ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
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Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

April 22, 2013

Gary Gill, Acting Director
Office of Environmental Quality Control
Department of Health, State of Hawaii
235 S. Beretania Street, Room 702
Honolulu, Hawaii 96813

Dear Mr. Gill:

SUBJECT: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK (2)2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

With this letter, the County of Maui, Department of Water Supply (DWS), hereby transmits the Final Environmental Assessment and Finding of No Significant Impact (FEA-FONSI) for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2 situated at TMK (2) 2-5-004:039 (por.), in the Makawao District on the island of Maui for publication in the next available edition of the Environmental Notice.

The DWS has included copies of comments and responses that it received during the 30-day public comment period on the Draft Environmental Assessment and Anticipated Finding of No Significant Impact (DEA-AFONSI).

Enclosed is a completed OEQC Publication Form, two (2) copies of the FEA-FONSI, an Adobe Acrobat PDF file of the same, and an electronic copy of the publication form in MS Word. Simultaneous with this letter, we have submitted the summary of the action in a text file by electronic mail to your office.

If there are any questions, please contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc., at (808) 244-2015.

Sincerely,

Dave Taylor, P.E.
Director
Enclosures

AGENCY ACTIONS
SECTION 343-5(B), HRS
PUBLICATION FORM (JULY 2012 REVISION)

Project Name Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
Island: Maui
District: Makawao
TMK: (2)2-5-004:039 (por.)
Permits: Commission on Water Resource Management Pump Installation and Operation Permits; Building, Grading, and Community Noise Permits, as applicable

Proposing/Determination Agency:
County of Maui, Department of Water Supply
Kalana O Maui Building, 5th Floor
200 South High Street
Wailuku, Hawaii 96793
Contact: Curtis Eaton, P.E.
(808)270-7816

Consultant:
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793
Contact: Mark Alexander Roy, AICP
(808)244-2015

Status (check one only):

__DEA-AFNSI — Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of DEA, a completed OEQC publication form, along with an electronic word processing summary and a PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov); a 30-day comment period ensues upon publication in the periodic bulletin.

_x_FEA-FONSI — Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and a PDF copy (send both summary and PDF to oeqchawaii@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.

__FEA-EISPN — Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov); a 30-day consultation period ensues upon publication in the periodic bulletin.

__Act 172-12 EISPN — Submit the proposing agency notice of determination on agency letterhead, an OEQC publication form, and an electronic word processing summary (you may send the summary to oeqchawaii@doh.hawaii.gov). NO environmental assessment is required and a 30-day consultation period upon publication in the periodic bulletin.

__DEIS — The proposing agency simultaneously transmits to both the OEQC and the accepting authority, a hard copy of the DEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the DEIS (you may send both the summary and PDF to oeqchawaii@doh.hawaii.gov); a 45-day comment period ensues upon publication in the periodic bulletin.

__FEIS — The proposing agency simultaneously transmits to both the OEQC and the accepting authority, a hard copy of the FEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the FEIS (you may send both the summary and PDF to oeqchawaii@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.

__ Section 11-200-23 Determination — The accepting authority simultaneously transmits its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS to both OEQC and the proposing agency. No comment period ensues upon publication in the periodic bulletin.

__Section 11-200-27
Determination

The accepting authority simultaneously transmits its notice to both the proposing agency and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is not required. No EA is required and no comment period ensues upon publication in the periodic bulletin.

__Withdrawal (explain)

Summary (Provide proposed action and purpose/need in less than 200 words. Please keep the summary brief and on this one page)**:**

The County of Maui, Department of Water Supply proposes to undertake various repair and maintenance improvements at the existing Hamakuapoko Well Nos. 1 and 2 in Hamakuapoko, Maui, Hawaii. Hamakuapoko Well Nos. 1 and 2 were initially placed into operation as production wells in 2000. Due to concerns regarding the filtration of contaminants from agricultural uses, the wells were closed in Ocober 2006. On October 13, 2011, the Maui County Council enacted Ordinance No. 3859, which allows the Hamakuapoko Well Nos. 1 and 2 to be reopened for agricultural use, use during declared drought events, and as backup to the Upcountry Water System (UCWS). During Council deliberations regarding the reopening of the wells, the State Department of Health confirmed that it stands by its 2000 approval of the Hamakuapoko Wells for drinking water use. Prior to the reopening of the wells, various repair and maintenance improvements at both well sites are necessary to address deferred maintenance of existing equipment so that the wells can be placed into production and integrated with the UCWS. In addition to repair and maintenance actions, a new 150,000-gallon water tank is proposed adjacent to the Well No. 2 site.

Final Environmental Assessment

PROPOSED IMPROVEMENTS AT HAMAKUAPOKO WELL NOS. 1 AND 2, MAUI, HAWAII (TMK (2)2-5-004:039(por.))

Prepared for:

County of Maui,
Department of Water Supply

April 2013

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MUNEKIYO & HIRAGA, INC.

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Executive Summary

Project Name:	Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
Type of Document:	Final Environmental Assessment
Legal Authority:	Chapter 343, Hawaii Revised Statutes
Anticipated Agency Determination:	Finding of No Significant Impact (FONSI)
Applicable Environmental Assessment review "Trigger":	Use of County Funds
Location:	Maui Island Makawao Judicial District, Maui TMK No. (2)2-5-004:039 (por.)
Landowner:	Alexander & Baldwin-Hawaii, Inc.
Proposing Agency:	County of Maui, Department of Water Supply Kalana O Maui Building, 5th Floor 200 South High Street Wailuku, Hawaii 96793 Contact: Curtis Eaton, P.E. Phone: (808) 270-7816
Approving Agency:	County of Maui, Department of Water Supply Kalana O Maui Building, 5th Floor 200 South High Street Wailuku, Hawaii 96793 Contact: David Taylor, P.E. Phone: (808) 270-7816
Consultant:	Munekiyo & Hiraga, Inc. 305 High Street, Suite 104 Wailuku, Hawaii 96793 Contact: Mark Alexander Roy, AICP, Vice President Phone: (808) 244-2015
Project Summary:	The County of Maui, Department of Water Supply proposes to undertake various repair and maintenance improvements at Hamakuapoko Well Nos. 1 and 2 in Hamakuapoko, Maui, Hawaii. Hamakuapoko Well Nos. 1 and 2 were initially

placed into operation as production wells in 2000, with the capacity to draw up to 1.5 million gallons a day (mgd) from the Paia aquifer for drinking water use. Due to concerns regarding the filtration of contaminants from agricultural uses, the Maui County Council enacted Ordinance No. 3404 on October 2, 2006, which prohibited use of the well water for human consumption. Ordinance No. 3404 resulted in the closure of the Hamakuapoko Well Nos. 1 and 2 on October 3, 2006. On October 13, 2011 the Maui County Council enacted Ordinance No. 3859, which allows the Hamakuapoko Well Nos. 1 and 2 to be reopened for agricultural use, use during declared drought events, and as backup to the Upcountry Water System (UCWS). During Council deliberations regarding the reopening of the wells, the State Department of Health confirmed that it stands by its 2000 approval of the Hamakuapoko Wells for drinking water use.

Prior to the reopening of the Hamakuapoko Well Nos. 1 and 2, various repair and maintenance improvements at both well sites will be necessary to address deferred maintenance of existing equipment so the wells can be placed into production and integrated with the UCWS. The proposed improvements include the replacement of the existing motors and pumps with submersible pumps at both the Well No. 1 and Well No. 2 sites. A new 150,000-gallon water tank is also proposed adjacent to the Well No. 2 site. Various other related improvements will be completed as part of project implementation, including demolition or removal of equipment, site grading and grubbing, and the installation of process control and security systems.

As the proposed project involves the use of County funds, an Environmental Assessment (EA) has been prepared pursuant to Chapter 343, Hawaii Revised Statutes (HRS).

I. PROJECT OVERVIEW

I. PROJECT OVERVIEW

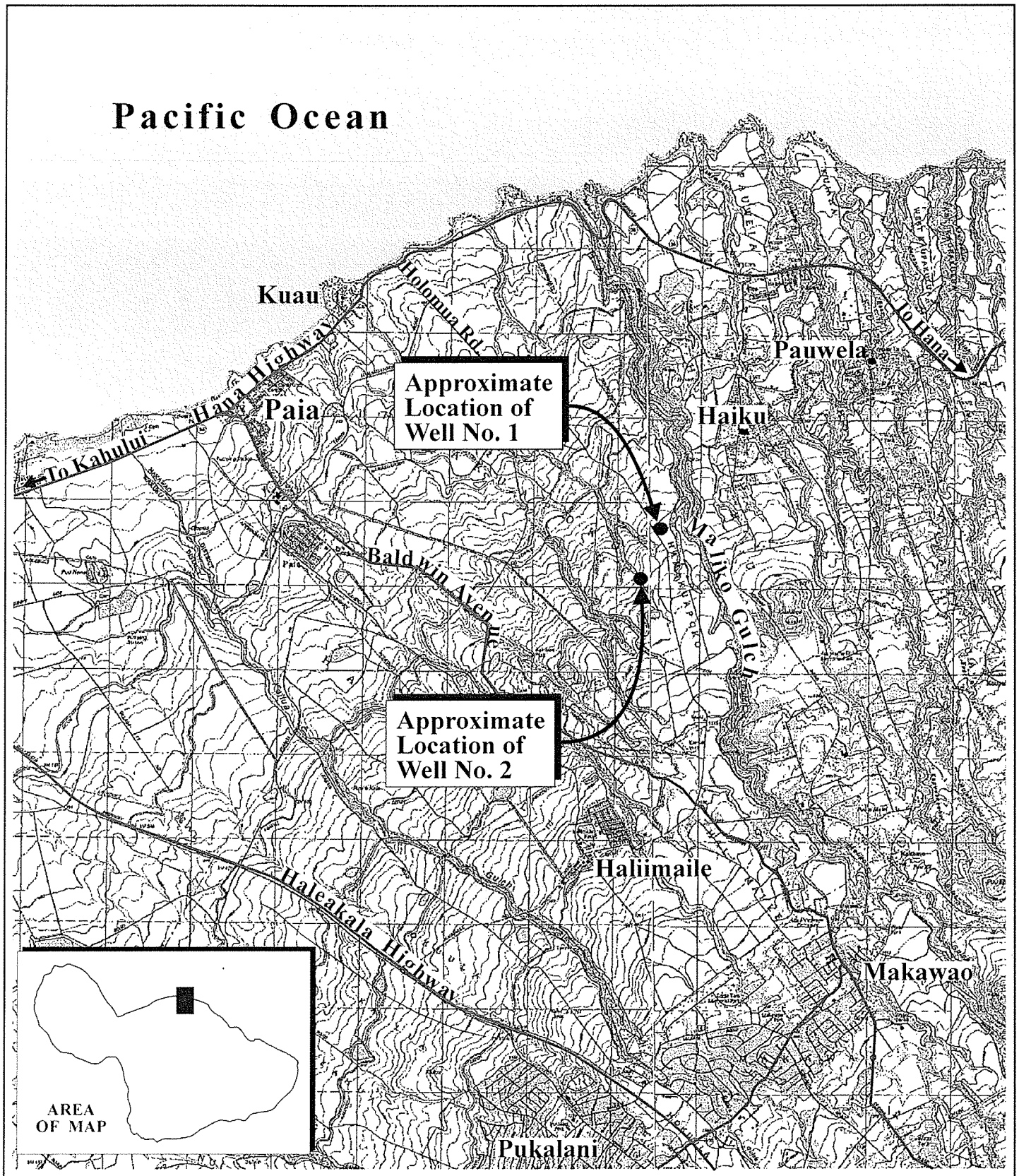
A. PROJECT LOCATION, EXISTING USE AND OWNERSHIP

The County of Maui, Department of Water Supply (DWS) is proposing to construct various improvements at the existing Hamakuapoko Well Nos. 1 and 2, each located on separate chain link fenced sites (hereinafter referred to as project sites) at Tax Map Key (TMK) (2) 2-5-004:039 (por.) (Parcel 39), Hamakuapoko, Maui, Hawaii. See **Figure 1** and **Figure 2**. As a whole, Parcel 39 covers 2,439 acres and is actively utilized for sugarcane production by Hawaii Commercial & Sugar Company (HC&S). The Well No. 1 project site covers approximately 0.77 acre, with approximately 0.30 acre within the fenced area. The Well No. 2 project site occupies 0.35 acre. The subject property is located entirely on uplands between Maliko Gulch and Baldwin Avenue. Access to both project sites is provided via dirt cane roads that are accessible from Holomua Road off of Hana Highway.

Hamakuapoko Well No. 1 is located approximately 1,500 feet west of Maliko Gulch and consists of the well pump pad, well, and pump, a control building, a 25,000 gallon water tank, and a seepage pit. See **Figure 3**. Hamakuapoko Well No. 2 is located approximately 2,300 feet southwest of the Well No. 1 project site and consists of the well, pump, an electrical building, a Granulated Activated Carbon (GAC) facility, two (2) water tanks, and a seepage pit. The two (2) water tanks are used for storage and for backwash to clean the GAC facility. The seepage pits are used when the water tanks are drained for cleaning. See **Figure 4**. See **Appendix "A"**.

Parcel 39 is owned by Alexander & Baldwin – Hawaii, Inc. (A&B). DWS is currently in discussions with A&B to subdivide Parcel 39 and acquire the land underlying the two (2) project sites. In addition, approximately 0.14 acre of additional land will be acquired adjacent to the existing Well No. 2 project site for the construction of a new water tank.

The subject property is designated "Agricultural" by the State Land Use Commission, "Agriculture" by the Paia-Haiku Community Plan, and "Agricultural" by Maui County Zoning.



Source: USGS, Paia Quadrangle, 1997 and Haiku Quadrangle, 1992

Figure 1 Proposed Improvements at Hamakuapoko Well Nos. 1 and 2

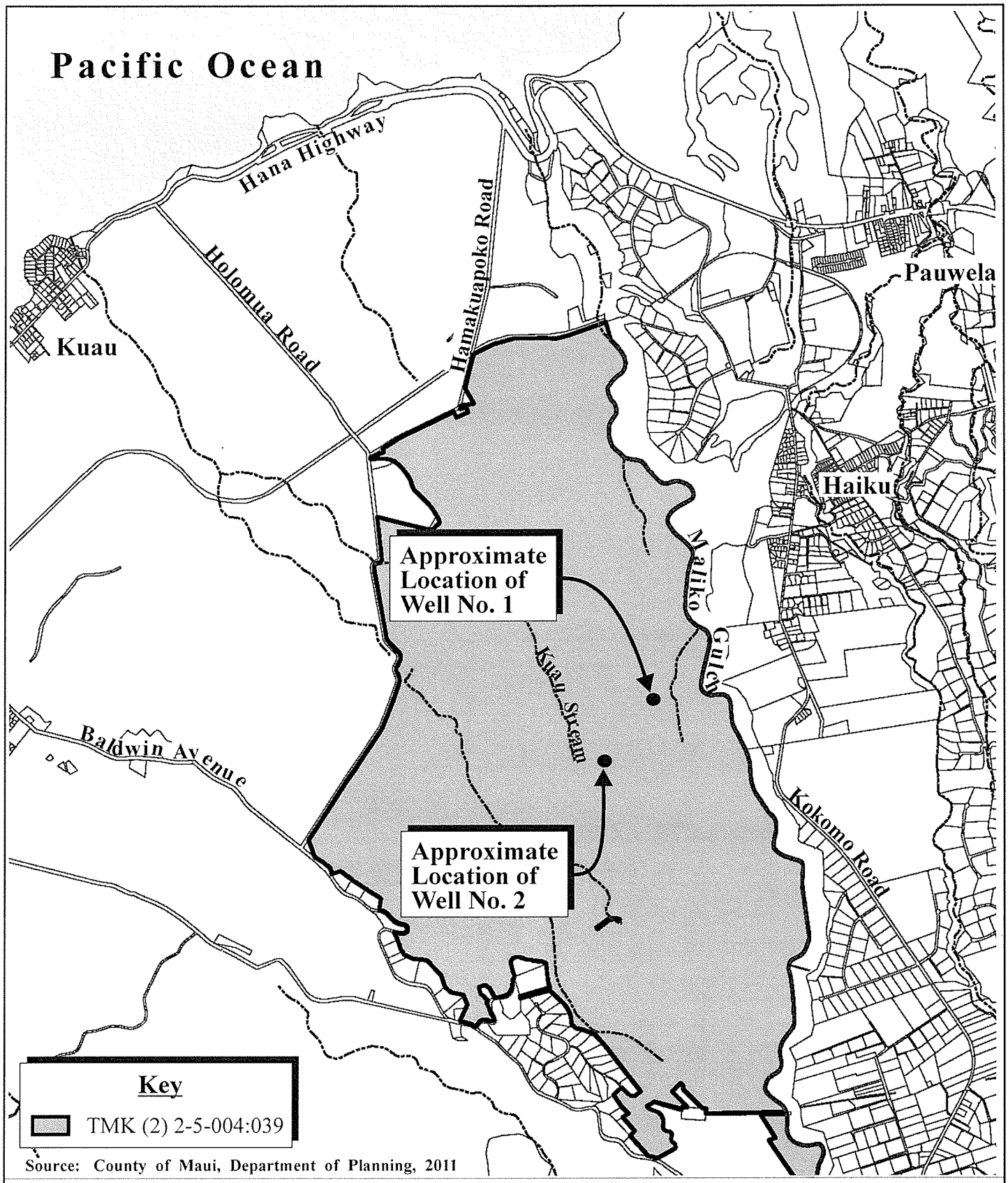
Regional Location Map

NOT TO SCALE

MUNEKIYO & HIRAGA, INC.

