JOANN A. YUKIMURA
MAYOR

STEVE OLIVER
COUNTY ENGINEER
TELEPHONE 245-3318

ARNOLD W.F. LEONG
DEP. COUNTY ENGINEER
TELEPHONE 245-3602

AN EQUAL OPPORTUNITY EMPLOYER
COUNTY OF KAUAI
DEPARTMENT OF PUBLIC WORKS
3021 UMI STREET
LIHUE, KAUAI, HAWAII 96766

May 2, 1991

Mr. Brian Choy, Director
State Office of Environmental Quality Control
220 South King, 4th Floor
Central Pacific Plaza
Honolulu, Hawaii 96813

Dear Mr. Choy:

SUBJECT: NOTICE OF DETERMINATION/NEGATIVE DECLARATION AGENCY ACTION BY COUNTY OF KAUAI, DEPARTMENT OF PUBLIC WORKS LIHUE WASTEWATER TREATMENT PLANT EXPANSION, PHASE IV

We are submitting four (4) copies of the Environmental Assessment with a Negative Declaration for the subject project, which includes the expansion of the existing 1.5 mgd secondary treatment plant to 2.5 mgd, and modification and repairs to the existing facility. A description of the proposed action and statement of project objectives are summarized in Chapter 4.0 of the environmental assessment.

The proposed project poses no known, significant, short-term or long-term adverse impacts which can not be mitigated. Short-term impacts due to construction can be mitigated by proper scheduling and attention to the monitoring of construction activities. These impacts are not significant as defined by Chapter 343, HRS and 11-200, Administrative Rules, Department of Health, and are overwhelmingly outweighed by long-term benefits, both to human health and well being, and to the environment. Therefore, a determination of "no significant impacts" is appropriate.

Should you have any questions concerning our determination or require additional information, please contact Mr. Harry Funamura, Chief of Sewers Section at 245-4751.

Thank you for your time and consideration.

Very truly yours,

KIYOJI MASAKI
Chief, Division of Engineering

HF/cu

Attachment

1991-05-23-KA-FEA

FINAL REPORT

ENVIRONMENTAL ASSESSMENT

*LIHUE WASTEWATER TREATMENT PLANT EXPANSION

PHASE IV*

Prepared by:

M&E Pacific, Inc.
Architects and Engineers
Pauahi Tower, Suite 500
1001 Bishop Street
Honolulu, Hawaii 96813-3497

Prepared for:

Department of Public Works
County of Kauai
Lihue, Kauai, Hawaii 96766

April 1991

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CHAPTER 1.0 INTRODUCTION

1.1 Purpose of Environmental Assessment (EA)

The intent of this environmental assessment is to evaluate the potential impacts of the proposed expansion of the Lihue Wastewater Treatment Plant (WWTP) and to determine whether the proposed project will generate significant social and environmental effects in the context of Chapter 343, Hawaii Revised Statutes. Based on this document, the Kauai County Department of Public Works will determine whether or not an Environmental Impact Statement will be required. This WWTP is currently planned for ultimate expansion to 4.5 mgd. The present expansion is from 1.5 to 2.5 mgd.

1.2 Scope of the Environmental Assessment

This EA is written pursuant to Hawaii Administrative Rules, Chapter 200 of Title 11, Environmental Impact Statement Rules, Department of Health, and under the guidance of Section 11-200-10, "Contents of Environmental Assessment."

1.3 Proposed Action

The proposed project is the Phase IV Expansion of the Lihue Wastewater Treatment Plant which includes the expansion of the existing 1.5 mgd secondary treatment plant to 2.5 mgd, and modifications and repairs to the existing facility. This project will not include the construction of additional transmission lines.

1.4 Agencies Consulted

The following agencies were consulted in the process of preparing this assessment:

County of Kauai
- Department of Public Works
- Planning Department

State of Hawaii
- Department of Health
- Department of Agriculture - Animal Damage Control
- Department of Transportation - Airports Division
- Department of Business and Economic Development

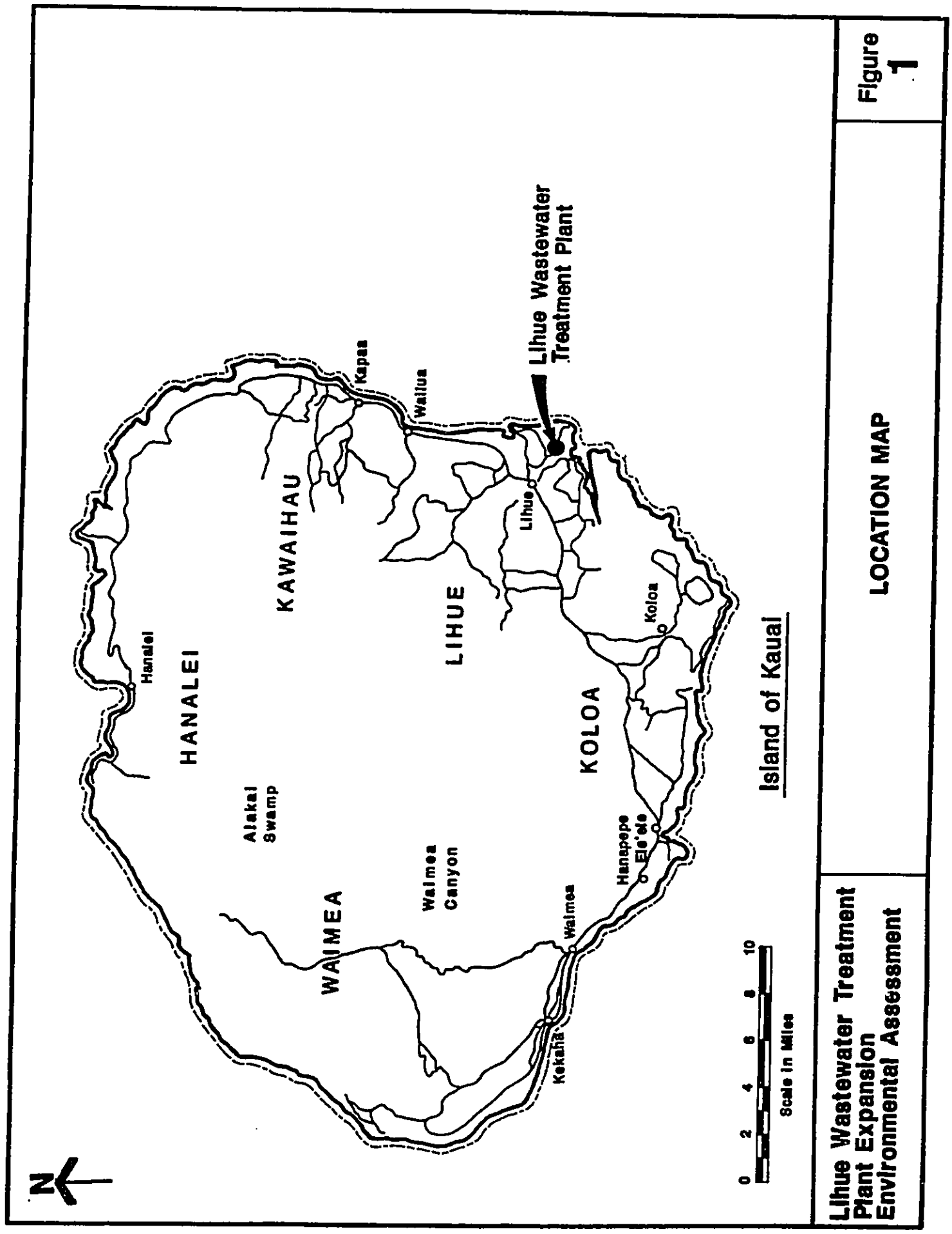
United States Government
- Federal Aviation Administration

Others
- Hemmeter-VMS Kauai Companies

CHAPTER 2.0 BACKGROUND

2.1 Plant Location

As shown on Figure 1, the Lihue WWTP is located southeast of Lihue Town and is identified by TMK 3-5-01:30. The site consists of 5.0 acres and is surrounded by the Westin Kauai Golf Course on the west, south, and east sides. The north side of the plant site is bound by Westin Kauai property containing a maintenance building and horse stables. (See Figure 2.) The site is located at an elevation of approximately 130 feet MSL (mean sea level). The ground generally slopes towards the east at 2 to 3 percent grade.


