HANNIBAL TAVARES
Mayor
ALVIN FUKUNAGA
Director

AARON SHINMOTO, P.E.
Land Use and Codes Administration
EASSIE MILLER, P.E.
Wastewater Reclamation Division
FRED ARAKI, P.E.
Engineering Division
BRIAN HASHIRO, P.E.
Solid Waste Division
GEORGE KAYA
Highways Division

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

November 28, 1990

Dr. Bruce Anderson, Acting Director
Office of Environmental Quality Control
465 S. King Street, Room 104
Honolulu, HI 96814

Dear Dr. Anderson:

SUBJECT: KAUNAKAKAI WWRF EFFLUENT SAND FILTER
NEGATIVE DECLARATION

The Department of Public Works, County of Maui, has reviewed the attached Environmental Assessment for the Kaunakakai Wastewater Reclamation Facility (WWRF) Effluent Filter, and has determined there are no significant impacts. Therefore, we have found this document to be a negative declaration.

If there are any questions concerning the environmental assessment, please contact Mr. David Wissmar of our Wastewater Reclamation Division at 243-7417.

Very truly yours,

Alvin K. Fukunaga
Director of Public Works

DW:ym(WM91135)
attachs.
c: Frank Hino, Kennedy/Jenks/Chilton

1990-12-08-LA-FEA

FILE COPY

KAUNAKAKAI WWRF EFFLUENT FILTER
County of Maui Department of Public Works
Job No. 90-98

ENVIRONMENTAL ASSESSMENT
October 22, 1990

KAUNAKAKAI WWRF EFFLUENT FILTER
County of Maui Department of Public Works
Job No. 90-98

ENVIRONMENTAL ASSESSMENT
October 22, 1990

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KAUNAKAKAI WWRF EFFLUENT FILTER
County of Maui Department of Public Works
Job No. 90-98

ENVIRONMENTAL ASSESSMENT
October 22, 1990

PROPOSING AGENCY

Department of Public Works, County of Maui

ACCEPTING AUTHORITY

Mayor, County of Maui

AGENCIES CONSULTED

A letter requesting comments on the proposed project and a project description was sent on September 25, 1990 to the following agencies:

U.S. Army Corps of Engineers
Office of State Planning, Coastal Zone Management
State of Hawaii Department of Land and Natural Resources
U.S Department of the Interior, Fish and Wildlife Service
State of Hawaii Office of Environmental Quality Control
County of Maui Department of Planning

As of October 22, 1990, responses were received from three agencies. Correspondence is included in Appendix A.

DESCRIPTION OF PROPOSED PROJECT

Introduction

County of Maui Department of Public Works Job No. 90-98 involves construction of an effluent sand filter system at the Kaunakakai Wastewater Reclamation Facility (WWRF). The Kaunakakai WWRF is located at TMK 5-3-05:2, approximately one-half mile west of the town of Kaunakakai on the island of Molokai. A location map is shown on Figure 1. Use designations for the proposed project site are:

- State Land Use Designation: Conservation
- County Land Use Designation: Conservation
- Molokai Community Plan: Public/Quasi Public

The Kaunakakai WWRF is a secondary treatment plant with effluent disposal by underground injection. The existing treatment plant consists of the plant headworks with aerated grit removal and a traveling screen, three rotating biological contactor (RBC) units, a secondary clarifier, gas chlorination equipment, a chlorine contact tank, and effluent pumps to transport the treated wastewater to an offsite injection well for effluent disposal. Sludge, scum, and grit are pumped to sludge stabilization ponds located at the treatment plant site. A site layout plan is shown on Figure 2. Two injection wells are located on the treatment plant site, but are no longer in use. Because of clogging experienced at these two wells, a third injection well was brought into service. The third injection well is located approximately one-half mile northeast of the treatment plant and currently provides disposal for plant effluent.

Project Objective

The purpose of the sand filter is to further improve the performance of the Kaunakakai WWRF to consistently produce a higher quality effluent for underground injection. The higher quality effluent will extend the life of the existing injection well and will enhance the potential for effluent reclamation for irrigation or other reuse.

Secondary treatment processes, such as the rotating biological contactors at the Kaunakakai WWRF, typically provide high quality effluent. However, biological processes occasionally experience upsets which can result in short term deterioration of effluent quality. In addition, hydraulic surges can periodically result in excessive carryover of solids through secondary clarifiers. Filtration is a physical treatment process that is not susceptible to biological upset and that has an inherent capacity to accommodate hydraulic and solids "shock" loads. Consequently, variations in secondary effluent quality resulting from biological upsets or hydraulic surges would be effectively dampened by the filter. The result is more reliable and consistent production of a higher quality effluent.

Sand filtration is a physical process which primarily involves straining of particles that are too large to pass through the filter. Although other mechanisms and factors also affect the quality of the filtered effluent, in general, the filtered effluent would contain only those particles that were able to pass through the filter. The ground surrounding an injection well is essentially a filter that will also capture particles resulting in a diminished capacity for effluent disposal. Consequently, removal of additional solids by filtration prior to the injection well can significantly extend the expected life of an injection well.

Reliable and consistent production of high quality effluent enhances the potential for reclamation for irrigation or other reuse. Higher efficiency drip irrigation systems are susceptible to clogging by solids in the irrigation water and microbiological growths within the irrigation piping system. Additional maintenance efforts associated with use of wastewater treated to secondary levels alone has generally led to a decline in use of treated wastewater in drip irrigation systems. Addition of an effluent sand

filter system at the Kaunakakai WWRF can provide a reliable source of consistently high quality effluent for irrigation or other potential reuse.

Proposed Filter System

The proposed filter system for the Kaunakakai WWRF primarily consists of an influent pump station with variable speed pumps and two traveling bridge filter units operating in parallel. The system layout is shown on Figure 3.

Selection of proposed system was based on technical and economic evaluation of various types of package filter systems. The selection process is summarized in the Kaunakakai WWRF Effluent Filter Preliminary Engineering Report, prepared for the County of Maui Department of Public Works, dated June 14, 1990.

Sitework. The filter system improvements will occupy an area of approximately 0.2 acres adjacent to the existing treatment plant facilities. The area will be graded to raise the ground surface elevation approximately from elevation 5 feet above mean sea level (msl) to elevation 7 feet msl. The finished grade will generally match the grades surrounding the existing treatment facilities. The existing drainage pattern within the area will be maintained. Existing trees within the work area will remain.

