outside Utilities	180,000
Electrical	340,000
SUB-TOTAL	$ 2,843,000
10% Contingencies	285,000
TOTAL CONSTRUCTION COST (WITHOUT FILTRATION)	$ 3,128,000
Water Treatment (Multi-Media Filtration)	280,000
TOTAL CONSTRUCTION COST (WITH FILTRATION)	$ 3,408,000

TABLE 2.4

STAGE 1 CONSTRUCTION COST ESTIMATE

FOR OFF-SITE UTILITIES

HONOKOWAI WASTEWATER RECLAMATION PLANT

1.	Electrical Substation and Service	$ 44,000
2.	Telemetering	23,000
3.	Injection Wells and Piping	150,000
	SUB-TOTAL	$ 217,000
	10% Contingency	22,000
	TOTAL CONSTRUCTION COST	$ 239,000

The treatment plant must be adequately staffed with trained personnel in order to maintain treatment efficiency. The following table lists the recommended minimum personnel required for Stage 1 operation:

TABLE 2.5

HONOKOWAI WASTEWATER TREATMENT PLANT

MINIMUM OPERATING STAFF

Plant Superintendent (chief operator)	1
Chemist	1
Operators	2
Laborers	1
TOTAL FULL TIME PERSONNEL	5

Yearly maintenance and operations costs for the treatment plant are summarized in Table 2.6. Chlorine and power costs are based upon a design flow of 3.2 MGD.

TABLE 2.6

HONOKOWAI WASTEWATER TREATMENT PLANT

ESTIMATED ANNUAL OPERATING COST

Labor	$ 52,000
Maintenance and Operation	12,000
Power	49,000
Chemicals	12,000
Miscellaneous	3,000
TOTAL ANNUAL OPERATING COSTS	$128,000

In addition to the construction cost, certain project costs must be included to determine the overall first cost of the anticipated construction. Project costs include, in addition to the construction costs, an allowance for taxes, engineering, financial and legal services, interest during construction, discount, bond printing, and the County's administrative cost. For treatment plant construction, an allowance equal to approximately 25% of the construction cost is generally used.

As previously stated in the report, the design flow for the Stage 1 treatment plant may be reached in 1980. The exact timing for future expansion of the treatment plant will be controlled by demand for additional sewerage services created by population growth and large scale development of land within the comprehensive study area. Figure 2.4 shows the orderly expansion of the treatment plant to meet future needs for additional sewage treatment.

The following cost estimates for future expansion are based on 1972 dollars:

Stage II Expansion	$ 3,258,000
Stage III Expansion	$ 7,150,000

SECTION 3

ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION

The impact of the proposed action will be evaluated with respect to both long- and short-term primary and secondary effects, with each effect weighted as to no effect (0), positive effect (+1 to +3) and negative effect (-1 to -3).

I. RESOURCES INVOLVED

Land. The primary short-term effect of the impact on the land will be insignificant. However, the long-term effect will be negatively significant, with approximately 15 acres of land presently under cane cultivation being lost.

The secondary effects, both short- and long-term, will be positively significant. The proposed action will enable controlled development of the prime recreational and urban areas in the future.

Water. The primary short- and long-term effect will be positively significant. The proposed project will alleviate the present unacceptable practice of disposal of raw, untreated sewage into the ocean and prevent future degradation of nearshore waters by the elimination of cesspools and shallow injection wells currently used as methods of sewage disposal.

The short-term secondary effects may be negatively significant. The proposed project in meeting the present needs of the Lahaina community will undoubtedly pave the

way for future development in the urban and recreational areas, which will then lead to increased use of potable water. However, water shortage in the Lahaina area is not eminent, for new water sources are constantly being found and plans are being formulated for reuse of sewage effluent for agricultural irrigation.

Air. The primary and secondary effects on air quality are anticipated to be negligible. The increased consumption of air by the populous and automobiles is not anticipated to degrade the air quality in the project vicinity. Furthermore, all new sources of possible major air polluting activities such as energy generators will have to comply with stringent Federal and State requirements.

Energy. As for energy, the primary long-term effect will be negative, as the proposed waste water plant will utilize electricity for the operation of the plant. Furthermore, the subsequent development of urban and recreational areas will also create additional need and utilization of power.

II. CONSTRUCTION MATERIAL

Sand. Both the primary, secondary and the short- and long-term effects will be negatively significant.

Approximately 1,500 cubic yards of sand will be utilized for the construction of the waste water reclamation plant. This resource will never be recovered. The subsequent future

urban and recreational development will also utilize this valuable resource. As for the quantity which will be utilized, this cannot be determined at the present time. However, new sand beds in the nearshore areas are being discovered and if the amount of sand being generated can be ascertained, these beds could be utilized in the future. Furthermore, a less economical method of mechanically grinding coral fragments may meet the future needs of the construction industry.

Water. The amount of water which will be initially used for the construction of the proposed project will be insignificant. However, the long-term primary and secondary effects will be positively significant. The ultimate reuse of sewage effluent for irrigation will not only cut down the amount of water presently used but will also recharge the brackish water lens presently used for irrigation.

Rock. The amount of rock which will be utilized in the construction of the project is estimated to be 3,600 cubic yards. This resource will not be recoverable and from this point of view the primary effect will be negative.

Cement. The amount of cement which will be used is estimated at 26,000 sacks. This resource will not be recovered. However, the secondary effects will be positive, in the sense that supply and demand will undoubtedly lower the cost of this construction material on the Island of Maui.

Labor. The impact of the proposed project will be significantly positive in both the primary and secondary areas. During the construction phase, approximately 50 people will be employed. Furthermore, the subsequent development of the tourist and urban areas of Lahaina will generate additional labor requirements to sustain the much needed construction activities. Presently, unemployment in Maui County is 6.5%, and diversification of the economic base from agriculture is needed.

III. ECONOMIC IMPACT

As previously mentioned, the primary and secondary effects of the proposed project will stabilize the economic base of Maui County. The Lahaina area is one of the major tourist destination areas in the State. The revenues generated by real property and personal taxes will greatly aid in the controlled development of the County of Maui. The money which will accrue can then be utilized to provide the people of Maui with additional amenities such as roads, parks and increased public services in the area of fire and police protection, better school facilities and hospitals.

Furthermore, no commercial or industrial buildings or businesses will be displaced by this project. However, 15 acres of land currently under cane cultivation will be required for the reclamation plant site along with 1/4 acre for each of the eight pump stations. For the most part, the interceptor sewer will

follow the existing State highway, with the exception of 1,100 feet of force main through Pioneer Mill cane land. Land removed from cane cultivation will be subject to crop damages.

Construction of both the reclamation plant and sewer interceptor will require a substantial labor force and will be a stimulus to the building industry for the life of the construction period (approximately 18 months). Approximately $6,000,000.00 will be injected into the local economy by this project.

The plant site includes parcels owned by Pioneer Mill and the State of Hawaii; thus, there will be a loss of revenues to both Pioneer Mill and the State of Hawaii due to the removal of these parcels from cane cultivation. However, these revenue losses must be considered a small price to pay for the general overall improvement to Lahaina District. Furthermore, these improvements to the local environment will aid in the development of the tourist industry, with subsequent boosts to the local economy.

IV. PHYSICAL CHANGES

The primary short-term effect of the proposed project will be negative. During construction, the treatment plant site will be cleared and the trunk line excavated. However, the effects will be of a short-term and no major significant long-term effects are anticipated. Landscaping of the treatment site will mitigate the rawness of the site and effec-

tively screen the major structures from public view. Landscaping of the pump station sites and revegetation of the trunk line excavation will greatly improve the aesthetic qualities of the project region. Use of trees and shrubs will not only make the project area aesthetically acceptable, but also create a noise and buffer barrier. The sum total of the long-term effects will be positive.

V. ALTERATIONS TO ECOLOGICAL SYSTEMS

The major negative impact of the proposed project will only be during the construction phase when the area is cleared. It may be noted that the area is presently under cane cultivation and therefore, the impact of this project in the long run will not be negative impact but rather positive. The area to be utilized is not an ecologically sensitive area nor is adjacent to one. The ecosystem which existed prior to cane cultivation has long been altered by cane production and the area surrounding the proposed site will remain in cane cultivation.

VI. POPULATION DISTRIBUTION

The proposed project will not affect existing or future urban areas. No families will be displaced by the proposed project. However, the secondary long-term effect will be significantly positive. The proposed project will provide for population distribution and controlled growth as prescribed in the Lahaina Civic Development Plan.

VII. POPULATION CONCENTRATION

The primary short- and long-term effects of the proposed project on population concentration will be zero, for the project will immediately meet existing needs. However, the secondary long-term effect is anticipated to be positively significant. Planned, controlled growth will undoubtedly dictate greater population densities in fixed areas thereby preventing urban encroachment on agricultural lands. The proposed project will greatly aid in development of plans to increase densities per unit area.

VIII. HUMAN USE OF LANDS

The primary and secondary short-term effects of the proposed project will be nil, due to the fact that the area is presently uninhabited and currently utilized for agricultural activity. Perhaps it could be deduced that removal of 15 acres from cane production will have an effect in the total amount of sugar produced, however, it is difficult to conceive how this impact will be significant. Furthermore, the long-term secondary effect will be positively significant, for the project will enable controlled urban and commercial growth to occur in areas already master planned.

The long term effects of this project on the land resources of the area, as previously mentioned, will be confined to 15 acres of land required for the reclamation plant site

and the 1/4 acre required for each of the 8 pump stations. These lands will be taken from cane cultivation for the life of the facilities. These sites were selected so as not to disrupt the land use plan adopted by the County of Maui. There will be no long-term effects from the underground interceptor sewer.

Dewatered digested sludge will be disposed of in sanitary landfills specified by the County of Maui. Ultimate digested sludge production is expected to be approximately 600 tons (dry basis) annually.

Furthermore, the proposed project will not affect any existing residences, churches, schools, cemetaries, parks, public utilities, or natural/historical landmarks. However, the interceptor system and wastewater reclamation plant will encourage urban growth in accordance with the "General Plan for the Lahaina District", as adopted by the County of Maui.

IX. COMMERCIAL AND RESIDENTIAL DEVELOPMENTS

The impact of the proposed project on commercial and residential development in the areas of short-term primary and secondary impact and long-term primary impact will be nil. This is due to the fact that the proposed project is designed to meet existing sewage needs and commercial developments have installed individual private treatment systems. However, the proposed project will enable existing and future private systems to connect into the public system which will alleviate problems encountered by the individual private systems.

X. OTHER PUBLIC SERVICES

The effect of the proposed project on other public services such as transportation systems, fire and police protection, schools and hospitals is difficult to ascertain for the impact will be a long-term secondary effect. It is anticipated that additional burdens will be placed on the above mentioned public services; however, the tax base should be sufficient to meet the future expansions of the services.

XI. PUBLIC HEALTH

The impact of the project on public health is significantly positive. The project will rectify the present, potentially dangerous practice of ocean disposal of raw, untreated sewage. Furthermore, the project will aid in the prevention of future degradation of nearshore waters presently used for recreational activities.

XII. WATER POLLUTION

The proposed project is consistent with the area wide plan for meeting the Hawaii Water Quality Standards, Chapters 37 and 37-A(1968). The project is the cornerstone of the plan which will eliminate discharge of raw wastewater into the ocean. The elimination of ocean disposal will protect against possible bacterial contamination of recreational beaches and will also eliminate nutrients which may stimulate undesirable growths of certain aquatic plants in the coastal waters off Lahaina District..

The disposal of treated wastewater into injection wells or into the land should not deteriorate the ground water beneath or adjacent to the injection-irrigation areas to the extent that its present use as irrigation water is prohibited. In fact, cane crops in the lower coastal areas are irrigated largely by local ground water at this time and this aquifer has potential for continued development primarily as a non-potable water supply because the chloride level ranges from 500 to 1,000 mg/l (1969). The U.S. PHS (1962) recommends 250 mg/l chloride as an upper limit for a drinking water supply when a more suitable supply is available. Such is the case in Lahaina District where potable ground water is tapped in the upland areas. However, if in the future, desalinization of brackish ground water proves viable, then the protection of these groundwaters for such use will be afforded by 1) providing for advanced treatment prior to disposal, and 2) not accepting industrial wastewaters at the proposed facility. The potential for industrial development is very small, as the Lahaina District's major growth potential lies with resort development.

Two major design and environmental considerations currently being determined are 1) the optimum location of the injection wells, and 2) the design parameters required for these same wells. Due to the location of the wastewater

treatment plant itself, the potential well location is limited to areas overlying basal ground water approximately one-half mile from the coast. The chloride content of this water, as well as the water in the nearby vicinity, is approximately 500-1,000 mg/l, as mentioned previously. Well records from the U.S. Geological Survey (1969) indicate that the lens thickness for water of this quality is approximately thirty feet in this vicinity, with the upper boundary located very near the water table. This is to say then that there is very little water of low chloride content in this area. The reason for this is the high permeability of the aquifer and the absence of caprock along this coastline of Maui.