Lihue Wastewater
Treatment Plant
Kapaa
Wailua
Lihue
Koloa
Hanalei
KAWAIHAU
LIHUE
KOLOA
HANALEI
WAIMEA
Alakai
Swamp
Waimea
Canyon
Waimea
Hanapepe
Eleele
Kekaha
0 2 4 6 8 10
Scale in Miles
N
Island of Kauai
LOCATION MAP
Figure
1
Lihue Wastewater Treatment
Plant Expansion
Environmental Assessment

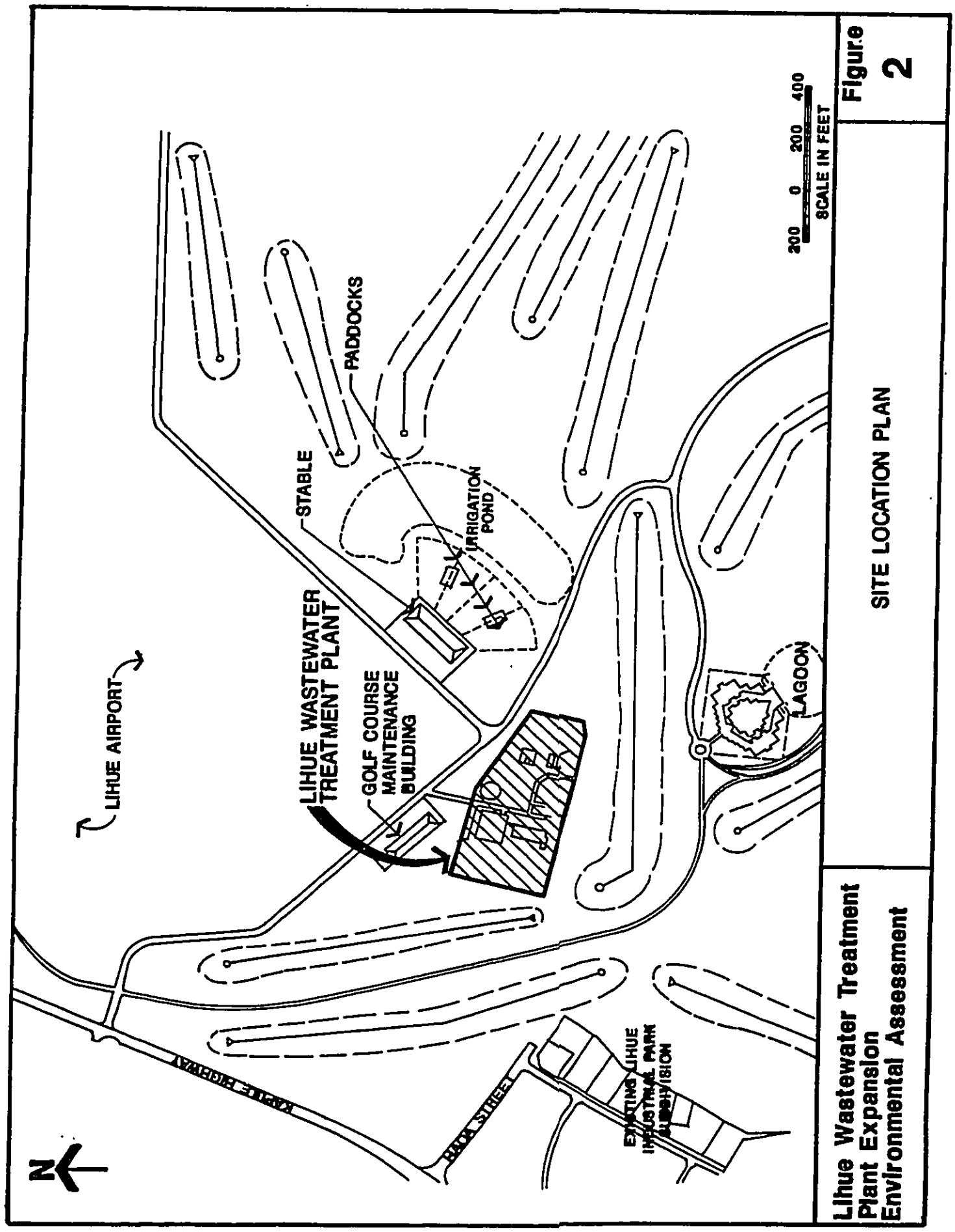


Figure
2
SITE LOCATION PLAN
Lihue Wastewater Treatment
Plant Expansion
Environmental Assessment
200 0 200 400
SCALE IN FEET
PADDOCKS
STABLE
IRRIGATION POND
LIHUE WASTEWATER TREATMENT PLANT
GOLF COURSE MAINTENANCE BUILDING
LIHUE AIRPORT
LAGOON
KAUMUALII HIGHWAY
ROOK STREET
N

2.2 Facility Service Area

According to the Kauai Master Plan, the Lihue wastewater planning area includes the communities of Hanamaulu in the northeast, Puhi to the west and Nawiliwili on the south. However, not all of the areas in the Master Plan are presently being serviced by the Lihue WWTP. The area currently serviced is limited to portions of TMKs Zone 3, Sections 2, 5, 6, 7 and 8 (Figure 3). Figures 4A and B show the sewered areas that are presently serviced by the Lihue WWTP.

The influent to the plant comes from two sources: the force main from Kauai Lagoons Sewage Pumping Station (SPS) and a gravity sewer from Lihue Town. The influent lines converge at a manhole upgradient from the plant, then flow by gravity into the plant.

2.3 Existing System

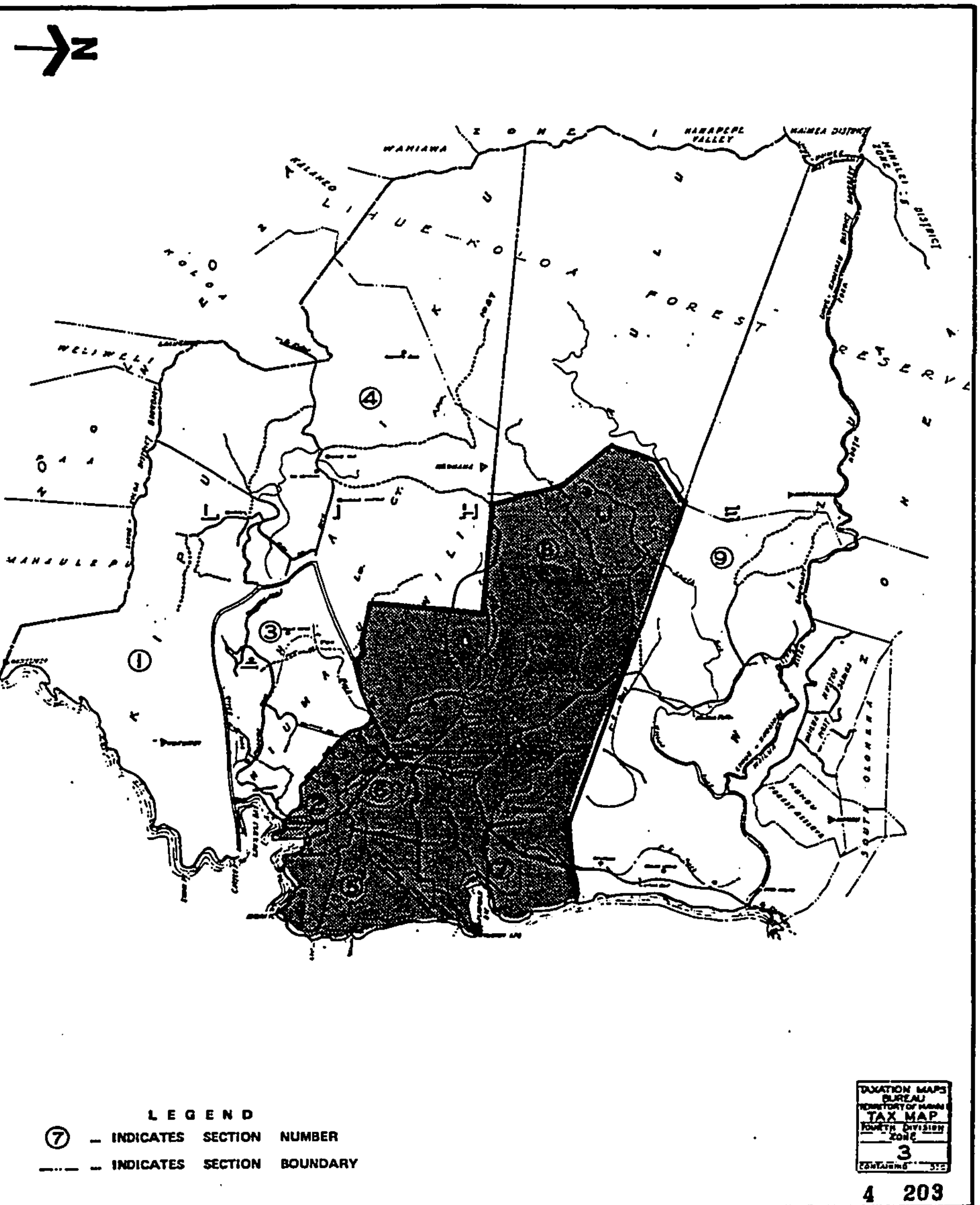
2.3.1 Lihue Wastewater Treatment Plant

Wet Stream

The existing plant is a conventional activated sludge type secondary treatment plant. The plant was designed to treat an average flow of 1.5 mgd of domestic wastewater with a peak hydraulic capacity of 4.5 mgd. The present average influent flow is 1.3 mgd. (See Figure 5.)

The influent enters the preliminary treatment units which consist of an aerated grit tank for grit removal and two barminuters for comminution (shredding). The wastewater then flows to the primary clarifier (PC) for settleable and floatable solids removal.