Influent Pump Station. The influent pump station will consist of a reinforced concrete wet well structure with two column-type variable speed wastewater pumps. Pump controls will be housed in a pedestal mounted enclosure located adjacent to the wet well structure. Two air compressor units for the wet well level sensing system will be mounted on an equipment pad at grade level adjacent to the wet well structure.

The wet well structure will be partially buried with inside plan dimensions of 8 feet square with 8-inch thick walls. Invert elevation will be at 2.3 feet msl. Top elevation of the structure will be at 9.8 feet msl. Finished grade elevation surrounding the pump station structure will be at 7.2 feet msl. The pumps will be mounted on a metal base plate over an opening in the top slab of the structure.

Traveling Bridge Filters. The filters will consist of two package, traveling bridge, sand filter units mounted on a reinforced concrete slab at grade. Each filter unit consists of steel tankage approximately 9 feet wide by 19 feet long by 6 feet high. The carriage assembly, or traveling bridge, rests on rails mounted on the top of the tank walls. The top of the carriage assembly extends approximately 1 foot above the top of the tank walls. The concrete base slab will be 24 feet wide by 21 feet long with a top of slab elevation of 7 feet msl.

The two filter units will operate in parallel, each handling a design average daily flow of 0.15 million gallons per day. Spent backwash water from the filters will be conveyed to the existing sludge stabilization ponds for disposal. The total volume of spent washwater generated from the filters operating at the design average daily flow is estimated to be 15,300 gallons per day.

Electrical Service. Electrical service will be provided by connection to the existing plant electrical distribution system at connection points located at the Office and Control Building and the Chlorination Building.

ENVIRONMENTAL EVALUATION

The proposed project will affect approximately 0.2 acres of land located within the existing treatment plant site and adjacent to existing treatment plant facilities. Because the proposed project is a relatively minor extension of the existing treatment plant, and because it involves a small area adjacent to existing facilities, the proposed project is considered to have no significant adverse environmental impacts.

The primary impact of the proposed project will be to improve the quality of treated effluent presently being disposed via underground injection. Other impacts include improved reliability of treatment plant performance, extended life expectancy of the existing injection well, and enhanced potential for reclamation of the effluent for reuse.

Construction activities may affect adjacent areas, however, because the proposed project site is located well within the existing treatment plant site, impacts associated with construction activities are not expected to be significant. To further reduce the potential impacts during construction, measures such as dust control and erosion control will be required.

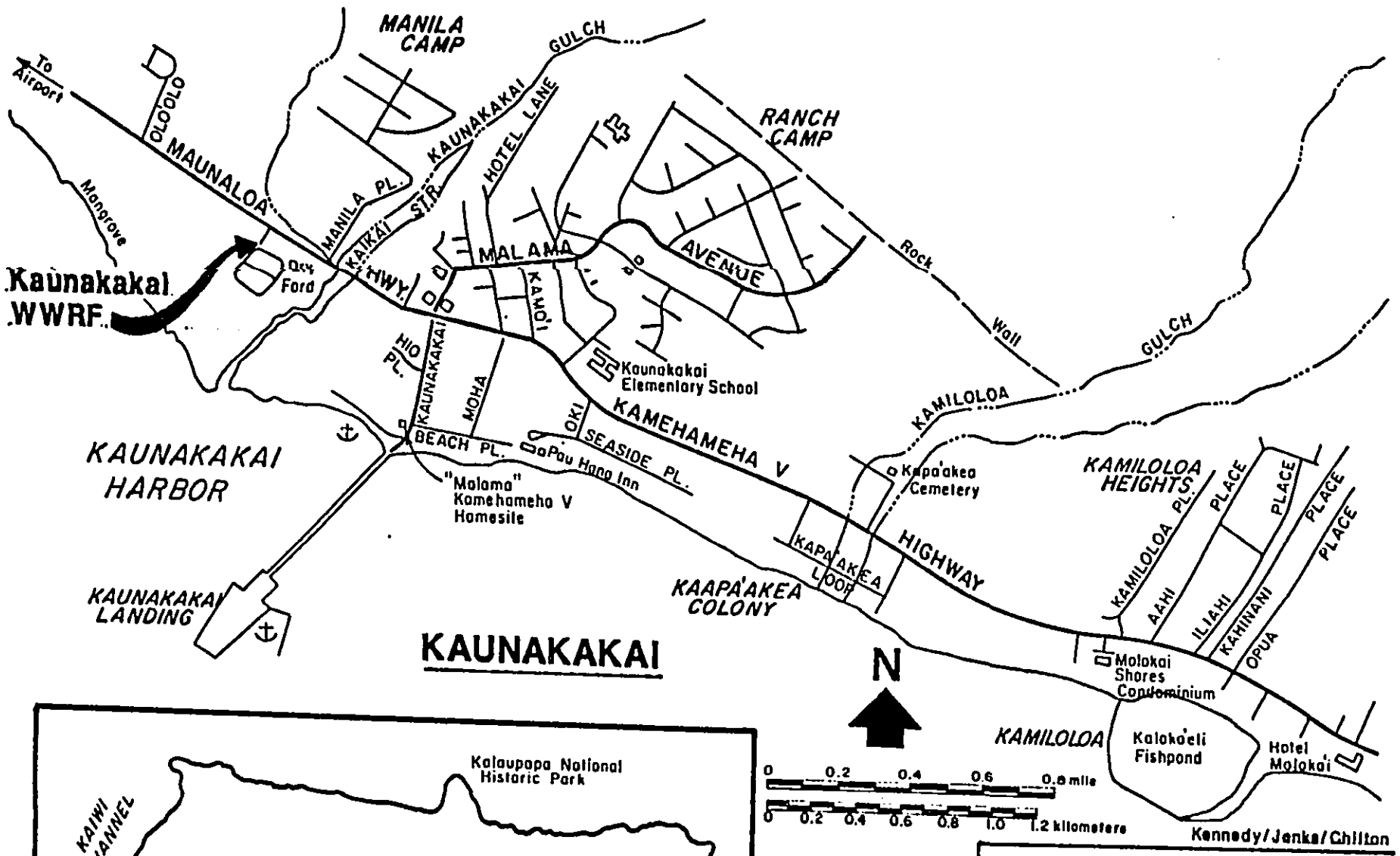
Operation of the proposed filter system will require additional energy consumption. To minimize the additional electrical energy consumption, the filter influent pumps will be variable speed.

