

DRAFT

**DRAFT
ENVIRONMENTAL ASSESSMENT
AND
NEGATIVE DECLARATION**

**Job No. 3-9W-J1
Waikolu Valley Wells Development (0855-05 & 06)
Pump Controls and Connecting Pipeline
Molokai Irrigation System
Kalawao, Molokai, Hawaii**

State of Hawaii
Department of Agriculture/Agriculture Resource Management Division

Prepared by
Department of Land and Natural Resources/Division of Water and Land Development

November 1994

I. APPLICANT

Department of Agriculture

II. APPROVING AGENCY

Department of Agriculture

III. AGENCIES TO BE CONSULTED

U.S. Government

Department of the Interior

Fish and Wildlife Service

National Park Service

U.S. Army Corps of Engineers

State of Hawaii

Department of Hawaiian Home Lands

Department of Health

Department of Land and Natural Resources

Commission on Water Resource Management

Division of Aquatic Resources

Division of Forestry and Wildlife

Historic Preservation Division

University of Hawaii - Environmental Center

IV. GENERAL DESCRIPTION OF THE ACTION'S CHARACTERISTICS

This project is located in Waikolu Valley, County of Kalawao, Molokai (T.M.K. 6-1-01:02) on State land (See Figure 1). The purpose of this project is to supplement the Molokai Irrigation System (MIS) with additional ground water sources to better service its customers. Additional groundwater sources are necessary to ensure water is available during periods of low rainfall as well as to service additional acreage of farmland. The MIS currently serves over 200 customers who irrigate over 2000 acres of land. By Statute, the Department of Agriculture Irrigation System is required to reserve 2/3 of the water developed in Waikolu Valley for the Hawaiian Homesteaders. Potential new customers wishing to obtain MIS water are being denied service due to the already high demand by present users.

Currently, the Molokai Irrigation System stores water in a 1.4 billion gallon reservoir in Kualapuu. Most of the water delivered to the reservoir is derived from surface water diversions sources in Waikolu Valley. Wells #22-#24 have been used for the past 23 years to support the MIS. The Department of Agriculture (DOA) plans to rotate operations of the three existing wells and the two proposed wells (Wells 0855-05 and 0855-06) to allow greater recovery time for the dike-compartments tapped by the wells. A third well (Well 0855-04) was drilled at the same time as the project wells but will not be developed at this time and will remain as a monitor well. (See Figure 2)