Return activated sludge (RAS) is added to the effluent from the primary clarifier and the resulting mixed-liquor suspended solids (MLSS) goes to the aeration basins. After aeration, the mixed liquor flows to a circular secondary clarifier which employs sludge scrapers to move the settled activated sludge towards the sludge

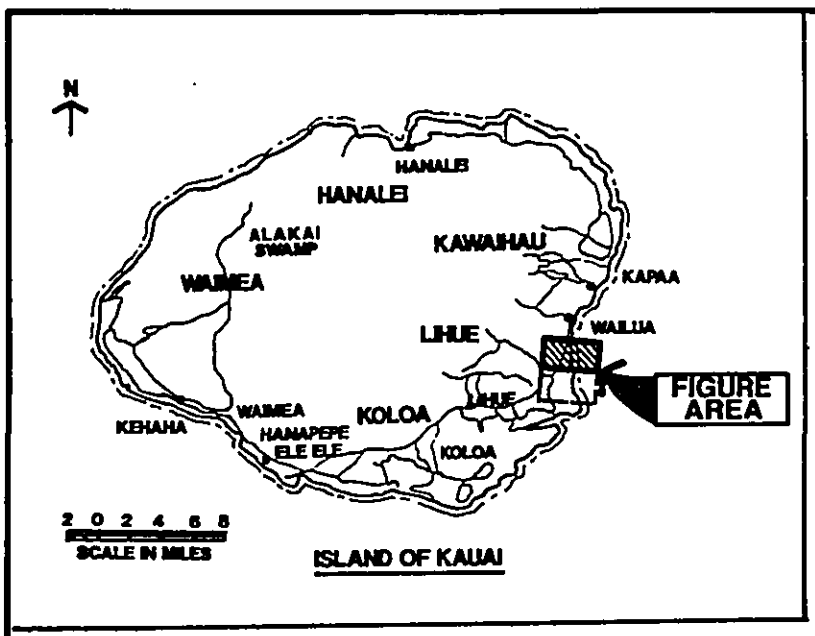


LEGEND

⑦ – INDICATES SECTION NUMBER

—··— – INDICATES SECTION BOUNDARY

Lihue Wastewater Treatment Plant Expansion Environmental Assessment	**SERVICE AREA BY T.M.K.S**	**Figure 3**

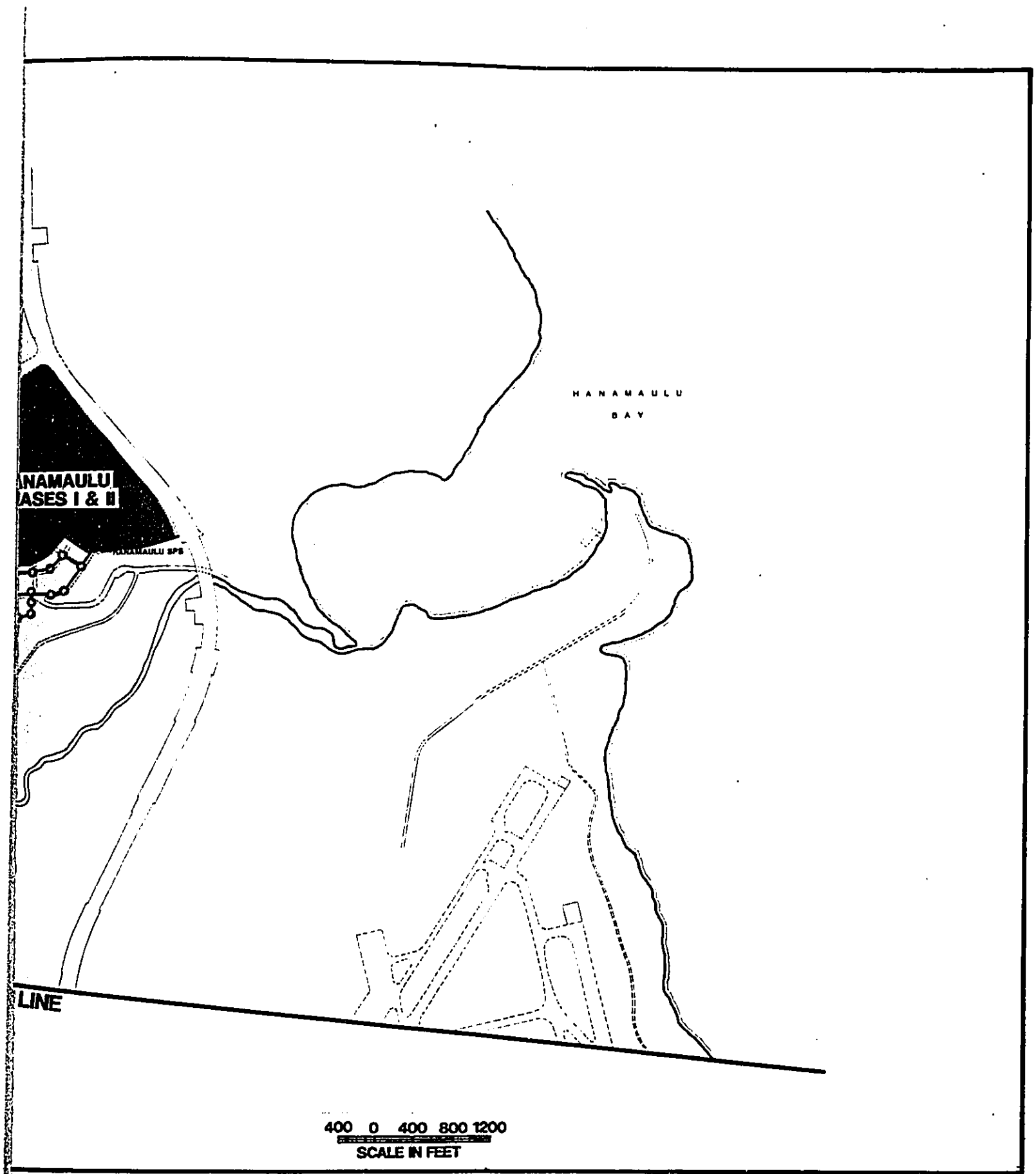


LEGEND:

EXISTING SEWER LINE

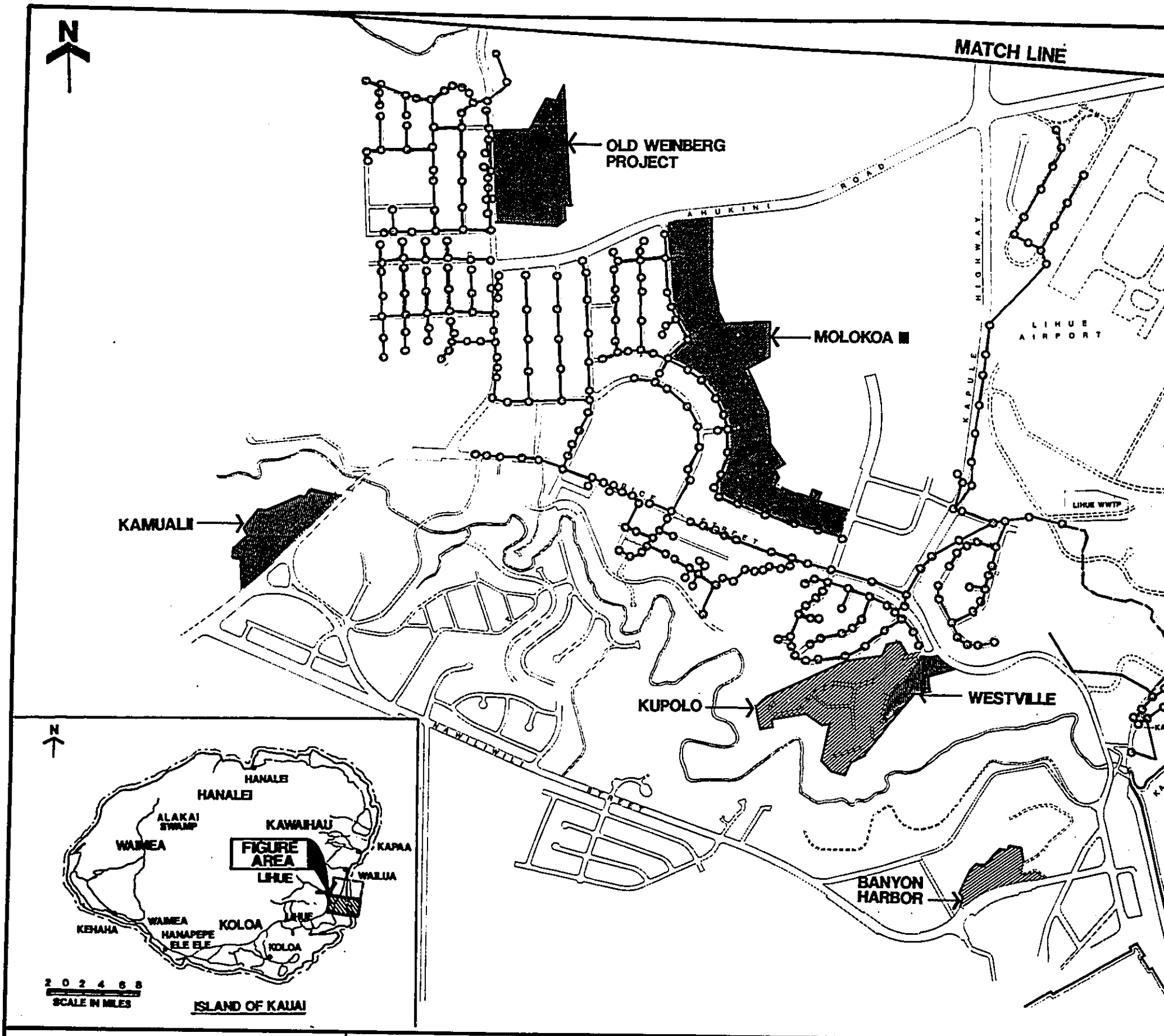
PROPOSED PROJECT SITES TO BE SERVICED

Lihue Wastewater Treatment Plant Expansion Environmental Assessment	**SERVICE AREA AND PROPOSED SERV**