Additional environmental issues were addressed in detail by previous documents including the Small Community Facilities Plan for Kaunakakai, Molokai; the environmental assessment prepared for the existing Kaunakakai WWRF; and the Preliminary Engineering Memorandum prepared for the existing Kaunakakai WWRF. Relevant portions of the latter two documents, which are applicable to the existing treatment facility, have been included in Appendices B and C.

DETERMINATION

The proposed project will have no significant adverse impacts to the environment. Findings and reasons supporting this conclusion include:

- The proposed project will affect 0.2 acres of land located within the existing treatment plant site.
- Prior environmental evaluations for the existing treatment plant found that there were no significant adverse impacts associated with construction and operation of the existing plant. The proposed project is a relatively minor modification of the existing plant.

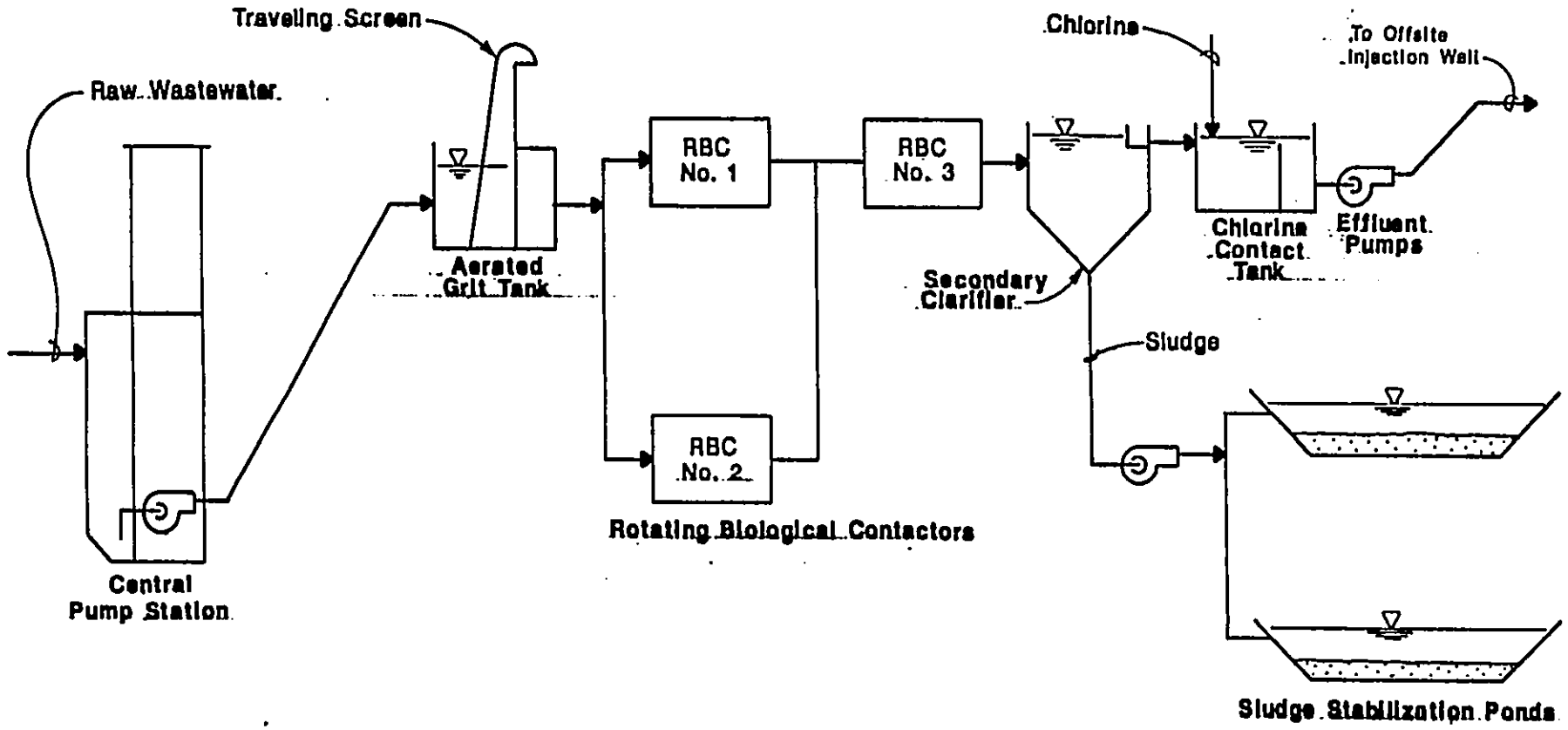


Kaunakakai WWRP Effluent Sand Filter
Preliminary Engineering Report
County of Maui