At approximately thirty feet beneath the water table, the chloride content then increases abruptly to a level approximately ten times in magnitude. Thus, discharge depth can be selected such that the wastewater effluent could be introduced into water of greater chloride content. However, it is recognized that there would be some upwelling of the effluent due to density differential. This upwelling can be minimized by introducing the wastewater into basal water of comparable quality, i.e., discharge into waters of similar density.

The foregoing discussion concerning the location and design of the injection wells must necessarily be general, due to the lack of sufficient information at this time.

However, Maui County and the Water Resources Research Center at the University of Hawaii are currently embarking on a research program that will supply specific answers to these questions of criteria. In fact, this research program is but a part of a state-wide effort in determining the feasibility of injection well disposal in Hawaii.

The initial chloride content of the reclamation plant effluent is expected to be approximately 1,000 mg/l as a result of the contribution from Lahaina Town wastewater which ranges from 1,000 to 1,900 mg/l. This high chloride content is due primarily to the high infiltration experienced in the existing collection network in Lahaina Town. Until such time as this system is improved or until design flow is reached, the reclamation plant effluent can be discharged at variable depths such that the usable basal water in the area is not deteriorated. However, when improvements are made or when design flow is reached, chloride concentration will be lowered such that the use of this effluent as irrigation water will be enhanced and either recharging of the existing irrigation basal water and/or direct application to crops can be realized.

XIII. AIR POLLUTION

The only potential major air quality problem from the proposed project would be one of odors. However, the reclamation plant involves aerobic processes only including aerobic

sludge digestion, the major end products being oderless carbon dioxide and water.

However, the proposed interceptor sewer is a combination of force mains and flat-grade gravity lines and is approximately 10.2 miles in length; thus, a long travel time for the sewage results, and along with anticipated warm temperatures, conditions suitable for sulfide generation exist. Therefore, a study was made to determine the probability of sulfide generation in the collection system which lead to sewer corrosion as well as odor. The results of the study indicate only a minor probability of sulfide generation, and such generation, even if it occurs, will decrease with increasing population. As a precautionary measure, space will be reserved at two pump stations to install equipment which will provide chemical treatment for sulfide precipitation if the need arises.

XIV. NOISE POLLUTION

The only noise problems associated with this project will be from the operation of pumping equipment and mechanical aerators. However, these noises are easily controlled by appropriate housing of equipment.

TABLE 3.1

SUMMARY SHEET OF

ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION

	Primary		Secondary	
	Short	Long	Short	Long
I. RESOURCES INVOLVED				
A. Land	0	-3	+2	+3
B. Water	+3	+3	-2	+3
C. Air	0	0	0	0
D. Energy	0	-1	-2	-2
II. CONSTRUCTION MATERIAL				
A. Sand	-3	-3	-3	-3
B. Water	0	+3	+3	+3
C. Rock	-3	-3	-3	-3
D. Cement	-3	-3	-2	+3
E. Labor	+3	+3	+3	+3
III. ECONOMIC IMPACT	+3	+3	+3	+3
IV. PHYSICAL CHANGES	-3	+3	+3	+3
V. ALTERATIONS TO ECOLOGICAL SYSTEMS	-3	+3	+3	+3
VI. POPULATION DISTRIBUTION	0	0	0	+3
VII. POPULATION CONCENTRATION	0	0	0	+3
VIII. HUMAN USE OF LAND	0	-1	0	+3
IX. DEVELOPMENT				
A. Commercial	0	0	0	+3
B. Residential	0	0	0	+3
X. OTHER PUBLIC SERVICES				
A. Transportation Systems	0	0	0	-1
B. Schools	0	0	0	-1
C. Hospitals	0	0	0	-1
D. Police Protection	0	0	0	-1
XI. PUBLIC HEALTH	+3	+3	+3	+3
XII. WATER POLLUTION	+3	+3	+3	+3
XIII. AIR POLLUTION	0	0	0	0
XIV. NOISE POLLUTION	0	0	0	0
TOTAL	(+15-15)	(+24-14)	(+23-12)	(+45-12)
	0	+10	+11	+33

GRAND TOTAL +54

SECTION 4

PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

The construction of any major project such as the proposed Lahaina District Interceptor and Reclamation Plant project will unavoidably have temporary adverse effects on the environment. However, these effects are short-term and with proper controls, can be minimized.

The proposed project is located in an area that is relatively dry, with an annual precipitation ranging from 15 to 20 inches. During first stage construction of the reclamation plant, approximately six acres will be cleared by bulldozing and other excavation equipment. At this time, a permanent diversion dike will be constructed to prevent sheet flow from surrounding areas from entering the construction site in the event heavy rain storms occur. The site itself is flat, with little probability of sheet flow occurring within the site. To further control runoff, landscaping will be initiated as soon as practicable.

Reclamation plant and pump station site-clearing will involve cutting, bulldozing or other excavation equipment, with possible blasting if rock is encountered in excavation. No herbicides, defoliants or burning will be utilized. Although some noise, dust, exhaust fumes and traffic will be generated during this construction, there should be no need for any

unusual controls, due to the remoteness of the sites.

Adequate dust controls will be provided when necessary, and where noise and traffic problems arise, daily construction will be limited to a period that is least objectionable.

SECTION 5

ALTERNATIVES TO THE PROPOSED PROJECT

I. RECLAMATION PLANT

In realistically dealing with alternatives available for consideration, the possibility of continuing the present practice of disposing untreated wastewater by ocean outfall was discarded, as this is incompatible with Federal Water Quality Regulations which require secondary treatment of wastewater prior to discharge into a receiving water. In addition, disposal by ocean outfall is incompatible with the ultimate goals of Maui County, which include water reclamation for irrigation. The West Maui area is very dry and water is considered a precious commodity.

Thus, the alternatives considered were necessarily limited to include 1) type of secondary treatment, 2) method of effluent reclamation, and 3) location of treatment facilities.

Type of Treatment. Three alternative processes were considered for secondary treatment of Lahaina District waste water. These were 1) trickling filter, 2) conventional activated sludge, and 3) complete-mix activated sludge. Of the three processes, the complete-mix system is considered to be the optimum, as it incorporates 1) the ability to accept shock loads, characteristic of the trickling filter systems,

and 2) the high efficiency of organic removal, characteristic of the conventional activated sludge process. In fact, the complete-mix system has been shown to have greater capability to attain these two objectives than either of the other two processes. This ability to accept shock loadings results in the decrease in sizing required for the aeration basins. Also, optimum efficiency is obtained from the aeration equipment because oxygen demand is uniform throughout the basin, unlike the conventional system where oxygen demand is non-uniform.

Although the complete-mix system compares favorably with the conventional activated sludge process in terms of capital and operating costs, it is more efficient from an operating standpoint. Cost considerations of the complete-mix system, on the other hand, do not compare favorably with the trickling filter process; however, the complete-mix system is far superior to the trickling filter with respect to treatment efficiency. In view of the fact that the ultimate goal of Maui County is water reclamation; treatment effectiveness must be considered to be of paramount importance and the complete-mix system was therefore selected.

Effluent Reclamation. At the present time, every effort is being made by Maui County to coordinate the development of the water resources of Lahaina District with the view towards water conservation. This is an important concern for

Maui County as the Lahaina District is a relatively dry area. Of the five water distribution systems that currently serve the district, only two have capacities exceeding the peak demand 100% of the time. One the other hand, the system that serves Lahaina Town often displays a peak demand that exceeds the system's capacity. With a projected increase in demand for potable water due to future growth, the judicious development of the areas water resources is of paramount importance. Recent investigations have indicated that the water resources of Lahaina District are not unlimited; thus, Maui County must continually strive to integrate this effluent water into its total water resources management program. Although, the sugar industry already has plans to treat mill process water with the intent to reuse as supplemental irrigation water, this water would probably be limited to use in the eastern half of Lahaina District, due to transportation costs. Thus, the reclamation plant may very well provide supplemental irrigation water for western Lahaina District. Therefore, it does appear that there will be a demand for plant effluent as supplemental irrigation water in the future, due to limited water resources in the area.

Two major alternatives for reclaiming treatment plant effluent were considered. These were 1) land irrigation, and 2) deep well injection. While both methods are

compatible with the ultimate goal of reclamation, the implication of deep well injection is one of storage for future use while land irrigation would result in immediate use of the effluent. At present, the feasibility of using effluent for irrigation lies with the acceptance of a major portion of flow for cane irrigation. Although treated effluent is currently being used to compliment water supplies for cane irrigation in other areas of the State, there are still many questions to be answered concerning the effect of various nutrients found in wastewater effluents on the growth of cane, and the Lahaina sugar industry is reluctant to accept this flow in total at this time. In an attempt to answer these questions, the Hawaiian Sugar Planters Association, the Honolulu Board of Water Supply, the Sewers Division of the City & County of Honolulu, and the Water Resources Research Center of the University of Hawaii are currently engaged in a two-year study to determine the feasibility of recycling treated effluent as irrigation water, without benefit of dilution with other water sources.

Advanced treatment of the effluent to remove potentially detrimental nutrients was also considered as an alternative to make this water acceptable as cane irrigation water. However, it is premature to follow this mode of action until such time as the true effects of the nutrients have been determined.

If, in fact, it is found that cane growth is not adversely affected by these nutrients, then economic resources will not have been unnecessarily committed. On the other hand, if there is found a need for advanced treatment, the design of this facility will include the flexibility to incorporate chemical treatment to obtain the desired results.

Until such time as these questions are answered, however, the use of deep well injection is felt to be an excellent interim method of disposal, one which could be considered as a recharging mechanism.

Location of Treatment Facilities. Since one of the major objectives of the County of Maui is to provide secondary treatment for Lahaina District wastewater, a site was sought which was centrally located. Honokowai is so located, and further site considerations were limited to this area.

Site A, shown in Figure 2.1, was initially considered, but this area is situated in prime cane land. The cost for crop damages, coupled with the removal of this prime cane land from future use dictated against its selection.

Site B is located within the Honokowai Stream gully, and site preparation costs were felt to be prohibitive. In addition, the possibility of flood damage was felt to be sufficient for not using this site.

Site C, on the other hand, is located on a bluff overlooking the Honokowai gully and would be suitable from the

standpoint of site preparation and safety from flash flooding. However, tne head against which the sewage must be pumped is excessive.

Site D was the site decided upon, as it was relatively flat, not considered to be prime cane land, and easily accessible.

II. INTERCEPTOR SEWER

The total length of the sewerage interceptor system is approximately 10.2 miles. For first stage construction, only one alternative was considered in locating the sewer interceptor line and pump stations. This was to follow the existing street and highways from Lahaina Town to the proposed reclamation plant, with the exception of 1,100 feet of force main through Pioneer Mill cane land from Sewerage Pump Station No. 4 to Honoapiilani Highway as shown in Figure 2.1. This exception was precipitated by anticipated high construction costs due to the presence of public utilities along Front Street in Lahaina Town. The length of this Lahaina Town to Honokowai interceptor line is approximately 6.2 miles.

Second stage construction of the interceptor line will likewise follow existing Hawaii State and County of Maui roadways from Napili to Honokowai, a distance of approximately 4.0 miles, see Figure 2.2. Since this interceptor line and its associated pumping facilities are scheduled for second stage construction, they will be reviewed for current land use and development prior to final design.

SECTION 6

RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

In an effort to enhance the living environment, Maui County has committed itself to provide for the collection, treatment, and disposal of wastewater generated within the Lahaina District. Such efforts will result in this enhancement, along with the maintenance of a high level of public health, at a cost of 15 acres of land presently used for sugar cane production.

In addition, the proposed project will provide a supplementary source of non-potable water that could be used for irrigation purposes, thus increasing the potential for continued agricultural growth. Also, this is a valid and proven approach in sound water resources management, an approach which would prove invaluable for an area such as Lahaina District, where water is considered a precious commodity.

SECTION 7

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

This project will not commit future generations to a given approach to water quality management. All or parts of the project can be abandoned in favor of new technology or new concepts in resource management.

This project would commit land, labor, and material resources. In the event of future abandonment of the project area, the land could be put to other use. The construction materials used in this project may be irretrievable, but could possibly be used for reclaiming marginal land as fill material.