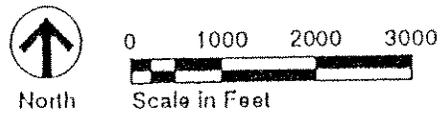
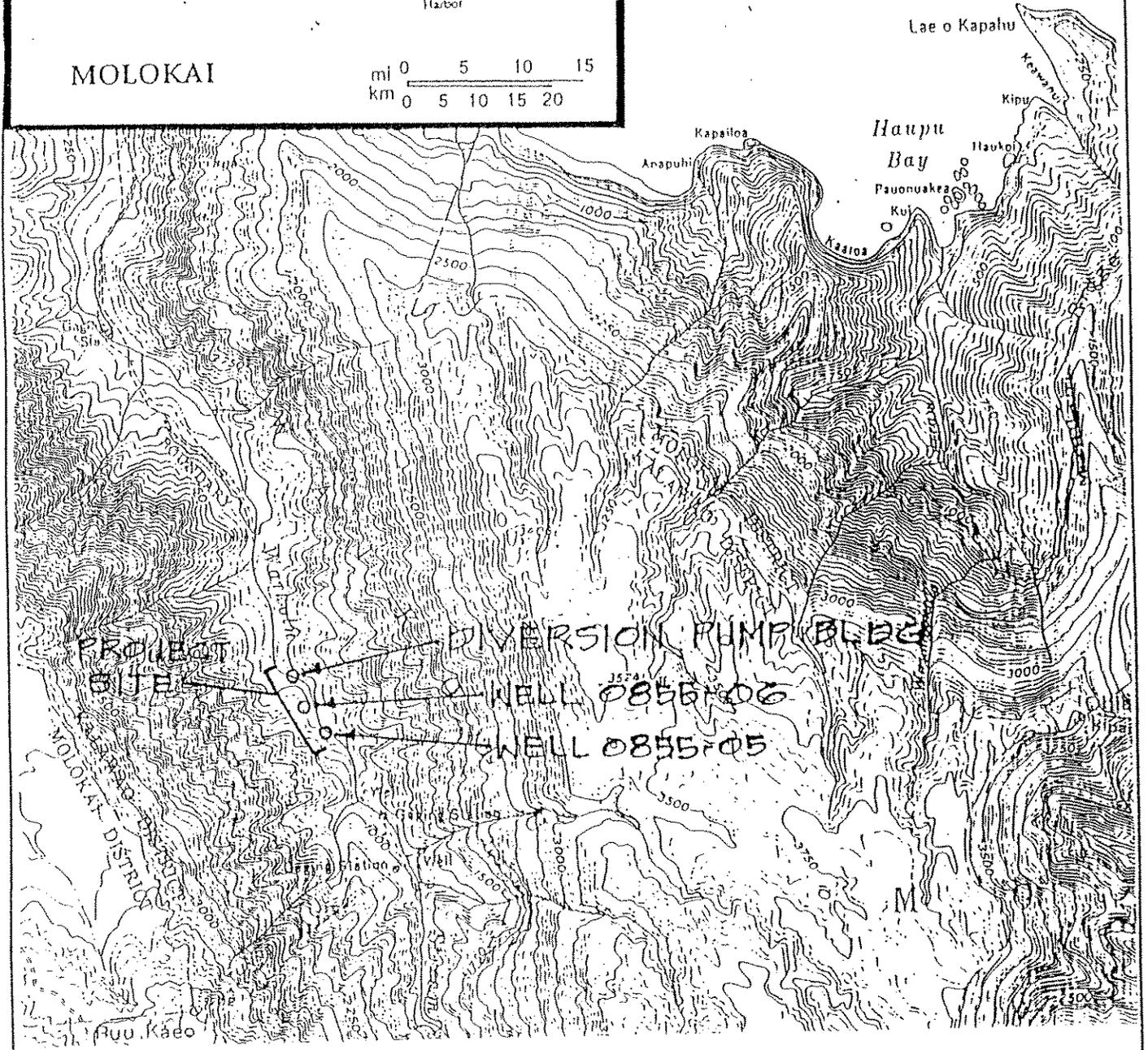