Location Map

K/J/C 893007.00
June 14, 1990
Rev. 1 – August 31, 1990

Figure 1



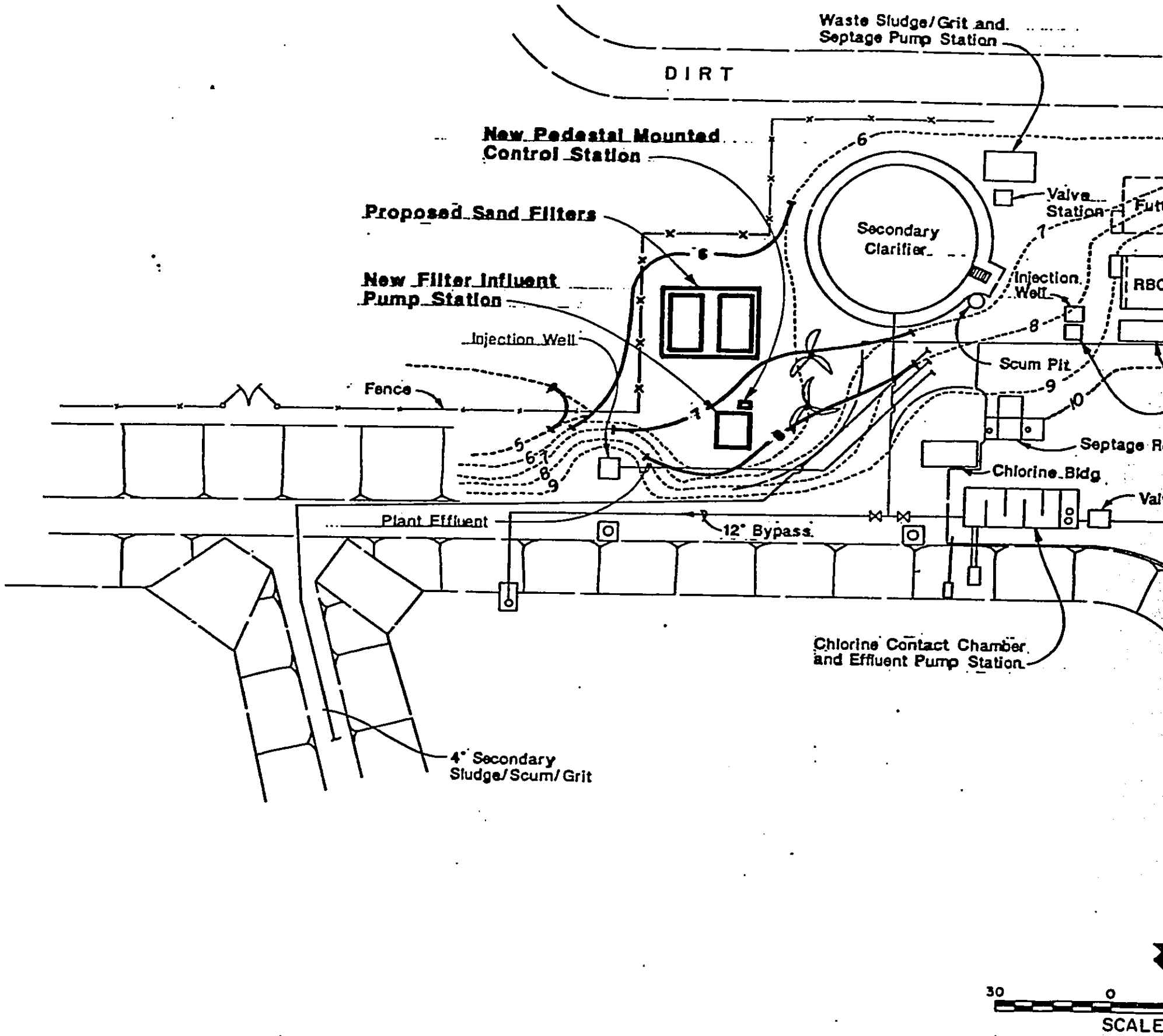
Kennedy/Jenke/Chilton

Kaunakakai WWRF Effluent Sand Filter
Preliminary Engineering Report
County of Maui

Schematic Diagram
Existing Kaunakakai WWRF

K/J/C 893007.00
June 14, 1990
Rev. 1 - August 31, 1990

Figure 2


Waste Sludge/Grit and
Septage Pump Station
DIRT
New Pedestal Mounted
Control Station
Proposed Sand Filters
New Filter Influent
Pump Station
Injection Well
Fence
Secondary
Clarifier
Valve
Station
Injection
Well
Scum Pit
Septage R
Chlorine Bldg
Plant Effluent
12" Bypass
Chlorine Contact Chamber
and Effluent Pump Station
4" Secondary
Sludge/Scum/Grit
30
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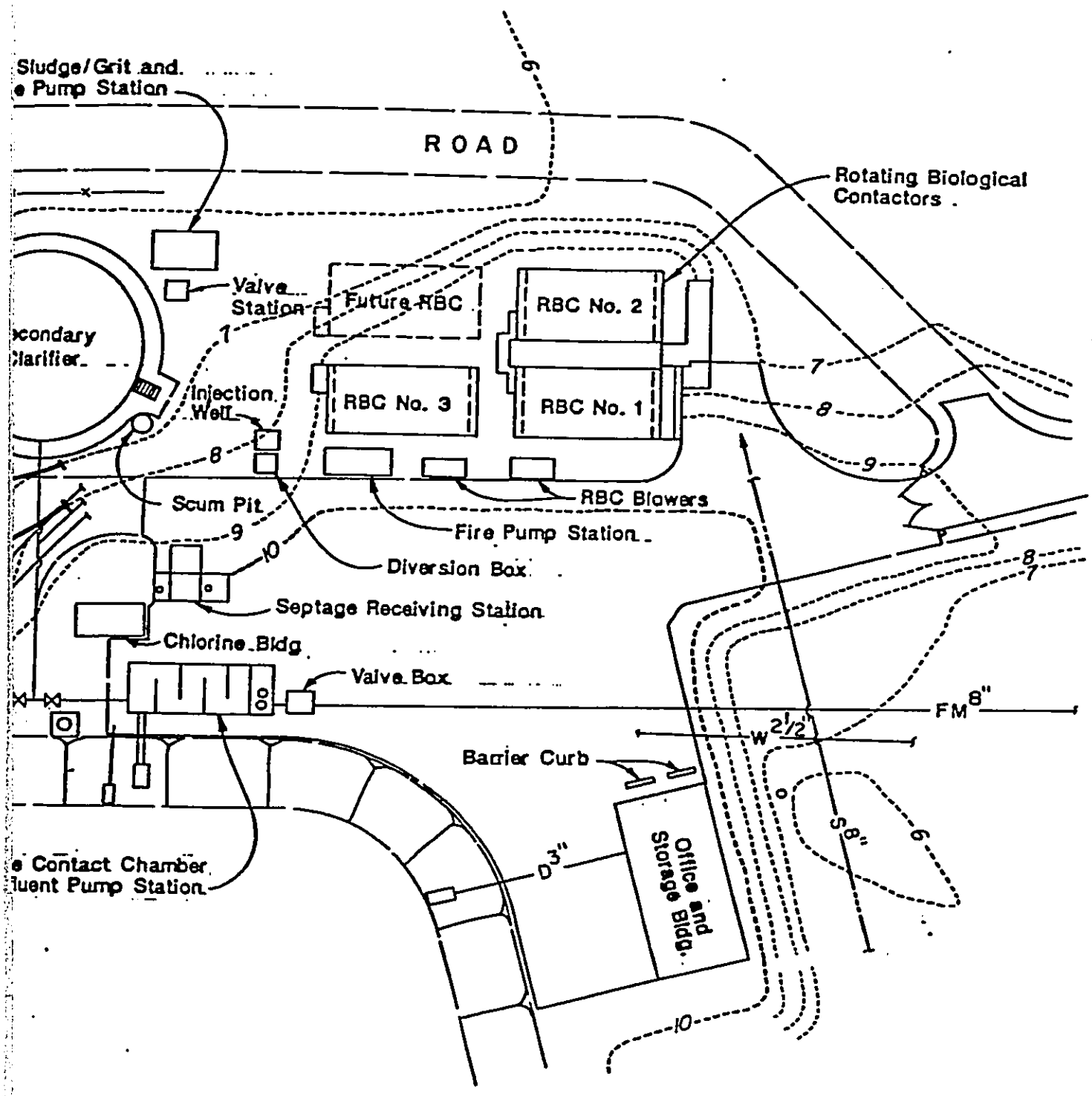
SCALE



Kennedy/Jenks/Chilton

Kaunakakai WWRF Effluent Sand Filter
County of Maui

System Layout
Sand Filter System

K/J/C 893007.00
September 1990

Figure 3.