SECTION 8

PUBLIC ACCEPTANCE AND INVOLVEMENT

In an effort to solicit citizen participation in the development of a county-wide comprehensive sewer master plan, several public meetings were held throughout Maui County in early 1971. The meeting dealing with the Lahaina District was held on March 22, 1972, with approximately twenty people in attendance. On January 27, 1972, after completion of the final draft of the proposed "County of Maui Sewerage and Drainage Master Plan", a public hearing was held in the Chambers of the County Council, County Building, Wailuku, Maui. Finally a public hearing was held on February 21, 1973. The following is a summary of the discussions which took place at these meetings and hearing, as they pertain to Lahaina District:

I. PUBLIC MEETING: MARCH 22, 1971

1. Comment: Concern was expressed over irrigation reuse endangering the domestic water supply.

   Response: The areas to be irrigated will not overlie the domestic ground water sources of Lahaina District.

2. Comment: A request was made for baseline studies of the existing shore waters to determine the present quality.

Response: In 1968, Ultramar Chemical Company conducted such a study for the Hawaii State Department of Health. This report to the Health Department is entitled "Water Quality Study - Near Shore Waters of the Island of Maui". For purposes of developing control programs, use of this study in 1972 would have a more conservative effect.

3. Comment: A statement was made that the sugar plantation could get an additional 1.5 to 2.0 tons of sugar per acre, if properly irrigated.

Response: This is true. However, more research is needed to determine the effect of various nutrients present in this recycled water on cane growth. Presently, the Hawaiian Sugar Planter's Association, the City & County of Honolulu, and the University of Hawaii are engaged in a study to determine the feasibility of recycling treated

effluent for irrigation water, without benefit of dilution.

4. Comment: A statement was made in favor of tertiary treatment, or treatment to the degree resulting in drinking water quality.

Response: The design of any treatment facility should include flexibility to incorporate tertiary treatment. However, at the present time, there is no need for this degree of quality as there is no threat to the drinking water of this area.

II. PUBLIC HEARING: JANUARY 27, 1972

During this public hearing, no oral testimony was given pertaining to the Lahaina Sewage Treatment Plant. Only one written testimony was received subsequent to the hearing:

1. Comment: A recommendation was made by Mr. Donald H. Tokunaga of the Maui Realty Company, Inc. to consider an alternate site for the Lahaina STP to the south of Honokowai Stream, away from the highway and outside the flood plain and tsunami inundation limit.

Response: A new site has since been selected south of Honokowai Stream.

III. AGENCIES AND ORGANIZATIONS CONSULTED

As part of the development of the proposed project, a number of agencies and organizations were asked to respond to a preliminary environmental impact statement. These comments and Maui County's responses are summarized in the following.

AGENCY

WATER RESOURCES RESEARCH CENTER

UNIVERSITY OF HAWAII

1. Comment: "...no evidence as to whether or not preliminary field testing and studies on the effluent disposal well scheme have been conducted..."

   Response: Studies are currently being conducted to establish criteria for the location and design of the proposed wells. In addition, the University of Hawaii and Maui County are embarking on a research program designed to further the development of deep-well injection for waste disposal, in Maui County, as part of a state-wide effort.

2. Comment: "...the following types of basic information must be fully known:

   a. The location and description of the wells and associated facilities;

b. The quality of the water in the receiving aquifer at the point of injection and in the nearby vicinity;

c. The depth of injection well;

d. The depth to the groundwater level; and

e. The plans, if any, for monitoring injected effluent after injection operation begins.

Response: The general location of the wells and treatment facility, as discussed in the text of the EIS is located in Honokowai, approximately 1/2 mile from the coast. The groundwater in this general area has a Chloride concentration between 500 - 1,000 mg/l. This area is characterized by a rather highly permeable aquifer with no caprock. The depth of the injection well cannot at this time be definitively specified. In addition, specific plans for monitoring the injected effluent will be outlined once the final well location and design have been selected.

3. Comment: "...EIS lacks thorough description of the interceptor sewer..."

Response: The final EIS has incorporated the details of the interceptor sewer.

4. Comment: "...Even with a dilutional effect from the rest of the sewer system the chloride concentration would probably still be too high for use as an irrigation water on sugar cane lands;..."

Response: Currently, sugar cane cultivated in the near coastal areas is being irrigated with groundwater having a chloride concentration in the 500 - 1,000 mg/l range. With sewer improvements in Lahaina Town, this range of chloride in the wastewater can be obtained. In addition, there is the distinct probability that this wastewater would be diluted with other irrigation waters, rather than being applied directly to the cane.

5. Comment: "...Desalting of brackish groundwater may become potentially a viable method of supplementing future potable water supplies.... sewage effluents may contain objectionable contaminants which may result in irreversible damages to the aquifer..."

Response: If desalinization becomes viable, the treatment facilities will have the flexibility to accomplish advanced treatment. In addition, no industrial wastes will be accepted at this proposed facility.

6. Comment: "...The practicability of a policy which requires absolute "zero discharge" into the ocean for the future is not only questionable from a national standpoint, but even more dubious for the Hawaiian Islands with its vast surrounding ocean potentials..."

Response: Maui County considers the Lahaina District and its coastline as one of its most valuable resources. The coastal waters are abundant with fish and coral for recreational purposes. Several of Hawaii's outstanding surfing sites are located along this coastline, along with many fine swimming areas. Thus, Maui County is committed to not only maintaining this natural resource, but also to improving it. Therefore, every effort is being made to eliminate even the slightest chance of deteriorating these waters. Realistically speaking, ocean outfall must really be included as an alternative. However, Maui County considers this alternative to be very low in priority, and only as a last

resort. For this reason, the philosophy has been to consider water reclamation as the only alternative, with an interim measure being well injection.

AGENCY

ENVIRONMENTAL PROTECTION AGENCY

1. Comment: "...Detailed description of existing water quality problems and the role this project will play in their solution. What incidents have occurred?" "Have existing conditions interfered with the uses of these waters specified by State Water Quality Standard?"

Response: Details of the existing conditions may be found in the text of the EIS as well as in the Pre-design Report on Lahaina Sewer System and Wastewater Reclamation Plant, Maui, Hawaii (1972). In summary, at the present time, an estimated 1.0 M.G.D. of raw sewage is presently being discharged into the ocean. No record of infections or disease has been reported. However, the present method of sewage disposal is a potential public health threat and may interfere with the orderly growth of the Lahaina District.

2. Comment: "...Given the existing population of the area an ultimate design population equivalent of

134,000 appears extremely high. This figure should be broken down into recreational and residential populations or other appropriate categories..." Mention should be made as to phasing of project construction, environmental consequences of development or water and air pollutions, land use, transportation systems and energy utilization."

Response: Granted, the population equivalent of 134,000 is high. It must be pointed out that this projected design figure is derived by taking into account the ultimate development as specified in the general plan and the maximum allowable densities specified in the Maui County Ordinance. However, as previously stated, the goal of the County is not the attainment of these pojected ultimate figure but to have quality and controlled development of the general area. Therefore, the general plan is reviewed every 5 years by the County Planning Department to ascertain the rate of growth and to take the necessary steps to investigate and prevent undesirable growth.

3. Comment: "...The plant is located adjacent to areas zoned for residential and hotel development raising serious questions of land use compatibility..."

Response: Both the Departments of Public Works and Planning are well aware of this problem and will take the necessary steps during the next five years general plan review to provide a buffer zone around the sewage treatment plant. (Please refer to letter submitted by the Director of Public Works to the Planning Director.)

4. Comment: "...The reason for potential odor problems from sulfide generation in the interceptor should be clarified..."

Response: As previously pointed out, the reclamation plant utilizes an aerobic process and it is not anticipated that an odor problem will present itself. However, in the event that an odor problem should present itself due to bacterial shock or low flow rate in the interceptor line, provisions have been made to alleviate this problem. Specific information may be found in a report by Young and Chun (1972).

5. Comment: "...What is the current use of groundwater in the disposal area? Build up of chloride and nutrients from injection would also be detrimental to non-potable uses. Additional hydrological and geological information is needed to clarify the potential impact of wastewater injection and local groundwater..."

Response: Potable water supply for the Lahaina District is tapped from the upland areas and not from the discharge field. Furthermore, the disposal of treated wastewater into injection wells or into the land should not deteriorate the groundwater beneath or adjacent to the injection-irrigation areas to the extent that its present use as irrigation water is prohibited. As a matter of fact, basal water presently used for irrigation has a chloride content of 500 - 1,000 mg/l and the lens thickness is approximately 30 ft. in the vicinity of the injection field. It may be also noted that below this lens the chloride content increases to approximately ten times in magnitude due to the permeability of the aquifer and the absence of a caprock

along this coastline. Thus, the discharge depth can be selected such that the wastewater effluent could be introduced into water of greater chloride content.

6. Comment: "...Special problems of interceptor construction, such as the crossing of a public park or wildlife area, should be mentioned..."

   Response: As stated in the text of the environmental impact statement, the total length of the interceptor system is approximately 10.2 miles to be built in two stages. Both stages will follow existing streets and County and State Highways, thus no special problems are anticipated in the alignment through sensitive areas such as wildlife areas, public parks and cemetaries.

7. Comment: "...The discussion of alternatives does not seem to include all reasonable possibilities..."

   Response: Reference is made to Section V. ALTERNATIVES TO THE PROPOSED PROJECT.

AGENCY

STATE OF HAWAII DEPARTMENT OF HEALTH

1. Comment: "...Solid waste disposal of sludge in sanitary landfills approved by the County of Maui is

not sufficiently detailed to determine the impact of such action and no provision is made for the possible utilization of the digested sluge for fertilization..."

Response: Present plans, as of this date, are to dispose the humic material in a sanitary landfill located near Olowalu - a vicinity called "cut mountain." As the amount of humic material increases, to a maximum of 600 tons, preliminary plans have been formulated to utilize this material as fertilizer for County parks and possible use in the reclamation of non-productive agricultural lands by the Sugar Company.

2. Comment: "...The statement that sulfer compounds will probably not be generated within the interceptor is subject to question..."

Response: A study was made to determine the probability of sulfide generation in the interceptor and collection systems by Young, R.H.F. and Chun, M.J.C. (1972). The results of the study indicate only a minor probability of sulfide generation with decreasing probability with increasing load. Furthermore, chemical treatment facilities to provide sulfide precipitation will be installed in the two pump stations, if the need arises.

AGENCY

U.S. DEPARTMENT OF INTERIOR GEOLOGICAL SURVEY

1. Comment: "...It is felt that injecting wastewater of 1,000 to 1,900 mg/l of chloride into an aquifer in which the water has 500 - 1,000 mg/l would result in some deterioration of the receiving groundwater.

   Response: Refer to response given to EPA and information presented in text of final EIS.

ORGANIZATION

COORDINATING COMMITTEE FOR HAWAIIAN ARCHAEOLOGY

1. Comment: "...There are insufficient data in the EIS to determine if the affect would be adverse to the historic setting."

   Response: The final EIS has been expanded to cover the interceptor line alignment. Furthermore, it may be pointed out that the alignment will follow existing County and State Highways, the STP is located outside of the historic district and all plans have been coordinated with the Maui County Planning Department specifically with the planner in charge of the historic district.

AGENCY

U.S. DEPARTMENT OF INTERIOR - FISH & WILDLIFE SURVEY

1. Comment: "...We expect the primary environmental effect of this project will be on the islands subterranean freshwater lens. The draft does not mention that elimination of the raw sewage outfall will result in a decrease in water turbidity and an increase in salinities in the vicinity of the outfall. This, we believe, will have a favorable effect on any coral which may be in the vicinity as well as on other marine dwelling organisms including fishes..."

Response: No response needed.

No response needed for the following commenting agencies and organizations:

1. Department of Land and Natural Resources - State of Hawaii
2. Department of Water Supply - County of Maui
3. Board of Water Supply - City and County of Honolulu
4. Senator Hiram L. Fong
5. Department of Air Force
6. Department of Civil Engineering - University of Hawaii
7. Environmental Development Council
8. Department of Transportation Services - City and County of Honolulu
9. Congressman Spark M. Matsunaga
10. Department of Transporation - State of Hawaii
11. Lahaina Outdoor Circle
12. Department of Public Works - Maui County
13. Planning Department - Maui County

IV. PUBLIC MEETING: FEBRUARY 21, 1973

LAHAINA SEWER SYSTEM AND WASTE WATER RECLAMATION PLANT

KAMEHAMEHA III SCHOOL CAFETERIA

The public meeting on the Lahaina Sewer System and Waste Water Reclamation Plant was called to order by Stanley S. Goshi, Director of Public Works, at 7:12 P.M., Wednesday, February 21, 1973, at the Kamehameha III School Cafeteria, Lahaina, Maui, Hawaii.

STANLEY S. GOSHI: Good evening ladies and gentlemen. I would like to call this public meeting to order. My name is Stanley Goshi, the Director of Public Works for the County of Maui. To start of this evening, I would like to read into the records the public notice published in the Maui News issue of February 8, 1973.

See Attached Notice

This evening we would like to keep the public meeting as informal as possible and yet maintain some order of form and regulations so that we can get to the business at hand.