Prepared for: County of Maui, Department of Water Supply

com/dws hamakuapoko/regionallocation.report



Source: County of Maui, Department of Planning, 2011

Figure 2 Proposed Improvements at Hamakuapoko Well Nos. 1 and 2

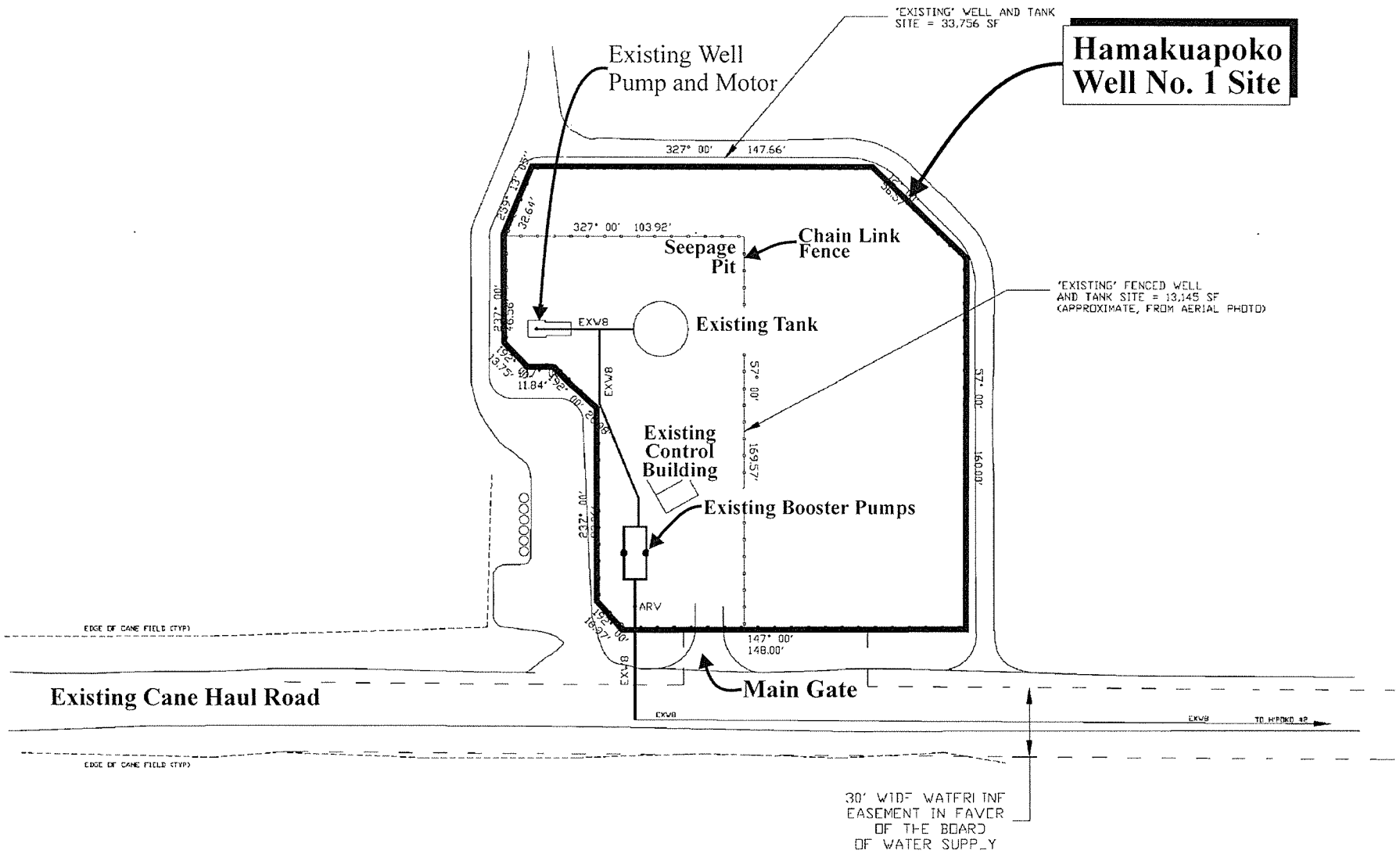
Property Location Map

0 2,500 Feet
1,250 5,000

MUNEKIYO & HIRAGA, INC.

Prepared for: County of Maui, Department of Water Supply

com/dws hamakuapoko/propertylocation



Source: County of Maui, Department of Water Supply

Figure 3

Proposed Improvements at Hamakuapoko Well Nos. 1 and 2

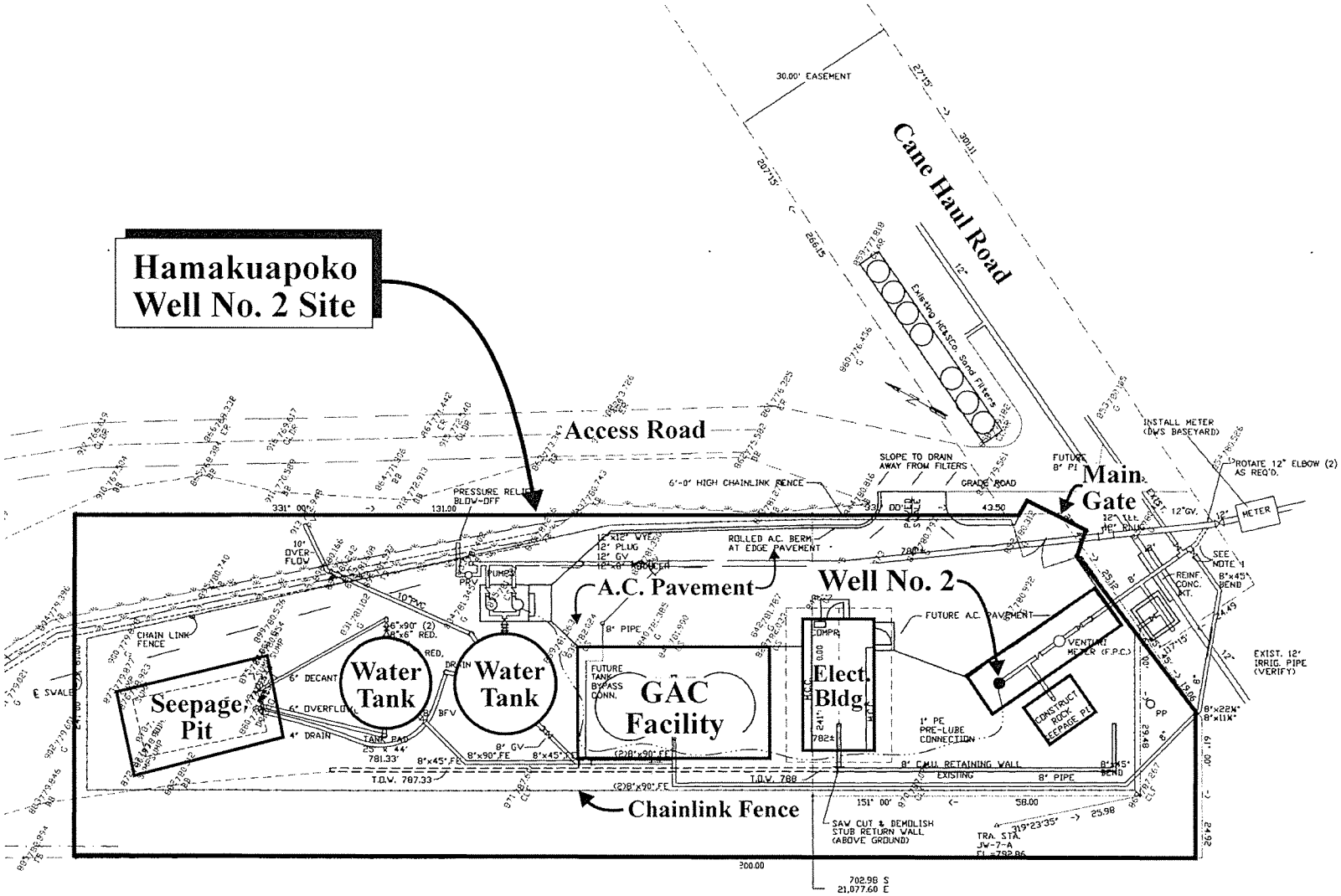
Existing Well No. 1 Site Plan

NOT TO SCALE

MUNEKIYO & HIRAGA, INC.

Prepared for: County of Maui, Department of Water Supply

COM/DWS HamakuapokoWells/ExistWellNo1



Source: County of Maui, Department of Water Supply, 1999

Figure 4

Proposed Improvements at Hamakuapoko Well Nos. 1 and 2

Existing Well No. 2 Site Plan

NOT TO SCALE

MUNEKIYO & HIRAGA, INC.

Prepared for: County of Maui, Department of Water Supply

COM/DWS HamakuapokoWells/ExistWellNo2

B. PROJECT BACKGROUND

The Upcountry Water System (UCWS) services the areas of Haiku, Makawao, Olinda, Haliimaile, Pukalani, Kula, Omaopio/Pulehu, Keokea, Ulupalakua, and Kanaio. The Hamakuapoko Well Nos. 1 and 2, which were originally drilled as exploratory wells in 1992, are part of the UCWS. Hamakuapoko Well No. 1 is identified as State Well No. 5420-02 and Hamakuapoko Well No. 2 is identified as State Well No. 5320-01. The Well Completion Reports for Well No. 1 and Well No. 2 are presented in **Appendix "B"** and **Appendix "B-1"**, respectively. A drought emergency in Upcountry, Maui was declared by Governor's Proclamations issued in April 1998 and amended in July 28, 1999. In 1999, an Environmental Assessment (EA) was prepared for various improvements at the two (2) wells intended to address the drought emergency situation in the UCWS and the improvements were constructed to convert the Hamakuapoko Well Nos. 1 and 2 from exploratory wells into production wells. Improvements included the construction of Granulated Activated Carbon (GAC) units at the Well No. 2 project site to allow for the treatment of groundwater extracted from both wells. On December 22, 2000, Hamakuapoko Well Nos. 1 and 2 were placed into operation with the capacity to draw up to 0.75 million gallon per day (mgd) each or 1.5 mgd combined. The Department of Health conditional approval for the use of Hamakuapoko Well Nos. 1 and 2 as a drinking water source for a public water system is presented in **Appendix "C"**.

It is noted that the construction of the GAC facility at Hamakuapoko Well No. 2 was funded by a 1999 settlement agreement that required the manufacturers of the chemical 1,2 dibromo-3-chloro propane (DBCP) to reimburse the County of Maui for certain capital costs through September 1, 2039. The settlement agreement in the case of *Board of Water Supply of the County of Maui v. Shell Oil Company, et al.* (Civil Case No. 96-0370(1)) stipulated that the defendants would pay for the capital costs of GAC facilities at certain wells, including the Hamakuapoko Wells, where the levels of DBCP in the water exceeded the maximum contaminant level (MCL) established by the State Department of Health. See **Appendix "D"**. The defendants also are required to reimburse the County for operations and maintenance costs associated with the GAC facility at the Hamakuapoko Wells when the GAC is in operation for at least 10 percent of a month. As such, the County, through this 1999 settlement agreement, received funds for the construction, operation, and maintenance of the GAC facility at the Hamakuapoko Well No. 2. Once the Hamakuapoko Wells are placed back in operation and the GAC facility is in use, the County will again receive monthly operation and maintenance funds for the GAC when DBCP levels exceed the MCL through the year 2039 under this settlement agreement.

Due to concerns regarding contaminants from agricultural uses, the Maui County Council enacted Ordinance No. 3404 on October 2, 2006, which stated *"that water from the wells shall not be provided for human consumption due to the belief that various contaminants could not be adequately filtered"*. Ordinance No. 3404 resulted in the closure of the Hamakuapoko Well Nos. 1 and 2 on October 3, 2006. See **Appendix "E"**. It is noted that while the wells were officially closed on October 3, 2006, pumping had been inactive since October 2004.

In 2011, the Maui County Council considered reopening the Hamakuapoko Wells. In 2000, the State Department of Health had approved the Hamakuapoko Wells for use as drinking water after treatment and the Department affirmed that it continues to stand by that approval during the 2011 County Council deliberations. On October 13, 2011 the Maui County Council enacted Ordinance No. 3859, which now allows the Hamakuapoko Well Nos. 1 and 2 to be reopened for agricultural use, potable use during declared drought events, and as backup to the UCWS. See **Appendix "E-1"**.

It should be noted that the Hamakuapoko Well Nos. 1 and 2 were originally planned in the early 1990s as part of the East Maui Water Development Plan (EMPLAN). The EMPLAN focused on water source development and transmission to meet the future water requirements for the Central Maui Water System service area, which includes the areas of Wailuku, Kahului, Maalaea, Kihei, Makena, Paia, and Kuau. The EMPLAN proposed the development of ten (10) source wells in the Paia and Haiku aquifer systems, along with the design and construction of water transmission lines and storage reservoirs. Two (2) of the wells – Hamakuapoko Well Nos. 1 and 2 – were planned to utilize the Paia Aquifer system while the remaining eight (8) would have been located in the Haiku Aquifer system, east of Maliko Gulch. Development of the EMPLAN was to be completed over six (6) phases, with Phase 1 entailing the two (2) Hamakuapoko wells and the construction of a transmission line from the wells to Paia.

The Final Environmental Impact Statement (FEIS) for the EMPLAN was published in the Office of Environmental Quality Control (OEQC) Bulletin on August 8, 1993. A Supplemental EIS was prepared for the EMPLAN in 2002 and the Final Supplemental EIS was accepted by the Board of Water Supply and published in the OEQC Environmental Notice on November 8, 2002. However, a judicial proceeding challenging the acceptance of the Final Supplemental EIS was initiated in *The Coalition to Protect East Maui Water Resources, et al. v. The Board of Water Supply, et al.* The case was settled through the formulation of a Consent Decree. The terms of the Consent Decree stipulated that the

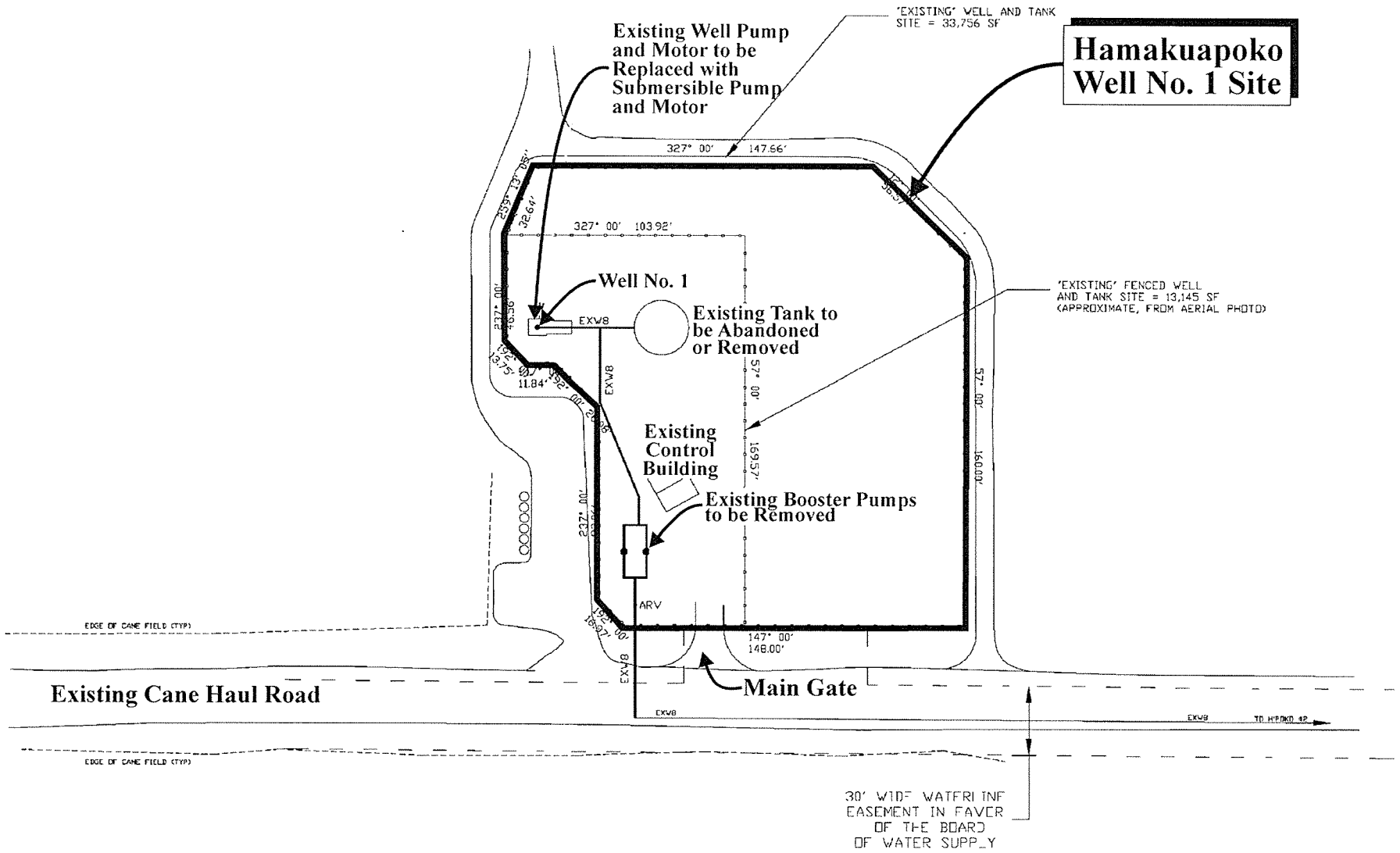
acceptance of the Final Supplemental EIS was to be valid for only Phase 1 of the EMPLAN and that the acceptance of the Final EIS and Final Supplemental EIS for all phases was to be withdrawn except for Phase 1. The County of Maui published the withdrawal of the acceptance of the Final EIS and Supplemental EIS for Phases II through VI of the EMPLAN in the January 8, 2004 OEQC Environmental Notice. As Phase 1 of the EMPLAN included the two (2) Hamakuapoko wells, the accepted Final Supplemental EIS for the Hamakuapoko Well Nos. 1 and 2 continues to be valid.

C. PROPOSED ACTION

The proposed improvements for the Hamakuapoko Well Nos. 1 and 2 include the replacement of the existing motors and pumps with submersible pumps at both project sites. See **Figure 5** and **Figure 6** and **Appendix "F"**. Well No. 1 currently has an above-ground 150 horsepower pump while Well No. 2 has an above-ground 250 horsepower pump. Both pumps will be replaced with submersible 175 horsepower pumps. The submersible pumps would then transport water from the Hamakuapoko Well No. 1 project site to the Well No. 2 project site through existing transmission lines so that the combined water drawn from the two (2) wells can undergo treatment via the existing GAC chambers. The GAC facility will deliver potable water that meets or surpasses drinking water standards established by Title 11, Chapter 20, Hawaii Administrative Rules. After treatment, water would flow into a new proposed storage tank adjacent to the Well No. 2 project site, with booster pumps to then transport the water through an existing 12-inch pipe to the Kamole Weir Water Treatment Plant (WTP) located approximately one (1) mile south of Hamakuapoko Well No. 2. It is noted that the treated water from the Hamakuapoko Wells will be in compliance with drinking water quality standards prior to introduction at the Kamole Weir WTP. Water quality standards will not need to be achieved through dilution with surface water from other sources. No additional treatment at the Kamole WTP will be needed.