N

30 0 30 60

SCALE IN FEET

KAUNAKAKAI WWRF EFFLUENT FILTER
County of Maui Department of Public Works
Job No. 90-98

ENVIRONMENTAL ASSESSMENT
October 22, 1990

APPENDIX A
Correspondence

Kennedy/Jenks/Chilton
Consulting Engineers
1164 Bishop Street, Suite 1400
Honolulu, Hawaii 95813
808-524-0594

September 25, 1990

U.S. Army Corps of Engineers
Honolulu District
Building 230, CEPOD-CO-O
Ft. Shafter, Hawaii 96858-5440

Subject: Kaunakakai WWRF Effluent Filter
TMK 5-03-05:2
K/J/C 893007.00

We are currently preparing documents for submittal of a Special Management Area Permit (Maui County) on behalf of the County of Maui Department of Public Works Waste Management Division for the subject project. The proposed project is located on TMK 5-03-05:2.

In general, the proposed project involves construction of a package sand filter system at the existing Kaunakakai Wastewater Reclamation Facility. Enclosed please find a project description and environmental evaluation of the subject project. We would appreciate your review and comments.

If there are any questions, please feel free to contact Mr. Frank Hino at 524-0594. Thank you for your consideration.

Very truly yours,

KENNEDY/JENKS/CHILTON

Francis T. Hino
Project Engineer

FTH/fthwp30/c

Attachments

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

REPLY TO ATTENTION OF
Operations Division

2 OCT 1990

Mr. Frank T. Hino, Project Engineer
Kennedy/Jenks/Chilton
Consulting Engineers
1164 Bishop Street, Suite 1400
Honolulu, Hawaii 96813

Dear Mr. Hino:

We received your submittal (dated September 25, 1990) for the proposed project Kaunakakai Wastewater Reclamation Facility Effluent Filter, TMK 5-03-05:2, Molokai, Hawaii.

From our review of your documents and knowledge of the area, the area is considered to be a wetland. Based on the scope of work proposed, a Department of the Army permit is required.

For permit requirements, please call the Operations Division at 438-9258. File no. PO90-206 has been assigned to this project, please refer to this number in all future correspondence.

Sincerely,

Stanley T. Arakaki

STANLEY T. ARAKAKI
Chief, Operations Division
Directorate of Construction-
Operations

CF:

County of Maui Department of Public Works Waste Management Division

Kennedy/Jenks/Chilton
Consulting Engineers
1164 Bishop Street, Suite 1400
Honolulu, Hawaii 96813
808-524-0594

September 25, 1990

Office of State Planning
Coastal Zone Management
State Capitol, Room 410
Honolulu, Hawaii 96813

Subject: Kaunakakai WWRF Effluent Filter
TMK 5-03-05:2
K/J/C 893007.00

We are currently preparing documents for submittal of a Special Management Area Permit (Maui County) on behalf of the County of Maui Department of Public Works Waste Management Division for the subject project. The proposed project is located on TMK 5-03-05:2.

In general, the proposed project involves construction of a package sand filter system at the existing Kaunakakai Wastewater Reclamation Facility. Enclosed please find a project description and environmental evaluation of the subject project. We would appreciate your review and comments.

If there are any questions, please feel free to contact Mr. Frank Hino at 524-0594. Thank you for your consideration.

Very truly yours,

KENNEDY/JENKS/CHILTON

Francis T. Hino

Francis T. Hino
Project Engineer

FTH/fthwp30/c

Attachments

Kennedy/Jenks/Chilton
Consulting Engineers
1164 Bishop Street, Suite 1400
Honolulu, Hawaii 96813
808-524-0594

September 25, 1990

State of Hawaii
Department of Land and Natural Resources
Office of Conservation and Environmental Affairs
1151 Punchbowl Street
Honolulu, Hawaii 96813

Subject: Kaunakakai WWRF Effluent Filter
TMK 5-03-05:2
K/J/C 893007.00

We are currently preparing documents for submittal of a Special Management Area Permit (Maui County) on behalf of the County of Maui Department of Public Works Waste Management Division for the subject project. The proposed project is located on TMK 5-03-05:2.

In general, the proposed project involves construction of a package sand filter system at the existing Kaunakakai Wastewater Reclamation Facility. Enclosed please find a project description and environmental evaluation of the subject project. We would appreciate your review and comments.

If there are any questions, please feel free to contact Mr. Frank Hino at 524-0594. Thank you for your consideration.

Very truly yours,

KENNEDY/JENKS/CHILTON

Francis T. Hino
Project Engineer

FTH/fthwp30/c

Attachments

Kennedy/Jenks/Chilton
Consulting Engineers
1164 Bishop Street, Suite 1400
Honolulu, Hawaii 96813
808-524-0594

September 25, 1990

U.S. Department of the Interior
Fish and Wildlife Service
300 Ala Moana Boulevard
Honolulu, Hawaii 96813

Subject: Kaunakakai WWRF Effluent Filter
TMK 5-03-05:2
K/J/C 893007.00

We are currently preparing documents for submittal of a Special Management Area Permit (Maui County) on behalf of the County of Maui Department of Public Works Waste Management Division for the subject project. The proposed project is located on TMK 5-03-05:2.

In general, the proposed project involves construction of a package sand filter system at the existing Kaunakakai Wastewater Reclamation Facility. Enclosed please find a project description and environmental evaluation of the subject project. We would appreciate your review and comments.

If there are any questions, please feel free to contact Mr. Frank Hino at 524-0594. Thank you for your consideration.