To start of with I would like to introduce a few of the people who are here. First of all our Councilman and Chairman of the Environment Committee of the County Council, Councilman Manuel Molina. Chairman of the Public Works Committee of the County Council, Councilman E. Loy Cluney. Swinging to the State level, Dr. Alice Broadhurst, the District Health Officer for Maui. Sitting beside her all the way from Honolulu is Harold Youngquist, a sanitation engineer for the Department of Health. Also, Bob Chase, Environmental Specialist with the Department of Health, Maui District. Way in the back of the room is the Deputy Director of the Department, Wayne Uemae. The County Environmental Specialist Dr. Marvin Miura. Gracious staff members: my secretary Grace Saito, Ralph Masuda, Bessie Kono. And last, but not least, our Federal Programs Coordinator Edwin Okubo. This last gentleman I would like to introduce really is one of our unsung heroes of our program. You've never heard of him until something plugs up - our Sewer Superintendent, a very important man, Albert Souza.

All right, to begin, the purpose of the public hearing is to bring to the people the status of the planning and design to this point and to receive from the public comments, inputs. The testimony will be received after the presentation of the project by our consultant Park Engineering, Inc. After the presentation by the consultant we'll be open for questions and answers after which we will take a short recess so that those wishing to testify may prepare themselves. So with those few simple rules, this will be very informal, I would like to introduce Dr. Michael Chun, representing Park Engineering.

DR. MICHAEL CHUN: Thank you Stan. I would also like to take this opportunity to introduce a colleague of mine, John Tanabe, from Park Engineering, who is the coordinator, engineer in charge of the coordination for this particular project.

I hope that all of you, as you entered and signed up, picked up a series of handouts that we had prepared for you because I will be referring to these documents in the brief presentation that I have prepared for this evening.

As most of you here tonight knows this is the first of a series of three public hearings to be held this week concerning water pollution control facilities for the Island of Maui, for the County of Maui. Tonight's meeting deals with the proposed collection, treatment, and disposal facility for Lahaina District. The consultants in this particular project, Park Engineering with the special consultant handling the sanitary engineering phase from Seattle, Washington -- Hill, Ingman, Chase & Co.

At the present time the major flow from the Lahaina District is generated in Lahaina Town itself where it is collected by sewers and flows to Ala Moana Pump Station from which it is discharged to a 16" outfall extending approximately 1,500 ft. from the shore to a depth of approximately 40 ft. This discharge is untreated raw domestic sewage. In addition to this flow, Kaanapali Resort Development also treats some 600,000 gpd by secondary treatment processes and the effluent being utilized for irrigation water. Finally we have approximately 400 residences in the area, in the Lahaina District, that utilize cesspools for waste disposal.

It is apparent that a more sophisticated and more extensive sewerage system is most desirable even when we do not consider flows that may be generated with future development, future growth of Lahaina District.

After considerable deliberation, waste water collection, treatment and disposal scheme was selected, which includes an interceptor sewer that extends from Lahaina Town to Napili and the waste water reclamation plant to be located in Honokowai. The waste water reclamation facility will provide secondary treatment of the waste water followed by deep well injection of the effluent and sanitary landfilling of the stabilized solids. The selection of this particular alternative is consistent with several general guidelines adopted for the area by Maui County. First, to meet the State of Hawaii Water Quality Standards as described in Chapter 37 - 37A. Minimum treatment of waste water calls for secondary processes. Secondly, from the public health point of view, the discharges of raw, untreated waste water directly into nearshore waters, and this is what is happening now, is potentially dangerous. Although no specific health related incidences have been connected with individuals coming into contact with these waters, nevertheless, the

potential still exists. Thirdly, there are important coral reefs in this area and these reefs as well as the total acquatic ecosystem must be protected. These reefs, these waters, are an important economical resources for the Lahaina District. Finally, Maui County, in principle, is seeking to eliminate disposal by ocean outfall of either treated or untreated waste water from all areas of the island on the principle that such activity may result in the loss of a potentially valuable commodity while at the same time causing serious environmental alterations to the nearshore acquatic ecosystem.

As was mentioned earlier, the proposed project includes an interceptor sewer from Napili extending from Napili to Lahaina Town with a reclamation plant located at Honokowai. I have now a series of about 12 slides that I would like to show just depicting the general area of the treatment plant and the general alignment of the interceptor sewer. Basically the interceptor sewer will be following all existing County and State roadways with the exception of approximately 1100 ft. of force main which will pass through cane land presently under cultivation by Pioneer Mill.

1. The first slide is the picture of Mala Wharf area where the outfall, the 16" outfall, is presently discharging the major portion of the waste from Lahaina District.

2. Near the Civic Center and which just depicts the general terrain in which we have to deal with as far as our interceptor sewer is concerned. The interceptor sewer will be placed on the makai side of the highway.

3. Kaanapali Sewerage Treatment Plant. The existing Kaanapali STP that is presently producing approximately 600,000 gallons per day of effluent for irrigation purposes.

4 and 5. Next two slides. General area in Honokowai where the sewer treatment plant will be located. Approximately 18 acres of cane land presently under cultivation will have to be removed from cultivation. There were about three or four sites that were selected in the nearby area and for various reasons such as pumping cost, such as potentially dangerous flash flooding conditions, these other alternative sites were discarded and this one was selected.

6. This is looking south, looking makai. I might add that the location at Honokowai was selected on the basis that one sewage treatment plant was sought to serve the total Lahaina District and Honokowai is approximately midway between Napili and Lahaina Town.

The cost of the land, well crop damages will have to be doled out for the removal of this particular land as well as the land required for a series of eight pump stations that will be required along the interceptor route. Each pump station will

take approximately 1/4 acre. These land commitments are irreversible. However, the cost of this land and the loss of this land for cane cultivation is really a small price to pay when you consider the benefits derived from this total project.

7. This is in Honokowai Town. County road in Honokowai Town along which the interceptor sewer will be located.

8. North of Honokowai looking north.

9. This is in Kapua looking north.

10. This is in Alaelca looking south.

11 and 12. The last two are in Napili. These are County road.

I kind of wanted to take a lot of these pictures mainly because I don't get a chance to come out here very often and Lahaina is a beautiful place and I think primarily that's the reason why I wanted to show some of the pictures, but, it does give you an idea about how the interceptor line, or where the interceptor line will be located, the present condition, a rather flat terrain.

The rather flat terrain presented some concern in terms of long detention time within the sewer line itself and the possibility of sulphide generation which may lead to odor problem and corrosion of sewer pipes. We did conduct a preliminary study here and concluded that in the initial stages there may be a possibility for sulphide generation, there may be.

Based on that, we have decided to put, to incorporate, into the design of selected sewage pump stations along the interceptor line, put in sufficient room so that we can install chemical equipment, feeder equipment, if the need arises after this system is put into operation. However as flow increase and we approach design flows, then the detention time of course will decrease and the problem will be minimized.

In general descriptive terms the waste water reclamation facility will provide secondary treatment by biological processes. Specifically the choice of treatment selected was by the complete mix activated sludge process. This type of treatment through experience and through operating experience has been demonstrated to be extremely efficient in removing organic material of which this plays a very important part in our waste water flows.

Now this part of the proposed facility is fairly standard. We see many sewage treatment plant activated sludge, modifications of activated sludge, and all of them are fairly standard and very efficient. There are two components of the proposed facility, however, you can turn to your sheet 1, before I get into that, you have the preliminary plan and it demonstrates to you, describes to

you, the location of the interceptor line and also of the reclamation plant at Honokowai. On sheet 2 there is a perspective of the proposed sewage treatment plant. It is a fairly attractive plant. Landscaping will be a major component of the construction contract and the architecture of the plant will be such as to remove it from the passing motorists keeping it to a single story structure. And on sheet 3 we have a basic flow diagram of the sewage treatment process.

As I said the aeration basin as you see here in the secondary clarifiers up to the chlorine contact chamber is quite standard, fair, in terms of sewage treatment activated sludge. However, there are two components of the proposed facility that might, well, is worth mentioning because they are little bit different and it is the chlorine contact chamber. The sanitary engineer consultant incorporated in the chlorine contact chamber special design such that in the future if it is desired to provide advance treatment through chemical addition, the chlorine contact chambers at the point may be converted over to this type of operation. Secondly the chlorinated effluent will be passed through multi media filters so as to obtain a highly clarified effluent. A clarified effluent approximately, well less than one milligram per liter of suspended solids. From thereit will go to a clear well and as plant effluent will go into an injection well, deep well injection, and hopefully, as listed there, reclamation. And this is why we are calling this a reclamation plant.

There have been discussions and discussions are currently underway with different industries, different people here on Maui, in an attempt to not only reclaim water at a reclamation plant here in Lahaina but also at some of the other facilities on the Island of Maui. The multi media filter will enhance the operation in terms of injection, deep well injection, of our clarified effluent. I did mention that the stabilized solids will be de-watered and transferred to a sanitary landfill or a landfill operation that would be certified by the County of Maui. However, we hopefully may find a market. If not a market, at least other disposal sites upon which we can place this material and perhaps utilize this material as soil reconditioner or to improve the quality of perhaps agricultural lands, etc.

That is all I have in terms of a formal presentation. I did want basically just to describe in very general terms the proposed project, whereit is going to be located, and the type of treatment that would be afforded.

If there are any questions at this time I would be most happy to answer or attempt to answer the question. If I can't perhaps John can and if we can't then we certainly will make every effort to answer you by written communication.

Stan.

STANLEY S. GOSHI: Thank you Doc. Are there any questions at this time on the presentation?

QUESTION: How long will it take to start the plant?

STANLEY S. GOSHI: You want total time or just the construction time?

JOHN TANABE: It could be 15 months from start of construction.

QUESTION: I did not hear that.

STANLEY S. GOSHI: 15 months from start of construction.

QUESTION: From Napili to Lahaina included, not only the treatment plant?

DR. CHUN: Let me clarify one point. The total design is not meant to be constructed in one single phase. The sewage reclamation plant will be constructed in three phases. The interceptor line is proposed to be constructed in two phases. The first phase will be the extension from Lahaina Town to Honokowai and the second from Napili to Honokowai.

QUESTION: Is there a schedule for that?

DR. CHUN: No. There is no definite schedule in terms of the interceptor line from Napili to Honokowai. That will depend really upon the future evaluation of the general plan for the Lahaina District.

QUESTION: You say Honokowai on sheet No. 1 you show two names on line, there is an overlap. Now Honokowai as I understand it is the far side of the Honokowai Stream apartment where the Maui Sands is located. Would this be in Increment I of the sewer line. You have an overlap. The top one shows the line from Napili to the sewage treatment plant and the bottom you show it from Lahaina pass the sewage treatment plant into Honokowai.

DR. CHUN: Well this particular plan that you are looking at now. On the particular plan on the lower diagram -- disregard the line extending from the plant to Napili -- that will be in the second phase. This is just the continuation - condensed it so that we could present it.

QUESTION: In other words when you do this, it will be completed from Lahaina to Napili all at one time?

DR. CHUN: No. No. the first stage construction, the design is a complete design in terms of from Lahaina to Honokowai and Napili to Honokowai.

QUESTION: Where did you divide Honokowai? That is my question.

DR. CHUN: On the sewerage treatment plant.

QUESTION: You show from Napili on the top on Sheet No. 1 from Napili to the sewerage treatment plant now at the bottom of the same sheet you show it from Lahaina into Honokowai after the sewerage treatment plant.

DR. CHUN: What I am saying, sir, is to disregard the extension on the bottom sheet. Disregard the extension from Honokowai plant beyond. Disregard that.

QUESTION: Sir, for overall planning, would it be a fair question to ask, for instance, when any of the condominium beyond or north of Honokowai, the earliest date in which they might be required ct be able to hook up to this system -- the earliest date.

STANLEY S. GOSHI: At this time that earliest date is difficult to pin down. This is mainly because of funding problems. With the national cut backs on grants for the sewerage program, remember, although the Congress passed 1972 bill, the allocation was cut in practically half. So based on this and revenue sharing, it is very difficult to set minimum starting time at this moment. However, I might add that we are presently negotiating for the design of the transmission line from Honokowai to Napili with a consultant. We are doing this so that we will be in a position whenever funds become available to apply for it.

QUESTION: Is it fair to ask you, with your knowledge, to give us "in the ball park" opinion that if all funds were gung ho and all problems were solvable with no delay, the earliest date in which condominium north of Honokowai would be able to hook up to the sewer?

STANLEY S. GOSHI: No, that is a very fair question. If according to your word gung ho is everything is go, I would say by the end of 1975.

QUESTION: Everything complete by 1975?

QUESTION: I would like to ask a question. Do you require certain condominiums along the road pumping stations or do you get lower? Is that too that may be too technical to ask.