The new water storage tank is planned to be located on a portion of Parcel 39, adjacent to the Hamakuapoko Well No. 2 site. The tank will have storage capacity of 150,000 gallons and will measure approximately 20 feet in height. Refer to **Figure 6**.

Once the new 150,000-gallon water storage tank is completed, the two (2) existing tanks at Well No. 2 will be utilized for backwash purposes to clean the GAC facility. As previously discussed, one (1) tank is currently used for storage and one (1) is used for backwash at Well



Source: County of Maui, Department of Water Supply

Figure 5

Proposed Improvements at Hamakuapoko Well Nos. 1 and 2

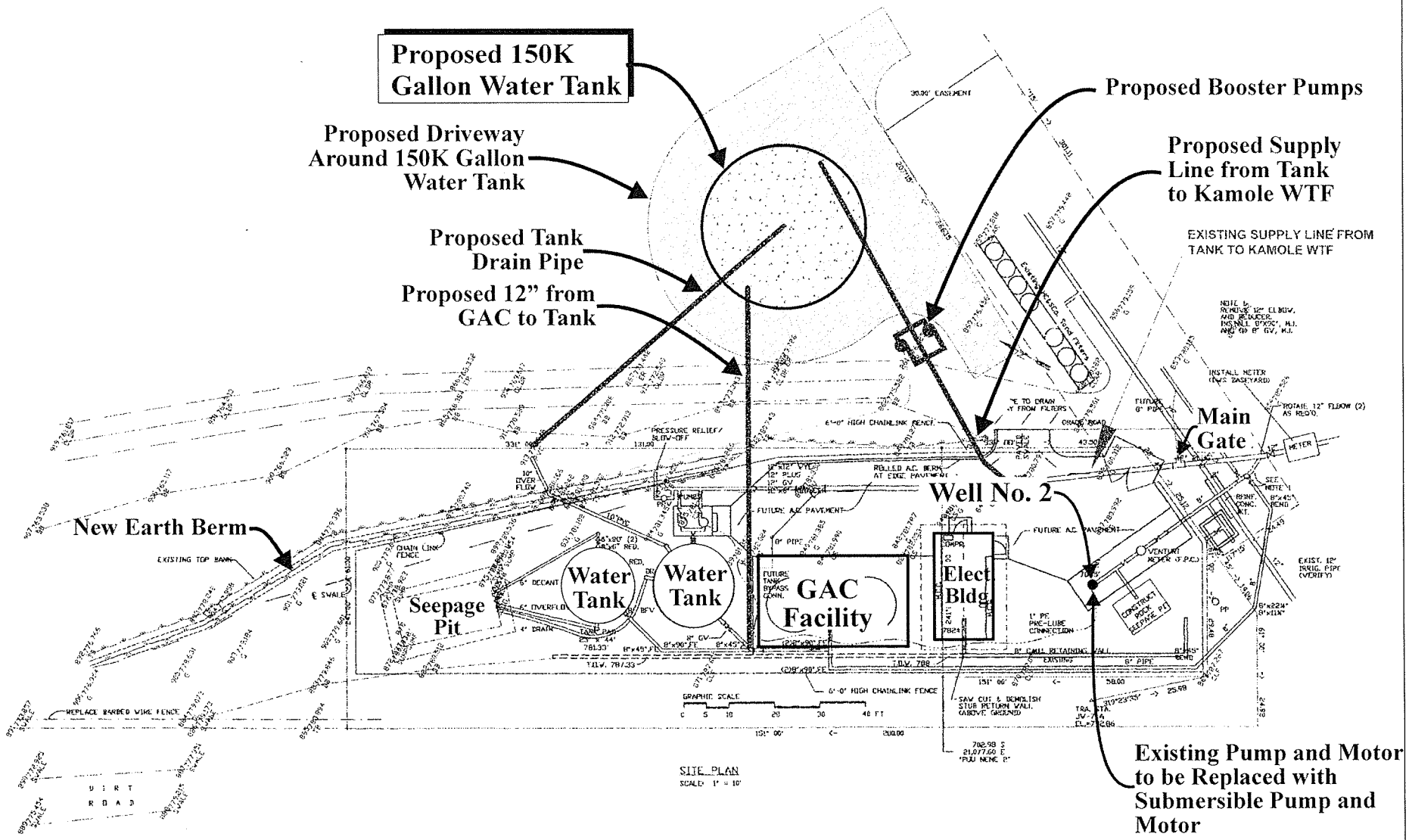
Proposed Well No. 1 Improvements

NOT TO SCALE

MUNEKIYO & HIRAGA, INC.

Prepared for: County of Maui, Department of Water Supply

COM/DWS HamakuapokoWells/WellNo1Improvements



Source: County of Maui, Department of Water Supply

Figure 6

Proposed Improvements at Hamakuapoko Well Nos. 1 and 2

Proposed Well No. 2 Improvements

NOT TO SCALE

MUNEKIYO & HIRAGA, INC.

Prepared for: County of Maui, Department of Water Supply

COM/DWS HamakuapokoWells/PropWell2 Improvements

No. 2. The existing 250,000 gallon water storage tank at Well No. 1 will be demolished or abandoned in place.

A Supervisory Control and Data Acquisition (SCADA) system for process control and a security system with alarms will also be installed on both project sites. Various other related improvements will be completed as part of project implementation, including demolition or removal of equipment, site grading, and grubbing. Refer to **Figure 5** and **Figure 6**.

The proposed project would maintain the existing combined capacity of the Hamakuapoko Well Nos. 1 and 2 to draw up to 1.5 million gallons per day (mgd) of groundwater from the underlying Paia Aquifer and provide enhanced reliability to the UCWS.

As previously mentioned, the Hamakuapoko Wells will be utilized for agricultural use, use during declared drought events, and as backup to the UCWS. Pumping at the wells will occur during declared drought events or as backup to existing water sources or as needed to maintain the operation of the wells.

As previously mentioned, water intended for domestic use from the Hamakuapoko Wells, following treatment by the GAC facility, will be transported to the Kamole Weir WTP. The Kamole Weir WTP is the largest surface water treatment facility on Maui and relies primarily on surface water flow from the Wailoa Ditch. The Kamole Weir WTP uses a microfiltration system to treat the surface water from the Wailoa Ditch. The clear well at the Kamole Weir WTP is the holding area for the filtered and treated water. It is in the clear well that the treated water from the Hamakuapoko Wells will be mixed with the treated water from the Wailoa Ditch. Water from the Kamole Weir WTP is the primary source of water for nearly all of Upcountry during times of drought. The Kamole Weir WTP's average daily production is 3.6 mgd.

D. PROJECT NEED

As previously mentioned, on October 13, 2011 the Maui County Council enacted Ordinance No. 3859, which allows the Hamakuapoko Well Nos. 1 and 2 to be reopened for agricultural use, use during declared drought events, and as backup to the UCWS. Water from the Hamakuapoko Well Nos. 1 and 2 will be effectively treated with the GAC treatment facility to meet or surpass safe drinking water standards. The State Department of Health approved the use of the Hamakuapoko Well Nos. 1 and 2 for drinking water in December 2000 and confirmed during County Council deliberations in 2011 that they continued to stand by that

approval. Water quality sampling will be conducted on a regular basis to ensure that water pumped from the two (2) wells and treated by the GAC facility are safe for use as drinking water. Prior to the reopening of the two (2) wells, the source water will be retested for all water quality contaminants regulated by DOH as required under Hawaii Administrative Rules, Section 11-20-29 as per the State Department of Health letter dated June 6, 2012.

The reopening of the Hamakuapoko Wells is necessary to provide added reliability for the UCWS. Once the Hamakuapoko Wells are reopened, the Pookela Well, which is currently used as a backup water source, will be placed into full-time production. The availability of the Pookela Well as a full-time production well will provide additional source for the UCWS which may allow for issuance of new water meters to households in Upcountry. There are currently approximately 1,470 applicants on the Upcountry Water Service list seeking issuance of a water meter.

Prior to the reopening of the Hamakuapoko Well Nos. 1 and 2, various repair and maintenance improvements at both well sites are necessary to address deferred maintenance of existing equipment so the wells can be placed into production and integrated with the UCWS.

E. REGULATORY REQUIREMENTS

The proposed improvements at the Hamakuapoko Well Nos. 1 and 2 will be funded by the County of Maui, DWS Countywide Source Development Fund. The use of County funds triggers the preparation of an Environmental Assessment (EA), pursuant to Chapter 343, Hawaii Revised States (HRS) and Section 11-200-6, Hawaii Administrative Rules (HAR). This Final EA has been prepared to evaluate the technical characteristics, environmental impacts and alternatives, as well as advance findings relative to the significance of the project. The Approving Agency for the EA is the Department of Water Supply.

F. PROJECT FUNDING AND SCHEDULING

The total estimated construction cost of the proposed project is $2,000,000. Assuming all necessary approvals and entitlements are obtained, construction of the proposed improvements is expected to begin in County of Maui Fiscal Year 2013, with an estimated construction duration of 14 months.

As previously mentioned, the initial construction of the GAC facility at the Hamakuapoko Well No. 2 was funded through a 1999 settlement agreement in the case of *Board of Water*

Supply of the County of Maui v. Shell Oil Company, et al. The settlement agreement also provided payment of ongoing operations and maintenance costs to the County for the GAC facility through 2039. While the initial repair and maintenance improvements required to re-open the Hamakuapoko Wells would not be covered by this settlement agreement, the agreement would provide monthly operations and maintenance payments to the County for the Hamakuapoko GAC facility when the GAC is in operation and DBCP levels exceed the MCL. Reimbursement of varying and capped amounts for operations and maintenance costs is based on well yields and number of GAC vessels and is made to the County as set forth in the agreement. Refer to **Appendix "D"**. The DWS will utilize County funds for the initial repair and maintenance improvements required to re-open the wells and to construct the proposed 150,000 gallon storage tank at Hamakuapoko Well No. 2.

II. DESCRIPTION OF THE EXISTING ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATION MEASURES

II. DESCRIPTION OF THE EXISTING ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATION MEASURES

A. PHYSICAL SETTING

1. Surrounding Land Uses

a. Existing Conditions

Hamakuapoko Well Nos. 1 and 2 are located in Hamakuapoko between Paia and Haiku on Maui. Paia is a small town oriented around a commercial core at the intersection of Hana Highway and Baldwin Avenue. Residential development surrounds the restaurants, small shops, art galleries, and other resident and visitor-oriented businesses located within the Paia commercial center. Paia has gained recognition as a major windsurfing destination, situated near popular windsurfing spots such as Hookipa and Spreckelsville. The primary agricultural activity in and around Paia is sugarcane cultivation.

Compared to Paia, Haiku has a more rural character, with several small commercial nodes servicing residences in the outlying rural and agricultural areas. Agricultural activities in Haiku include nursery operations and diversified agriculture.

The proposed project is surrounded by agricultural lands that are utilized for sugarcane cultivation by HC&S. Dirt access roads provide access to the two (2) well sites. Existing HC&S irrigation water sand filter facilities are located at the edge of sugarcane fields adjacent to both the project sites.

b. Potential Impacts and Mitigation Measures

The Hamakuapoko Well Nos. 1 and 2 are existing County facilities. The repair and maintenance improvements are limited to the replacement of existing booster pumps and motors which are accessory to the wells. A new 150,000 gallon water tank will be installed adjacent to the Hamakuapoko Well No. 2 project site. The proposed tank will be approximately 35 feet in

diameter and 20 feet in height. The new water tank will require approximately 0.14 acre of additional land and will be located across an access road from the existing water infrastructure facilities at the Well No. 2 project site. The County is currently negotiating to acquire land from A&B, the landowner of Parcel 39, for the new water storage tank.

The project site is surrounded by existing sugarcane fields and will not adversely impact the surrounding agricultural uses in the vicinity. The land required for the new tank represents less than 0.01 percent of Parcel 39 and is not anticipated to present significant impacts to the agricultural yields resulting from sugarcane cultivation activities by HC&S.

2. Climate

a. Existing Conditions

Hawaii's tropical location results in uniform weather conditions throughout the year. Climatic conditions on Maui are characterized by mild year-round temperatures, moderate humidity, and steady northeasterly tradewinds. Variations in Maui's weather are attributable to regional topographic and climatic conditions.

Hamakuapoko is situated on the north coast of the island. Between 2005 and 2010, the average annual rainfall for the area, measured at Kuiaha near the Haiku area, was approximately 71.9 inches per year. Temperatures recorded at the Kahului Airport range from an average daily low of 67.3 degrees Fahrenheit to an average daily high of 83.8 degrees Fahrenheit. The warmest month in the region is August while the coolest is February (County of Maui, Office of Economic Development, 2011).

b. Potential Impacts and Mitigation Measures

The proposed project is limited to improvements to existing water infrastructure facilities at the Hamakuapoko Well Nos. 1 and 2 and the construction of a new 150,000 gallon water tank. Significant adverse impacts to climactic conditions are not anticipated with implementation of the proposed project.

3. Topography and Soils

a. Existing Conditions

The project sites are located entirely uplands in the midst of agricultural lands which are currently being utilized for sugarcane cultivation. The surrounding lands are gently to moderately sloping towards the Pacific Ocean. Topography is relatively moderate within the project sites ranging generally from 704 feet to 782 feet above mean sea level (amsl).

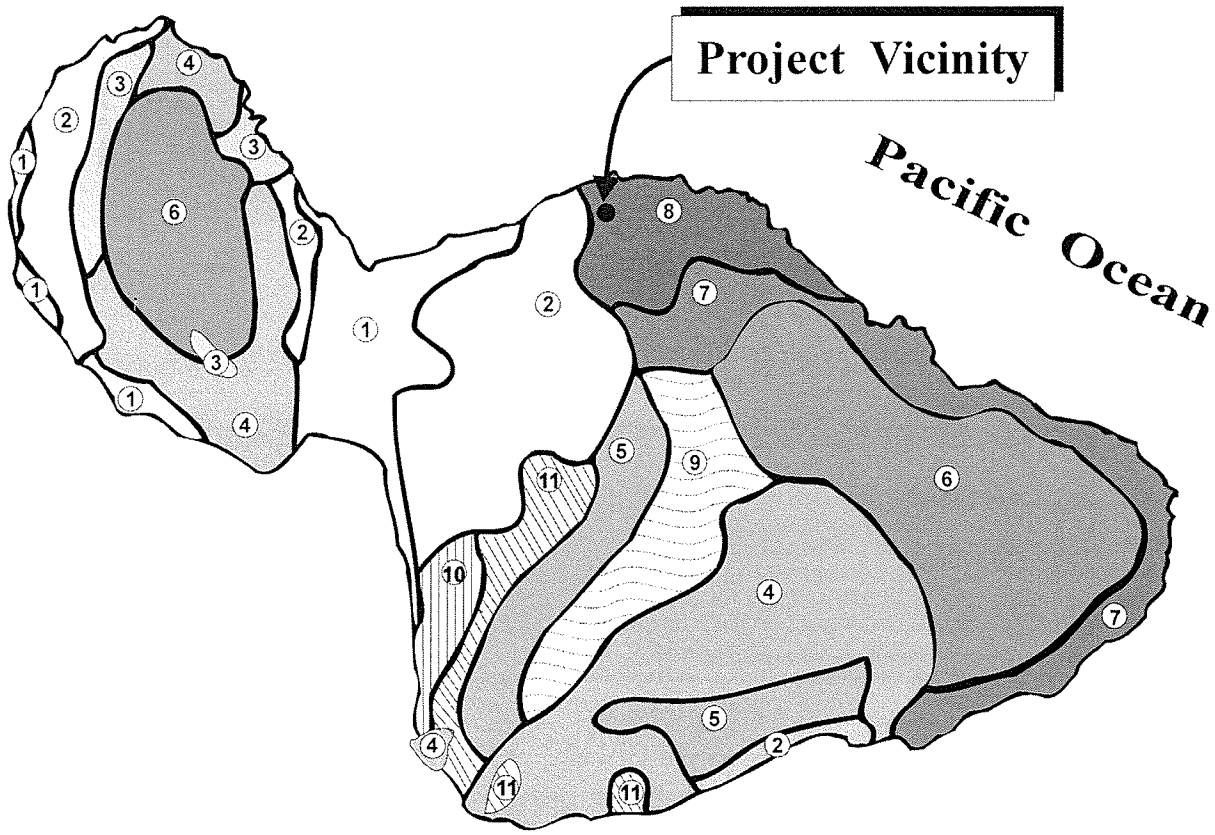
Underlying the project area are soils belonging to the Pauwela-Haiku Association. See **Figure 7**. The Pauwela-Haiku Association is characterized by well drained, fine textured soils commonly found on low uplands . These soils are gently sloping to moderately steep. The Pauwela-Haiku Association makes up about 3 percent of the island (U. S. Soil Conservation Service, 1972).

The specific soil type underlying the project site is the Hamakuapoko silty clay, 3 to 7 percent slopes (HIB). See **Figure 8**. This very deep, well drained soil is found on gently sloping uplands. The surface layer and the subsoil, both comprised of silty clay, are extremely acidic and strongly or very strongly acidic, respectively. Permeability is moderately rapid, runoff is slow, and the erosion hazard is slight (USDA Natural Resources Conservation Service, 2006).

The ground surface at the Hamakuapoko Well Nos. 1 and 2 sites consists of one (1) to two (2) feet of soil and subsoil above the in-place weathered zone of the Kula volcanic formation. The Kula formation consists of andesitic basalts and is a poor water-bearing formation. Below the Kula formation is the Honomanu volcanic formation, which forms the interior core of the island. The Honomanu formation consists of basaltic lavas and is highly permeable, constituting the principal exploitable aquifers in the region. The basal aquifer is found within the Honomanu formation (Mink & Yuen, Inc., 1999).