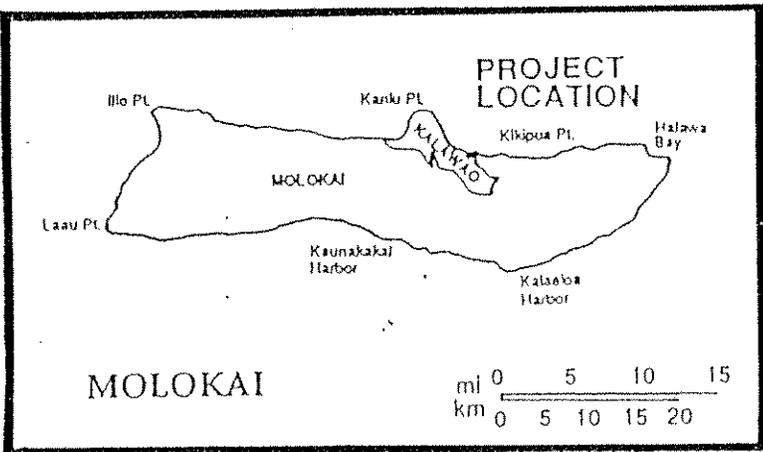
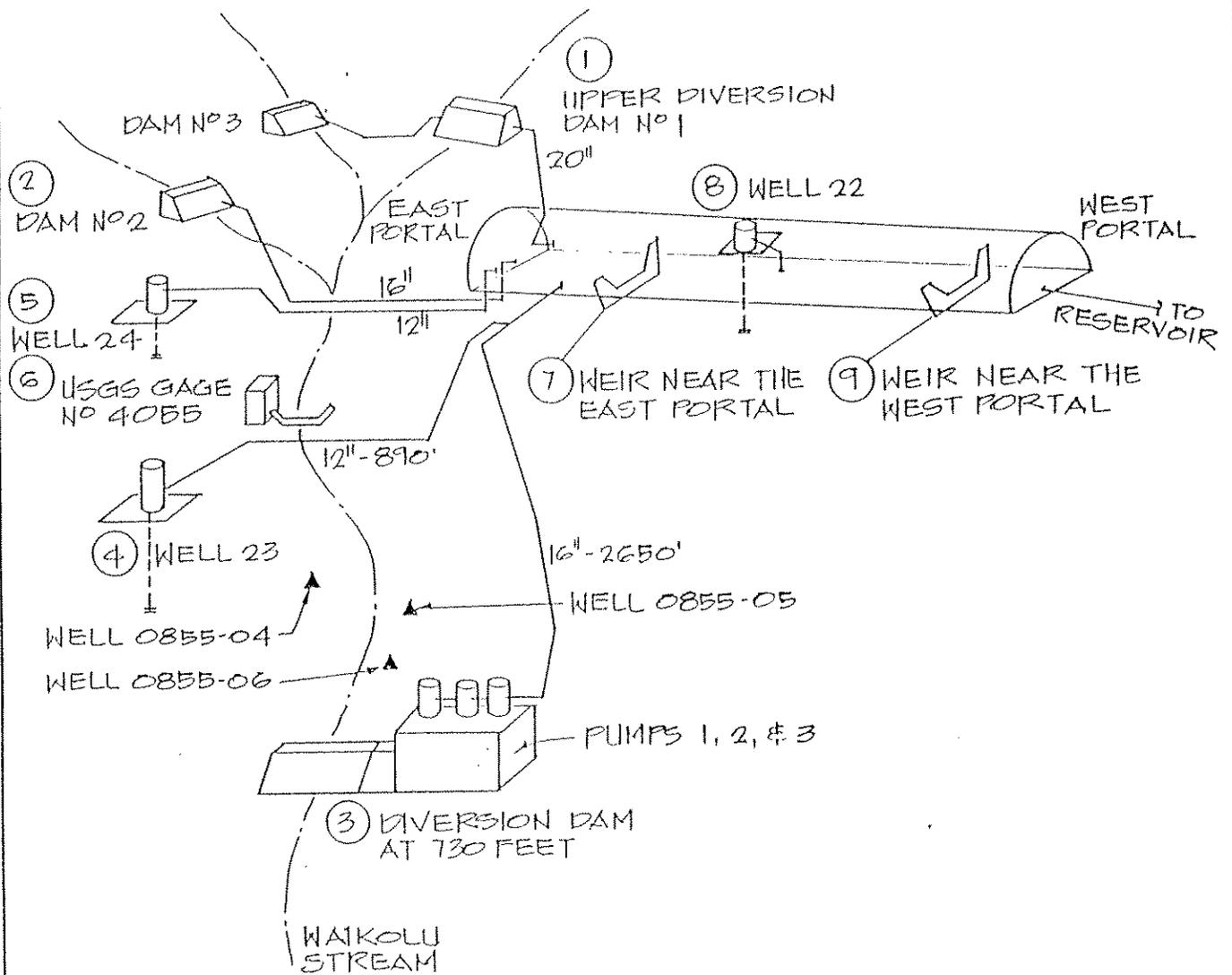