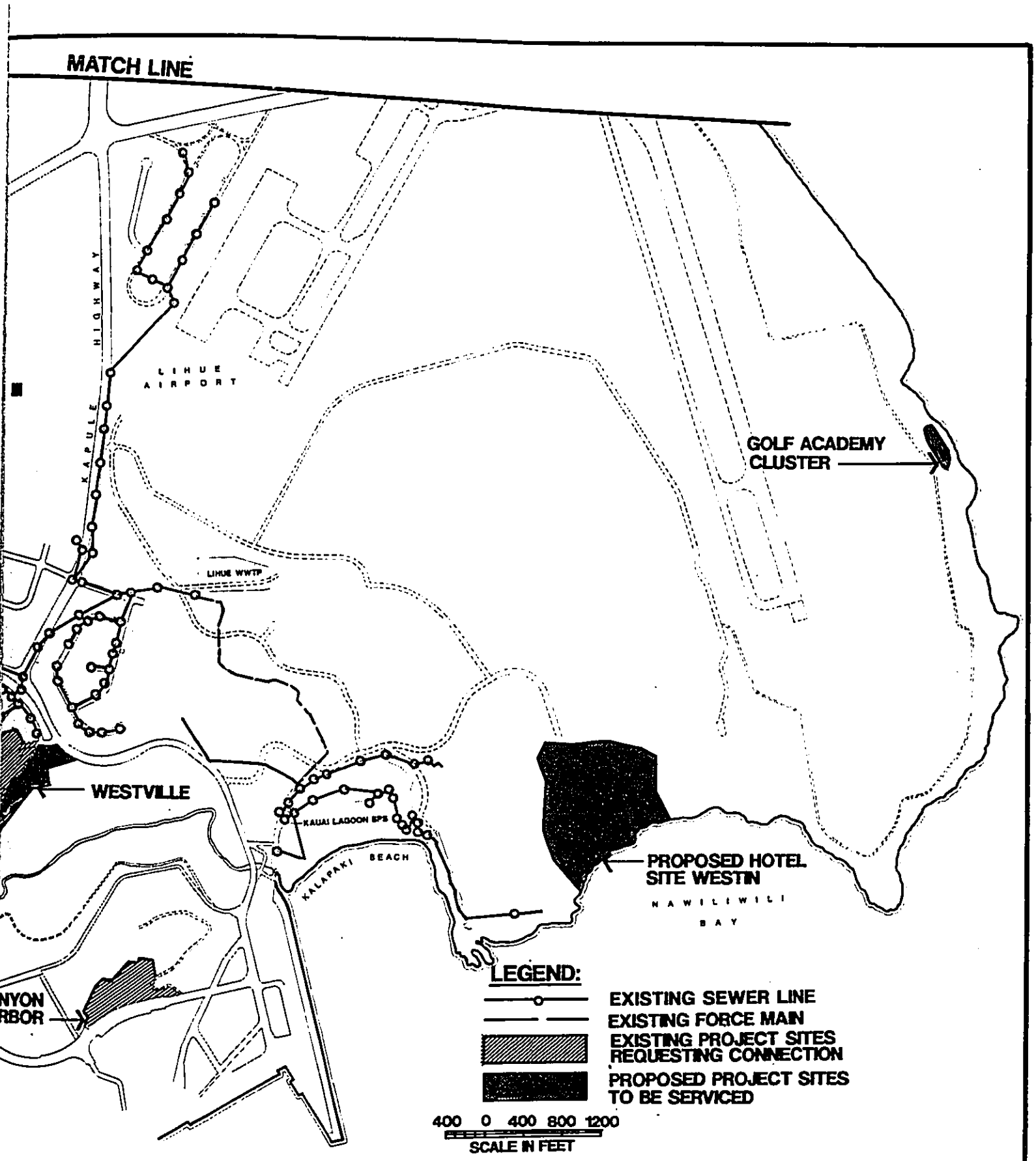
E AREA AND PROPOSED SERVICES

Figure
4A



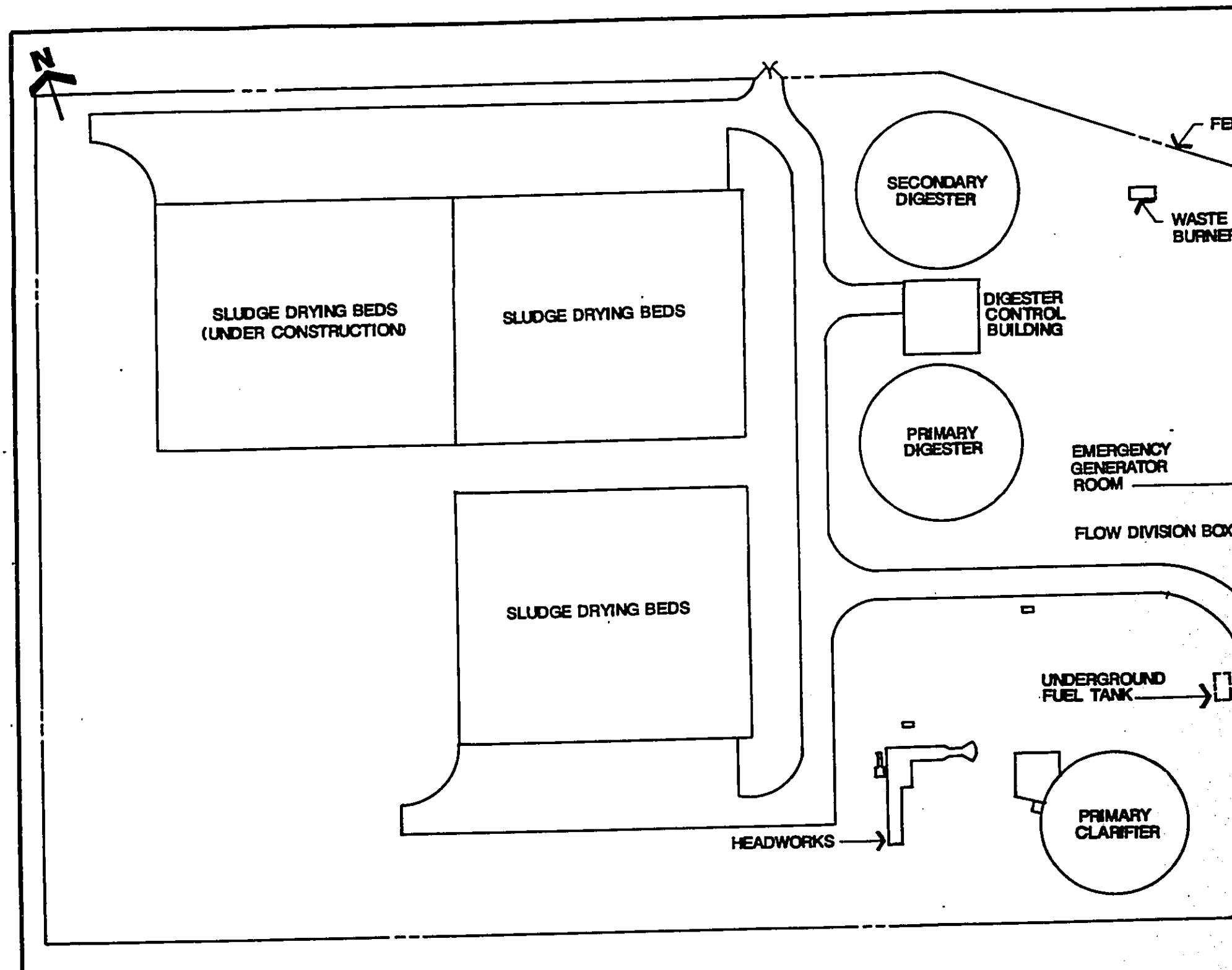
Lihue Wastewater Treatment Plant Expansion Environmental Assessment