KEY

1. Pulehu-Ewa-Jaucas Association
2. Waiakoa-Keahua-Molokai Association
3. Honolua-Olelo Association
4. Rock Land-Rough Mountainous Land Association
5. Puu Pa-Kula-Pane Association
6. Hydrandepts-Tropaquods Association
7. Hana-Makaalae-Kailua Association
8. Pauwela-Haiku Association
9. Laumaia-Kaipoipoi-Olinda Association
10. Keawakapu-Makena Association
11. Kamaole-Oanapuka Association



Source: USDA, Soil Conservation Service

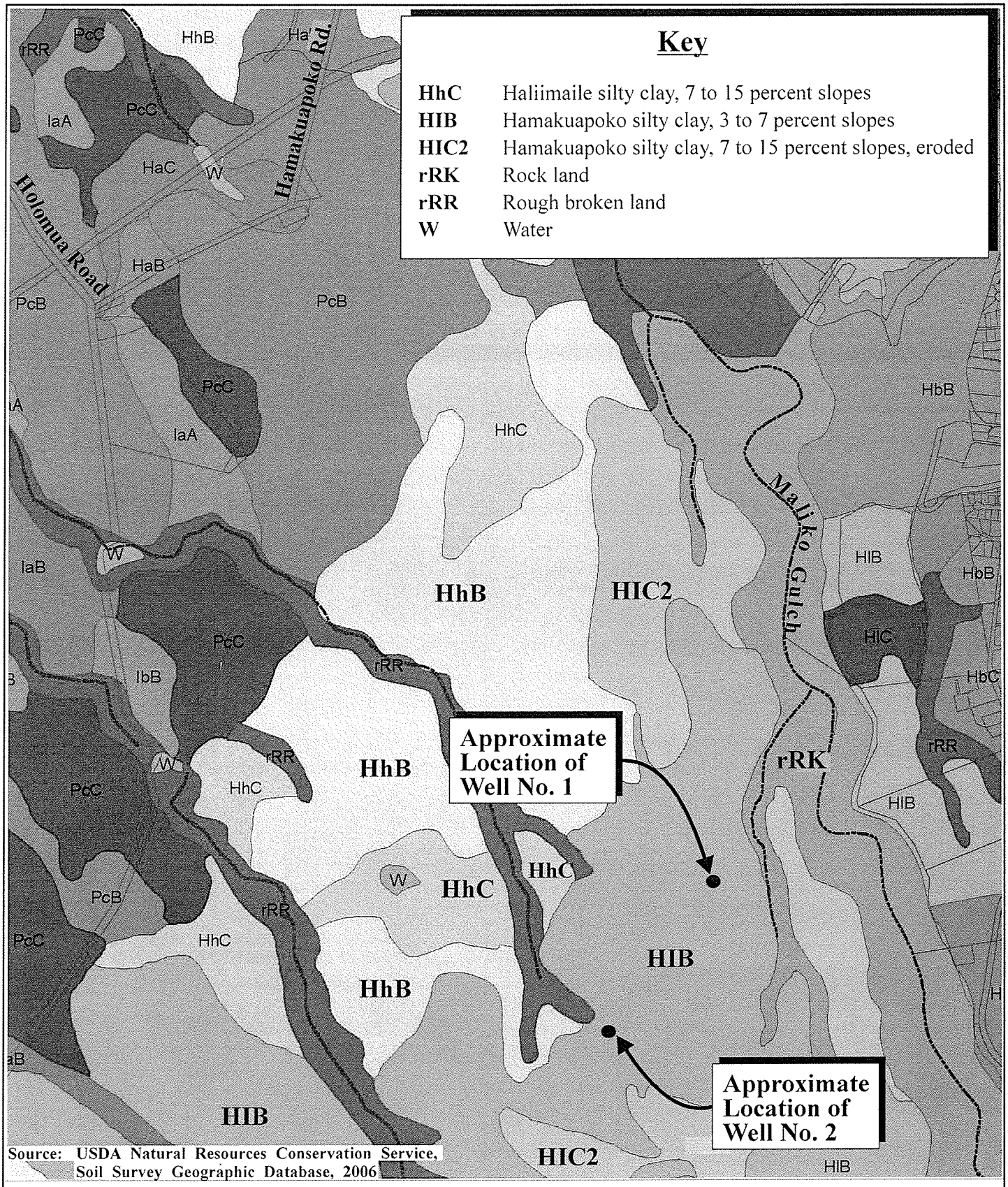
Figure 7 Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
Soil Associations Map

NOT TO SCALE

Prepared for: County of Maui, Department of Water Supply

MUNEKIYO & HIRAGA, INC.

COM/DWS HamakuapokoWells/Soil Association Map



Source: USDA Natural Resources Conservation Service, Soil Survey Geographic Database, 2006

Figure 8 Proposed Improvements at Hamakuapoko Well Nos. 1 and 2

Soil Classification Map

0 312.5 625 1,250 Feet

MUNEKIYO & HIRAGA, INC.

Prepared for: County of Maui, Department of Water Supply

COM/DWS HamakuapokoWells/soilclassification

b. Potential Impacts and Mitigation Measures

The Hamakuapoko Well Nos. 1 and 2 were initially developed in 1992 as exploratory wells. The proposed improvements do not involve the drilling of new wells or modifications to the existing well shafts.

The proposed 150,000 gallon tank adjacent to Well No. 2 involves grading cuts limited to approximately 6 feet, allowing the tank to be completely placed on earth or cut soils. No fill will be placed in the tank footprint.

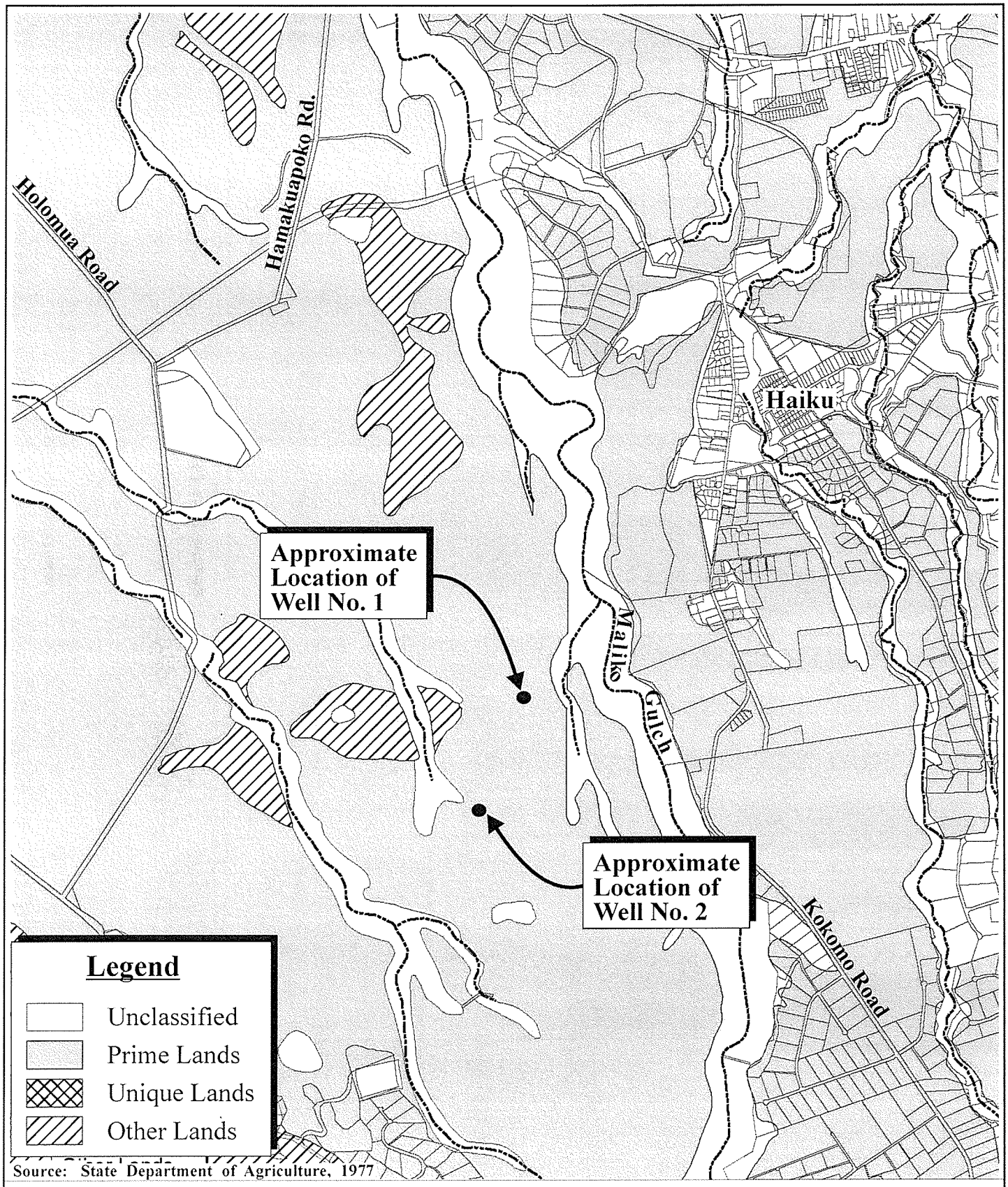
The proposed project is not anticipated to result in significant impacts on topography or soils present in the area.

4. Agriculture

a. Existing Conditions

The State Department of Agriculture has established three (3) categories of Agricultural Lands of Importance to the State of Hawaii (ALISH). The ALISH system classifies lands into "Prime", "Unique", and "Other Important Agricultural Land". The remaining lands are "Unclassified". Utilizing modern farming methods, "Prime" agricultural lands have the soil quality, growing season, and moisture supply needed to produce sustained crop yields economically, while "Unique" agricultural lands possess a combination of soil quality, location, growing season, and moisture supply currently used to produce sustained high yields of a specific crop. "Other Important Agricultural Land" includes those which have not been rated as "Prime" or "Unique". The project sites are located on lands that have been defined as "Prime" agricultural lands by the ALISH rating system. See **Figure 9**.

In addition, the University of Hawaii, Land Study Bureau (LSB) classifies productivity characteristics on a scale of "A" through "E", with lands designated as "A" reflecting the highest productivity and "E" representing lands with the lowest productivity. Lands underlying the project site have been designated as "C" by the LSB. See **Figure 10**. (Land Study Bureau, 1967).



Source: State Department of Agriculture, 1977

Figure 9

Proposed Improvements at Hamakuapoko Well Nos. 1 and 2

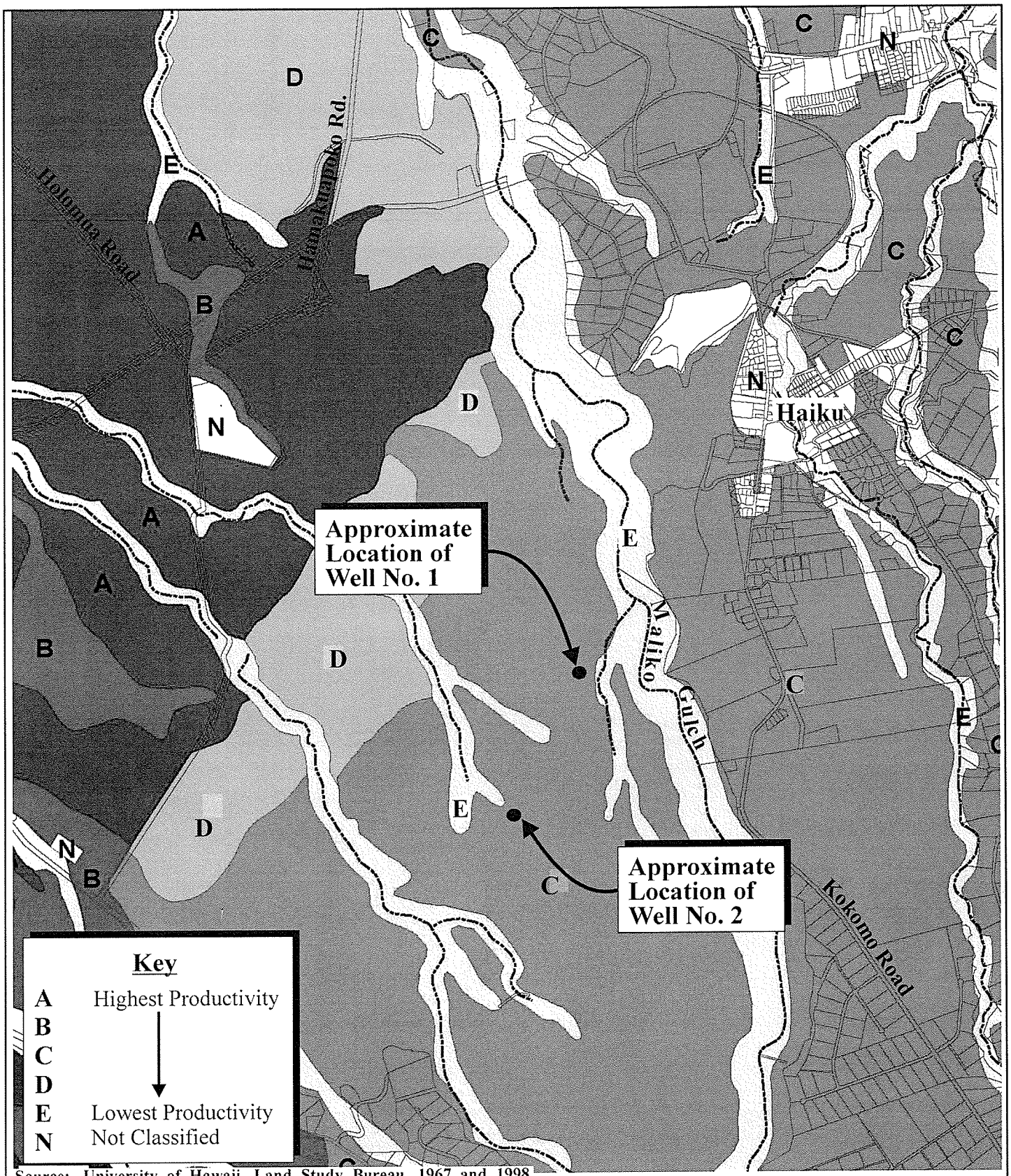
Agricultural Lands of Importance to the State of Hawaii Map

0 500 1,000 2,000 Feet

Prepared for: County of Maui, Department of Water Supply

MUNEKIYO & HIRAGA, INC.

COM/DWS HamakuapokoWells/ALISH



Source: University of Hawaii, Land Study Bureau, 1967 and 1998

Figure 10 Proposed Improvements at Hamakuapoko Well Nos. 1 and 2

Overall Productivity Rating Map

0 500 1,000 2,000 Feet

Prepared for: County of Maui, Department of Water Supply

MUNEKIYO & HIRAGA, INC.

COM/DWS HamakuapokoWells/ProductivityRating

When the Hamakuapoko Well Nos. 1 and 2 were initially developed, the majority of the well sites were located within existing plantation roadways and did not result in any substantial loss of lands in agricultural cultivation. The loss of less than one (1) acre of agricultural land for the development of necessary water appurtenances was considered negligible (Mink & Yuen, Inc., 1999).

b. Potential Impacts and Mitigation Measures

Hamakuapoko Well Nos. 1 and 2 are existing water infrastructure facilities that were developed primarily within plantation roadways. The proposed repair and maintenance improvements will be confined to the existing well project sites but new land is required for the proposed 150,000 gallon water storage tank adjacent to the Well No. 2 project site. DWS has undertaken consultation with HC&S to select an appropriate location for the new water tank and is currently negotiating with A&B to acquire the additional approximately 0.14 acre needed for the tank site. The land needed for the new water tank is currently utilized for sugarcane cultivation. The land required for the new tank represents less than 0.01 percent of the entire Parcel 39 and is negligible in terms of the region's vast stock of agricultural land. Development of the additional approximately 0.14 acre of land for the new tank will not result in significant adverse impacts on agricultural yields derived by HC&S through sugarcane cultivation.

5. Flood and Tsunami Conditions

a. Existing Conditions

The project area is located in Flood Zone X, an area of minimal flooding. It should be noted that the project site is located within Flood Insurance Rate Map (FIRM) panel number 1500030409E. The FIRM for this panel number is not printed as there are no special flood hazard areas within the panel.

The project area is not located within a tsunami evacuation zone.

b. Potential Impacts and Mitigation Measures

The proposed project is located within an area of minimal flooding and outside of the tsunami evacuation zone, over two (2) miles from the coast.

As such, adverse impacts related to flood and tsunami hazards are not anticipated with implementation of the project.

6. Streams and Wetlands

a. Existing Conditions

Maliko Gulch is located approximately 1,500 feet to the east of Hamakuapoko Well No. 1 and 3,000 feet from Hamakuapoko Well No. 2. Refer to **Figure 1**. Maliko Gulch is a non-perennial stream that is normally dry. Except during and immediately following storm events, stream flow in Maliko Gulch is limited to water that enters from seeps and springs in the valley walls above the stream bed. The flow in Maliko Gulch is lost a short distance downstream from the seeps due to percolation into the stream bed (Mink & Yuen, Inc., 1999). Hamakuapoko Well No. 2 is located approximately 1,000 feet east of the non-perennial Kuau Stream. As a non-perennial stream, Kuau Stream has only intermittent flow.

b. Potential Impacts and Mitigation Measures

The Hamakuapoko Well Nos. 1 and 2 pump ground water from the basal aquifer in the Honomanu formation. The basal water table is located approximately four (4) to five (5) feet above sea level while the stream channels in the region are hundreds of feet above sea level. The basal water table does not intersect with stream channels except within several hundred feet from the coast. Hamakuapoko Well Nos. 1 and 2 are located over two (2) miles from the coast. Based on this information, the 1999 Final EA for the Hamakuapoko Wells concluded that pumping at the two (2) wells are not anticipated to result in significant drawdown impacts that would affect stream flow. A 1996 U.S. Geological Survey (USGS) study on the effect of pumping at the nearby Haiku well concluded that after seven (7) days of pumping, there was no evidence of aquifer/stream interaction. The Haiku well is located on the east side of Maliko Gulch and draws from the basal aquifer water table that is approximately five (5) feet above sea level. This is the same level as the basal water table at Hamakuapoko Well Nos. 1 and 2. By comparison, the stream channel of Maliko Gulch lies 680 feet above sea level (Mink & Yuen, Inc., 1999).