STANLEY S. GOSHI: I think I can answer that by saying that each location or condominium, I am pretty sure you are speaking from Honokowai to Napili and those that will be below the highway, I think each would have to be studied on its own merits and appropriate engineering judgements made at that time.

QUESTION: The treatment plant is south of Honokowai Stream?

STANLEY S. GOSHI: That is correct.

QUESTION: There is no collection of sewage north of that point for the first increment?

STANLEY S. GOSHI: Thatis correct.

QUESTION: The Honokowai region included?

STANLEY S. GOSHI: At the present time that is correct.

QUESTION: Mr. Goshi, you have the LID, improvement district law on the books yet? As I understood that you do have that law but never been used. Now if they do have it and if the people are willing to be assessed on the boundary basis to take part in the cost of its extension from Honokowai to Napili, would the County be willing to have petition circulated and it would speed up the addition of this other phase of the sewerage system. Would that help any and see if we can get some more funds. The reason I ask, I think it was maybe about six years ago someone from the County asked me whether I was willing to circulate a petition out in that district. And I said I would. I think it was at that time going to be about 3¢ a square foot for the property owners. Even if it is over that, it would be beneficial. All the trouble that people are having in the different condominiums -- all of them are having trouble with deep well.

I think some of the politicians are a little afraid of assessing the property owners. They are trying to get all the money from the State and County.

I feel that most of the users will be willing to pay for part of the cost. I know they are willing to pay. I represent two different groups and I know they are willing to pay if they are assessed something. LID it is not a bond issue -- payable about 20 years. Annual payments for the property owners to pay - it is not a large amount.

STANLEY S. GOSHI: On your LDS there is statute in the books. You are correct the County has never done it so far as I can recall. I would say that the County would look at the proposal and would be happy to get together with you to discuss whatever possible avenues that you may have in this area.

QUESTION: I think I understand. I would like to ask you a question so that other people may hear. You say 1975 may be the target date that the sewer is going through.

STANLEY S. GOSHI: I am sure I answered the gentlemen's question.

QUESTION: Suppose it is. How long do you give the people, the condominium to connect. Is there a certain time may I ask that question.

STANLEY S. GOSHI: At the present time we do not have that information. We are presently working on a sewer ordinance that should cover your question. But I don't have the answer right now.

QUESTION: When are you going to start working on the sewerage plant, how soon?

STANLEY S. GOSHI: You mean the plant we are discussing right now?

QUESTION: When do you plan to start on the plant?

STANLEY S. GOSHI: I do not know. Maybe Harold Youngquist can answer that one. But seriously, at the conslusion of this public meeting, we will assemble the testimony for inclusion in the Environmental Impact Statement to be submitted. On the tentative schedule of approximately one or two months to do this, and having an application in, and providing the funds and everything gels, I would say within, this is February, we should be able to get under way before the end of the year.

QUESTION: Where are the pumping stations -- now are they going to be engineered for sound?

STANLEY S. GOSHI: John, maybe you can answer that one.

JOHN TAKABE: The pump stations will be completely underground, except for standby power shed. It is all located in rather isolated areas and we feel that they will be away from the noise problem.

QUESTION: You say they will be in isolated area so you won't have to worry about noise problem?

JOHN TAKABE: We do have problem. I mean most of these are in rather isolated areas and the noise problem should be at a minimum.

STANLEY S. GOSHI: Any other questions?

QUESTION: This term waste water - can we have a little clarification on the meaning of that. This is not sewage as such. This is runoff waters, I mean.

STANLEY S. GOSHI: No. We are talking about domestic sewage.

QUESTION: This is coming down from feeder lines and call it waste?

STANLEY S. GOSHI: Yes

QUESTION: We were discussing the plant on page 3. It shows from the multi media filter it goes into the clear well and the plant effluent then goes into the injection well and secondarily to reclamation. According to your report that in case it doesn't go into reclamation first, etc., is it not part of your plan to put into irrigation of existing canefields?

DR. CHUN: That is what we mean when we talk about reclamation. We listed here 1) injection well and 2) reclamation. Basically there are two alternatives. We are striving to utilize this effluent as cane irrigation or irrigation for parks, County road-ways. This is what we mean by reclamation -- we reclaim this water for use as irrigation water. And in the interim until we can develop a market for this or consumer for this, we are going into injection well. We can place it back into the aquifer.

QUESTION: This injection well, will it be able to handle all the effluent that is developed from the plant?

DR. CHUN: Yes

QUESTION: It will be able to dissipate into the soil.

DR. CHUN: Well eventually, this will eventually reach the ocean some distance from the shore. This clarifies that one.

QUESTION: In other words this will go below the top strata and infiltrate at approximately what depth.

DR. CHUN: We cannot answer that at this moment, sir. We don't know. We are currently awaiting results from our soils consultant and also some studies have been going on and are being initiated by the Water Resources Research Center of the University of Hawaii and the Maui County. We cannot say for sure exactly at what depth this particular outcrop will occur and also what distance from the shoreline. Have I answered your question by not answering it?

QUESTION: You probably have answered it but not too satisfactorily. In other words it would appear that the effluent will eventually get into the ocean.

DR. CHUN: Yes, it is.

QUESTION: Would it be possible to if it were used for irrigation in the canefields would there be any infiltration to from seeping into the soil - percolation or something like that?

DR. CHUN: We would have some. Depending on what kind of irrigation you're talking about. Some furrow irrigation you probably will have percolation back into the ground water. Where we would be using it for irrigation water would depend upon the nature of the particular ground water acquifer in that area. We don't want to present any potential dangerous situation with respect to our ground water, our

potable water. We are talking about an area of chloride of approximately a thousand milligrams per liter ranging between 500 to 1000. In some instances greater than thousand milligram per liter .

DR. MIURA: May I add something to clarify that so that there won't be any doubt where we get our potable water supply. Our water supply used in Lahaina, same for Wailuku - Kahului, comes from the mountain. Where we are proposing to use as interim solution of deep injection well this is, the water used is usually used for irrigation purposes. Where we are going to dump it into the force injection well will not be in our potable water supply no matter what so I think any doubts that you may have on of possible contamination of our potable water supply is out.

QUESTION: I was thinking more of the swimming beaches at Kaanapali and other areas. In other words this infiltration, this will in no way endanger those beaches, those people swimming.

DR. MIURA: No sir. I think perhaps we should clarify that the sewage effluent, and we shouldn't even call it sewage effluent really, after you go through primary and secondary contact chlorination and killed of bacteria and goes through your multi media filter and when it gets into your injection well or utilize as cane irrigation, that water is a very good quality water. They are now using in San Francisco to irrigate in the Golden Gate Park and other areas that you list they use this so that if we were to put it into deep injection well we are not talking about, we don't know how deep it will go , but it will probably be about 200 or 300 feet and eventually this will be diluted with the, as you know, as the salt water comes in and eventually seep out. Thank you.

MR. JACK MILLER: Mr. Chairman I have to leave early but before I go may I make this statement. I am Jack Miller of Napili Kai.

We have 10 acres of ground thereand we have been there for 10 years on a hotel type of low rise, low density, hotel type of operation.

We started out with septic tanks in accordance with the County ordinances. It wasn't very long when the septic tanks have sealed themselves off with grease from the kitchenettes and they just became tanks. We dynamited them and they didn't work very long so we went into primary and secondary sewerage treatment plants. We now have five plants there. It cost us some $250,000.00.

These plants are well organized but principly so is our plumbing. We separate our plumbing at the kitchen sinks so that the kitchen sinks go into a grease trap and they have a differnt plumbing line from the toilets so that the grease and the fecal matter don't get together before they get into the sewage treatment plant and therefore let the grease be carried on through. We trap the grease ahead of the treatment plant. We do the same thing with the laundries. The laundries are trapped in lint traps ahead of the treatment plant then the effluent from these two traps go into the sewage treatment plant and we process the sewage at that time

treatment through three stage treatment plant and then we chlorinate the effluent at that time and we have what is called a potable water effluent. We then put it into injection wells in the ground and also in very very substantial leaching pits which go all over the property which are like a 4 ft. cavern under the property with 6" perforated pipe going through the center of the cavern and the hole of the cavern is filled with crushed rock.

In the 10 years we have been there we maintained these plants very carefully. We pump out the solids which collect -- that is bone, the sand, and the materials which cannot be processed. And as the plants fill up with these material, we pump these material out and put them away for landfill. A very difficult operation. We have about 1/2 hour maintenance per day on each of the 5 plants. We have constant corrosion inside of the plants. The 2" galvanized pipes will last only about three years inside these plants. We have an unbelievable problem, but, inspite of this very careful and expensive and well maintained sewerage treatment facility in our own 10 acres with only 120 rooms on it, we have enough grease has escaped us through these plants in order to seal off the majority of the underground caverns which we have established at great cost.

The injection wells that we have will last us about a year, maybe a year and a half, and we will have to drill another one and injection wells are costing us about $20.00 a foot. Sometimes we go 100 ft. in order to get the right percolation that is required.

So we are pretty much experts in this field and we have spent a great deal of money and great deal of time to do it. For those of you who are on new property where you are building high developments and only an acre or two of ground underneath you, your case is hopeless. You are going to be absolutely dead because you won't be able to absorb the effluent underneath it that your treatment plant is going to produce.

So therefore we must all get behind this and hurry as fast as we can for West Maui to get this material into the hands of very professional people who can handle this kind of volume. Because I promise you on the property, especially you condominium owners, on the property that are below you, there is no way that the ground can absorb the amount of effluent that you are attempting to pump into that ground. Thank you.

STANLEY S. GOSHI: Mr. Miller, very informal but very effective. Thank you.

STANLEY S. GOSHI: At this time we are taking a short recess to prepare for testimonies. Mr. Uemae has sign, the sign up sheets for those who wish to testify so please sign up and submit those sheets and you will be called from those sheets.

RECESS: 8:00 P. M. to 8:15 P.M.

STANLEY S. GOSHI: The meeting is reconvened. We will now go into the testimony portion but before we start, Dr. Miura, our Environmental Specialist, asked for a minute or so.

DR. MIURA: Ladies and gentlemen thank you. I just would like to take a minute of your time here. In public meetings like this, one of the reasons why we have public meetings is to, and this can be comparable to a pubic hearing, is to solicit your views on whether the project should go or not to go. We are the ones paid by you to be sure that we can fill out the application forms the right way and to come up with technical solutions to the sewage problem here. One thing that has been hurting us is that lack of public participation. For one thing, I would like to thank you very much for taking your evening to come to listen to us. Also this becomes official records. In other words as we submit our application for grant assistance from the Federal Government, whether it is 55% Federal Funds or 75% Federal Funds, we are not too sure yet, but the main thing is that in with our grant application giving the technical information and specifications, the size of the sewer treatment plant, where it is going to collect, how we are going to treat it, there is now, we must submit with this application, the transcript of public meetings such as this. This transcript is a very integral part of the application. It shows the people who will be giving you the money, both the State as well as the Federal Government, the importance of this project. And if we submit our testimony and the official records here to the Federal Government and we do not have people back fighting for the project as this, as important project as this, then it does not carry much weight, really. We can argue for the point of public health but yet unless you people testify as residents of Lahaina Community then we don't have a leg to stand on and as you all know the fiscal cutbacks in Washington are occurring and will continue to occur and unless we can present a good, valid case for us and, that means you helping us, we all working together for the same thing, then the project won't go. Simple as that, so you must testify. We have a lot of blanks, testimonial blanks here for you to fill out and I hope that you will reconsider and testify for yourself to get this project underway. Thank you very much.

STANLEY S. GOSHI: Thank you very much Marvin. The first to be called, he has asked to be called first because he has another engagement but he really wanted to put in his testimony. I would like to call Howard L. Raught. Will you please come up to the microphone, identify and state whether you are representing yourself or an organization and go into your testimony.

MR. HOWARD RAUGHT: My name is Howard Raught. I live at 225-4 Front Street. I have been a taxpayer in West Maui for 5 or 6 years. I have been reading a little in the paper about the hearing tonight of the Lahaina Sewer System and Reclamation Plant and I want to say this. I came tonight with a little, couple of questions in my mind,

but I can see now this is probably what West Maui really needs. I think it is a well thought out plan and most necessary for us to go ahead with it at this time. I am only sorry that the second increment from Napili to Honokowai can't go in at the time the original first increment plant goes. Thank you.

STANLEY S. GOSHI: Thank you Mr. Raught.

STANLEY S. GOSHI: Before we continue on with those who signed in, we have had prior correspondence and at this time could I have the prior correspondence. For the records, I would like to read these into the records of the meeting.

See attached written testimonies from:

1. Department of Water Supply
2. West Maui Business Association
3. AmFac Communities, Inc.
4. Maui Chapter of the Hawaii Society of Professional Engineers

I would like to continue now by going into the list of persons who have submitted desires to testify.