SERVICE AREA AND PROPOSED SERVIC



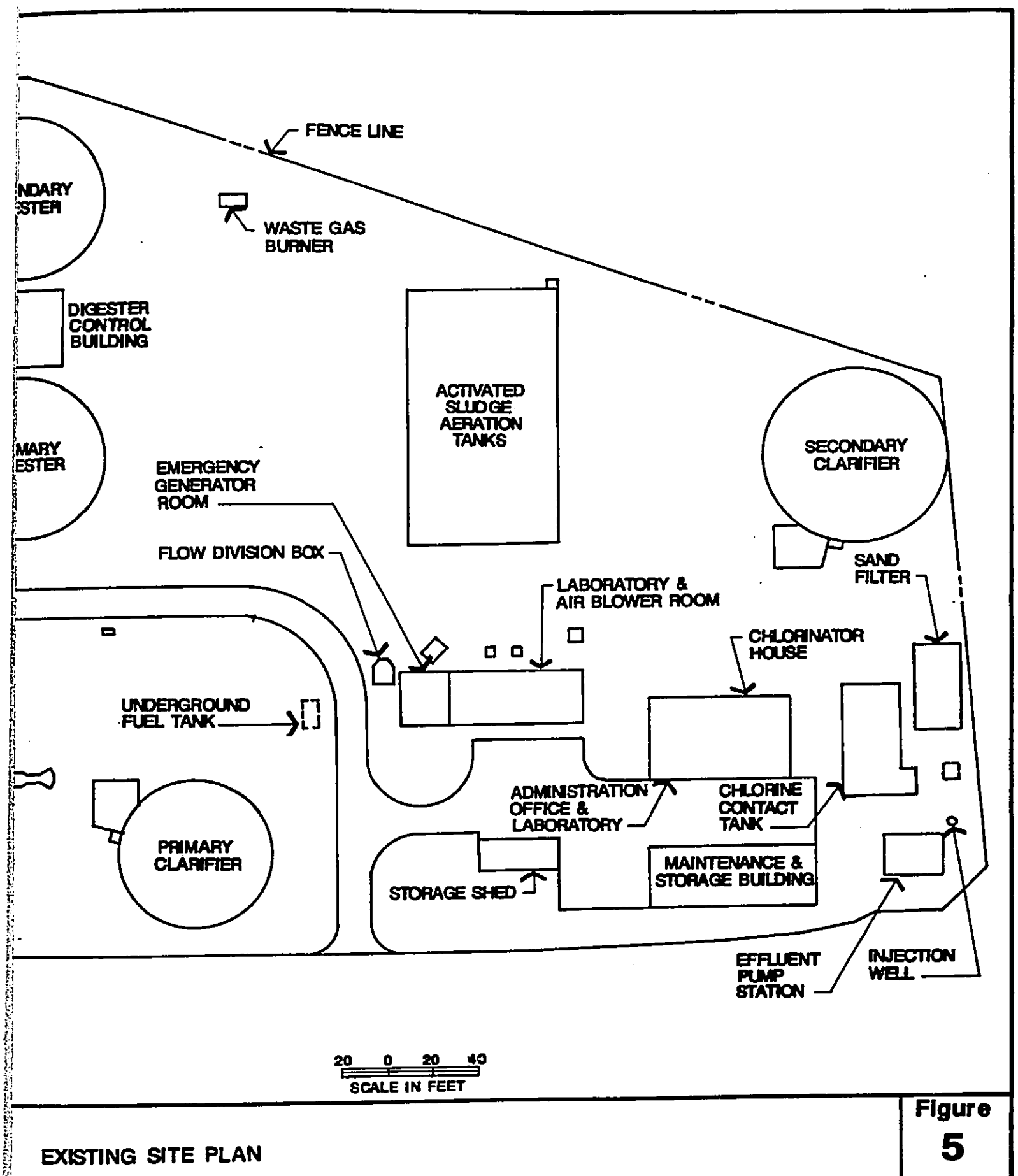
AREA AND PROPOSED SERVICES

Figure 4B



Lihue Wastewater Treatment Plant Expansion Environmental Assessment

EXISTING SITE PLAN



EXISTING SITE PLAN

Figure 5

hopper. A surface skimmer sweeps floatable material into a scum trough which is discharged to a scum pit. Waste activated sludge and secondary scum are normally pumped to the aerated grit tank and then to the primary clarifier for removal from the wet stream as primary sludge and scum.

The secondary effluent flows by gravity to a chlorine contact tank. The chlorinated effluent can either be diverted entirely to the Westin Kauai Golf Course irrigation system or partially diverted to the rapid sand filter and on-site injection well.

Solids Stream

The solids handling facility includes a two-stage anaerobic digestion system and sludge drying beds. Sludge and scum from the primary clarifier are pumped to the primary digester. Primary digested sludge can be transferred to the secondary digester by one of two progressing cavity pumps. Digested sludge from the secondary digester is transferred to the sludge drying beds. Dried sludge cake is manually removed from the beds and trucked from the plant site to landfill.

2.3.2 Kauai Lagoons SPS

The Kauai Lagoons Sewage Pumping Station (SPS), located on the grounds of the Westin Kauai Hotel, serves the 846-room hotel and resort facilities. Sewers transport wastewater generated by the hotel to the pumping station where it is pumped through a force main to the Lihue WWTP. The SPS and force main were installed in 1970.

The Kauai Lagoons SPS is a conventional built-in-place pumping station. It is equipped with two 2,500 gpm centrifugal pumps, one being the standby. Flow records from the pumping station indicated an average daily flow of 0.36 mgd (360,000 gpd) and a maximum daily flow of 0.56 mgd (560,000 gpd).

CHAPTER 3.0 GENERAL PLANNING ISSUES

3.1 Population Growth and Land Development

3.1.1 Population Growth

Island of Kauai

The State Department of Business and Economic Development (DBED) issued its revised economic and population projections for Hawaii designated series "M-K" in November 1988. This series covers the period from 1985 to 2010 and is the official population and economic projection for the State of Hawaii.

The M-K projections anticipate that the resident population of the County of Kauai will rise 66 percent from 51,000 in 1989 to 84,600 in 2010.

Lihue

Approximately 10,500 people resided in Lihue as of July 1990; this reflects an increase of 21.7 percent since 1980 (DBED).

In the Lihue district, the resident population distribution by zoning is anticipated to be 20,860 by the year 2010 (*Kauai Water Use and Development Plan, February 1990*). The estimate is based on the number of units allowed per present zoning densities and the average number of residents per unit. Any future changes to the General Plan and Comprehensive Zoning Ordinance could increase the ultimate demand placed on the Lihue Wastewater System.

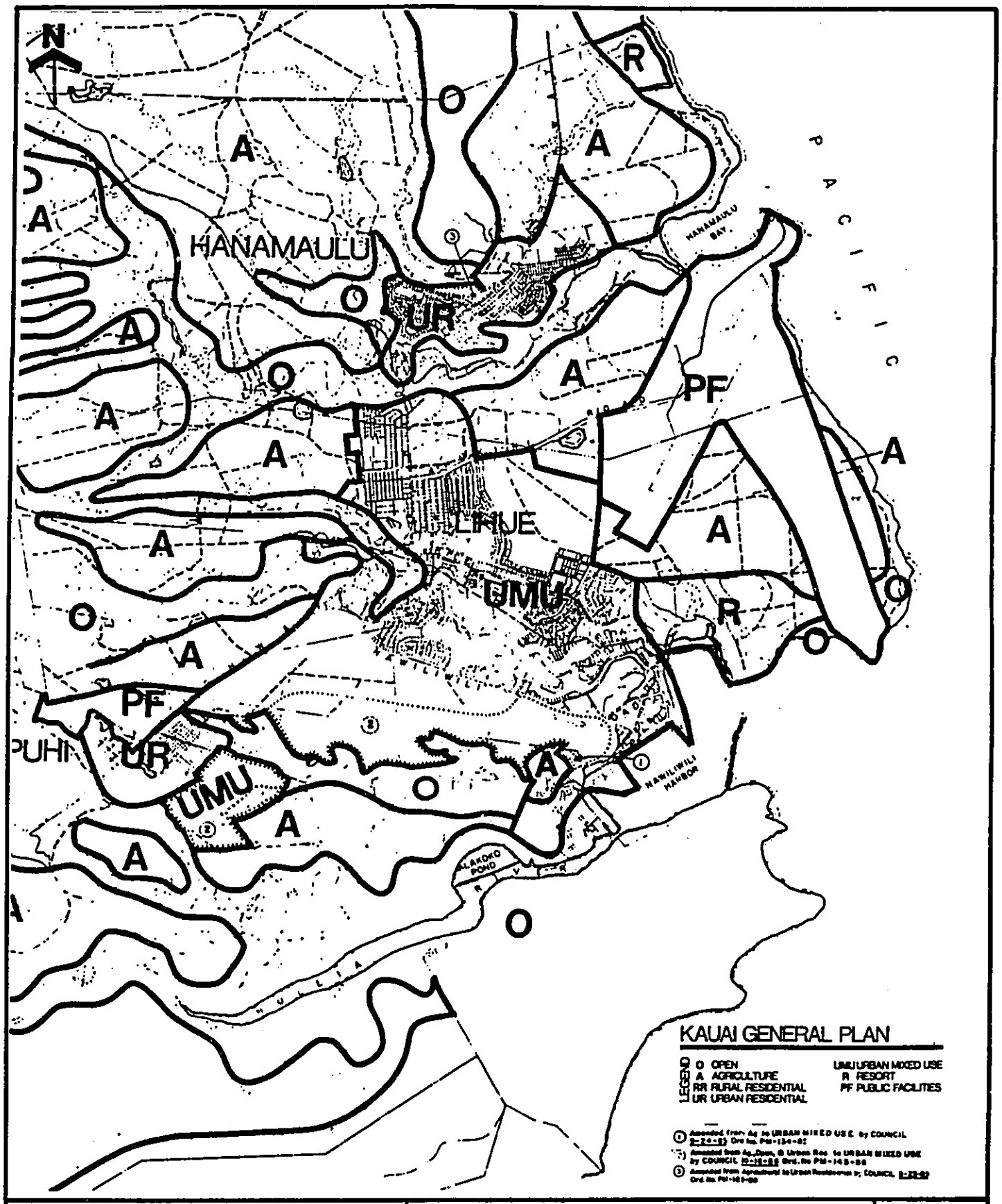
3.1.2 Land Development

There are three land use policies which govern land development in the County of Kauai: The State Land Use Classifications, the County General Plan, and the Comprehensive Zoning Ordinance (CZO).

The State of Hawaii uses four land use classifications: "A" (Agricultural), "C" (Conservation), "R" (Rural) and "U" (Urban). Statutory control over agricultural lands are shared by the State and the County; statutory control of Conservation District Lands lies with the Board of Land and Natural Resources, and the Land Use Commission (LUC) in specific cases. The County and LUC share responsibility for regulating uses within areas designated Rural, while the County has full zoning powers in both the Rural and Urban areas.

The County General Plan designates specific types of uses for all parcels. (See Figure 6.) The designations distinguish between specific uses such as commercial, industrial, multi-family and single-family residential, and non-urban uses such as agriculture and open. The CZO implements the General Plan.

The County of Kauai has an economy based on the sugar industry and tourism. The recent growth of the tourist industry has fostered private investments and construction. Construction is now the second largest industry in Kauai terms of dollar valuation. In 1988, $220 million in building permits was issued for the Island of Kauai; this has increased from $109 million in 1987 (DBED, April 1990).



Lihue Wastewater Treatment Plant Expansion Environmental Assessment	KAUAI GENERAL PLAN	Figure 6

A total of 2,854 hotel units is scheduled for development on the island in the near future to supplement an existing inventory of 7,251. According to DBED's Series M-K projections, Kauai County will have 16,900 hotel and condominium units by 2010.

As of 1989, there were approximately 1,007 units available for visitor use in Lihue (Hawaii Visitors Bureau [HVB], 1989). (See Table 1.) The Kauai Lagoons has announced intentions to add 750 hotel units.