Figure 1
PROJECT LOCATION MAP



PARTIAL SCHEMATIC OF THE
MOLOKAI IRRIGATION SYSTEM

FIGURE 2

1. Technical

The proposed project involves installing pumps and controls at Wells 0855-05 and 0855-06 and installing 80 linear feet of pipeline to connect the pumps to an existing MIS pipeline. At both wells, the pump assembly will be above ground with the new 8-inch pipeline connection located a minimum of 3 feet below grade. To supplement surface water in Waikolu Stream when pumping, both wells will have a connecting 3-inch pipeline discharging water to the stream at a rate of about 60 gpm (See Figures 3 & 4).

The project also involves replacing the existing Pump No. 3 in the lower Diversion Dam building with a 700 gpm - 75 HP pump. Currently, Pump No. 3 is a 1400 gpm-150 HP pump. This portion of the project is exempt from the preparation of an Environmental Impact Statement or Negative Declarations approved by the Environmental Quality Commission, February 5, 1976 (Exemption Class #1).

2. Socio-Economic

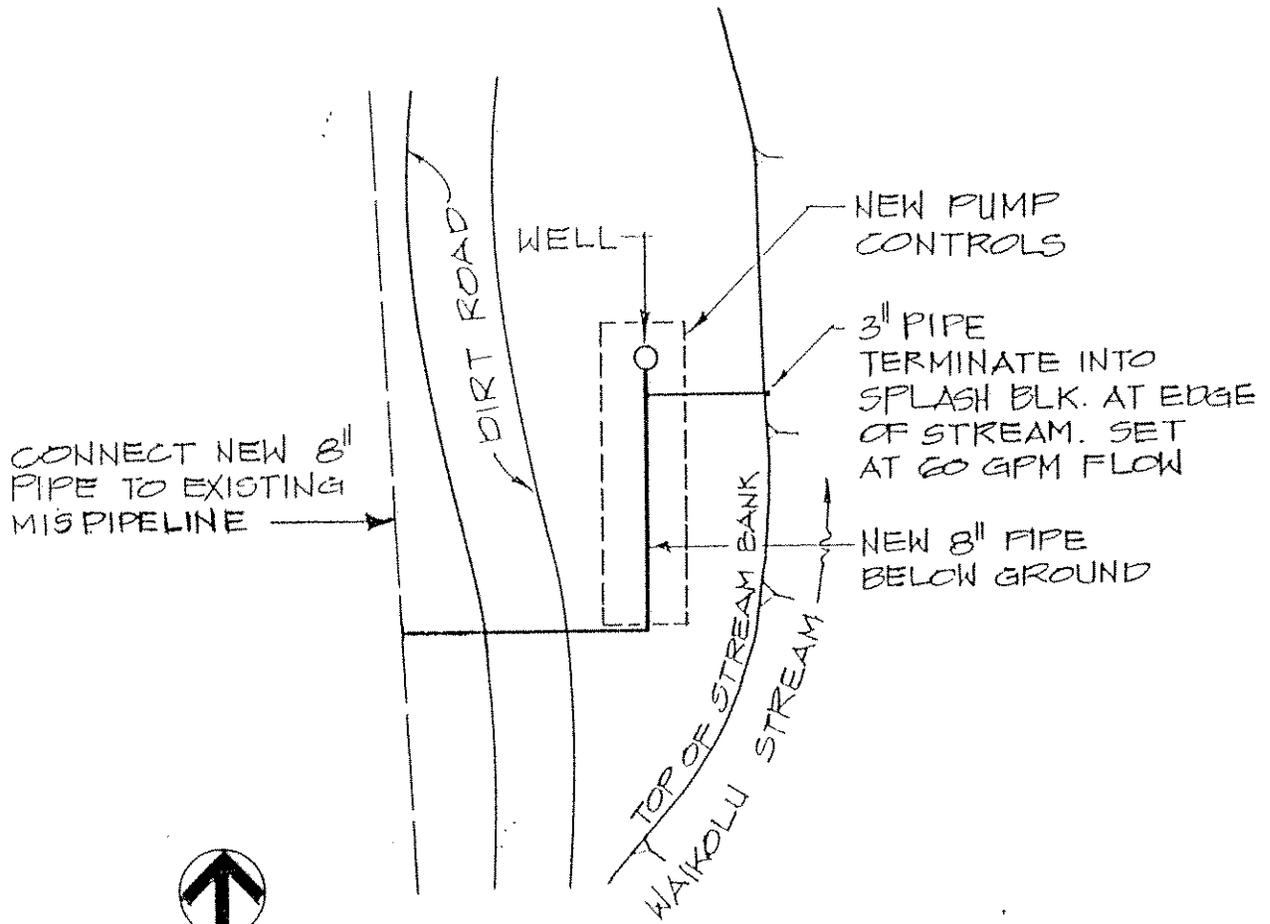
The economy of Molokai is heavily dependent upon agriculture. Over 2000 acres of farm land is currently dependent upon the water supplied by the Molokai Irrigation System. On homestead lands, more and more residents express desire to place their lands into agricultural production. Due to the increase in demand for irrigation water, the State has acknowledged a need to supplement the existing irrigation system. Therefore, these wells will help meet the demand for more water. In addition, they will support the water supply available for storage in the MIS reservoir during dry periods when there is less surface water. Without additional water sources, the MIS will not be able to meet any increases in demand and will not be able to provide a stable water supply to its existing customers, especially during dry periods. The insufficient supply of water will negatively impact the economic well being of the community.