On April 23, 2012, the Department of Army issued a determination letter that the project area is absent of navigable waters of the United States. See Section IX.

The proposed improvements are limited to repair and maintenance work and construction of a new tank. Implementation of these improvements will not increase the capacity of the existing wells and will, therefore, not present impacts on stream flow in the region.

7. Flora and Fauna

a. Existing Conditions

A Biological Resources Survey of the project site was completed by Robert Hobdy in June 2012. See **Appendix "G"**.

Robert Hodby completed a walk through survey of the project area which includes Hamakuapoko Well Nos. 1 and 2. The area is significantly altered in terrain and vegetation. The survey also included the proposed water storage tank site adjacent to Well No. 2. The Hamakuapoko Well No. 1 site had 30 non-native agricultural weeds, such as the Guinea grass, Spanish needle, graceful spurge and koa Haole. The Hamakuapoko Well No. 2 site, the adjacent storage tank site, had 51 plant species. Besides sugar cane, all of the plant species were non-native agricultural weeds, such as the Napier grass, swollen fingergrass, Guinea grass, sugarcane, Christmas berry, Spanish needle, hairy spurge and graceful spurge.

Just one (1) mammal, three (3) birds, and six (6) insects were recorded in the fauna survey. None of these species were native and none were of any particular environmental concern. No Endangered species were found and none are known to occur in the vicinity.

b. Potential Impacts and Mitigation Measures

No Federally listed endangered or threatened plant or fauna species, any candidates for such listed status, or special plant habitats were found on the property. The vegetation on and surrounding the two (2) Hamakuapoko Well sites and the area for the proposed water tank site do not present botanical

concerns. The field inspection report concludes that the proposed improvements are not expected to have a significant adverse impact on the botanical resources in this region. As such, the report finds that it is not necessary to make recommendations with reference to botanical resources. Refer to **Appendix "G"**.

8. Historical and Archaeological Resources

a. Existing Conditions

An Archaeological Field Inspection of the project area was completed by Scientific Consultant Services, Inc. (SCS) in May 2012. See **Appendix "H"**.

SCS completed a field inspection of approximately two (2) acres of land on Parcel 39, including the Hamakuapoko Well Nos. 1 and 2 project sites as well as three (3) potential locations for the water storage tank adjacent to Well No. 2. A 100 percent pedestrian survey of the project sites and potential tank locations did not lead to the identification of historic sites, features, midden scatters, or artifacts. The ground surface and subsurface soils of the areas surveyed have been heavily modified over time for intensive industrial sugarcane plantation cultivation as well as the construction of the existing infrastructure at the well project sites.

b. Potential Impacts and Mitigation Measures

As discussed above, the Archaeological Field Inspection conducted for the proposed project found no evidence of surface cultural remains. Modern era clearing, grubbing, and agricultural activities in the parcel have extensively disturbed the area, making the likelihood of encountering any remaining surface features almost non-existent. The Field Inspection concluded that the development of the proposed water storage tanks adjacent to Well No. 2 and improvements at Hamakuapoko Well Nos. 1 and 2 sites would not have an adverse impact on any significant properties. No further archaeological work is recommended for the well project sites and water storage tank locations. However, should the inadvertent discovery of significant cultural materials and/or burials occur during construction, all work in the immediate area of the find will cease and the State Historic Preservation Division (SHPD) will be notified to determine the appropriate level of mitigation. Refer to

Appendix "H".

9. Cultural Assessment

a. Existing Conditions

A Cultural Impact Assessment (CIA) report was completed for the proposed project by Scientific Consultant Services, Inc. (SCS) in October 2012. See **Appendix "I".**

The CIA, which was prepared according to the Office of Environmental Quality Control's suggested methodology and protocol set forth in Guidelines for Assessing Cultural Impacts (1997), contains archived and documentary research as well as communication with organizations having knowledge of the project area, its cultural resources, and its practices and beliefs. SCS posted a CIA notice in the Honolulu Star-Advertiser, Maui News, and Ka Wai Ola and conducted consultations with organizations such as the Central Maui Hawaiian Civic Club, County of Maui Cultural Resources Commission, Office of Hawaiian Affairs, State Historic Preservation Division, and community members. As part of the consultation process, SCS archaeologist Cathleen Dagher attended the September 6, 2012 Maui Cultural Resource Commission monthly meeting. Also, oral interviews were conducted with several community members.

(i) Geopolitical Organization

Prior to Western contact in Hawaii, land was divided into *moku*, or districts. Each of these was further subdivided into units called *ahupuaa.* Ideally, each *ahupuaa* was self-sufficient, running from *mauka*, the mountain, to *makai*, the ocean (MacKenzie, 1991). These divisions served as both cultural and settlement systems as traditional Hawaiian life was tied intimately to the land. Hunting, gathering, cultivation, and habitation took place within three (3) zones which characterized the *ahupuaa*: the *Mauka* Zone, the Agricultural Zone, and the Coastal Zone. The *Mauka* Zone provided access to a variety of trees, plants, and herbs for various needs, customs and practices. Planting of yams, sweet potato, sugarcane, taro, and other foods took place in the Agricultural Zone, where gradual slopes of land allowed

terraces to be constructed for more efficient irrigation. The Coastal Zone and low-lying areas was where most of the *kauhale*, group of houses, were found, as well as temples, fishing shrines, and fishponds (Minerbi, 1993).

Western contact brought changes to the Hawaiian land system with the introduction of private ownership of land, a concept foreign to the Native Hawaiians. A Board of Land Commissioners was established in 1845 to uphold or reject all private land claims of both foreigners and Hawaiians. The Commission adopted rules pertaining to the proof of claims, right of tenants, and commutation to the government in attempts to achieve the goal of totally partitioning undivided lands. All lands not claimed by February 1848 were to be forfeited to the government (MacKenzie, 1991).

Following the enactment of these rules, the *Mahele* division of 1848 divided all lands of Hawaii between the king, chiefs, and government and began the process of private ownership of lands. Two (2) years later the *Kuleana* act completed the *Mahele* process by authorizing the Land Commission to award fee simple titles to native tenants for their land. Once lands were made available and private ownership was instituted, the *maka ainana* were able to claim plots on which they had been cultivating and living. These *kuleana* parcels, also known as Land Commission Awards (LCA), were generally among the richest and most fertile in the islands and came from the king, government, or chief's land. All claims and awards were numbered and recorded in the *Mahele* Book (MacKenzie, 1991). In addition, government lands were sold as "Royal Patent Grants" or "Grants" in order to meet the increasing costs of government. These grants differed from LCAs, as it was not necessary for the recipients to obtain an award for their land from the Land Commission (Chinen, 1958).

(ii) Historical Overview

The subject project is located in the *ahupuaa* of Hamakuapoko, which was considered a part of the Hamakuapoko *moku*.

The Waihona Aina Database (2012) indicates that Hamakuapoko Well No. 1 is located within Land Grant 764, which is comprised of 150 acres. This land was purchased by Robert W. Wood on January 27, 1852 for school land as per Patent No. 764. The Waihona Aina Database (2012) indicates that Hamakuapoko Well No. 2 is located in Land Grant 187 which is comprised of 24.61 acres. This land was purchased by John Richardson on December 21, 1849. The Tax Map Key indicates the area containing Hamakuapoko Well No. 1 and No. 2 was deeded to the Board of Directors Trustees of Oahu College in 1860. Refer to **Appendix "I"**.

During the Mahele of 1848, the eastern half of the Hamakuapoko Ahupuaa became government land while the western half was awarded to W.P. Leileiohoku, brother of Kalakaua and Liliuokalani. Leileiohoku surrendered these lands in lieu of commutation for his other lands, effectively making the entire ahupuaa a government parcel. Handy and Handy (1972) recorded that gulches in the ahupuaa contained soils amenable to cultivation and were likely used for sweet potatoes which were also grown in the Kula (upcountry) region of Hamakuapoko.

(iii) Traditional and Customary Rights

The traditional and customary rights of Native Hawaiians can be broken down into access rights, gathering rights, burial rights, and religious rights.

Access

Native Hawaiians generally share the same access rights as the general public. However, they have the unique access rights to *kuleana* parcels and between *ahupuaa*. Access to *kuleana* parcels may involve access via ancient trails or expanded access not limited to any route. Additionally, the *Kuleana* Act granted unobstructed access within the *ahupuaa* to obtain items necessary to make the *kuleana* parcel productive. Access rights between *ahupuaa* involve access to ancient or well established trails (MacKenzie, 1991).

Gathering

In terms of gathering rights, the Hawaii Supreme Court has upheld gathering rights within an *ahupuaa* for firewood, house-timber, *aho* cord, thatch, and *ki*-leaf under three (3) conditions. The tenant must physically reside within the *ahupuaa*, the right to gather can only be exercised upon undeveloped lands within the *ahupuaa,* and the right must be exercised only for the purpose of practicing Native Hawaiian customs and traditions (MacKenzie, 1991).

Burial

According to traditional Hawaiian burial beliefs, following death, the *uhane,* or spirit, must remain near *na iwi*, or bones. Burial sites are chosen by Hawaiians for symbolic purposes in places for safekeeping. Often, bones were hidden in caves, cliffs, sand dunes, or deposited in the ocean. Today, federal and state laws protect both unmarked and marked burial sites. Island Burial Councils assist the State Historic Preservation Division with inventory and identification of unmarked Hawaiian burial sites and determine the preservation or relocation of native Hawaiian burial sites (MacKenzie, 1991).

Religious

Hawaiian religion and beliefs were intimately tied to the land. While some practices and traditions were lost over the years, basic Hawaiian religious concepts remain. The terms *"aloha aina,"* love the land and *"malama aina,"* care for and protect the land, convey the unity of humans, nature, and the gods in Hawaiian philosophy (Minerbi, 1993). Furthermore, Hawaiians honored and worshiped *aumakua,* deities, and *akua*, gods. There were numerous *akua* of farming, fishing, tapa making, dancing, sports, and any other activity of Hawaiian life. The concept of *mana* or sacred attachment to places, people, or things also remains as a significant aspect of Hawaiian religion (MacKenzie, 1991).

SCS conducted interviews with people familiar with the project area. It is noted, however, that many individuals who grew up in the Hamakuapoko and surrounding areas are now deceased. The following is a summary of two (2) of the interviews that were conducted during the CIA. Refer to **Appendix "I"**.

Paul Ueoka

Mr. Ueoka is a graduate of the "Old" Maui High School at Hamakuapoko class of 1977. He is active with the Friends of Old Maui High School which is a non-profit organization that is trying to restore the school. His father, Noriyuki Ueoka, was an Agriculture Teacher, as well as Vice Principal at the "Old" Maui High School. The elder Mr. Ueoka taught students how to raise farm produce such as corn, citrus trees, mango trees, and flowers (e.g. orchids and anthuriums).

Mr. Ueoka did not indicate that any traditional cultural practices would be affected by the proposed project.

Patsy Shishido and Leona Wilson

Ms. Shishido and Ms. Wilson are sisters whose paternal and maternal grandparents emigrated to Hawaii in the late 1800s and early 1900s, respectively, from the Azores Archipelago, Portugal. Their grandparents left their home to work for the sugarcane plantation and provide their families with a better life. The sisters grew up in the Portuguese Camp in Hamakuapoko. As children, they swam at Kookipa Park and attended Old Maui High School. They spoke extensively about the Plantation-Era life which included church activities, traditional food preparation by different ethnic groups, and the cultures of the fieldworkers.

Neither Ms. Shishido or Ms. Wilson indicated that any traditional cultural practices would be affected by the proposed project.

b. Potential Impacts and Mitigation Measures

The cultural impact assessment finds that it is reasonable to conclude that pursuant to Act 50, the exercise of cultural practices of native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities would not be affected by the proposed project, and that the project area has not been used for traditional cultural purposes in recent times. Refer to **Appendix "I"**.

10. Air and Noise Quality

a. Existing Conditions

Air quality in the vicinity of the project sites is generally good. However, temporary degradation in air quality is expected due to the surrounding sugarcane cultivation activities. In particular, dust generation and cane burning on adjacent fields may result in degradation of air quality. Between harvests and before new crops are planted, sugarcane fields remain open for a few weeks. During this time, the fields are prone to dust generation as winds can kick up or carry dust. In addition, field preparations such as tilling prior to planting can also contribute to dust generation.

Harvesting of sugarcane also creates temporary disruptions to normal air quality in the vicinity. HC&S burns the sugarcane fields as a pre-harvest technique to get rid of dried leaves, which have accumulated over the 2-year growing period. By reducing the extraneous leafy material delivered to the mill, HC&S is able to increase the quantity and quality of sugar it recovers. It also reduces the number of hauling trucks crossing Maui's highways (HC&S, 2011). The maturation process for sugarcane is approximately 24 months. As such, sugarcane burning in the vicinity of the project sites would occur approximately every two (2) years.

There are no significant noise generators in the vicinity of the project sites. Noise generated in this locale may be attributed to agricultural activities and traffic on area roadways.

b. Potential Impacts and Mitigation Measures

Airborne particulates, including dust, may be generated during site preparation and construction activities. However, dust control measures, such as regular watering and sprinkling, will be implemented as needed to minimize wind-blown emissions. In the long term, the project will not adversely impact local and regional ambient air quality conditions.

As with air quality, ambient noise conditions will be temporarily impacted by construction activities. Heavy construction equipment, such as bulldozers, front end loaders, and dump trucks and trailers will be the dominant source

of noise during site construction. Construction generated noise will be mitigated through Best Management Practices (BMPs), and construction activities will be limited to daylight work hours only. The contractor will coordinate with the State Department of Health to ensure that noise permits are obtained, as appropriate.

From a long-term perspective, replacement of the existing above-ground pumps with submersible pumps at Well Nos. 1 and 2 will reduce the amount of noise generated by the equipment. While some level of noise may be generated by the operations at the two (2) well sites, the sites are surrounded by sugarcane fields and there are no noise receptors in the vicinity of the well sites.

11. Scenic and Open Space Resources

a. Existing Conditions

The project sites are located in Hamakuapoko between Paia and Haiku. The Hamakuapoko Well Nos. 1 and 2 are existing facilities surrounded by sugarcane fields cultivated by HC&S.

Existing improvements at both well sites, including the existing water tanks, are not visible from major regional roadways such as the County-owned Baldwin Avenue and the State-owned Hana Highway. The improvements are also not visible at Holomua Road or Hamakuapoko Road. There are no designated scenic corridors in the immediate vicinity of the project sites.

b. Potential Impacts and Mitigation Measures

The proposed project primarily involves the repair and replacement of existing infrastructure at the Hamakuapoko Well Nos. 1 and 2 sites. A new 150,000 gallon water tank adjacent to the Well No. 2 site will measure approximately 35 feet in diameter and 20 feet in height. This is comparable to the height of the existing water tanks at the Well No. 2 site. Given the remote location of the sites in the midst of active sugarcane fields, there are no significant adverse impacts to the visual resources of the surrounding environment anticipated to result from implementation of the proposed project.

The proposed repair and maintenance improvements will be limited to the existing project sites for the Hamakuapoko Well Nos. 1 and 2. Development of the 150,000 gallon water tank adjacent to the Well No. 2 project site will require approximately 0.14 acre of land that is currently in the process of being negotiated for acquisition from A&B. This area is negligible representing less than 0.01 percent of the total 2,439-acre parcel. Adverse impacts to open space resources are not anticipated as a result of the proposed improvements.

12. Chemicals and Hazardous Materials

a. Existing Conditions

The Hamakuapoko Well Nos. 1 and 2 are located in an area that has been used extensively for agricultural cultivation in the past and continues to be utilized by HC&S for sugarcane. As such, the water from Hamakuapoko Wells have been tested for potential contaminants that may be associated with the surrounding agricultural use. Water quality testing measured for 1,2-Dibromo-3-chloropropane (DBCP), Ethylene Dibromide (EDB), and Trichloropropane (TCP). DBCP was used in the past as a soil fumigant and nematocide on crops. EDB has been used in the past as an insect killer but agricultural use of EDB was banned in 1984 by the U.S. Environmental Protection Agency (EPA). TCP has been used as a pesticide in the past. DBCP was banned in the U.S. in 1977, except for pineapple, and further banned for pineapple cultivation in Hawaii in the 1980s.

In tests of untreated water conducted between 1999 and 2004, concentrations of DBCP and EDB at Well No. 2 exceeded the State Department of Health's (DOH) maximum concentration level. At Hamakuapoko Well No. 1, the concentration of DBCP was at the margin of acceptability while EDB was not detected or below the maximum concentration level. With the exception of one (1) sample at Hamakuapoko Well No. 1, the concentration of TCP fell below the maximum limits in all other test samples for Well No. 1 and No. 2. See **Appendix "J"**. After October 2004, pumping was inactive at Hamakuapoko Well Nos. 1 and 2 and on October 2, 2006, Ordinance No. 3404 resulted in the closure of the wells.

Prior to the use of the Hamakuapoko Well Nos. 1 and 2 as production wells,

the County of Maui explored various methods to treat water to reduce the concentrations of DBCP and EDB. These methods included the Granular Activated Carbon (GAC) method, Powdered Activated Carbon (PAC) method, Airstripping (Packed Tower Aeration), Adsorbent Exchange Resins, and Membrane Technology. The GAC method was selected over the other methods because of its proven performance, system reliability, enclosed operation, ease of operation, and the fact that there is no hazardous air emissions associated with it. It also has an overall superior cost effectiveness. The primary disadvantage is the high capital cost and the cost of disposing the spent carbon. The GAC method involves contaminated water flowing downward from the top of a pressurized vessel through a bed of activated carbon. Active carbon refers to an extremely porous form of carbon, which gives it a very large surface area for absorption of contaminants. The water is treated when it flows through the bed of activated carbon and is collected in an underdrain system (Mink & Yuen, Inc., 1999). The outflow from the GAC system meets State DOH standards for drinking water.

The GAC system was installed at the Hamakuapoko Well No. 2 in 1999. Water from Well No. 1 is pumped to the Well No. 2 site, where the combined flows are treated by the GAC system. Following treatment by the GAC system, DBCP and EDB were not detected in the water pumped from the Hamakuapoko Wells during tests conducted between 1999 and 2004. With the exception of one sample, TCP was not detected in the treated water. In the one sample where TCP was detected, the level of TCP was below the maximum allowable level. Refer to **Appendix "J"**. The water quality tests of the water treated by the GAC demonstrate the effectiveness of the treatment method to rid the water of these contaminants and produce water that meets the drinking water standards for safe consumption by the public.