3.2 Projected Wastewater Flows

3.2.1 Pending Connections

As of July 1990, the Department of Public Works had over 80 Permit to Connect to Public Sewer System applications for residences in TMKs 3-6,7,8. The estimated wastewater generated by these residences is 32,000 gpd. Also on file are applications for hookups for commercial properties. The estimated wastewater generated by these properties is 68,040 gpd. These estimates are based on the Department of Public Work's generation rates of 400 gpd/residence and 6,000 gpd/acre of commercial land. While there are other unconnected lots in areas where service is currently available, future plans for them are unknown.

There are several planned projects—residential, resort and commercial—to be developed in the existing service area (Figures 4A and 4B). It is estimated that the residential projects will contribute 372,000 gpd and the commercial/resort projects will generate 422,000 gpd (see Table 2). Harbor Condominiums is requesting connection to the system due to problems with its existing on-site WWTP. The Kupolo subdivision is presently served by cesspools and should be connected to the system. These developments will contribute approximately 113,200 gpd.

The airport is presently generating 71,000 gpd (October, 1990) and is limited to 133,000 gpd by agreement. The expansion of the airport could increase the amount of wastewater generated to the agreement limit of 133,000 gpd; this would add 62,000 gpd to the present rate of generation. The Master Plan for the airport estimates that the ultimate amount of sewage generated could be 400,000 gpd.

Table 1

Visitor Plant Inventory of Lihue
Hawaii Visitors Bureau, 1989

Name of Property	Type (See Summary Below)	No. of Units for Visitor Use
Lihue		
Banyan Harbor	2	14
Garden Island Inn	1	21
Hale Lihue	1	20
Hale Pumehana	1	17
Kauai Inn	1	20
Motel Lani	1	10
Tip Top Motel	1	31
Westin Kauai, The	1	850
Total		983

Lihue Summary

Type	Number of Facilities	Number of Units for Visitors	Percent of Total Units
1-Hotel	7	969	98.6
2-Condo	1	14	1.4
3-Apt-Hotel	0	0	0.0
Total	8	983	100.0

Table 2

Projection Based On Proposed Projects and Connections

Description	TMK	No. of Units/Acres	Total	GRAND TOTAL
A. Permits to Connect to Public Sewer System:				
1. Single Family Residence 400 gpd/unit	3-6	21 units	8,400	
	3-7	27 units	10,800	
	3-8	32 units	12,800	
Subtotal			32,000	
2. Commercial 6,000 gpd/acre	3-5	3.14 acres	18,840	
	3-6	4.16 acres	24,960	
	3-8	4.04 acres	24,240	
Subtotal			68,040	
				100,040
B. Proposed Projects:				
1. Residences Charles River Housing Multi-Family 250 gpd/unit	3-8-02:4	243 units	60,750	
Kaumualii Investment Multi-Family	3-8-05:22	273 units	68,250	

Table 2 (cont.)

Description	TMK	No. of Units/Acres	Total	GRAND TOTAL
JMB/Amfac Hanamaulu				
Phase I	3-7-03	165 (S.F.)	66,000	
		60 (M.F.)	15,000	
Phase II	3-7-03	165 (S.F.)	66,000	
		60 (M.F.)	15,000	
Westville	3-2-08:1	23 (S.F.)	9,200	
Molokoa Unit III	--	180 (S.F.)	72,000	
Banyan Harbor Condo (Existing)	3-2-05:8	280 (M.F.)	70,000	
Kupolo (Presently cesspooled)		108 (S.F.)	43,200	
Subtotal			485,400	
2. Commercial/Resorts/Public Facilities				
Old Weinberg Project				
6,000 gpd per acre	3-7-01:32	30 acres	180,000	
Academy of Golf (Westin)			17,000	
Kauai Lagoons		750 units		
300 gpd per unit		(300 gpd/unit)	225,000	
Subtotal			422,000	
				907,400
Lihue Airport	Airport Expansion			62,000
133,000 gpd by agreement				
71,000 as of October 1990				
Total of Proposed Projects & Connections				1,069,440 gpd
				say, 1.07 mgd

There are several other projects being considered: Molokoa Units IV & V, JMB/AMFAC Industrial Park located near the airport, and the stadium complex expansion. The estimated flows from these sources are not established at this time.

The total flow from known proposed sources is estimated to be approximately 1.1 mgd. The current average flow rate is 1.3 mgd. The plant expansion would allow the proposed hookups to be considered.

3.2.2 Anticipated Wastewater Flows to the Year 2010

The estimated flows from a fully built-up Lihue Planning District by the year 2010, excluding Puhi which has its own WWTP, could increase to 6.08 mgd (Table 3). This calculation is based on the areal distribution of population in the Lihue planning area by existing zoning, land use and density of the General Development Plan designations. (Note: The Planning Commission is presently revising the Development Plan.)

The basic land use units for the General Plan for Lihue District, excluding Puhi, are:

Residential	803 acres
Resort	92 acres
Commercial/Industrial	433 acres
	1328 acres

Note: Other areas are in agricultural and open designated areas.

The densities set by zoning are:

Residential District	
R-1	1 Unit/Acre
R-2	2 Units/Acre
R-4	4 Units/Acre
R-8	8 Units/Acre
R-10	10 Units/Acre
R-20	20 Units/Acre

Resort District	
RR-10	10 Condo Units/Acre or 20 Hotel Rooms/Acre
RR-20	20 Condo Units/Acre or 40 Hotel Rooms/Acre

Assumptions:

Density	
Residential	8 Units/Acre Average 80% Residents 20% Visitor
Resort (RR-20)	80% 40 Rooms/Acre Average 20% 20 Units/Acre Average

Occupancy Rate for Visitor Units: 71% (HVB)

Flow Rates per Unit/Acre:

400 gpd per unit	Residential
250 gpd per unit	Residential/Resort (visitor)
300 gpd per unit	Hotel
6000 gpd per acre	Industrial/Commercial

Table 3

2010 Projected Flows

	Units/Acres	GPD per Unit/Acre	MGD
Residential			
Resident	5,139 units	400 gpd/unit	2.06
Visitor	1,288 units	250 gpd/unit	0.32
Visitors			
Hotel	2,944 units	300 gpd/unit	0.88
Condo/motel	368 units	250 gpd/unit	0.09
Commercial/ Industrial			
	433 acres	6,000 gpd/acre	2.60
Lihue Airport*			0.13
Total			**6.08**

*According to the Airport Master Plan, the airport will generate 400,000 gpd. The present agreement between the County and State limits the flow to the system to 133,000 gpd or approximately 0.13 mgd.

CHAPTER 4.0 PROJECT DESCRIPTION

4.1 Project Objectives

The County of Kauai Water Quality Management Plan and design for the Lihue WWTP were done nearly 20 years ago. The earlier plan and design envisioned a 4.5 mgd treatment plant ultimately at this site.

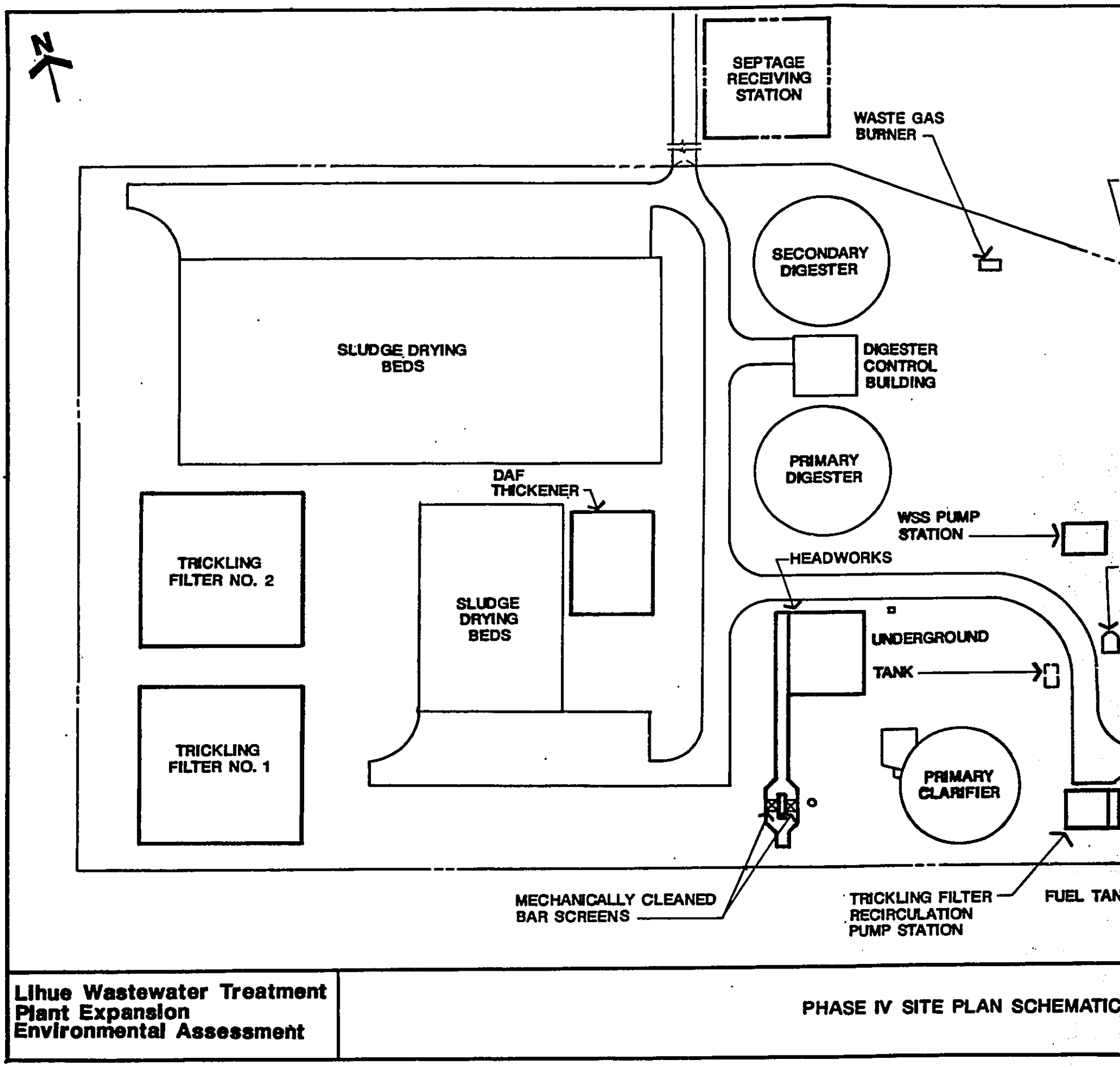
Practice at that time allowed for temporary degradation of effluent quality during scheduled downtime for maintenance of the process units. This facility has served its purpose according to those standards; however, today the requirements are more stringent. It has become a matter of public policy to achieve and maintain higher standards of quality than those of 20 years ago.