The construction contract for the development of these wells was executed in 1990 at the cost of \$672,000. Due to the lapse in time since 1990, the contract prices will be updated. Construction is to be completed in 270 calendar days after the DLNR issues a Notice to Proceed to the Contractor.

Current funds for this project are available through Act 316, SLH 1987, Item A-28.

3. Environmental Characteristics

Location: The project site in Waikolu Valley is approximately 2 miles south of Kukaiwaa Point on Molokai's north shore, and 5 miles southeast of Kalaupapa town. The wells are located alongside Waikolu Stream, T.M.K. 6-1-01:02, in the County of Kalawao on land owned by the State of Hawaii, administered by the Department of Health. The project site is within the boundaries of the Kalaupapa National Historical Park and within the jurisdiction of the U.S. Department of the Interior - National Park Service. It is also part of the Molokai Forest Reserve, under the jurisdiction of the State Department of Land and Natural



CONNECT NEW 8"
PIPE TO EXISTING
MISPIPELINE →

NEW PUMP
CONTROLS

3" PIPE
TERMINATE INTO
SPLASH BLK. AT EDGE
OF STREAM. SET
AT 60 GPM FLOW

NEW 8" PIPE
BELOW GROUND



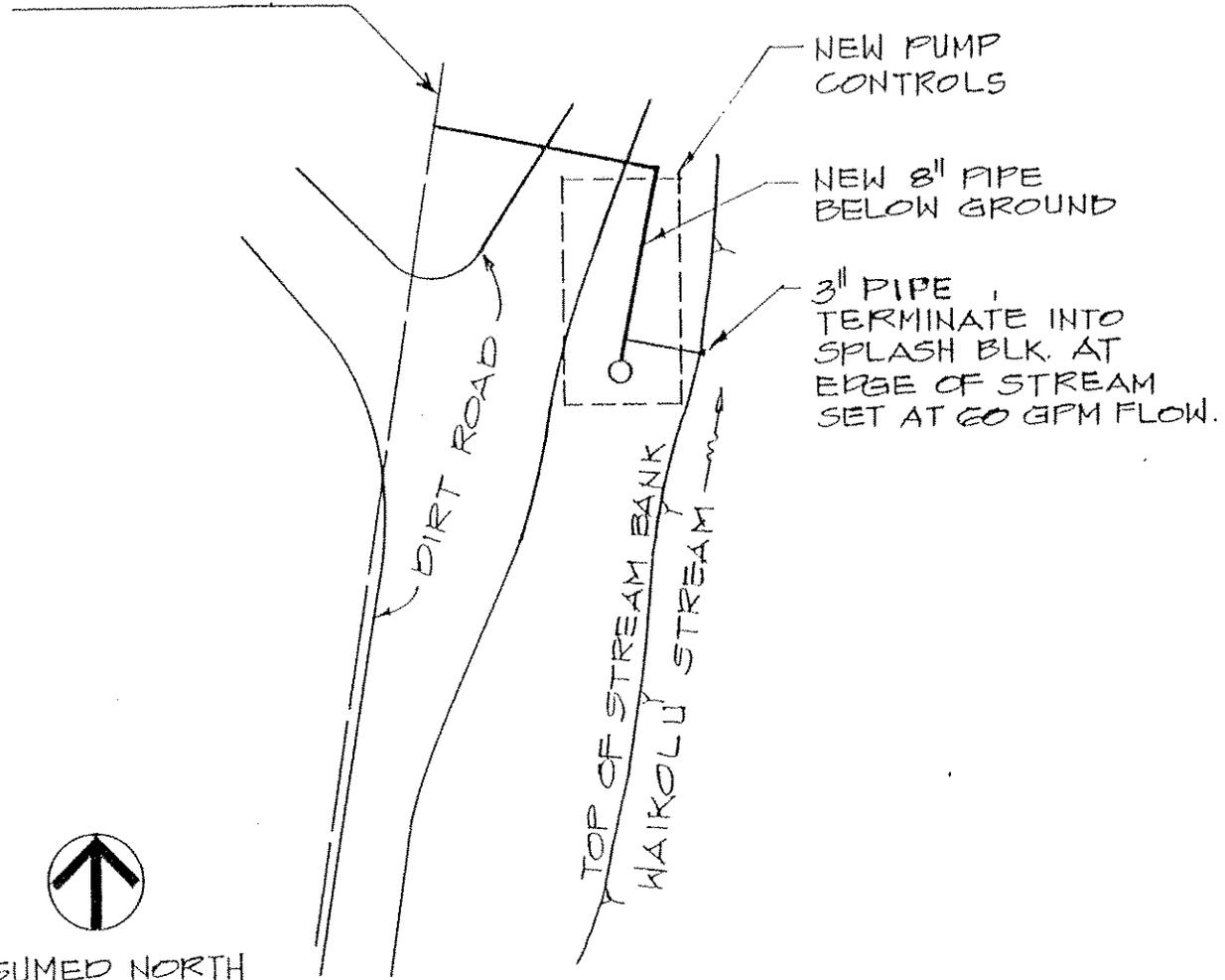
ASSUMED NORTH

PARTIAL SITE PLAN - WELL 0855-05

SCALE: 1" = 20'

FIGURE 3

CONNECT NEW 8" PIPE
TO EXISTING M.I.S PIPELINE



ASSUMED NORTH

PARTIAL SITE PLAN - WELL 0855-06

SCALE: 1" = 20'

FIGURE 4

Resources - Division of Forestry and Wildlife. The watershed is under the jurisdiction of the DLNR - Commission on Water Resource Management. The land is designated a conservation (C) district according to State Land Use District Boundaries Map. A Conservation District Use Application will be executed for this project.

The multi-jurisdictional situation has been clarified by a Cooperative Agreement (CA 8896-9-8004) between the National Park Service and the State of Hawaii entitled "Preservation of Natural and Cultural Resources, Kalaupapa".

Climate: The average annual temperature at the project site ranges from 63 degrees to 80 degrees in the winter and 70 to 87 degrees in the summer. Prevailing northeast tradewinds bring the greatest rainfall to the windward side of Molokai where the project site is located. Rainfall at the site averages 75 to 100 inches per year.