DR. BROADHURST: My statement is a short, concise one, regarding the feelings and the standing and the opinions of the State Department of Health on this matter and it is simply a statement regarding the proposed sewerage disposal system in Lahaina.

See attached written testimony

MR. ROBERT VORFELD: Actually my statement comes under the heading of prior correspondence. It is a letter from Mr. Jack Siemer, our Vice President and Manager of Pioneer Mill Co. to Mr. Stanley S. Goshi, Director of Public Works regarding Lahaina Sewer System and Waste Water Reclamation Plant.

See attached written testimony

In addition to this, I would just like to make an additional comment and say that there are several studies underway that will be conducted by the HSPA Experiment Station relating to the use of effluent in irrigation water and so on which are very important and are in a way our contribution to working with the County and our additional support on this project. Thank you.

MR. J. A. SUMZEY: Mr. Goshi, David Nobriga, the Chairman of the West Maui Soil and Water Conservation District, was called to Honolulu

for a couple of days of business and asked me to present the testimony of the Board in the form of a letter which I would like to read.

See attached written testimony

MR. KUNISAWA: My name is Kunisawa. I am manager of Maui Sands Hotel in Honokowai. In behalf of Maui Sands Hotel I would like to say we are all for this sewage plant and I hope it will be installed as soon as possible.

MR. LITTLE: I am Donald W. Little at Hale Ono Loa and all I would like to say is the sooner the better and it seems that we are wasting a lot of good money right now in installing these fancy cavettetes or sewer systems that we have and the expense we have in maintaining them. So I would like to say that we would sure like to see this plan go forward immediately if not sooner. Thank you.

MR. SELLER:

STANLEY S. GOSHI: Has he left.

MR. YOSHIMOTO: My name is Hami Yoshimoto and I lived here all my life and I know progress is good and I know everyone of you who came tonight here is for the project so let's give them a big hand to the County and State employees and push them all the way and make this project go fast. Thank you.

DR. TIEDEMAN: My name is Harry Tiedeman. I have lived here for about 10 years and been a taxpayer for about 16 years -- probably one of the first coast haoles that ever came to the West side. All I'd like to say is if this LID would help to speed up the second phase of the sewer system, I would be glad to work for the County and circulate a petition all the way from Honokowai to Napili and I am sure that most all the property owners out that way would be willing to be assessed something to get that system in. In the long run it would save them all money.

STANLEY S. GOSHI: That is last one on the list. Is there anyone else who wishes to testify at this time.

MR. ED ANDERSON: I am Ed Anderson. I am with the Hale Ono Loa. We're really for your program. We have 8 people here tonight in attendance from Hale Ono Loa and I would like to confirm what Jack Miller told you from Napili Kai Beach Club. He owns 10 acres and he's told you all the problems he has. We're on 1.7 and we have 68 apartments and we're in trouble all the time and you can't get up there sooner. Sounds like they've got a good plan. I am sorry we're in the second increament and not in the first increment because we need your help. We just feel like we're sitting on a keg of dynamite up there. It has happened to us -- it is continuing to happen. We think we've got it licked for awhile. Maui Sands also gave you the same story. We sure need help up our way and I do thank you County men this evening for coming out. It is very nice of you. We appreciate the interest you have in [illegible]

STANLEY S. GOSHI: Anyone else who wishes to testify. If not, we will be accepting written testimony up to 10 calendar days after today's date -- that would be March 1st. So this is one announcement I would like to make that written testimony will be acceptable from anyone here or from any of your colleagues up to 10 calendar days, or March 1st. Well, somebody said March 3rd but let us keep it at March 1st because the sooner we get this thing in, the quicker we can get moving. So if there are no more testimonies to be offered, I would like to thank everyone here who showed up and had the interest to show for this project. I assure you we will try our best to get this project going. Thank you again.

Meeting adjourned at 8:40 P. M.

Lahaina Sewer System and Waste Water Reclamation Plant
Public Meeting - February 21, 1973
Kamehameha III School Cafeteria

Attachments:

1. Notice of Public Meeting

2. Letters:

   a. Dept. of Water Supply
   b. AmFac Communities, Inc.
   c. Department of Health, State of Hawaii
   d. Pioneer Mill Co.
   e. West Maui Soil & Water Conservation District
   f. West Maui Business Association

3. Resolution :

   Maui Chapter of the Hawaii Society of Professional Engineers

AFFIDAVIT OF PUBLICATION

STATE OF HAWAII, County of Maui. } ss.

Rose Alcomindras ..... being duly sworn

deposes and says, that he is Classified Sales ..... f the Maui Publishing Co., Ltd., publishers of the MAUI NEWS, a newspaper published in Wailuku, County of Maui, State of Hawaii; that the ordered publication as to NOTICE OF PUBLIC MEETING .....

.....

of which the annexed is a true and corrected printed notice, was published 1 times in the MAUI NEWS, aforesaid, commencing on the 8th day of February, 1973, and ending on the .....day of ....., 19....., (both days inclusive), to-wit: on .....

February 8, 1973 .....

.....

and that affiant is not a party to or in any way interested in the above entitled matter.

Rose Alcomindras

Subscribed and sworn to before me this

13 day of Feb. A.D. 19 73

Notary Public, Second Judicial Circuit, State of Hawaii.

My commission expires August 31, 1975

NOTICE OF PUBLIC MEETING

COUNTY OF MAUI
LAHAINA SEWER SYSTEM AND
WASTEWATER RECLAMATION PLANT

Notice Is Hereby Given of a public meeting to be held by the County of Maui in the Kamehameha III School Cafeteria on Wednesday, February 21, 1973, 7:00 P.M., or as soon thereafter as those interested may be heard to consider the proposed Lahaina Sewer System and Wastewater Reclamation Plant for the County of Maui.

The following documents will be available for public review at the Department of Public Works, County Building, Wailuku, Maui and the Lahaina Library, Lahaina, Maui.

1. A copy of the General Plan for the Lahaina District
2. The Sewerage Master Plan for the County of Maui
3. The Interim Basin Plan
4. The pre-design report on the Lahaina Sewer System and Wastewater Reclamation Plant
5. The Environmental Impact Statement
6. A map showing the schematics

All testimonies regarding the proposed projects may be filed in writing to the Department of Public Works, County of Maui, 200 South High Street, Wailuku, Maui, 96793, before the date of the public meeting or presented in person at the time of the public meeting.

COUNTY OF MAUI
(Sgd.) STANLEY S. GOSHI
STANLEY S. GOSHI
Director of Public Works

(MN: Feb. 8, 1973)

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P. O. BOX 1109
WAILUKU, MAUI, HAWAII 96793

February 20, 1973

Mr. Stanley Goshi, Director
Department of Public Works
County of Maui
Wailuku, Hawaii 96793

Dear Mr. Goshi:

Subject: Lahaina Sewer System and Wastewater Reclamation Plant

The demand for potable water have increased steadily over the years in the West Maui area.

Developments that have taken place along the coastline from Lahaina-Honokowai-Napili area is placing a heavy burden on the existing source as well as on the water system.

Therefore, any reuse of treated water for irrigation purposes will be of tremendous help in decreasing the demand for potable water.

Sincerely,

For Carl Kaiama, Director

TI/ao

AMFAC COMMUNITIES INC.-HAWAII

AN Amfac COMPANY

P.O. BOX 696
LAHAINA, MAUI, HAWAII 96761
TELEPHONE 661-3671

February 20, 1973

Mr. Stanley Goshi, Director
Public Works Department
County of Maui
Wailuku, Maui, Hi 96793

Dear Sir:

Subject: Lahaina Sewer System and Wastewater Reclamation Plant

It is very obvious that an adequate sewage disposal system is among the most pressing needs of the Lahaina area.

We have been assisting in the proposed project where we can by cooperating in the siting of the pump stations and wastewater plant. The chosen plant site fell partly on State and Pioneer Mill Company land and we initiated an exchange of land with the State to make the site land available to the County of Maui when needed.

A perusal of the plans indicates that the most up-to-date process criteria are being used in the plant design. The thoroughness of the study and good design shows that the selection of the engineering consultant was wisely made.

Therefore, based on the above, Amfac Communities supports this project in total and hopes that it will become a reality in the near future. In addition, we wish to express our appreciation to the Mayor and the Department of Public Works for the drive shown in initiating and carrying through this project.

Sincerely,

Peter A. Sanborn

Peter A. Sanborn
Project Manager

JOHN A. BURNS
GOVERNOR

WALTER B. QUISENBERRY, M.P.H., M.D.
DIRECTOR OF HEALTH

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

STATE OF HAWAII
DEPARTMENT OF HEALTH
54 HIGH STREET
STATE OFFICE BLDG.
WAILUKU, MAUI 96793

February 21, 1973

STATEMENT REGARDING PROPOSED SEWAGE DISPOSAL SYSTEM - LAHAINA

The primary responsibility of the State Department of Health is to protect the "Health of the Public." This is of paramount importance in sewage disposal.

Of primary consideration when any land is scheduled for building is proper planning for treatment and disposal of such sewage. No other factors outweigh this one if an ecologically sound building program is contemplated.

An acceptable sewage disposal system consists of three parts:

1. Correct engineering and planning for a new system.
2. This unit must be of sufficient capacity to allow existing private disposal units to be connected with it.
3. All existing disposal units must have proper maintenance and frequent checks to be sure that breaks and seepage have not occurred.

The Health Department hereby wishes to go on record that no future building requiring sewage disposal, especially when located adjacent to sensitive water areas, will be approved without adequate plans for same.

The Health Department similarly will monitor existing sewage disposal plants for adequacy, bacteriological safety and proper maintenance.

PIONEER MILL COMPANY, LIMITED

Growers of sugar cane and producers of raw sugar

P. O. Box 727
Lahaina, Hawaii 96761

February 19, 1973

Mr. Stanley Corbi, Director
Public Works Department
County of Maui
Wailuku, Maui, Hi 96793

Dear Sir:

Re: Lahaina Sewer System and Wastewater Reclamation Plant

During the past several years, Pioneer Mill Company has implemented a factory wastewater pollution control project which will be completed in late 1974. A beneficial result of this project will be a cleaner, healthier and more attractive environment.

The construction of an adequate sewage disposal system for West Maui will complement our own industrial wastewater control project; in fact, the need for such a system is paramount in view of the rapid and diverse growth of the Lahaina area. We are cooperating with the County of Maui by making available through land exchange with the State a level and accessible site for location of the proposed sewage treatment plant. Although the location for the plant will necessitate our withdrawing caneland from production, careful study and cooperation have minimized the potential acreage loss which, in any case, was contemplated in the Lahaina District 701 General Plan adopted in 1968.

We support the work of the County of Maui in developing plans for a Lahaina sewer system and wastewater reclamation plant. We believe the needs of the growing West Maui community will be well served by the proposed project, and we look forward to working closely with the County in making it a reality.

Sincerely,

John W. Siemer
Vice President & Manager

JWS:th

MAUI

February 20, 1973

Department of Public Works
County of Maui
Wailuku, Maui, Hi 96793

Gentlemen:

Re: Lahaina Sewer System and Wastewater Reclamation Plant

The following comments on behalf of the West Maui Soil and Water Conservation District are submitted in response to the Public Meeting Notice of the Lahaina Sewer System and Wastewater Reclamation Plant.

The West Maui District is in accord with the basic intent of providing sewage treatment and eliminating the discharge of raw sewage into the near shore waters of Lahaina. The basic plan and plant location in general conforms to our beliefs in the area of resource conservation.

We are especially interested in any program of reuse of the treated effluent for beneficial uses and would like to be consulted in the formulation of the County's plans in this area.

We reiterate that the Lahaina Sewer Project is an action measure of the Tri-Isle Resource Conservation and Development Plan and we again endorse the project for immediate implementation.

Very truly yours,

DAVID NOBRIGA, CHAIRMAN
West Maui Soil and Water
Conservation District

West Maui Business Association 1201
Post Office Box 880 Lahaina, Maui, Hawaii 96761

"Preserving and Promoting the General Welfare of West Maui, its Residents and its Business"

February 15, 1973

Director of Public Works
County of Maui
Kalana O Maui
Wailuku, Maui, HI 96793

SUBJECT: Lahaina Sewer System and Waste Water Reclamation Plant

Dear Sir:

On Wednesday, February 14, at a special Board of Directors' and General Meeting of the West Maui Business Association, the members went on record in support of the proposed Lahaina Sewer System and Waste Water Reclamation Plant as proposed by the County of Maui to service the West Maui community.

The Association further wishes to express its appreciation to the County for its diligent efforts in pursuing items such as a complete sewer system for West Maui as it has a direct bearing on the future economic well-being of our community which is one of the prime objectives of the West Maui Business Association. In addition, the Association stands ready to assist in any way we can to see the Lahaina Sewer System and West Maui Reclamation Plant become a reality as soon as possible.