Very truly yours,

KENNEDY/JENKS/CHILTON

Francis T. Hino

Francis T. Hino
Project Engineer

FTH/fthwp30/c

Attachments

Kennedy/Jenks/Chilton
Consulting Engineers
1154 Bishop Street, Suite 1400
Honolulu, Hawaii 96813
808-524-0594

September 25, 1990

State of Hawaii
Office of Environmental Quality Control
465 South King Street
Kekuanaoa Building, #104
Honolulu, Hawaii 96813

Attention: Dr. Bruce Anderson, Acting Director

Subject: Kaunakakai WWRF Effluent Filter
TMK 5-03-05:2
K/J/C 893007.00

We are currently preparing documents for submittal of a Special Management Area Permit (Maui County) on behalf of the County of Maui Department of Public Works Waste Management Division for the subject project. The proposed project is located on TMK 5-03-05:2. Use designations for the project site are:

- State Land Use Designation: Conservation
- County Land Use Designation: Conservation
- Molokai Community Plan: Public/Quasi Public

In general, the proposed project involves construction of a package sand filter system at the existing Kaunakakai Wastewater Reclamation Facility. Enclosed please find a project description and environmental evaluation of the subject project. We would appreciate your review and comments.

We have also requested comments from the following agencies:

- County of Maui Department of Planning
- State of Hawaii Department of Land and Natural Resources
  Office of Conservation and Environmental Affairs
- Office of State Planning
  Coastal Zone Management
- U.S. Army Corps of Engineers
  Honolulu District
- U.S. Department of the Interior
  Fish and Wildlife Service

As indicated above, we would appreciate your review and comment. If there are any questions, please feel free to contact Mr. Frank Hino at 524-0594. Thank you for your consideration.

Very truly yours,

KENNEDY/JENKS/CHILTON

Francis T. Hino
Project Engineer

FTH/fthwp30/b

Attachment

JOHN WAIHEE
GOVERNOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
465 SOUTH KING STREET, ROOM 104
HONOLULU, HAWAII 96813

Bruce S. Anderson, Ph.D.
Acting DIRECTOR
TELEPHONE NO.
548-6915

October 1, 1990

Kennedy/Jenks/Chilton
Consulting Engineers
1164 Bishop Street, Suite 1400
Honolulu, Hawaii 96813

Attention: Francis T. Hino

Subject: Kaunakaki WWRF Effluent Filter
TMK: 5-03-05:2
K/J/C 893007.00

Thank you for providing the opportunity to review and comment on the subject project. We do not have any comments to offer on the subject project at this time.

Sincerely,

BRIAN J. J. CHOY for
BRUCE S. ANDERSON, Ph.D.
Acting Interim Director, OEQC

Kennedy/Jenks/Chilton
Consulting Engineers
1164 Bishop Street, Suite 1400
Honolulu, Hawaii 96813
808-524-0594

September 25, 1990

County of Maui
Department of Planning
200 South High Street
Wailuku, Maui, Hawaii 96793

Attention: Mr. Chris Hart, Director

Subject: Kaunakakai WWRF Effluent Filter
TMK 5-03-05:2
K/J/C 893007.00

We are currently preparing documents for submittal of a Special Management Area Permit for the Department of Public Works Waste Management Division for the subject project. The proposed project is located on TMK 5-03-05:2. Use designations for the project location are:

- State Land Use Designation: Conservation
- County Land Use Designation: Conservation
- Molokai Community Plan: Public/Quasi Public

In general, the proposed project involves construction of a package sand filter system at the existing Kaunakakai Wastewater Reclamation Facility. Enclosed please find a project description and environmental evaluation of the subject project. We would appreciate your review and comments.

We have also requested comments from the following agencies:

- State of Hawaii Department of Health
  Office of Environmental Quality Control
- State of Hawaii Department of Land and Natural Resources
  Office of Conservation and Environmental Affairs
- Office of State Planning
  Coastal Zone Management
- U.S. Army Corps of Engineers
  Honolulu District
- U.S. Department of the Interior
  Fish and Wildlife Service

As indicated above, we would appreciate your review and comment. If there are any questions, please feel free to contact Mr. Frank Hino at 524-0594. Thank-you for your attention to this matter.

Very truly yours,

KENNEDY/JENKS/CHILTON

Francis T. Hino
Project Engineer

FTH/fthwp30/a

Attachments

HANNIBAL TAVARES
Mayor

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

CHRISTOPHER L. HART
Planning Director

JOHN E. MIN
Deputy Planning Director

HMS ____
FTH ____
RWP ____
GCI ____
CTK ____
NSF ____
KAW ____
TKY ____
JMS ____
NBW ____
FAI ____
SE ____
SSN ____
TWA ____
FILE NO. ____

October 17, 1990

Mr. Francis T. Hino, Project Engineer
Kennedy/Jenks/Chilton
1164 Bishop Street Suite 1400
Honolulu, Hawaii 96813

Dear Mr. Hino:

Subject: Kaunakakai WWRF Effluent Filter at TMK: 5-03-05:2, Kaunakakai, Molokai

Our department has reviewed the materials submitted concerning the proposed construction of a package sand filter system at the existing Kaunakakai Wastewater Reclamation Facility. We understand that you are currently preparing documents for a Special Management Area Permit application for the Department of Public Works Waste Management Division for the subject project. We wish to note that since the project will involve the use of County lands, County and/or State funds, and lands within the Conservation District, then the project should comply with the provisions of Section 343-5, Hawaii Revised Statutes. We have no additional comments to offer at this time.

Should you have any questions, please contact Clayton Yoshida of this office.

Very truly yours,

Christopher L. Hart
Planning Director

cc: Waste Management Division
C. Yoshida

KAUNAKAKAI WWRF EFFLUENT FILTER
County of Maui Department of Public Works
Job No. 90-98

ENVIRONMENTAL ASSESSMENT
October 22, 1990

APPENDIX B
Environmental Evaluation for
Construction of the Existing Kaunakakai WWRF

The following document was prepared by CH2M-Hill as part of project documentation for design and construction of the existing Kaunakakai WWRF. The figure referenced in the attached document as Figure 1 was not included with the available test. However, the archaeological sites referenced in the figure are shown on the figure included with the excerpts in Appendix C. The available portions of the documents were undated.