Originally, treated effluent was used for sugar cane irrigation where there was minimal risk of public contact. Changes in effluent use to golf course irrigation is cause for greater concern because of increased public exposure. Even a temporary degradation of effluent quality for the Lihue WWTP is unacceptable. Upgrading and equipment backup is essential to attaining higher effluent quality standards.

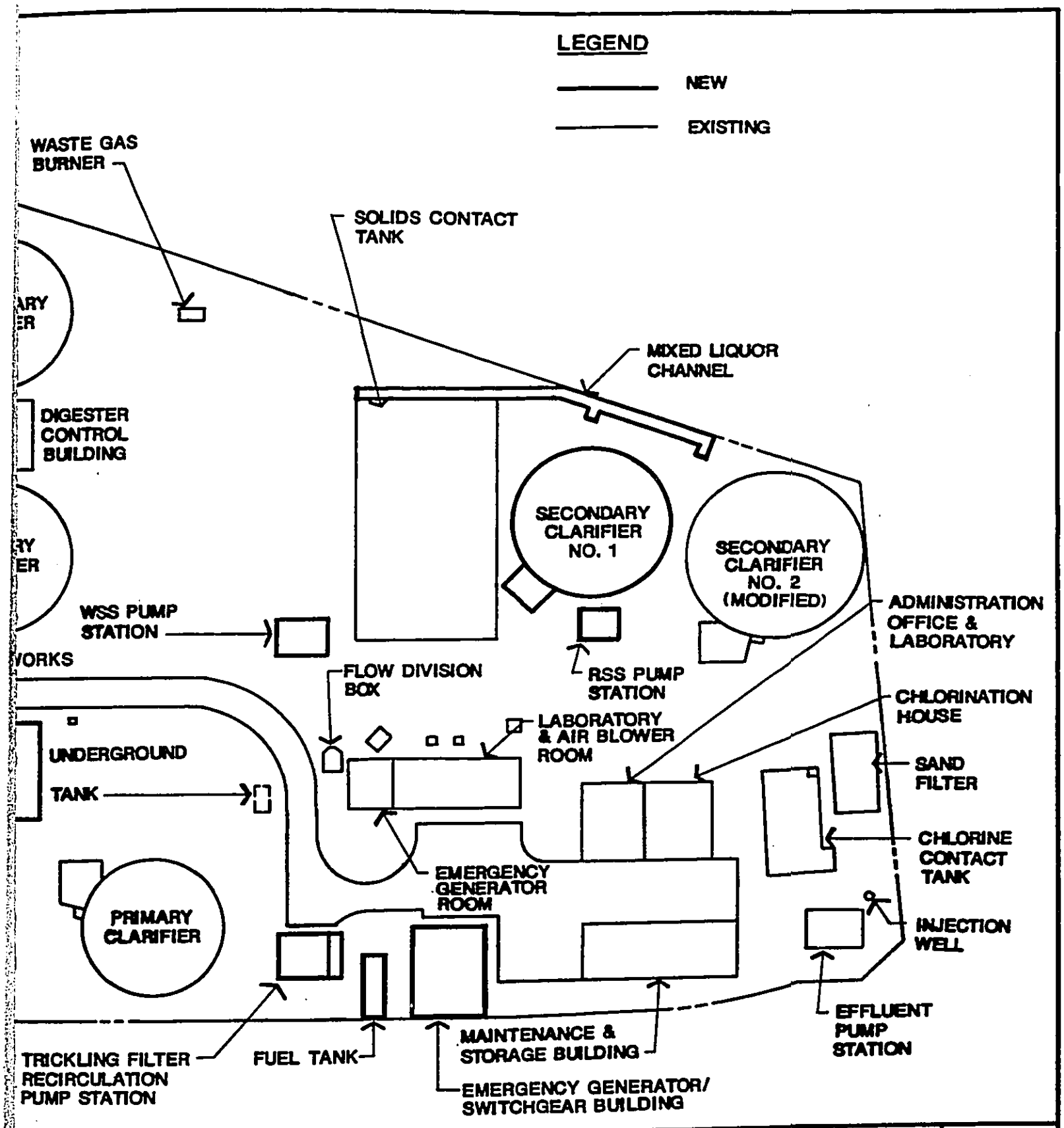
4.2 Phase IV Plant Expansion

The plan for the Phase IV plant recommends the conversion of the existing activated sludge process to the Trickling Filter Solids Contact process (TFSC) and other new processes, including backup (or redundant) facilities. Other new processes include a septage receiving facility and a DAF (dissolved air flotation) thickener. Also to be included in the plan are repairs and modifications to existing facilities. Figure 7 presents the general layout of the recommended plant. In order to accommodate the septage receiving station and the setback requirements for the Emergency Generator/Switchgear Building, it will be necessary for the County to acquire adjacent land.

The following additions, modifications and/or repairs are recommended:



Lihue WWTP Expansion. Phase IV



SE IV SITE PLAN SCHEMATIC

Figure 7

Septage Receiving Station

The septage receiving station will consist of a controlled access dumping basin, bar screen, below ground concrete receiving tank. The station is to be located adjacent to the plant at the entrance.

Headworks

Headworks improvements include replacement of the existing barminutors with two mechanically cleaned bar screens, new influent flow element and construction of a new larger aerated grit chamber and associated grit separator.

Primary Clarifier

Primary clarifier improvements would include replacement of the effluent weir and addition of a new sludge pump.

Biofilter and Circulation Pump Station

Two biofilters, which are similar to trickling filters, would be added. To meet process reliability and redundancy needs, the filters would be sized so each could meet process objectives while the other is down for necessary maintenance. A circulation pump station is needed to pump the primary effluent to the top of the biofilters.

Solids Contactor

The existing activated sludge aeration tanks will be modified to function as aerated solids contact tanks.

Secondary Clarifier System

An aerated mixed liquor channel will be constructed to transport MLSS to the secondary clarifiers. The existing secondary clarifier will be modified and a new secondary clarifier constructed.

Chlorination System

The existing chlorine contact tank weir, effluent flow measurement equipment and chlorination system will be modified.

Waste Secondary Sludge Pump Station

A waste secondary sludge (WSS) pump station will be constructed to pump WSS to the dissolved air flotation (DAF) thickener.

Dissolved Air Flotation Thickener

A DAF thickener will be constructed. This sludge thickening process would be used to concentrate both primary sludge and waste secondary sludge.

4.3 Effluent Disposal

The County of Kauai has an agreement with the proprietor of the adjacent golf course, Hemmeter-VMS Kauai Companies, to accept up to 4.5 mgd of the treated effluent from the Lihue WWTP through an integrated system of golf course irrigation (reclamation) and subsurface injection of excess effluent (the WWTP currently produces an average of 1.3 mgd). This agreement is effective for 12 more years with provisions for extension to accommodate changing conditions and needs in the future. Effluent from the 2.5 mgd expansion will continue to be disposed of in accordance with this agreement, through irrigation and injection wells, consistent with the County Management Plan.

4.4 Construction Cost of Recommended Plan

The total construction cost estimate for the Phase IV expansion is $15,820,000, which includes construction contingencies, engineering, construction management, and administrative costs associated with the project. The costs are escalated to mid-1992, based on a factor of 6%.

CHAPTER 5.0 ENVIRONMENTAL SETTING

5.1 Climate

The average annual temperatures range from 61 to 82 degrees F. The average annual rainfall is 40-60 inches and the wind speed varies from 10 to 13 miles per hour, predominantly from the northeast.

5.2 Geology

The treatment plant site and the majority of the Lihue area are located in a region of volcanic activity known as the Koloa series, some of which escaped between the gaps of the surrounding Waimea Canyon volcanic series (in particular the Napali). It is interbedded by ash and basaltic lava flows with thin sedimentary layers of sand and gravel. The basalt is medium to hard rock, the ash deposits are generally well compressed (tuffaceous), and the sedimentary layers are subrounded sand and gravel, some of which are highly porous. The high specific capacity of the Lihue injection well may be explained by these highly porous members in the deep strata.

5.3 Occurrence of Groundwater

Perched Water

Records of existing wells in the vicinity of Lihue implies the existence of two distinct aquifers. The upper level aquifer is unconfined and is separated from the basal water by an impermeable strata. The presence of perching members throughout the region is well documented. For example, during the drilling of the injection well for the Westin Kauai, multiple zones of saturation were encountered, pointing to the existence of aquitards (layers of soil, ash, or dense lava) within the volcanic formations above the primary basal aquifer.

While drilling the WWTP plant pilot well, the driller recorded a water level approximately 6 feet below ground level at the start of drilling operation. The water level remained relatively constant until the well was driven to about 204 feet below ground level, when the water level dropped to 7 feet MSL. The drop in water level was noted just before the well entered a change in the rock formation at a depth of 206 feet.