Sincerely,

WEST MAUI BUSINESS ASSOCIATION,

Ronald Y. Kondo
President

At a regular meeting of the Maui Chapter, Hawaii Society of Professional Engineers held on February 18, 1973, the membership by majority vote adopted the following resolution:

> The Maui Chapter, Hawaii Society of Professional Engineers hereby is officially on record as being in favor of the location and design of the sewerage facilities as proposed by the County of Maui for the community of Lahaina, and urges that the County, State of Hawaii and the Environmental Protection Agency proceed as expeditiously as possible to approve and implement these plans without undue delay.

Alvin Fukunaga, President
Maui Chapter
HSPE

ATTACHMENT

Copies of letters submitted on the Draft Environmental Impact Statement

UNIVERSITY OF HAWAII

Water Resources Research Center
Office of the Director

MEMORANDUM

October 13, 1972

TO: Marvin Miura
Office of Environmental Quality Control

VIA: Doak Cox
Environmental Center DC

FROM: L. Stephen Lau
Water Resources Research Center L S Lau

SUBJ: Review of draft EIS for Lahaina Sewer System and Waste Water Reclamation Plant at Lahaina District, Maui, Hawaii.
(by Park Engineering, Inc. August 1972)

The proposed project is considered an "optimum alternative" for wastewater management in the Lahaina District. It offers a combination of secondary treatment of wastewater followed by well injection and/or irrigation with special consideration being given to reclamation and reuse for irrigation (pp. 1-2). In general, the plan proposes to adopt progressive total water management techniques and Maui County should be commended for attempting to move so boldly in these directions. There are, however, a number of deficiencies in the draft EIS which should be pointed out before the plan can be successfully implemented.

1. There is no evidence as to whether or not preliminary field testings and studies on the effluent disposal well scheme have conducted to establish:
   a. criteria for determining which aquifers and type of wells will accept sewage effluents and which won't;
   b. criteria for determining the fate of the effluent with particular concerns for possible flows into adjacent coastal waters and into potable groundwater supplies;
   c. criteria for assuring proper functioning of the wells at all times; and
   d. criteria for establishing emergency measures to handle the effluent during periods when the wells are partially or totally inoperative.

2. Before the proposed project can be properly reviewed and evaluated the following types of basic information must be fully known:
   a. the location and description of the wells and associated facilities;
   b. the quality of the water in the receiving aquifer at the point of injection and in the nearby vicinity;

TO: Marvin Miura October 13, 1972

c. the depth of the injection well;

d. the depth to the groundwater level; and

e. the plans, if any, for monitoring injected effluent after injection operation begins.

3. The EIS lacks thorough description of the interceptor system other than presenting the general alignment.

4. The "evaluation" given to statement 1 on page 15 is unsubstantiated and also suggests the possible presence of drinking water which is contradictory to an earlier statement on page 6 to the effect that the aquifer has potential for development primarily as a non-potable water supply because the chloride level ranges from 500 to 1000 mg/l.

In this regard, the EIS does not indicate the depth or extent of the underlying subsurface water that is reported to be in the 500-1000 mg/l chloride, range, nor is there any indication given as to the expected depth that the injection well system is planned to operate.

Also, the chloride concentration of the sewage from Lahaina Town is quite high, probably due to an old pipe system with a high rate of salt or brackish water infiltration. Even with a dilutional effect from the rest of the sewer system the chloride concentration would probably still be too high for use as an irrigation water on sugarcane lands; with proper dilution this effluent can be used for grass irrigation, but this use would still be a very small portion of the total amount available.

5. In arid areas such as Lahaina, desalting of brackish groundwater may become potentially a viable method of supplementing future potable water supplies. This possible potential is not recognized in the EIS and needs to be explored especially in light of the fact that sewage effluents may contain objectionable contaminants which may result in irreversible damages to the aquifer.

6. The possibility of ocean disposal of secondary treated effluent is ruled out as an alternative because ocean outfall is incompatible with the ultimate goals of Maui County (p. 9). This appears to be a restriction which places an unnecessarily harsh constraint on the range of alternatives that may be taken into account for all present and future waste management decision in Maui County. The practicability of a policy which requires absolute "zero discharge" into the ocean for the future is not only questionable from a national standpoint, but even more dubious for the Hawaiian Islands with its vast surrounding ocean potentials.

TO: Marvin Miura October 13, 1972

7. Sludge drying beds may give off objectionable odors. The question of possible nuisance from odors must be looked into more thoroughly especially in view of the fact that residences and businesses are only about 1,000 ft. downwind of the reclamation plant site and along the prevailing winds.

8. Finally, in order to conduct a more thorough review of the proposed wastewater management plan for the Lahaina District it would be necessary to have the supporting documents which are not readily available to the public. In particular those reference items numbered 4, 5, and 6 in the bibliography and also the Ultramar Chemical Company study entitled: "Water Quality Study - Nearshore Waters of the Island of Maui" (1968).

   Also in view of the fact that the Lahaina plan is integrally concerned with water supply, it would be useful to know whether a comprehensive water supply plan exists for the County of Maui and if so how closely the proposed sewer and reclamation project is coordinated with this water plan.

LSL:mt

Principle Reviewers:

L. S. Lau
G. Dugan
H. Gee
F. Peterson
H. Yamauchi

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
100 CALIFORNIA STREET
SAN FRANCISCO, CALIFORNIA 94111

NOV 13 1972

Marvin T. Miura, PhD
Office of Environmental Quality Control
Office of the Governor
State Capital Building, Room 436
Honolulu HI 96813

Dear Dr. Miura:

We have reviewed the draft environmental impact statement on the Lahaina Sewer System and Wastewater Reclamation Plant, Lahaina District, Maui, Hawaii as requested in your letter of September 19, 1972.

2 The project, of course, is a candidate for an Environmental Protection Agency construction grant during fiscal year 1973. Our review of all grant applications includes a careful analysis of the project's environmental impact. It is our feeling that it is in the best interest of all parties concerned that the document submitted to meet State EIS requirements, also satisfies EPA's requirement that grant applicants provide a detailed environmental assessment of each project. The information we are requesting in the following comments should be submitted with the grant application on this project. We recommend revision of the final State environmental statement to include this information, thereby saving an unnecessary duplication of documents.

3 The final statement would benefit from a more detailed description of existing water quality problems and the role this project will play in their solution. What incidents have occurred? Have existing conditions interfered with the uses of these waters specified by State water quality standards?

4 The most important impact of this project in the long run, is its role in accommodating projected population growth and recreational development. Given the existing population of the area an ultimate design population equivalent of 134,000 appears extremely high. This figure should be broken down into recreational and residential populations or other appropriate categories. If project construction will be phased, for example, at ten year intervals, this should be made clear.

The general environmental consequences of planned development should be discussed at some length. The impact of growth on water supply, air quality, transportation, power supply, recreational facilities, and other important factors should be summarized. Changes in land use and community character as envisioned by planning officials should be pointed out.

According to the map provided, the plant is located adjacent to areas zoned for residential and hotel development raising serious questions of land use compatibility. This should be explained.

The reason for potential odor problems from sulfide generation in the interceptor should be clarified. Odors can also escape from manholes despite the treatment devices at the pump stations. Changes in engineering design should be made if possible to mitigate this problem.

What is the current use of groundwater in the disposal area? Build-up of chlorides and nutrients from injection would also be detrimental to non-potable uses. Additional hydrological and geological information is needed to clarify the potential impact of wastewater injection on local groundwater.

Special problems of interceptor construction, such as the crossing of a public park or wildlife area, should be mentioned.

The discussion of alternatives does not seem to include all reasonable possibilities. In other parts of the State, sugar cane growers have been able to accept the use of secondary treated effluent for irrigation by blending it with other water sources. A second possibility for going to immediate reclamation would be the use of advanced treatment techniques to remove nutrients. The environmental impact of these alternatives should be compared with that of the proposed project.

This section should also analyze the future demand for irrigation water given alternative water sources. The sugar mill operated by Pioneer Mill Company, plans to treat its current wastewater discharge and reuse it for irrigation. The volume of water involved is several times the volume of effluent the treatment plant will discharge.

The selection of the project site was apparently based on the compatibility of the treatment plant with various factors. The location of the injection wells can be at least as important. Alternative sites must also be examined in terms of their suitability for wastewater reinjection.

The Environmental Protection Agency, Region IX, will be happy to discuss these comments with the applicant as the project develops.

Sincerely,

Original signed by:
Paul De Falco, Jr.

Paul De Falco, Jr.
Regional Administrator

cc: County of Maui, Dept. of Public Works
Wailkuku, Maui, Hawaii

JOHN A. BURNS
GOVERNOR OF HAWAII

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

WALTER B. QUISENBERRY, M.P.H., M.D.
DIRECTOR OF HEALTH

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

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

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

October 16, 1972

In reply, please refer to:
File: EH-SE

To: Dr. Marvin T. Miura, Environmental Scientist
Office of Environmental Quality Control

From: Director of Health

Subject: Draft Environmental Impact Statement for Lahaina Sewer System and Wastewater Reclamation Plant

The subject statement has been reviewed by our staff. Subsequent to this review, the following comments are offered for your consideration.

Solid Waste Disposal

The comment on page 6 of the EIS that "dewatered digested sludge will be disposed of in Sanitary Landfills approved by the County of Maui" is not sufficiently detailed to allow the Department of Health to determine the impact of such action. In particular, it would be most helpful if the specific disposal sites were delineated and the amount of sludge expected was noted.

No provision is made for the possible utilization of the digested sludge for government lawns, along County or State Roadways or other resource recovery schemes. Although this can be accomplished at a later date, it behooves the County of Maui to consider such action at this stage of the planning process especially since the possible re-use of the treated effluent has received much attention.

Water Pollution

The construction of the sewage treatment plant and interceptor sewer will result in the elimination of the existing raw sewage discharge at Lahaina. Possible soil erosion during the construction phase of this project is projected to be minimal and a small price to pay for the elimination of such an obvious health hazard as the raw sewage discharge. This project will have a net effect of decreasing water pollution in the West Maui Area.

Air Pollution

The statement that sulfur compounds will probably not be generated within the interceptor is subject to question. The low sewage flows and the distance involved will, in our opinion, cause the generation of sulfur compounds and resultant odor problems. We recommend that this potential problem be the subject of a more intense study and firm recommendations for the location of odor control chlorination facilities be made by the consulting engineers.

As presented drafted, one would presume that the odor potential would be negligible due to odorless end products and a 1,000 foot buffer zone. This conclusion is without basis unless more definite facts and a more detailed discussion of the odor potential are presented.

The following are suggested areas which should be reflected within the Environmental Impact Statement:

1. Those odors emitted due to the general nature of raw sewage.
2. Those odors generated and vented by the sludge digestion process.
3. Those odors generated due to equipment malfunction.
4. Those odor control devices applicable for minimizing odors.

Walter B. Quisenberry

WALTER B. QUISENBERRY, M.D.

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION
Room 330, First Insurance Bldg.
1100 Ward Avenue
Honolulu, Hawaii 96814

September 26, 1972

Dr. Marvin T. Miura
Environmental Scientist
Office of Environmental Quality Control
State Capitol Building, Room 436
Honolulu, Hawaii 96813

Dear Dr. Miura:

The draft environmental impact statement for Lahaina Sewer System and Waste Water Reclamation Plant at Lahaina District, Maui, Hawaii, transmitted with your memorandum of September 12, 1972, has been reviewed by this office and our comments follow:

Eliminating the possibility of disposing of any (treated or untreated) wastewater by ocean outfall results in the problem of finding other feasible method for disposing of the effluent from the proposed sewage treatment plant. Disposal by deep well injection has been proposed for the immediate future because the possibility of using sewage effluent for irrigation is still under study.

The site of the injection well is not specified so comments must necessarily be of a general nature. However it is felt that injecting wastewater of 1,000 to 1,900 mg/l of chloride into an aquifer in which the water has 500 to 1,000 mg/l would result in some deterioration of the receiving ground water, inasmuch as the ground water in question is not of potable quality. Whether deterioration in the quality will be of sufficient consequence, probably depends on the tolerance permissible in the use as irrigation water.

The foregoing comments are provided informally for technical assistance and are not intended to represent the position of the Department of the Interior.

Sincerely,

W. L. Burnham
District Chief

cc: Regional Hydrologist, WRD, WR
Chief Hydrologist, WRD, Washington, D. C.
Code 4000 0000
Attn: George H. Davis

COORDINATING COMMITTEE FOR HAWAIIAN ARCHAEOLOGY

September 18, 1972

Office of Environmental Quality Control
State Capitol
Honolulu, HI

Comments on: County of Maui EIS for Lahaina Sewer System

The EIS does not recognize that Lahaina is a National Historic Landmark and that the sewer could have an adverse affect unless properly planned and routed.