Hydro-geology: Much of Molokai covers a brackish aquifer basal water lens and lacks good water sources. The center of the island, however, contains perched aquifers and other water retained by dikes. The rainfall in Waikolu Valley sinks into the rock at the tops of permeable compartments and tends to accumulate in the dikes. The wells to be developed will tap water confined at high levels by dikes.

Waikolu Valley is also part of the dissected upland of the north shore where master drainage patterns have been established. Waikolu Stream is the major drainage system for the valley. Because stream water contains higher nutrient, coliform and turbidity levels than dikes or perched aquifers, it is generally used for irrigation purposes.

Historical/Archaeological and Cultural Sites: A survey was conducted in 1986 by the DLNR-Division of State Parks (DSP) for the drilling of these wells. From that survey, the DSP determined "no evidence of cultural resources in all three of the proposed well sites." The report refers to three well sites and existing agricultural terraces and a retaining wall. Verification that the development of the two wells will not impact the terraces and wall has been done.

Well No. 0855-05 (Well #5) corresponds to Well Site #1 in the 1986 archaeological report. The report states "there was no evidence of cultural remains in proposed well site #1".

Well No. 0855-06 (Well #4) corresponds to Well Site #3 in the 1986 archaeological report. The report states "There was concern for a retaining wall located in the vicinity of Well Site #3. The wall is located outside of the work area however, as recommended, the construction crew will be made aware of the situation and notified of the importance of preserving the retaining wall. Precaution will be taken during construction to prevent the disturbance of the agricultural terraces and the retaining wall." For this project, the contractor will also be made aware of the importance of preserving the retaining wall and restricting construction activities to the existing roadway and to areas across the road from the cited retaining wall (i.e., same side as the well site).

Biota: A survey to determine plant and animal species occupying the site was conducted in 1986 by the DLNR-Division of Forestry and Wildlife (DOFAW) for the drilling of these wells. From that survey, the DOFAW determined "No threatened or endangered plant species were found on any of the proposed sites...There were no birds or animals seen at the sites however, there were indications that the area is frequented by feral pigs and goats." The status of the plant and animal conditions can be expected to have remained the same as that found in 1986.