As previously discussed, the installation of the GAC system at Hamakuapoko Well No. 2 was funded by a 1999 settlement agreement that required the manufacturers of the chemical DBCP to reimburse the County of Maui for certain capital costs through September 1, 2039. The settlement agreement in the case of *Board of Water Supply of the County of Maui v. Shell Oil Company, et al.* (Civil Case No. 96-0370(1)) stipulated that the defendants would pay for the capital costs of GAC facilities at certain wells, including

the Hamakuapoko Wells, where the levels of DBCP exceeded the maximum contaminant level established by the State Department of Health. The defendants also will reimburse the County for operations and maintenance costs associated with the GAC system at the Hamakuapoko Wells when the GAC is in operation for at least 10 percent of a month. As such, the County, through this 1999 settlement agreement, received funds for the construction, operation, and maintenance of the GAC facility at the Hamakuapoko Well No. 2.

b. Potential Impacts and Mitigation Measures

The proposed improvements to the Hamakuapoko Wells include repair and maintenance of the GAC system so that it may be returned to operation when the wells are re-opened. DWS will continue to utilize the GAC facility at the Hamakuapoko Well No. 2 site to treat the pumped water for removal of DBCP and EDB. DWS will conduct regular water quality monitoring to ensure continued effective treatment by the GAC and ensure that water produced by the two (2) wells meets or surpasses the drinking water standards for safe public consumption.

When the Hamakuapoko Wells are placed back in operation and the GAC facility is in use, the County will receive monthly operation and maintenance funds for the GAC system through the 1999 settlement agreement.

B. SOCIO-ECONOMIC ENVIRONMENT

1. Population and Economy

a. Existing Conditions

The population of the County of Maui has exhibited relatively strong growth over the past decade. In 2010, there were 154,834 residents in the County, a 21 percent increase of the resident population in 2000 of 128,094. The Paia-Haiku region has experienced more modest growth during the same time period. The approximately 12,800 residents living in Paia-Haiku in 2010 represents an eight (8) percent increase since 2000 (U.S. Census Bureau, 2000 and 2010). The population of the County is anticipated to grow to 199,850 residents by 2030, including approximately 13,860 residents in the

Paia-Haiku region (County of Maui, Planning Department, 2006).

The unemployment rate (not seasonally adjusted) for Maui County was 5.2 percent in December 2012, with Maui Island's rate at 5.0 percent. These numbers represent a decrease from 7.1 and 6.9 percent for the County and island from December 2011, respectively. The State's unemployment rate for December 2012 was 4.8 percent, an improvement over the December 2011 rate of 6.2 percent (Department of Labor and Industrial Relations, 2013).

b. Potential Impacts and Mitigation Measures

Short-term economic benefits associated with construction labor and expenditures for the well improvements are anticipated. From a long-term perspective, the proposed improvements will provide enhanced system reliability in the Upcountry Water System to better serve residents and businesses in the region. DWS does not anticipate the need for additional personnel to monitor and maintain the Hamakuapoko Well Nos. 1 and 2 once they are brought online.

The proposed project is primarily repair and maintenance improvements; it is not a direct population generator. Thus, there are no anticipated long-term impacts on population parameters and the improvements are not anticipated to adversely impact existing facilities related to the UCWS.

C. PUBLIC SERVICES

1. Police and Fire Protection

a. Existing Conditions

The County of Maui's Police Department headquarters are located in Wailuku. There are three (3) patrol divisions on the island of Maui. These are the Wailuku, Lahaina, and Hana divisions. The Wailuku division covers Central Maui, Paia-Haiku, Kihei-Makena, and Upcountry Maui. The Wailuku division utilizes 146 patrol officers and 11 motorized beats (Munekiyo & Hiraga, Inc., 2008).

Fire prevention, suppression, and protection services for the project area are

provided by the County Department of Fire and Public Safety's Paia Fire Station, located approximately three (3) miles from the project site, along Hana Highway in Paia Town.

b. Potential Impacts and Mitigation Measures

Improvements to the existing Hamakuapoko Well Nos. 1 and 2 will not extend the service limits for emergency services. Police and fire protection services are not anticipated to be adversely impacted by the proposed project. As the proposed project is an existing facility in a remote location and will be unmanned, it will not adversely impact the service capabilities for emergency services.

2. Medical Facilities

a. Existing Conditions

Maui Memorial Medical Center is currently the only major medical facility on the island. Acute, general, and emergency care services are provided by the 231-bed facility. In addition, Paia has medical and dental clinics to service local community residents. Haiku has a medical office and a pharmacy.

b. Potential Impacts and Mitigation Measures

The proposed project is not anticipated to have adverse impacts on existing medical facilities or services on Maui.

3. Solid Waste

a. Existing Conditions

Except for remote areas, single family solid waste collection service is provided by the County of Maui on a weekly or twice-a-week basis. Solid waste collected by County refuse crews is disposed at the Central Maui Landfill. Commercial waste from private collection companies is also disposed of at the landfill.

b. Potential Impacts and Mitigation Measures

A solid waste management plan will be developed and implemented to minimize the volume of construction waste material being disposed of at the Central Maui Landfill by the project. Upon completion of construction, the Hamakuapoko Well Nos. 1 and 2 are not anticipated to require solid waste collection services. As such, from a long-term perspective, the proposed project will not have a significant impact on the capacity of the Central Maui Landfill. The carbon waste from the GAC facility is not hazardous and will be disposed of in the landfill, meeting all required disposal requirements.

4. Recreational Resources

a. Existing Conditions

The main facilities catering to the recreational needs of the area include the Paia Community Center and Haiku Community Center. Both community centers provide community rooms as well as park space and athletic fields. Coastal recreational resources in the region include Baldwin Beach Park and Hookipa Beach Park, an internationally recognized park known for its excellent surf and windsurfing. Other recreational facilities include Lower Paia Park, Paia Gym, and Rainbow Park.

b. Potential Impacts and Mitigation Measures

The proposed project in and of itself is not considered a population generator. The proposed improvements are not anticipated to adversely impact the existing recreational facilities located in and around the Paia and Haiku areas.

5. Educational Facilities

a. Existing Conditions

The State of Hawaii, Department of Education operates eight (8) public schools in East Maui and Upcountry Maui. They are Makawao Elementary School, Kalama Intermediate School, Pukalani Elementary School, Kula Elementary School, Haiku Elementary School, Paia Elementary School, King Kekaulike High School, and Hana High and Elementary School.

The region is also served by the privately operated Montessori School of Maui, Doris Todd, Haleakala Waldorf School, Seabury Hall, the Maui Campus of Kamehameha Schools, and the Carden Academy of Maui.

b. Potential Impacts and Mitigation Measures

As previously mentioned, the project in and of itself is not considered a population generator and will not place added demands on educational facilities or services on Maui.

D. INFRASTRUCTURE

1. Roadways

a. Existing Conditions

The Paia-Haiku region is served by a number of arterial roadways, including Hana Highway and Baldwin Avenue. Hana Highway is a State of Hawaii roadway that serves as the main access road along the northern coast of Maui. It is a predominantly two-lane, two-way roadway generally oriented in the east-west direction. Baldwin Avenue is a County roadway that serves as the main commercial corridor of Paia. Baldwin Avenue originates at Hana Highway, northwest of the project sites, and continues south, terminating in Makawao.

Access to the existing Hamakuapoko Well Nos. 1 and 2 is provided by private agricultural roadways. Holomua Road is a two-lane roadway that runs from Hana Highway in the north to Baldwin Avenue in the south. Holomua Road runs primarily in the north-south direction and traverses through sugarcane fields. Refer to **Figure 2**. Holomua Road between Hana Highway and the Old Maui High School is a paved road; between the Old Maui High School and Baldwin Avenue, Holomua Road is a dirt gravel road. Access to the project sites is provided via cane roads off of Holomua Road.

Due to the agricultural and rural nature of the area, traffic is generally light, with minimal traffic congestion.

b. Potential Impacts and Mitigation Measures

The proposed improvements to facilitate the reopening of the Hamakuapoko Well Nos. 1 and 2 are not anticipated to generate significant volumes of incoming or outgoing traffic and will not affect existing traffic conditions in the area. DWS will coordinate with the Department of Public Works regarding the use of Holomua Road during the construction phase of the project, as necessary. Upon completion, the number of DWS personnel who would visit the project site for routine monitoring and/or service activities would be limited to one (1) to two (2) employees daily. As such, the number of vehicular trips to the projects sites would be similar to the number of trips that occurred when the Hamakuapoko Well Nos. 1 and 2 were first in operation.

2. Water System

a. Existing Conditions

The Upcountry Water System (UCWS) services the areas of Haiku, Makawao, Olinda, Haliimaile, Pukalani, Kula, Omaopio/Pulehu, Keokea, Ulupalakua, and Kanaio. The UCWS is primarily dependent upon surface water sources which supply a system of reservoirs and treatment facilities. Several groundwater sources, including the Haiku Well, Kaupakula Well, and the Pookela Well, also supply the UCWS.

The Hamakuapoko Wells, which were operated as production wells from December 22, 2000 until their closure in October 3, 2006, are also currently part of the UCWS. Actual pumpage from the wells occurred between 2000 to 2004. The wells are located within the Paia Aquifer System. Maliko Gulch, located east of the wells, serves as the drawn boundary between the Paia and Haiku Aquifer Systems.

As previously mentioned, the Hamakuapoko Well Nos. 1 and 2 pump water from the basal aquifer in the Honomanu formation. The basal water table is located approximately four (4) to five (5) feet above sea level while the stream channels are hundreds of feet above sea level. The basal water table does not intersect with the stream channels except within several hundred feet of the coast. Hamakuapoko Well Nos. 1 and 2 are located over two (2) miles

from the coast. Based on this information, the 1999 Final EA for the Hamakuapoko Wells concluded that there are no significant adverse impacts anticipated from pumping at the two (2) wells that would result in drawdown at these distances of a magnitude that would affect stream flow (Mink & Yuen, Inc., 1999). A 1996 U.S. Geological Survey (USGS) study on the effect of pumping at the nearby Haiku well concluded that after seven (7) days of pumping, there was no evidence of aquifer/stream interaction. Haiku well is located on the east side of Maliko Gulch and draws from the basal aquifer water table that is approximately five (5) feet above sea level. This is the same level as the basal water table at Hamakuapoko Well Nos. 1 and 2. By comparison, the stream channel of Maliko Gulch lies 680 feet above sea level (Mink & Yuen, Inc., 1999).

b. <u>Potential Impacts and Mitigation Measures</u>

The proposed improvements would allow for the reinitiation of use of the Hamakuapoko Well Nos. 1 and 2. These wells pumped water for four (4) years from 2000 to 2004. Impacts to the underlying aquifer and water quality tests were assessed when the wells were drilled as exploratory wells and also when the wells were converted to production wells in 1999.

Measurements of aquifer drawdown were taken previously during a pump test and recovery following the cessation of pumping. These tests were conducted in 1992 when the wells were initially drilled as exploratory wells. The measurements are utilized to derive hydraulic conductivity, which describes the ease with which water can move through pore spaces or fractures. The tests for both Hamakuapoko Well Nos. 1 and 2 revealed high hydraulic conductivity, meaning that the wells are highly favorable for extraction of groundwater. High hydraulic conductivity allows for efficient pumpage by wells (Mink & Yuen, Inc., 1999).

The State Commission on Water Resource Management (CWRM) establishes sustainable yields for the aquifer systems in Hawaii. According to the Water Resource Protection Plan prepared for the CWRM in 2008, the sustainable yield for the Paia Aquifer is 7 mgd. It is noted that this sustainable yield of 7 mgd is based on basal groundwater only and does not account for the significant importation of surface water into Paia from outside the aquifer system area through return irrigation recharge. This explains the ability to

withdraw freshwater from the aquifer at significantly higher rates than the sustainable yield without negative impacts, such as rising chloride concentrations or decreasing water levels (Wilson Okamoto Corporation, 2008). Generally, chloride concentration trends are used as an indicator of the influence of well pumping on aquifer conditions. For drinking water, the EPA established a maximum contaminant level of 250 milligram/liter (mg/l) for chloride. Water analysis from 2000 to 2004 when the well pumps were operating, shows that chloride levels at the Hamakuapoko Well Nos. 1 and 2 are below the EPA maximum contaminant level, and range between 74 to 110 mg/l.

Groundwater quality tests conducted for the 1999 Final Environmental Assessment indicated that the maximum salinity reached during pump testing at both Hamakuapoko Well Nos. 1 and 2 was well within the acceptable limits for potable water. However, water from both wells exhibited contamination with volatile organic chemicals associated with the use of nematocides in pineapple cultivation. The water quality testing measured for three (3) compounds: DBCP, EDB, and TCP. Concentrations of DBCP and EDB at Well No. 2 exceeded the DOH maximum concentration level while at Hamakuapoko Well No. 1, the concentration of DBCP was at the margin of acceptability and EDB was not detected. With the exception of one (1) test sample at Well No. 1, the concentration of TCP fell below maximum limits in all other test samples for Well No. 1 and Well No. 2 (Mink & Yuen, Inc., 1999).

In 1999, DWS installed a Granular Activated Carbon (GAC) treatment facility at Well No. 2 that is capable of treating water from both well sites. Water from Hamakuapoko Well No. 1 is transported to Well No. 2 where the combined water drawn from the two (2) wells flows through the treatment process provided by the GAC chambers. The GAC method treats water when the water flows downward from the top of a pressurized vessel through a bed of activated carbon. Active carbon refers to an extremely porous form of carbon, which gives it a very large surface area for absorption of contaminants. This treatment process is completed before the water from the Hamakuapoko Well Nos. 1 and 2 are pumped into the clear well at Kamole Weir Water Treatment Plant (WTP) (Mink & Yuen, Inc.,1999). When the Hamakuapoko Wells are reopened, the pumped groundwater will again be

treated by the GAC facility. The treatment process provided by the GAC system will ensure that the water meets or surpasses both Federal and State drinking water standards prior to conveyance to the Kamole Weir WTP. No further treatment of the Hamakuapoko Wells water will be necessary at the Kamole Weir WTP.

On December 22, 2000, the State of Hawaii, Department of Health (DOH) granted conditional approval for the use of the Hamakuapoko Well Nos. 1 and 2 as a drinking water source for a public water system subject to eight (8) conditions. Refer to **Appendix "C"**. Conditions of the approval included requirements that all water from the two (2) wells be treated by the GAC treatment units and that the GAC treatment units deliver potable water of the quality in compliance with Hawaii Administrative Rules Title 11, Chapter 20, "Rules Relating to Potable Water Systems" (HAR).

DWS conducted regular water quality testing for DBCP, EDB, TCP, and Nitrate as Nitrogen during the operation of the Hamakuapoko Well Nos. 1 and 2 until pumping at the wells ended in 2004. The tests indicated that after the water was treated by the GAC facility, DBCP, EDB, and TCP were not detected or were below the maximum allowed limit for those compounds. Refer to **Appendix "J"**.

Prior to activating the wells again, DWS will retest and obtain water quality data which will be submitted to DOH for verification of the water quality in accordance with HAR, Chapter 11-20.

During the 2011 County Council deliberations regarding the reopening of the Hamakuapoko Wells, the DOH confirmed that in 2000 the DOH approved the Hamakuapoko Well Nos. 1 and 2 for use as drinking water after treatment and that the DOH stands by that approval today. Once the Hamakuapoko Wells are reopened, DWS will continue to monitor water quality measures to ensure the GAC treatment process produces drinking water in compliance with applicable Federal and State water quality standards. DWS's water testing program applies to ground water from the time it is drawn by the Hamakuapoko Wells until it is placed into the drinking water supply.

Water quality sampling will be done by DWS staff or a sub-contractor with

experience in water sampling for lab analysis and the data results will be submitted to DOH. Water samples will be drawn from the wells and will be sent to private certified laboratories on Oahu or the mainland for data analysis. A list of chemicals that are monitored can be found on the DWS website or in the DOH rules. In the event maximum contaminant levels (MCLs) are exceeded, the public will be informed immediately through public broadcasts (e.g. tv and radio), the County website and social media.

Prior to well start-up, both Hamakuapoko wells will be required by DOH to undergo testing that is equivalent to the requirements for a new well start-up in accordance with HAR, Section 11-20-29. Results of the water quality analysis will be reviewed and accepted by the DOH before any water from the Hamakuapoko Well Nos. 1 and 2 enters the DWS water system for human consumption.

3. Wastewater System

a. Existing Conditions

Wastewater generated in the Paia region is conveyed to the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF). The WKWWRF has a design capacity of 7.9 million gallons per day. There are no County wastewater facilities servicing the Haiku area. Wastewater disposal in the Haiku region is accommodated via cesspools or individual wastewater treatment systems such as septic tanks and leach fields. There are no County or private wastewater treatment facilities at the project site.

b. Potential Impacts and Mitigation Measures

The proposed improvements at the Hamakuapoko Well Nos. 1 and 2 will not generate any wastewater flow and will not affect existing wastewater collection and treatment systems in the area.

4. Drainage

a. Existing Conditions

A Preliminary Drainage Report was prepared for the proposed project by the DWS in April 2013. See **Appendix "K"**. The project site is located in Flood

Zone X, an area of minimal flooding. Storm water runoff at the two (2) well sites flows downslope into the surrounding sugarcane fields following existing topographic conditions.

Under existing conditions, the 0.14-acre water storage tank site adjacent to Well No. 2 generates runoff at a rate of 0.2 cubic feet per second (cfs) during the 10-year, 1-hour storm event.

b. Potential Impacts and Mitigation Measures

The proposed project involves limited replacement, repair, and maintenance activities at the existing Hamakuapoko Well Nos. 1 and 2 sites as well as the construction of a new water tank. The 0.14-acre water storage tank site adjacent to Well No. 2 will include 0.02 acre for the proposed tank, 0.06 acre for the driving surface, and 0.06 acre that will be grassed. With these proposed improvements, the runoff rate from the site will be 0.5 cfs during the 10-year, 1-hour storm event, an increase of 0.3 cfs. The increased runoff will be captured by a perimeter concrete swale and conveyed to an existing drainage ditch in the surrounding sugarcane fields north of the existing Hamakuapoko No. 2 well site. Construction of the proposed water storage tank is not expected to cause any significant adverse effects to adjacent properties. Added storm runoff due to the construction of the new tank will be negligible when compared to the runoff from the existing parcel. Any additional runoff will follow the existing drainage patterns upon leaving the tank site. Refer to **Appendix "K"**.