There are insufficient data in the EIS to determine if the affect would be adverse to the historic setting. It would be doubted, but more information should be developed on this specific point before the project goes forth.

If any federal funds or licenses are involved, then Section 106 procedures set forth in PL 89-665 must be followed. These procedures require a review by the funding or licensing agency, the National Park Service, and the State Liaison Officer for Historic Preservation (Mr. Sunao Kido). It is not stated in the EIS if any federal funds are involved.

Thank you for the opportunity to comment.

Sincerely,

T. Stell Newman

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

1500 N. E. IRVING STREET
P. O. BOX 3737
PORTLAND, OREGON 97208

Reference: RBS

October 19, 1972

Dr. Marvin T. Miura
Environmental Scientist
Office of Environmental Quality Control
State Capitol Bldg., Room 436
Honolulu, Hawaii 96813

Dear Dr. Miura:

We have reviewed your draft Environmental Impact Statement for Lahaina Sewer System and Waste Water Reclamation Plant, Lahaina District, Maui, Hawaii.

We are not familiar with the project site, except from cursory map inspection, and we do not have the expertise to comment in detail on the predicted effects. However, we expect the primary environmental effect of this project will be on the island's subterranean fresh water lens. The draft does not mention that elimination of the raw sewage outfall will result in a decrease in water turbidity and an increase in salinities in the vicinity of the outfall. This, we believe, will have a favorable effect on any corals which may be in the vicinity as well as on other marine dwelling organisms including fishes.

For consistency and ease of review, we suggest that draft environmental statements follow the format given in Section 102(2)(c) of the National Environmental Policy Act of 1969.

We appreciate the opportunity to comment on this environmental impact statement.

Sincerely yours,

John D. Findlay

JOHN D. FINDLAY
Regional Director

JOHN A. BURNS
GOVERNOR OF HAWAII

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

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

October 17, 1972

MEMORANDUM

TO: Dr. Marvin T. Miura
OEQC

FROM: SUNAO KIDO, Chairman and Member
Board of Land and Natural Resources

SUBJECT: Draft Environmental Impact Statement for Lahaina Sewer System and Waste Water Reclamation Plant, Lahaina, Maui

This project consists of the construction of a sewer interceptor system for the area extending from Lahaina Town to Napili and will include a wastewater reclamation plant at Honokawai.

This department has no objections to the impact statement as presented.

BOARD OF LAND AND NATURAL RESOURCES

SUNAO KIDO
Chairman and Member

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P. O. BOX 547
KAHULUI, MAUI, HAWAII 96732

October 2, 1972

Dr. Marvin T. Miura, Environmental Scientist
State Office of Environmental Quality
State Capitol Building
Room 436
Honolulu, Hawaii 96813

Dear Sir:

We have reviewed and have no comments to make on the Draft Environmental Impact Statement for Lahaina Sewer System and Waste Water Reclamation Plant, Lahaina District, Maui, Hawaii.

Sincerely,

Carl Kaiama, Director

TI/ao

"By Water All Things Find Life"

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA
POST OFFICE BOX 3410
HONOLULU, HAWAII 96801

September 15, 1972

Dr. Marvin T. Miura
Environmental Scientist
Office of Environmental Quality Control
Room 436
State Capitol Building
Honolulu, Hawaii 96813

Dear Dr. Miura:

Subject: Draft Environmental Impact Statement for Lahaina Sewer System and Waste Water Reclamation Plant, Lahaina District, Maui, Hawaii

The subject project is not within our purview and we therefore have no comments on the draft impact statement.

Very truly yours,

Leroy G. Rathburn
Acting Manager and Chief Engineer

United States Senate

COMMITTEE ON APPROPRIATIONS
WASHINGTON, D.C. 20510

October 13, 1972

Dr. Marvin T. Miura
Environmental Scientist
Office of Environmental
Quality Control
State Capitol-Room 436
Honolulu, Hawaii 96813

Dear Dr. Miura:

I am writing to acknowlege receipt of the Draft Environmental Impact Statement for Lahaina Sewer System and Waste Water Reclamation Plant, Lahaina District, Maui, Hawaii.

Your courtesy in sending me this statement is greatly appreciated.

With kind regards and aloha,

Sincerely yours,

Hiram L. Fong

Hiram L. Fong

HLF:vl

January 2, 1973

Mr. Howard K. Nakamura
Director
Planning Department
County of Maui
Wailuku, Maui, Hawaii

Dear Mr. Nakamura:

Subject: Lahaina Sewer System and Wastewater Reclamation Plant
Environmental Impact Statement

One of the comments by the Environmental Protection Agency on the draft impact statement concerned itself with the plant site compatibility with adjacent lands being shown as hotel and residential uses on the general plan.

We respectfully request at this time a response from the Planning Department that one of the elements of your planned general plan review will include particular attention to this site compatibility comment with special emphasis on providing a necessary buffer zone.

An early reply will be appreciated.

Very truly yours,

Stanley S. Goshi

STANLEY S. GOSHI
Director of Public Works

COUNTY OF MAUI
PLANNING DEPARTMENT
200 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793

January 3, 1973

Mr. Stanley Goshi, Director
Department of Public Works
County of Maui
Wailuku, Maui 96793

Dear Mr. Goshi:

RE: Lahaina Sewer System and Wastewater Reclamation Plant Environmental Impact Statement.

Your request of January 2, 1973 regarding the land use compatibility problem of the subject project is acknowledged. We are aware of this problem and we can assure you that this item will be considered upon review of the general plan.

Very truly yours,

Howard K. Nakamura

HOWARD K. NAKAMURA
Planning Director

/jw/

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

27 SEP 1972

REPLY TO ATTN OF: DE

SUBJECT: Draft Environmental Impact Statement for Lahaina Sewer System and Waste Water Reclamation Plant, Lahaina District, Maui, Hawaii

TO: Office of Environmental Quality Control
Attn: Dr Marvin T Miura
State Capitol Bldg, Room 436
Honolulu, Hawaii 96813

1. Reference is made to your letter of 12 Sep 1972, same subject.

2. This office has no comments to render relative to the draft environmental impact statement for Lahaina Sewer System and Waste Water Reclamation Plant, Lahaina District, Maui, Hawaii.

ALLAN M. YAMADA
Asst Dep Comdr for Civil Engrg

PRIDE IN THE PAST FAITH IN THE FUTURE

UNIVERSITY OF HAWAII

Department of Civil Engineering

MEMORANDUM

September 20, 1972

MEMO TO: Marvin T. Miura, Ph.D.
Environmental Scientist
Office of Environmental Quality Control

FROM: R.H.F. Young

SUBJECT: Review of Draft EIS for Lahaina Sewer System, Honokohau Harbor, and Kiikii Stream

1. Lahaina Sewer System and Treatment Plant

I cannot comment on this project because of my direct involvement with two of the supporting reports for the system design.

2. Honokohau Boat Harbor

Points that should be clarified include the following: a) what basis is there to assume that the demand for boat slips will increase much beyond the present waiting list (ref. p. 7), particularly since DPED current estimates indicate a one-third decrease in market area population in 2010 over original estiamtes (ref. p. 3); b) a definite effort should be made to define or model the circulation pattern or flushing action with the harbor (ref. p. 15); c) what assurance is there that fish will recolonize the harbor and further, what types of fish will constitute the population (ref. p. 18); d) there is no indication that the Honokohau Bay waters presently satisfy state class B standards, and thus no assurance that the Harbor itself will do so in the future (ref. p. 29). No mention is made of facilities for handling wastes generated on boats in the Harbor.

3. Kiikii Stream

This draft EIS is well-documented. However, one additional item that would be of interest would be a comparison of the estimated recreational value of Kiikii Stream in its present state with the annual cost of alternate processes for disposal of the cooling water and the estimated recreational value of the Stream without the cooling water discharge.

Environmental
Development
Council, Inc.

700 Bishop Street, Suite 1907, Honolulu, Hawaii 96813
Telephone 521-7854

September 18, 1972

TO: Dr. Marvin T. Miura
Environmental Scientist

FROM: Margo J. Wood
President
Environmental Development Council

SUBJECT: Draft Environmental Impact Statement for Lahaina Sewer System and Waste Water Reclamation Plant at Lahaina District, Maui, Hawaii.

Thank you for the opportunity to review this statement.

We are satisfied that this draft has addressed the issues and concerns that are within our area of interest. We have no further comment at this time.

Margo J. Wood

MJW:smk

State Office of Environmental Quality Control
State Capitol
Honolulu, Hawaii 96813

DEPARTMENT OF TRAFFIC

CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

RICHARD K. SHARPLESS
MANAGING DIRECTOR

GEORGE C. VILLEGAS
TRAFFIC DIRECTOR

ROY A. PARKER
DEPUTY TRAFFIC DIRECTOR

September 18, 1972

Dr. Marvin T. Miura
Office of Environmental Quality Control
State Capitol Building
Room 436
Honolulu, Hawaii 96813

Dear Dr. Miura:

Subject: Draft Environmental Impact Statement for Lahaina Sewer System and Waste Water Reclamation Plant, Lahaina District, Maui, Hawaii

The Traffic Department has no comment on the subject.

Very truly yours,

Clifford G Nohara

for GEORGE C. VILLEGAS
Traffic Director

MASS TRANSPORTATION
C.M. GILLISS
ECUTIVE DIRECTOR
1140 ALAPAI ST.

TRAFFIC ENGINEERING & PARKING
CLIFFORD NOHARA, P.E.
DIVISION CHIEF
CITY HALL ANNEX

MAINTENANCE & STREET LIGHTING
KENNETH THONG, P.E.
DIVISION CHIEF
CITY HALL ANNEX

TRAFFIC SAFETY & EDUCATION
ROBERT BING
TRAFFIC SAFETY EDUCATION OFF
CITY HALL ANNEX

WASHINGTON OFFICE:
442 Cannon House Building
20515

HONOLULU OFFICE:
218 Federal Building
96813

Congress of the United States
House of Representatives
Washington, D.C. 20515

COMMITTEE ON AGRICULTURE

SECRETARY:
STEERING COMMITTEE

October 17, 1972

Dr. Marvin T. Miura
Environmental Scientist
Office of Environmental Quality Control
State of Hawaii
Honolulu, Hawaii 96813

Dear Dr. Miura:

In the absence of Congressman Matsunaga, I am acknowledging receipt of your letter of September 12, 1972, along with a copy of the draft environmental impact statement for the Lahaina Sewer System and Waste Water Reclamation Plant on Maui.

Please be assured that your communication will be brought to Mr. Matsunaga's attention when he returns to Washington.

Aloha and best wishes.

Sincerely,

David S. Nahm
Staff Executive

JOHN A. BURNS
GOVERNOR

FUJIO MATSUDA
DIRECTOR

E. ALVEY WRIGHT
DEPUTY DIRECTOR

LAWRENCE F. O. CHUN
DEPUTY DIRECTOR

MUNNY Y. M. LEE
DEPUTY DIRECTOR

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

IN REPLY REFER TO:
ATP 8.2017

October 24, 1972

MEMORANDUM

TO: MARVIN T. MIURA, OFFICE OF ENVIRONMENTAL QUALITY CONTROL

FROM: FUJIO MATSUDA, DIRECTOR OF TRANSPORTATION

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR LAHAINA SEWER SYSTEM AND WASTE WATER RECLAMATION PLANT, LAHAINA DISTRICT, MAUI, HAWAII

We have reviewed the subject environmental statement and have no comments to offer as it relates to and affects our Department's programs.

E. Alvey Wright
for FUJIO MATSUDA
Director

Lahaina Outdoor Circle

P. O. BOX 1203
LAHAINA, MAUI, HAWAII

October 2, 1972

Dr. Marvin T. Miura
Environmental Scientist
Office of Environmental Quality Control
State Office Building
Honolulu, Hawaii 96813

Dear Dr. Miura:

In response to your request for comments by the Lahaina Outdoor Circle on the Environmental Impact Statement for the Lahaina Sewer System and Waste Water Reclamation Plant, we advise as follows:

The project's purpose is commendable and we concur.

The environmental impact as described is acceptable so long as air pollution (odor) is held below limits sometimes experienced at the Kaanapali treatment plant.

The aesthetics will be acceptable as soon as suitable landscaping hides the facility. It is good to note that the Kaanapali plant finally planted a hedge on its property along the makau side of Honoapilani Highway.

The location is all right. We're especially gratified that Location B was dropped in order to protect the Honokowai Stream gully.

Provision of adequate dust controls during construction as promised is very important.

The Outdoor Circle appreciates the opportunity to provide the foregoing comments, and congratulates the County of Maui for forging ahead on this most important project.

Sincerely yours,

Mrs. Luis A. Paine
President

cc Mayor, County of Maui