ENVIRONMENTAL EVALUATION

An environmental evaluation of project alternatives is included in the attached Small Community Facilities Plan. The revised project proposal was not reviewed in the Small Community Facilities Plan but was prepared during the preliminary engineering phase. An environmental evaluation of the proposed project is attached. Concerns over impacts of the project on archaeological sites and the flood hazard area were major determinants in the revision of the project design. Thus, the revised design minimizes impacts on those two areas of environmental concern.

The following agencies were consulted during the preparation of the Small Community Facilities Plan and subsequent project redesign: Maui County Planning Department; Maui County Public Works Department; Hawaii Department of Land and Natural Resources (Division of State Parks, Division of Forestry and Wildlife, Historic Preservation Office); Bishop Museum; U.S. Fish and Wildlife Service; Hawaii Department of Planning and Economic Development; U.S. Army Corps of Engineers; and the Office of the Environmental Quality Commission. Based on communication with the above agencies and an environmental evaluation of the proposed project, the Maui County Department of Public Works has determined that an Environmental Impact Statement (EIS) is not required. This negative declaration has been filed with the Environmental Quality Commission.

The attached material summarizes the environmental evaluation conducted for the proposed site. Additional information, including relevant agency communications, can be found in the Small Community Facilities Plan.

ENVIRONMENTAL IMPACT EVALUATION

Impacts of the proposed project were evaluated during preparation of the Small Community Facilities Plan and the preliminary engineering report. Potential impacts are described below:

FLOOD PLAIN

The existing pond and proposed expansion area are partially within the 100-year flood plain as defined by the U.S. Department of Housing and Urban Development Flood Insurance Study for Maui County. The site is located within the Flood Fringe of Kaunakakai Gulch, but not within the Floodway. It is located within a flood hazard district as defined by Chapter 19.62 of the Maui County Code. The regulatory flood for this area is 6,030 cfs at Maunaloa Highway and 6,080 cfs at the mouth of Kaunakakai Stream. These values were determined using Kaunakakai streamflow records from USGS gaging station 4140.

The construction of this project without attendant drainage channel improvements to the sea could cause a very slight reduction in the carrying capacity of the flood fringe and could slightly raise the flood elevation. The construction of the proposed project would extend less than 50 feet into the flood fringe and could raise the flood elevation not more than 0.02 feet. This extremely small increase in the flood elevation will not create any noticeable impact on either the area drainage patterns or adjacent properties. (The lagoon expansion alternative evaluated in the Small Community Facilities Plan could raise the flood elevation from 0.2 to 0.5 feet.)

The project would have no adverse impact on the existing Kaunakakai stream levee. No additional embankments would be constructed.

No drainage channel improvements have been proposed as part of this project. Increases in the flood elevation are too small to warrant such mitigation. This particular site is geologically young, as evidenced by the accretion at the shoreline that has occurred since the early 1900's. Accretion in this area is a direct result of sediments washing off the island toward the sea. This process can be expected to continue. The mangrove and kiawe will continue to grow and conditions will most certainly change. Construction and maintenance could be extremely expensive due to these conditions. Such improvements are not warranted by the 0.02-foot or less impact on the flood elevations.

Wetlands

Shallenberger's An Ornithological Survey of Hawaiian Wetlands indicates that the flat lands in the project area are not typical wetlands and are only flooded ephemerally. Although the proposed expansion site is classified as a wetland, it has been greatly disturbed by extensive use as a dump site. The proposed project will impact less than 1 acre of additional land. All of the land to be impacted has previously been used as a dump site. Other alternatives evaluated in the Small Community Facilities Plan would impact 6 to 7 acres of identified wetland areas.

Rare and Endangered Species

The Hawaiian stilt (Himantopus himantopus knudseni) and the Hawaiian coot (Fulica americana alai) have been placed on the official "United States List of Endangered Native Fish and Wildlife" by the U.S. Fish and Wildlife Service, Department of Interior. Both the stilt and the coot have been recorded at the existing treatment pond. Although the number of coots is small, the area is the major habitat for Hawaiian stilts on the entire island.

The average number of Hawaiian stilt recorded at the existing pond between August 1976 and August 1977 was 10.9 birds per trip. This is nearly as high as a 20-year count average for the entire island of Molokai which includes only 12 surveys when stilts were recorded. Stilts were present on all counts taken by the U.S. Fish and Wildlife Service (USF&WS) in 1976. None were seen at other locations on the flatlands east or west of the pier.

Hawaiian coot have been observed at the site less frequently. They were noted in numbers ranging from 1 to 4 on 4 of 12 monthly surveys in 1976. Hawaiian coot generally prefer open water, which provides aquatic vegetation for feeding and emergent vegetation at the pond edge for nesting. The conditions at the existing pond and at the area proposed for expansion are not preferred habitat for the coot. It is likely that the sightings of the coot at the existing pond were stopovers, since good nesting or feeding habitat is not available.

The Hawaiian stilt eats aquatic insects, snails, and small fish. They nest in wet meadows. Stilts generally do not nest in picklewood, which covers most of the area proposed for construction. Their preferred nesting habitat is taller grasses in freshwater meadows in order to hide their eggs and young. The area around the existing pond is well manicured. The lack of suitably tall vegetation and the abundance of predators in the area would not indicate that this is a valuable nesting area. No young have been observed by the plant operator, and the one nest that was observed had been destroyed by predators.

Both the stilt and the coot are generally accustomed to man. The stilts observed at the existing treatment plant co-exist with the normal disruptions of plant operation. During construction of the proposed project, the noise and construction activity may disturb their feeding habits to some degree.

To enhance the value of the ponds for Hawaiian stilt habitat, it is recommended that the County work with the USFWS to develop a suitable artificial nesting habitat in the area, or to modify the existing pond site to accommodate nesting. During design, some modifications to fencing to reduce onsite predators will also be considered.

Archaeological or Historical Sites

Bishop Museum performed an archaeological survey of the site on November 17, 18, and 19, 1981. Their preliminary report, dated December 24, 1981, identified two significant areas. These are shown on the attached site plan. (Figure 1.) Neither of these sites is directly or indirectly impacted by the proposed project.

Growth Inducement

It is not anticipated that the proposed project will induce growth on the island. Growth has continued even without the capacity to adequately handle waste materials. The existing treatment facility is serving over three times the population for which it was designed. Design of the expanded system will be based on projections developed for the island in the 208 Water Quality Management Plan. The expanded system will provide for, rather than encourage, growth.