A separate survey in 1986 was conducted by the DLNR-Division of Aquatic Resources (DAR) to determine the aquatic macrofauna in the Waikolu Stream. From that survey, DAR determined the "Waikolu Stream is a natural quality stream with abundant native Hawaiian freshwater macrofauna, including the o'opu alamo'o, o'opu nopili, o'opu nakea, opae kalaole, and wi. The native stream fauna are diadromous, requiring exposure to salt/brackish water to complete their life cycles." There were portions of the stream that were dry. "The dry stream bed encountered between these dams interrupts water flow to the ocean which is vital to the diadromous movement of the native aquatic macrofauna present. The larger size o'opu and opae found above the upper diversion dam and the varied smaller sizes and species found below the lower pump station dam suggest inadequate stream flow to allow necessary movement to and from the ocean. Under normal conditions, all sizes of o'opu and opae should be present even above the upper diversion dam. A water connection over the dry section should be devised to provide passage of the fresh water organisms with additional surveys to monitor the system." The o'opu is presently listed as a threatened species and is being considered as an endangered species.

As a result of those findings, the DLNR issued conditions to the Conservation District Use Application permit (CDUA MO-12/30/86-1988 dated 1987) for Drilling Test Wells in Waikolu Valley, Molokai. The following are excerpts of conditions applicable to this project:

1. "...a water connection to facilitate movement of stream macrofauna over the dry portion of the stream in consultation with the Division of Aquatic Resources and the U.S. Fish and Wildlife Service" be provided; and
2. "The applicant shall monitor the wells during and after test pumping to avoid negative impact upon Waikolu stream and the native Hawaiian macrofauna which inhabit the stream."; and
3. "If monitoring indicates that the stream flow is negatively impacted by the test drilling, the applicant shall cease pumping at once."

Subsequently, the DLNR, including the DAR, has been working in conjunction with the Department of Agriculture and the U.S. Department of the Interior (Fish and Wildlife Service) to provide a water connection and monitor the stream during pumping.

V. SUMMARY OF MAJOR IMPACTS AND ALTERNATIVES

Noise from equipment and erosion due to freshly exposed soil would be the primary short term impacts on the surrounding environment during installation of the pumps, controls, and pipeline. Other short term impacts, such as dust, vehicle emissions, and equipment movement and storage are expected to be insignificant.

Construction would be limited to daylight hours, and the noise impact during construction and during operations is expected to be very slight since the closest residence is over 6 miles from the project site. The erosion potential would be minimized by limiting the soil exposed at any given time. Keeping vehicles on the existing road and limiting unnecessary heavy equipment trips would also protect the existing soil layer. All equipment would be stored along the existing roadway or at previously cleared storage areas.

No adverse impacts on any existing or potential archaeological sites or on plant and animal species are expected due to the temporary nature and limited scale of the work proposed.

The characteristics of the impact on the aquatic macrofauna will not be determined until the findings of the biological and monitoring program are complete. Concerns of the use of the proposed wells dewatering the Waikolu Stream and its tributaries have been raised. The DLNR/Division of Aquatic Resources survey (1986) reported segments of the stream which were dry. The threatened species of o'opu alamo'o (*Lentipes concolor*) as well as other more common stream fauna, are diadromous and require exposure to salt/brackish water to complete their life cycles.

Alternatives: No action would mean continued reliance on the limited irrigation water currently available through the MIS. Farmers would suffer severe adverse effects during drought periods because of the lack of adequate water, which could lead to unsuccessful crops.

The source of the extensive MIS functions primarily around Waikolu Valley. The wells were located close to the stream to facilitate connection to the system. For this project, the location of the wells were set during the exploratory drilling phase and no other location is feasible.

VI. MITIGATION MEASURES

To address the concerns cited by the DLNR/Division of Aquatic Resources(DAR), the U.S. Department of Interior/National Park Service (NPS) and Fish and Wildlife Service(FWS), several mitigation measures will be implemented. These mitigation efforts are the result of a concerted effort by those agencies, the Department of Agriculture, and the DLNR/Division of Water and Land Development.

First, a 'fish ladder'/diversion weir, as required by the 1987 CDUA, will be constructed at the Upper Diversion Dam. The fish ladder is designed to allow supplemental flow, on average of 0.89 cfs, along the stream and to provide continuous migration across the Upper Diversion Dam. The design was concurred upon by the DAR and the FWS. During periods of low flow, the existing clean out valve at the diversion will be opened to provide equivalent flow to the stream that the fish ladder would have provided. This plan was concurred upon by the DAR.