5. Electrical, Telephone and Cable Services

a. Existing Conditions

A Preliminary Engineering Report was prepared by DWS for the proposed project in November 2012. Electrical services are currently provided at the two (2) existing well sites. Telephone and cable services are not required for the wells. See **Appendix "K-1"**.

b. Potential Impacts and Mitigation Measures

The electrical demand for the re-opened wells is anticipated to be the same as demand when the wells were in operation. There may be a need for new

motor control units and other wiring, but there should not be a need to increase the electrical capacity of the sites. As such, adverse impacts to electrical services are not anticipated. Refer to **Appendix "K-1"**.

E. CUMULATIVE AND SECONDARY IMPACTS

1. Context for Cumulative Impact Analysis

Pursuant to Section 11-200-2 of the Hawaii Administrative Rules, Chapter 200, entitled Environmental Impact Statement Rules, a cumulative impact means:

> *The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.*

A key element to understanding the requirements for assessing cumulative impacts, therefore, is the need to recognize what constitutes "reasonably foreseeable future actions." In the context of the proposed improvements to and reopening of the Hamakuapoko Well Nos. 1 and 2, a reasonably foreseeable future action is the potential use of the Pookela Well for full-time production for consumers in the Upcountry Water System (UCWS) service area. The Pookela Well is currently utilized as a back-up to the UCWS. However, when the Hamakuapoko Well Nos. 1 and 2 are reopened and function as the back-up water source for the UCWS, the Pookela Well will be available for full-time production.

In March 1993, the UCWS was found to have insufficient water supply to meet fire protection, domestic, and irrigation needs and new meters could not be issued without detriment to the existing services in the area. As a result, starting on November 2, 1994, the DWS has maintained a priority list of applicants waiting for water service. There are currently approximately 1,470 applicants on the priority list. When the Pookela Well is no longer needed as a back-up water source and is put into full-time production for the UCWS, it is anticipated that the DWS will have the ability to issue new water meters to households on the priority list. The issuance of new water meters will allow for new residential construction in the UCWS service area and may also serve existing residences on the priority list that are currently not serviced by the County system.

Where applicable, therefore, the analysis of cumulative impacts will consider the issuance of new water meters to households in the UCWS service area, together with the past and present actions as represented by the existing conditions in the UCWS service area.

2. Cumulative Impact Evaluation Parameters

To ensure that cumulative impacts are analyzed in a structured and systematic manner, parameters described in **Table 1** have been used to address cumulative effects. These parameters are based on cumulative analysis guidance provided under the National Environmental Policy Act.

Table 1. Criteria for Evaluating Cumulative Impacts

Assessment Criteria	Basis for Impact Evaluation
Time Crowding	Effects of frequent and repetitive actions on the environment
Time Lags	Delayed effects of a proposed action
Space Crowding	Effects of spatial density on the environment
Cross Boundary	Effects of an action occurring away from the source
Fragmentation	Effects or changes in landscape pattern
Compounding Effects	Effects arising out of multiple pathways
Indirect Effects	Secondary effects
Triggers and Thresholds	Effects defined by agency laws, policies or regulations.

3. Methodology for Addressing Cumulative Impacts

A list of cumulative impact issues and concerns were identified considering the scope of a "cumulative impact" analysis, as set forth in Section 11-200-2 of the Hawaii Administrative Rules, Chapter 200. Issues and concerns relating to cumulative impacts, as well as secondary impacts are listed below.

1. Impacts on natural resources, particularly the underlying Paia Aquifer and nearby streams

2. Impacts upon the County's Water Use and Development Plan strategies

3. Impacts of the project upon the existing UCWS service area

4. Impacts upon infrastructure systems serving the UCWS service area

5. Impacts of the proposed action on neighboring land uses

The next step in the analysis involved the identification of applicable evaluative criteria to each of the issues and concerns identified. This step resulted in the formulation of an evaluative criteria matrix, as presented in **Table 2**.

Table 2. Cumulative Impact Issues/Concerns and Applicable Assessment Criteria

Assessment Criteria	Impact Issues/Concerns
Time Crowding	a. Impacts to natural resources
Time Lags	a. Effects on County's Water Use and Development Plan b. Impacts to natural resources
Space Crowding	a. Impacts to existing UCWS service area
Cross Boundary	a. Impacts to existing UCWS service area
Fragmentation	a. Impacts to neighboring land uses
Compounding Effects	a. Impacts to infrastructure systems
Indirect Effects	a. Impacts to existing UCWS service area b. Impacts to infrastructure system
Triggers and Thresholds	a. Impacts to natural resources

4. Cumulative Impact Analysis

Based on the methodology described in the previous section, an analysis of each issue/concern was undertaken in the context of the applicable assessment criteria. The analysis is presented below.

a. Impacts on Natural Resources

This Final EA assessed the impacts of the proposed Hamakuapoko Well Nos. 1 and 2 improvements on natural resources, including the underlying aquifer system and nearby streams. From a cumulative impact perspective, the

impacts on natural resources are also analyzed in the context of time crowding, time lags, and triggers and thresholds.

Time crowding refers to the repetitive and frequent effects from an action upon a particular component of the environment. The time crowding effect associated with the reopening of the Hamakuapoko Well Nos. 1 and 2 includes potential impacts to the underlying aquifer system and nearby Maliko Gulch resulting from the repetitive pumping of groundwater at the wells. As discussed previously, impacts to the underlying aquifer and water quality tests were previously assessed when the Final Environmental Assessment was prepared to construct improvements to convert the Hamakuapoko Well Nos. 1 and 2 from exploratory wells to production wells. Tests demonstrated high hydraulic conductivity at the well sites, indicating that the wells are highly favorable for extraction of groundwater (Mink & Yuen, Inc., 1999).

Time lag effects refer to changes to the environment which may occur over a longer duration. Such effects, for example, may include changes in microclimates resulting from changes in land cover characteristics. Such changes may not be immediately identified, but may, over a period of time become apparent. The Hamakuapoko Well Nos. 1 and 2 operated from December 2000 to October 2004 when pumping ended. This four-year period of operation provided an opportunity to assess the impacts of pumping at this site over time. Generally, chloride concentration trends are used as an indicator of the influence of pumped wells on aquifer conditions. For drinking water, the EPA established a maximum contaminant level of 250 mg/l for chloride. Water analysis from 2000 to 2004 shows that chloride levels at the Hamakuapoko Well Nos. 1 and No. 2 are below the EPA maximum contaminant level, and range between 74 to 110 mg/l.

Triggers and thresholds refer to impacts which may be tied to indicators established through laws, policies, regulations, or standards. Triggers and thresholds may include standards which identify key indicators which, when exceeded, would require special study or mitigation efforts. In a traffic analysis, for example, the Level of Service "F" reflects a worst case condition in terms of traffic operations and such a level of service would require that traffic mitigation be implemented to bring conditions back within the

acceptable range of operations. With regard to the proposed project, impacts to the underlying aquifer system are analyzed in the context of triggers and thresholds. The Hamakuapoko Well Nos. 1 and 2 are located within the Paia Aquifer. According to the Water Resource Protection Plan prepared for the State Commission on Water Resource Management (CWRM) in 2008, the sustainable yield for the Paia Aquifer is 7 mgd. It is noted that this sustainable yield of 7 mgd is based on basal groundwater only and does not account for significant importation of surface water into Paia from outside the aquifer system area. This explains the ability to withdraw freshwater from the aquifer at significantly higher rates than the sustainable yield without negative impacts such as rising chloride concentrations or decreasing water levels (Wilson Okamoto Corporation, 2008).

b. <u>Impacts on the County's Water Use and Development Plan Strategies</u>

From a local planning standpoint, the future context for water use and development is established by the Water Use and Development Plan (WUDP) and the Maui County General Plan. The General Plan defines parameters for growth while the WUDP provides a means for meeting the needs of this planned growth. Maui County requires a WUDP update each time the County General Plan is amended or revised. As the County's General Plan is currently being updated, DWS is in the process of updating its WUDP. A Draft Upcountry District Final Candidate Strategies Report has been prepared to assess the major strategies to be considered for the UCWS in the Maui County WUDP. Impacts to the County WUDP are analyzed in the context of time lags.

As discussed earlier, time lag effects relate to changes to the environment which may occur over a longer duration. With regard to the WUDP, the impacts of reopening of the Hamakuapoko Well Nos. 1 and 2 may not be apparent until future source testing and development occurs in that aquifer. "The Upcountry District Final Candidate Strategies Report" identifies strategies for meeting future water needs in the Upcountry district. The final candidate strategies identified for the Upcountry District include incremental basal well development and "drought-proof" full basal well backup, along with several other strategies. The future development of basal wells will be subject to the State Water Code, Chapter 174C, Hawaii Revised Statutes, as administered by the Commission on Water Resource Management (CWRM).

As such, in terms of time lag, processes are in place to ensure that the water resources of the underlying Paia Aquifer are adequately protected.

c. Impacts of the Project upon the Existing UCWS Service Area

The proposed project will allow for the use of the Pookela Well, which currently serves as a backup water source, as a full-time production well. This will allow the DWS to issue new water meters to those properties on the priority list. The issuance of new water meters will allow for new construction in the UCWS service area. New development in the existing UCWS service area resulting from the issuance of new water meters is analyzed in the context of space crowding, cross boundary impacts, and indirect or secondary effects.

Cross boundary effects refer to effects of an action occurring away from the source. In this case, cross boundary effects could include changes in the existing UCWS service area as a result of the reopening of the Hamakuapoko Wells and subsequent use of the Pookela Well for production. Space crowding refers to the effects of added density upon the existing UCWS service area. New development in the UCWS service area is guided by State and County land use planning policies and regulations. The State Land Use Commission establishes four (4) major land use districts in which all lands in the State are placed. The "Urban", "Rural", "Agricultural", and "Conservation" districts guide the type of land uses allowed.

The Maui County General Plan, as set forth in Chapter 2.80B of the Maui County Code, provides for the update of the County General Plan. The General Plan is a long-term, comprehensive blueprint for the physical, economic, environmental development and cultural identity of the County through 2030. The components of the General Plan include the following:

- The Countywide Policy Plan provides broad policies and objectives which portrays the desired direction of the County's future. It includes a countywide vision statement of core principles, and objectives and policies for population, land use, the environment, the economy, and housing. Specific countywide policies and objectives supporting the proposed project are presented in Chapter III of this EA document.

- The Maui Island Plan (MIP) provides a land use strategy, water assessment, nearshore ecosystem assessment, an implementation strategy, and milestone measurements. Within the land use strategy, a Managed and Directed Growth Plan will identify existing and future land use patterns and determine planned growth.

- The nine (9) Community Plans provide implementing actions based on consistency with the Countywide Policy Plan and MIP's vision, goals, objectives, and policies. The Paia-Haiku Community Plan was last updated in 1995, while the Makawao-Pukalani-Kula Community Plan, which covers areas also within the UCWS, was updated in 1996.

The Directed Growth Plan, which is a key element of the MIP, provides a framework for managing outcomes of growth based on analysis of natural hazards, sensitive lands, cultural resources, scenic corridors, and related environmental and human community parameters. An important result of the Directed Growth Plan is the preparation and adoption of maps that delineate urban, small town, and rural growth areas. Referred to as Urban, Small Town, and Rural Growth Boundaries, these maps establish the boundaries for the physical limits of development. In doing so, the Directed Growth Plan seeks to manage the use of non-urban and non-rural resources important in sustaining the island to the year 2030. Following adoption of the MIP, the proposed Growth Boundaries will provide the basis for the implementation of the General Plan, as mandated by the County Charter. The Maui Island Plan envisions the development of up to 1,476 new residential units in designated growth areas in the Makawao-Pukalani-Kula region and 275 new units in growth areas in Paia and Haiku through 2030. The issuance of new water meters from the full-time production at the Pookela Well will accommodate a portion of the planned growth envisioned by the General Plan.

Growth induced in the UCWS service area by the reopening of the Hamakuapoko Well Nos. 1 and 2 and issuance of new water meters based on full-time production at the Pookela Well represents a crossboundary impact, or an effect that occurs away from the source or project site. The induced growth also represents an indirect or secondary effect. As discussed above, this new growth will be undertaken in the context of objectives and policies of the County General Plan as well as the State Land Use Commission. In this regard, the crossboundary impacts and indirect and secondary effects will

be managed through State and County planning policies and regulatory processes for future development actions associated with issuance of new water meters to Upcountry residents.

d. Impacts Upon Infrastructure Systems Serving the UCWS Service Area

As established previously, the proposed improvements to the Hamakuapoko Well Nos. 1 and 2 will allow for the issuance of new water meters from the additional source provided by the Pookela Well, which will be available for full-time production. Growth associated with the new water meters may have impacts on the infrastructure systems serving the UCWS service area. The impacts upon infrastructure systems represents an indirect effect and is also analyzed in the context of compounding effects.

Compounding effects relate to the additive and synergistic effects of impacts arising out of multiple pathways. For example, the implementation of a new highway which will ultimately serve new residential communities must be analyzed not only in terms of the highway itself, but also the reasonably foreseeable future residential units which may develop as a result of the new highway. With respect to the Hamakuapoko Well Nos. 1 and 2 improvements, the additive effects on infrastructure systems are related to the impact of new development resulting from the issuance of new water meters.

The County General Plan and the MIP's Directed Growth Strategy in particular seeks to guide future development to manage the use of important non-urban and non-rural resources. The Growth Boundaries will take into account future growth projections as well as the availability of infrastructure and services. The improvements to the Hamakuapoko Well Nos. 1 and 2 and resulting issuance of new water meters from the Pookela Well will serve to accommodate future development envisioned by the General Plan. Impacts to other infrastructure systems serving the UCWS service area will be managed through the MIP's Directed Growth Strategy.

e. Impacts of the Proposed Action on Neighboring Land Uses

Impacts of the proposed project on neighboring land uses is analyzed in the context of fragmentation. Fragmentation refers to changes to landscape patterns as a result of a proposed action. For example, fragmentation may

result from the construction of a new highway through a habitat area, where the functional continuity of the habitat may be disrupted. In the case of the proposed improvements to the Hamakuapoko Well Nos. 1 and 2, the well sites are existing infrastructure improvements surrounded by agricultural fields. The project is primarily limited to the repair and replacement of existing infrastructure at the well sites. However, a new water storage tank will also be developed on approximately 0.14 acre of land across an existing access road of the Well No. 2 site. This area will be adjacent to the existing Well No. 2 site and represents a minimal amount of land. Because the proposed tank will be adjacent to existing infrastructure, it will not result in the segmentation of agricultural fields cultivated by HC&S.

In conclusion, the proposed improvements to and reopening of the Hamakuapoko Well Nos. 1 and 2 are not anticipated to result in significant adverse cumulative or secondary impacts. The project is not a direct population generator and any future growth within the Upcountry area will be controlled by the Maui County General Plan and the Maui County Council and will not be due directly to allowing for the use of the Hamakuapoko wells for agricultural use, use during declared drought events, and as back-up to the UCWS.

III. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES AND CONTROLS

III. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES AND CONTROLS

A. STATE LAND USE DISTRICTS

Chapter 205, Hawaii Revised Statutes, relating to the Land Use Commission (LUC), establishes the four (4) major land use districts in which lands in the State are placed. These districts are "Urban", "Rural", "Agricultural", and "Conservation".

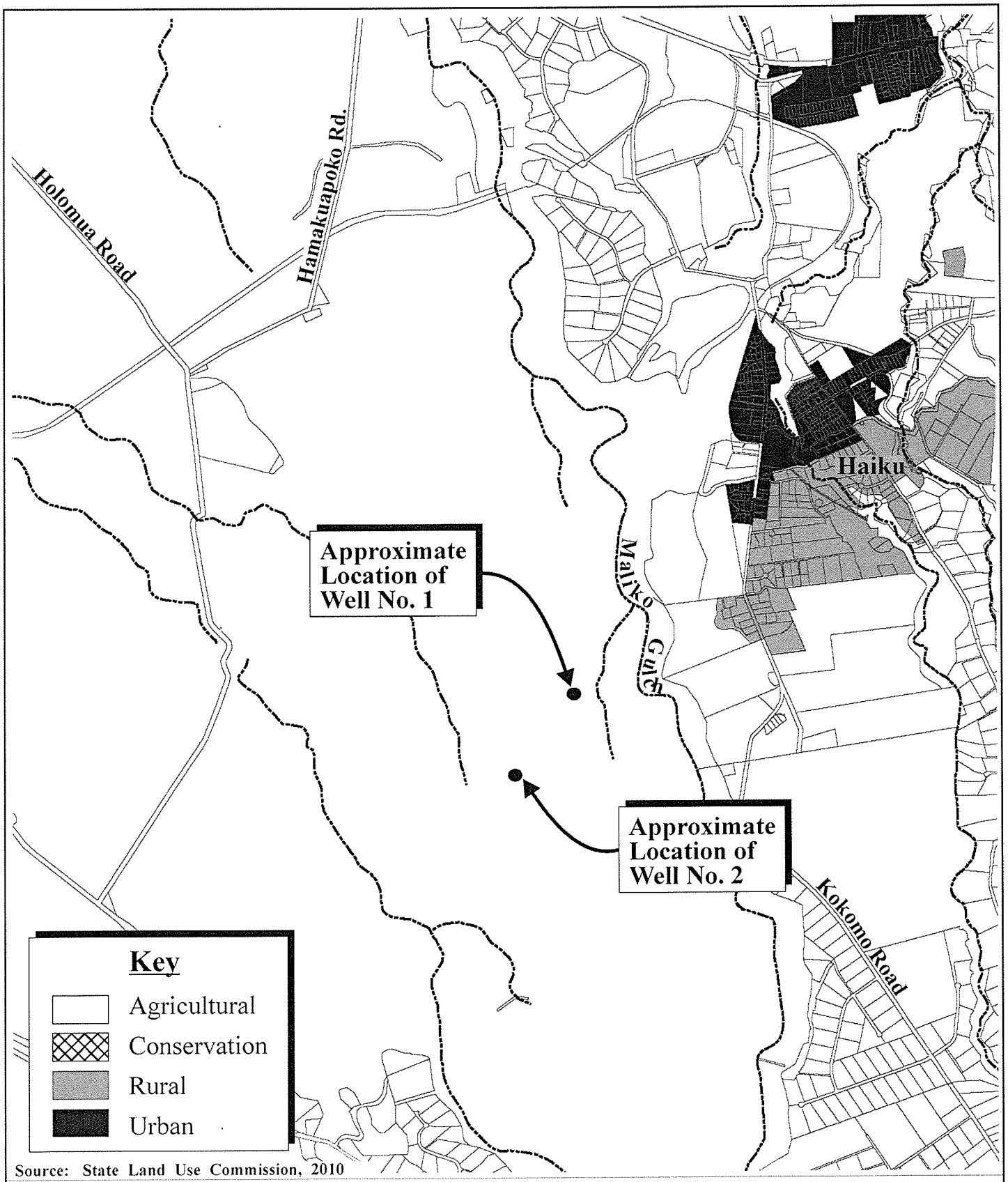
The project sites are located within the State "Agricultural" district. See **Figure 11**. It is noted that each county may define accessory agricultural uses and services permitted in State Land Use "Agricultural" districts through their zoning ordinances (Chapter 205-5-(b), Hawaii Revised Statues). The County of Maui Zoning Ordinance identifies "minor utility facilities", which are defined to include water wells, tanks and distribution equipment, as a principal permitted use in the agricultural district (Maui County Code, Section 19.30.A.050, *Permitted Uses*). Thus the proposed improvements to the Hamakuapoko Well Nos. 1 and 2 are permitted within the State "Agricultural" district.