Construction Impacts

During construction, the following measures will be taken to minimize the impacts on adjacent areas:

- Construction activities will be limited to normal weekday working hours
- A vegetative strip will be retained as a visual buffer between Maunaload Road and the construction area
- No blasting will be done
- Spraying will be done as needed to control dust
- Flagmen will be provided at the entrance to the site from Maunaloa Road during periods of heavy traffic

KAUNAKAKAI WWRF EFFLUENT FILTER
County of Maui Department of Public Works
Job No. 90-98

ENVIRONMENTAL ASSESSMENT
October 22, 1990

APPENDIX C
Excerpts from Preliminary Engineering Memorandum Kaunakakai, Molokai

The following pages are excerpted from the Preliminary Engineering Memorandum, Kaunakakai, Molokai, prepared by CH2M-Hill for the County of Maui Department of Public Works, dated March 26, 1982.

ARCHAEOLOGICAL SURVEY

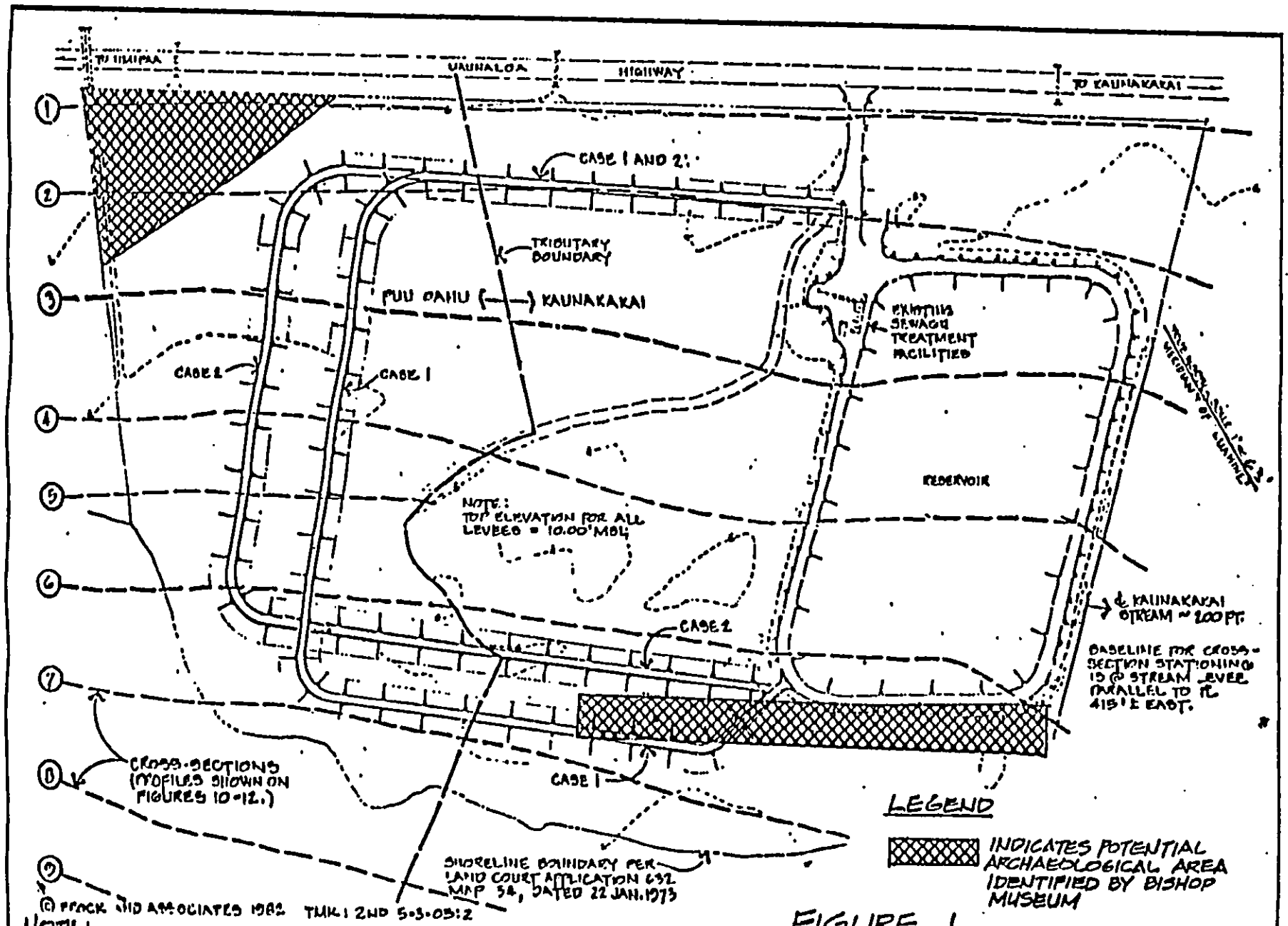
The archaeological survey was performed on November 17, 18, and 19, 1981, by Bishop Museum. Their preliminary report of December 24, 1981, identified two areas as potentially significant. These are shown on Figure 1, Site Plan. Neither of these areas was impacted in the pond expansion originally proposed in the SCFP. However, when the drainage study was completed in February 1982, two alternatives were recommended to minimize the impact of the treatment facility's improvements on the flood level.

One of the alternatives (Case 1) impacted an area identified in the archaeological study; the other alternative (Case 2) did not. Case 1, however, was the alternative that minimized the effect on the flood-plain elevation.

DRAINAGE STUDY

The drainage study was completed by Brock and Associates in February 1982. A thorough analysis of a pond treatment system resulted in two alternatives (Case 1 and 2) being recommended. These are also shown on Figure 1.

Case 1 was favored because increases in flood water elevations were 0.2 foot and 0.5 foot, respectively. However, because the Case 1 alternative conflicted with the potentially significant south site that was identified in the archaeological study, the Case 2 configuration was shown as the recommended alternative in the Special Management Area (SMA) application submitted last month. Neither Case 1 nor Case 2 would have adverse impacts on the existing Kaunakakai stream levee.



NOTE:
FIGURE TAKEN FROM 'KAUNAKAKAI TREATMENT FACILITY EXPANSION HYDROLOGIC ANALYSIS' REPORT, FEB 22, 1982.

P1S109.BO

FIGURE 1
SITE PLAN
MOLOKAI TREATMENT FACILITIES

CH2M HILL