Secondly, the 1994 Legislature has appropriated \$200,000 to the DOA for "the implementation of a biological and hydrological monitoring system for the MIS." The program, as defined in the legislative appropriation, shall:

- 1) Last for a minimum of one year;
- 2) Document the existing operating procedures of the Molokai Irrigation System;
- 3) Identify the impacts of all operating alternatives on Waikolu Stream;
- 4) Evaluate the effectiveness of diversion weir modifications; and
- 5) Test the effects that the pumping of three new wells have on the stream ecosystem.

In addition to the 1987 CDUA requirements, the Commission on Water Resource Management (CWRM) approved the issuance of a Water Use Permit on January 12, 1994 and included the following requirement of "a biological and hydrologic monitoring program for a minimum 2-year period that: 1) documents the existing operating procedure, 2) seeks to identify the impacts of all operating alternatives on Waikolu Stream, and 3) seeks to identify the effectiveness of weir modifications (Dam No. 1). This program shall incorporate the three new wells, Wells #4-#6 (Wells Nos. 0855-06,05, & 04 respectively), which may be pumped within the approved limits, for monitoring and testing purposes...It is suggested that the Department of Agriculture work with the State Division of Aquatic Resources and other affected agencies to prepare the monitoring program in light of the difficult technical questions raised by this application. A particular concern is the coordination of this monitoring program with the ongoing National Park Service study by Anne Brasher." Currently, the CWRM is reviewing a plan submitted by the DOA for the monitoring program.

Thirdly, both wells will have a connecting 3" diameter pipe to discharge pumped water at a rate of about 60 gpm into the stream. Each pipe will terminate at a splash block at the edge of the stream and will provide supplementary flow to the stream.

Lastly, when the proposed wells are completed, the Department of Agriculture will rotate the operations of these wells with the existing wells. The purpose of operating the groundwater system in this manner is to allow greater recovery time for the dike-compartments tapped by the wells. Currently, due to the lack of an alternate method to supplement surface water sources, the existing wells are pumped longer and have shorter recovery times.

If the results of the biological and monitoring program indicate that the stream flow and aquatic macrofauna are being negatively impacted by the pumping of Wells 0855-05 & 06, they will be operated only during rainy periods and additional mitigative measures will be developed.

VII. DETERMINATION

In accordance with Chapter 343, Hawaii Revised Statutes, it is determined that the proposed project will not have any significant adverse effects on the environment. Should any potentially negative effects due to the proposed project be identified by the biological and hydrological monitoring system, additional mitigative measures will be developed. The economical well being of the customers dependent on receiving water from the MIS will be negatively jeopardized should the proposed project not be completed. Therefore, an Environmental Impact Statement is not required and this Environmental Assessment is hereby being filed as a Negative Declaration.

REFERENCES

State Department of Land and Natural Resources, Division of Water and Land Development, Environmental Impact Assessment: Drilling Additional Wells Waikolu Valley, Molokai, 1986.

State Department of Land and Natural Resources, Conservation District Use Application permit for Drilling Test Wells in Waikolu Valley, Molokai (CDUA MO-12/30/86-1988), 1987.

State Board of Land and Natural Resources, Preservation of Natural and Cultural Resources, Kalaupapa, Cooperative Agreement between National Park Service and State of Hawaii Board of Land and Natural Resources, Cooperative Agreement No. CA 8896-9-8004, 1989.

State Department of Land and Natural Resources, Division of Water and Land Development, Contract Specification and Plans: Job No. 3-9W-J1 Waikolu Valley Wells Development Pump Controls and Connecting Pipeline, Molokai Irrigation System, Waikolu, Molokai, June 1990.

State Department of Land and Natural Resources, Division of Water and Land Development, Contract Specification and Plans: Job No. 3-9W-J Waikolu Stream Diversion Dam Improvements, Molokai Irrigation System, Kalawao, Molokai, May 1992.

State Department of Land and Natural Resources, Commission on Water Resource Management, Minutes for the Meeting of the Commission on Water Resource Management, January 12, 1994.