Basal Water

Basal water occurs in the Napali formation and is developed for municipal and irrigation purposes, particularly in Kalepa, Haupu, and Nounou Ridges. Based on heads in the area, the major regional groundwater gradient direction appears to be from west to east with perhaps minor components to the north and south. Seaward movement of basal water is not impeded by sediments which act as a caprock. Samples of water tested at the depth required for a productive yield show high levels of chloride content; this precludes the installation of future water wells for domestic purposes at the location of the plant or at any site seaward.

5.4 Flora and Fauna

The project site is not a known habitat for native species of flora. Native birds and animals have retreated in the path of urbanization. No rare or endangered species have been identified on the project site.

5.5 Natural and Historical Landmarks

One archaeological site (30-1-100, Ninini Heiau) has been identified in the Lihue Airport property. There is another heiau in the vicinity of the Airport (site: 30-11-1011), located near Ahukini Point. Both sites are reported to be destroyed. There are no known natural or historical landmarks within the plant site. However, all construction associated with this project shall observe the procedures set forth by Chapter 6E-2, Historic Preservation Program, Hawaii Revised Statutes.

CHAPTER 6.0 IMPACTS OF THE PROPOSED PROJECT EFFECTS

6.1 Primary Effects

6.1.1 Aesthetics

The treatment plant is located next to the Kiele Golf Course on one side and the golf course maintenance facilities on the other. A high berm between the plant and the golf course shields the plant from sight.

The proposed sewage treatment plant expansion will include additions of new treatment structures and buildings, and modifications to existing structures. When construction is completed, the appearance of the plant will not be changed markedly; the plant will have the look of a typical modern wastewater treatment facility.

During construction, the land surface within portions of the plant site will be temporarily scarred from trenching and other excavation. Excavated material will be stockpiled adjacent to the new or modified structures and trenches. Work will be conducted in accordance with County and State rules and regulations. Following construction, exposed ground will be replanted or reseeded.

6.1.2 Noise and Air Quality

The operation of the expanded sewage treatment plant itself is not expected to have any significant adverse effect on the air and noise of the immediate area surrounding the plant. In actuality, air quality (odor potential) should improve with the improvements made at the plant. The Department of Health is presently in the process of revising Title 11, Chapter 59, Ambient Air Quality Standards. The revised rules and regulations will include restrictions on the levels of hydrogen sulfide at the property line.

A limited amount of noise and air pollution is expect to accompany the project construction activity. Grading and trenching activities may be a source of potential soil erosion; however, erosion control measures will be included in the construction contract requirements. The effects of noise and air pollution are expected to be insignificant because of the remote location of the site. Construction traffic for the delivery of construction materials and equipment will cause a temporary increase in noise and air pollution along Rice Road.

6.1.3 Water Quality

There will be significant beneficial effects on environmental quality because the plant will be able to accommodate wastewater flows that are now disposed of in cesspools and septic tanks in the area. Title 11, Chapter 62 (proposed), Wastewater Systems, seeks to ensure that waste disposal is conducted in such a way as not to contaminate or pollute drinking water or potential drinking water.

Effluent disposal through injection wells are a reasonable and safe way of handling treated wastes if properly designed for the receiving groundwater bodies. Pursuant to Chapter 11, Chapter 23, Underground Injection Control, the Department of Health issues a UIC permit for new injection wells and existing wells, to insure that the wells are properly designed and sited. The capability of injection wells in this region has been amply demonstrated by recent preliminary injection test of the Lihue WWTP well and the test results obtained from the developers of the Westin Kauai well.

6.1.4 Electricity

The electrical primary service is provided by Kauai Electric Company. The primary service is rated at 12.4 kilowatts (KV), 3 phase, 3 wire. The existing transformer servicing the Lihue WWTP is owned and serviced by Kauai Electric.

The present plant uses approximately 420 KVA. The proposed 2.5 mgd expansion will use approximately 469 KVA. The present electrical service to the WWTP is inadequate to accommodate the 2.5 mgd expansion and will be increased.

6.2 Secondary Effects

The socioeconomic effects of the proposed expansion are minimal and beneficial. The proposed WWTP will permit existing residential areas in the Lihue service area now served by cesspools to be sewered; allow development of planned projects, including much needed housing; and direct growth of the Lihue area as proposed by the Kauai General Plan and CZO.

Phase IV expansion is intended to accommodate existing and planned developments within the service area.

CHAPTER 7.0 ALTERNATIVES TO THE PROPOSED ACTION

7.1 No Action Alternative

The No Action alternative will continue to allow cesspools for individual residents, and septic tanks for subdivisions with fewer than 16 lots. The Department of Health considers this to be an interim disposal method and it is discouraged where municipal sewer service is available. More important, this alternative would perpetuate the degradation of environmental quality by proliferation of private sewage treatment facilities and additional cesspools/septic tanks.

On May 7, 1990, engineers of the Department of Health conducted the annual operation and maintenance inspection of the Lihue Wastewater Treatment Plant. The Plant received a rating of "Unacceptable" for deficiencies found during the inspection. The proposed project would rectify these deficiencies. The "No Action" alternative is not a viable alternative. This would keep the plant "as is" with deterioration of effluent quality over time.

7.2 Proposed Action

In March 1989, the DOH issued *Strategy on Wastewater Policy Implementation*. As part of this strategy, cesspools are to be only a temporary means of sewage disposal and connection to a public sewer is the preferred. The expansion to the Lihue WWTP will ensure implementation of this policy.

The Lihue WWTP has already achieved flows of 90 percent design capacity. Also, there are proposed projects in the existing service which will need to be connected to the system. The present plant capacity cannot accommodate the estimated flows generated by these projects.

NOTE: Proposed revision of Chapter 62 of Title 11, Department of Health Administrative Rules, Wastewater Systems, states that "when public wastewater treatment works have achieved flows of 75 percent of the design capacity, a facility plan shall be initiated; when the flows reach 90 percent of the design capacity, the facility plan shall be implemented."

CHAPTER 8.0 PLANS, POLICIES AND CONTROL

8.1 Hawaii State Plan, Chapter 226, Hawaii Revised Statutes, as amended

This Chapter sets forth the Hawaii State Plan and provides guidance for future long-range development of the State of Hawaii; and identifies goals, objectives, policies and priorities regarding public funds, human resources infrastructure and the environment. The following sections are relevant to the Phase IV Expansion of Lihue WWTP:

Sec. 226-14 Objectives and policies for facility system—in general.

Subsection B states that the needs of Hawaii's people shall be accommodated through coordination of facility systems and capital improvement priorities in consonance with state and county plans.

Sec. 226-15 Objectives and policies for facility systems—solid and liquid wastes.

Subsection A states that basic public health and sanitation standards relating to disposal of liquid wastes shall be maintained and adequate sewerage facilities shall be provided for physical and economic activities that alleviate problems in housing and employment. The expanded plant will accommodate wastewater which may presently be discharged via cesspools and/or septic tanks. Also, wastewater from new housing developments and employment activities will be accommodated.

Subsection B outlines the policies that should be implemented in order to achieve the objectives set forth by this section. This section encourages the development of adequate sewerage facilities that complement planned growth. The system will accommodate those projects to be developed within the existing service area, which is specifically zoned for those projects.

8.2 Chapter 62 of Title 11 (proposed), Wastewater Systems, Hawaii Administrative Rules, Department of Health

This Chapter seeks to insure that the disposal of wastewater does not contaminate or pollute drinking water or potential drinking water supply, or waters of the State of Hawaii; does not provide breeding grounds for insects, rodents or other vectors; and does not become a hazard to human health and well-being. This Chapter also provides guidance necessary to implement the Director's policy to protect groundwater and coastal water quality. This includes the phasing-out of cesspools.

8.3 Chapter 23 of Title 11, Underground Injection Control, Hawaii Administrative Rules, Department of Health

Chapter 23 establishes the State's Underground Injection Control (UIC) Program. The purpose of this program is to protect the quality of the underground sources of drinking water (USDW) from contamination by subsurface disposal of fluids. The

injection wells at the WWTP and Westin Kauai are makai of the UIC line. Areas makai of the UIC line are "exempted" aquifers, and are not being used as USDW.

CHAPTER 9.0 SUMMARY OF FINDINGS

In 1973, the *Water Quality Management Plan* foresaw that the future growth of Kauai would mean a proliferation of cesspools, which inevitably fail or malfunction. The implementation of this plan was seen as a way to control mass emissions of sewage discharges from these cesspools ultimately to the critical nearshore zone. The *Management Plan* called for the implementation of wastewater management systems in stages in accordance with financial resources and the population growth. The Phase IV Expansion of the Lihue Wastewater Treatment Plant is a vital element of this implementation scheme.

The expansion of the plant is intended to accommodate already planned developments, including much needed housing, within the existing service area as proposed by the Kauai General Plan and the Comprehensive Zoning Ordinance.

The plant has received an "unacceptable" rating from the DOH because of deficiencies found during the department's inspection. The proposed project would correct these deficiencies.

While the proposed expansion will have short-term adverse impacts, such as disruption of traffic by construction equipment, dust and noise, which could be mitigated by proper scheduling, timing, watering for dust control and attention to the monitoring of construction activities. These impacts are not significant as defined by Chapter 343, HRS and 11-200-12, Administrative Rules, and are overwhelmingly outweighed by the long-term benefits, both to human health and well-being, and to the environment. Therefore, a determination of "no significant impact" is appropriate and an EIS is not required.

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Conversations:

County of Kauai, Department of Planning
County of Kauai, Department of Public Works