B. CHAPTER 226, HRS, HAWAII STATE PLAN

Chapter 226, HRS, also known as the Hawaii State Plan, is a long-range comprehensive plan which serves as a guide for the future long-range development of the State by identifying goals, objectives, policies, and priorities, as well as implementation mechanisms. The proposed project is consistent with the following goals of the Hawaii State Plan:

- *A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawaii's present and future generations.*

- *A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.*



Source: State Land Use Commission, 2010

Figure 11 Proposed Improvements at Hamakuapoko Well Nos. 1 and 2

State Land Use District Map

0 500 1,000 2,000 Feet

MUNEKIYO & HIRAGA, INC.

Prepared for: County of Maui, Department of Water Supply

COM/DWS HamakuapokoWells/SLUD

- *Physical, social, and economic well-being, for individuals and families in Hawaii, that nourishes a sense of community responsibility, of caring, and of participation in community life.*

1. Objectives and Policies of the Hawaii State Plan

The proposed project is consistent with the following objectives and policies of the Hawaii State Plan:

Chapter 226-14, HRS, Objective and policies for facility systems--in general.

226-14 (b)(1), HRS: *Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.*

226-14 (b)(2), HRS: *Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.*

226-14 (b)(3), HRS: *Ensure that required facility systems can be supported within resource capacities and at a reasonable cost to the user.*

Chapter 226-16, HRS, Objective and policies for facility systems--water.

226-16 (b)(4), HRS: *Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.*

226-16 (b)(5), HRS: *Support water supply services to areas experiencing critical water problems.*

2. Priority Guidelines of the Hawaii State Plan

The proposed action coincides with the following priority guidelines of the Hawaii State Plan.

Chapter 226-104, HRS, Population Growth and Land Resources Priority Guidelines.

226-104(a)(1), HRS: *Encourage planning and resource management to insure that population growth rates throughout the State are consistent with*

available and planned resource capacities and reflect the needs and desires of Hawaii's people.

C. GENERAL PLAN OF THE COUNTY OF MAUI

As indicated by the Maui County Charter, the purpose of the general plan shall be to:

> *... indicate desired population and physical development patterns for each island and region within the county; shall address the unique problems and needs of each island and region; shall explain opportunities and the social, economic, and environmental consequences related to potential developments; and shall set forth the desired sequence, patterns and characteristics of future developments. The general plan shall identify objectives to be achieved, and priorities, policies, and implementing actions to be pursued with respect to population density; land use maps, land use regulations, transportation systems, public and community facility locations, water and sewage systems, visitor destinations, urban design, and other matters related to development.*

Chapter 2.80B of the Maui County Code, relating to the General Plan and Community Plans, implements the foregoing Charter provision through enabling legislation which calls for a Countywide Policy Plan and a Maui Island Plan. The Countywide Policy Plan was adopted as Ordinance No. 3732 on March 24, 2010. The Maui Island Plan, which delineates areas for future urban and rural growth as part of a Directed Growth Strategy, was adopted as Ordinance No. 4004 by the Maui County Council on December 28, 2012.

1. Countywide Policy Plan

With regard to the Countywide Policy Plan, Section 2.80B.030 of the Maui County Code states the following.

> *The countywide policy plan shall provide broad policies and objectives which portray the desired direction of the County's future. The countywide policy plan shall include:*
>
> *1. A vision for the County;*
>
> *2. A statement of core themes or principles for the County; and*
>
> *3. A list of countywide objectives and policies for population, land use,*

the environment, the economy, and housing.

Core principles set forth in the Countywide Policy Plan are listed as follows:

1. *Excellence in the stewardship of the natural environment and cultural resources;*

2. *Compassion for and understanding of others;*

3. *Respect for diversity;*

4. *Engagement and empowerment of Maui County residents;*

5. *Honor for all cultural traditions and histories;*

6. *Consideration of the contributions of past generations as well as the needs of future generations;*

7. *Commitment to self-sufficiency;*

8. *Wisdom and balance in decision making;*

9. *Thoughtful, island appropriate innovation; and*

10. *Nurturance of the health and well-being of our families and our communities.*

Congruent with these core principles, the Countywide Policy Plan identifies goals objectives, policies and implementing actions for pertinent functional planning categories, which are identified as follows:

1. *Natural environment*

2. *Local cultures and traditions*

3. *Education*

4. *Social and healthcare services*

5. *Housing opportunities for residents*

6. *Local economy*

7. *Parks and public facilities*

8. *Transportation options*

9. *Physical infrastructure*

10. *Sustainable land use and growth management*

11. *Good governance*

With respect to the proposed Hamakuapoko Well Nos. 1 and 2 improvements, the following goals, objectives, policies and implementing actions are illustrative of the project's compliance with the Countywide Policy Plan.

PROTECT THE NATURAL ENVIRONMENT

Goal:

Maui County's natural environment and distinctive open spaces will be preserved, managed, and cared for in perpetuity.

Objective:

- *Improve the stewardship of the natural environment.*

Policies:

- *Evaluate development to assess potential short-term and long-term impacts on land, air, aquatic, and marine environments.*

IMPROVE PHYSICAL INFRASTRUCTURES

Goal:

Maui County's physical infrastructure will be maintained in optimum condition and will provide for and effectively serve the needs of the County through clean and sustainable technologies.

Objective:

- *Improve water systems to assure access to sustainable, clean, reliable, and affordable sources of water.*

Policies:

- *Develop and fund improved water-delivery systems.*
- *Ensure a reliable and affordable supply of water for productive agricultural uses.*
- *Improve the management of water systems so that surface-water and groundwater resources are not degraded by overuse or pollution.*
- *Seek reliable long-term sources of water to serve developments that achieve consistency with the appropriate Community Plans.*

Objective:

- *Direct growth in a way that makes efficient use of existing infrastructure and to areas where there is available infrastructure capacity.*

Policy:

- *Capitalize on existing infrastructure capacity as a priority over infrastructure expansion.*

Objective:

- *Improve the planning and management of infrastructure systems.*

Policies:

- *Provide a reliable and sufficient level of funding to enhance and maintain infrastructure systems.*
- *Improve coordination among infrastructure providers and planning agencies to minimize construction impacts.*
- *Ensure that infrastructure is built concurrent with or prior to development.*

2. Maui Island Plan

The Maui Island Plan (MIP) is applicable to the island of Maui only, providing more specific policy-based strategies for population, land use, transportation, public and community facilities, water and sewage systems, visitor destinations, urban design,

and other matters related to future growth.

As provided by Chapter 2.80B, the MIP shall include the following components:

1. *An island-wide land use strategy, including a managed and directed growth plan*

2. *A water element assessing supply, demand and quality parameters*

3. *A nearshore ecosystem element assessing nearshore waters and requirements for preservation and restoration*

4. *An implementation program which addresses the County's 20-year capital improvement requirements, financial program for implementation, and action implementation schedule*

5. *Milestone indicators designed to measure implementation progress of the MIP*

It is noted that the Ordinance No. 4004 does not address the component relating to the implementation program. Chapter 2.80B of the Maui County Code, relating to the General Plan, was amended by Ordinance No. 3979, effective October 5, 2012, to provide that the implementation program component be adopted no later than one (1) year following the effective date of Ordinance No. 4004. As such, the implementation program component of the MIP will require adoption prior to December 28, 2013.

The MIP addresses a number of planning categories with detailed policy analysis and recommendations which are framed in terms of goals, objectives, policies and implementing actions. These planning categories address the following areas:

1. *Population*

2. *Heritage Resources*

3. *Natural Hazards*

4. *Economic Development*

5. *Housing*

6. *Infrastructure and Public Facilities*

7. *Land Use*

Additionally, an essential element of the MIP is its directed growth plan which provides a management framework for future growth in a manner that is fiscally, environmentally, and culturally prudent. Among the directed growth management tools developed through the MIP process are maps delineating urban growth boundaries (UGB), small town boundaries (STB) and rural growth boundaries (RGB). The respective boundaries identify areas appropriate for future growth and their corresponding intent with respect to development character.

The Hamakuapoko Well Nos. 1 and 2 are not located within the UGB, SRB, or RGB. However, the proposed project is limited to water infrastructure and does not represent development or growth guided by the directed growth strategy.

In addition, the proposed Hamakuapoko Well Nos. 1 and 2 improvements have been reviewed with respect to pertinent goals, objectives, policies and implementing actions of the MIP. A summary of these policy statements are provided below:

INFRASTRUCTURE AND PUBLIC FACILITIES - WATER

Goal:

6.3 *Maui will have an environmentally sustainable, reliable, safe, and efficient water system.*

Objective:

6.3.1 *More comprehensive approach to water resources planning to effectively protect, recharge, and manage water resources including watersheds, groundwater, streams, and aquifers.*

Policies:

6.3.1.a *Ensure that DWS actions reflect its public trust responsibilities toward water.*

6.3.1.e *Where desirable, retain and expand public ownership and management of watersheds and fresh-water systems.*

Objective:

6.3.2 *Increase the efficiency and capacity of the water systems in striving to meet the needs and balance the island's water needs.*

Policies:

6.3.2.a *Ensure the efficiency of all water system elements including well and stream intakes, water catchment, transmission lines, reservoirs, and all other system infrastructure.*

In summary, the proposed project is consistent with the themes and principles of both the Countywide Policy Plan and the Maui Island Plan.

D. PAIA-HAIKU COMMUNITY PLAN

Within Maui County, there are nine (9) community plan regions. From a General Plan implementation standpoint, each region is governed by a Community Plan which sets forth desired land use patterns, as well as goals, objectives, policies, and implementing actions for a number of functional areas.

The project site is located within the Paia-Haiku region and occupies lands designated as"AG, Agriculture" in the Community Plan. See **Figure 12**.

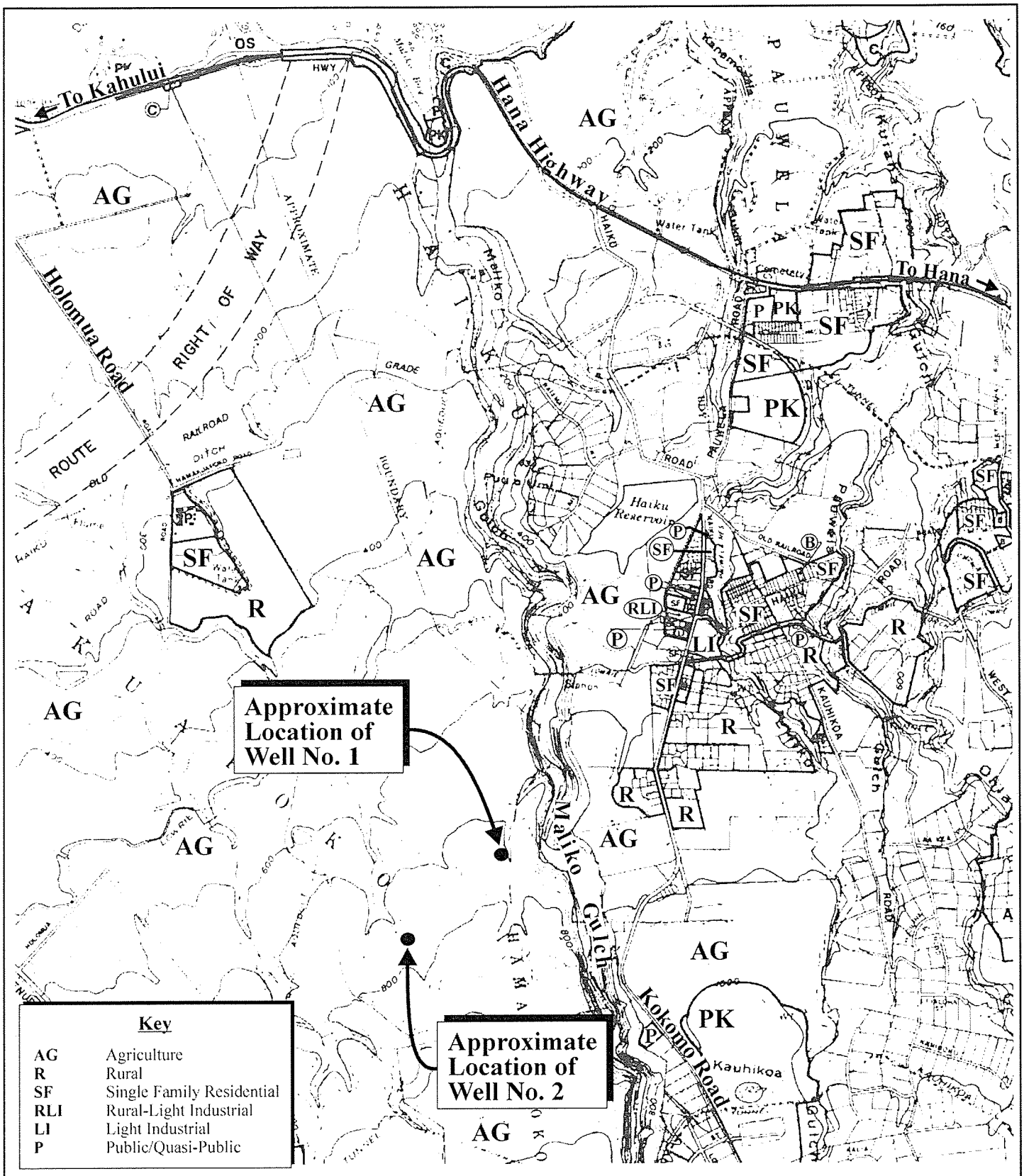
The proposed project is consistent with the following goals, policies, and objectives of the Community Plan:

PHYSICAL INFRASTRUCTURE

WATER

Goal

An adequate supply of potable and irrigation water to meet the needs of the region.



Source: County of Maui, Paia-Haiku Community Plan

Figure 12 Proposed Improvements at Hamakuapoko Well Nos. 1 and 2

Paia-Haiku Community Plan Map

NOT TO SCALE

MUNEKIYO & HIRAGA, INC.

Prepared for: County of Maui, Department of Water Supply

COM/DWS HamakuapokoWells/CommunityPlan

Objectives and Policies

- *Increase water storage capacity with a reserve for drought periods.*

- *Ensure that adequate water capacity is available for domestic and agricultural needs of the region.*

- *Improve the existing potable water distribution system and develop new potable water sources prior to further expansion of the State Urban District boundary or major subdivision of land in the State Agricultural or Rural Districts.*

GOVERNMENT

Goal

Government that demonstrates the highest standards of fairness and is responsive to the needs of the community, fiscally responsible and prudent, effective in planning and implementing programs to accommodate anticipated growth, fair and equitable in taxation, strict in the implementation of the Community Plan, and managed efficiently to provide coordinated and timely responses and the delivery of necessary services and programs to the public.

Objectives and Policies

- *Coordinate, direct and manage future development, and provide for necessary public services and infrastructure in a more effective and timely fashion.*

- *Require that actions taken by public officials, boards or commissions of the County of Maui be in compliance with the goals, objectives and policies of the Community Plan.*

E. ZONING

The subject property is designated as "Agricultural" by Maui County Zoning. Minor utility facilities are permitted within the "Agricultural" district. Section 19.04.040 of the Maui County Code defines minor utility facilities as "transmission lines used directly in the distribution of utility services that have minor impact on adjacent land uses which include, but which are not limited to, twenty-three kilovolt transmission substations, vaults, water wells, tanks and distribution equipment, sewage pump stations, and other similar type uses". The existing Hamakuapoko Wells Nos. 1 and 2 and proposed improvements are permitted

by Maui County Zoning.

F. MAUI COUNTY WATER USE AND DEVELOPMENT PLAN

Hawaii State Law requires each County to prepare, periodically update, and adopt a Water Use and Development Plan (WUDP) to serve as the long-range planning blueprint for all water uses in each County. Maui County requires a WUDP update each time the County General Plan is amended or revised. As the County's General Plan is currently in the process of being adopted, DWS is in the process of updating its WUDP. DWS is in the process of analyzing the major strategies to be considered for the District in the Maui County WUDP. DWS is coordinating with the CWRM to present the analysis of major strategies for public review.

According to the analysis, water consumption for the UCWS is expected to grow from 7.2 mgd in 2005 to 8.8 mgd in 2030. Water production requirements are established at approximately 10 percent higher than consumption requirements to account for unmetered uses such as fire protection and line flushing as well as system losses. The analysis presented five (5) final candidate strategies for addressing the projected water production requirements. These strategies included:

1. Incremental Basal Well Development
2. Expansion of Raw Water Storage Capacity
3. "Drought-Proof" Full Basal Well Backup
4. Improved Kamole Water Treatment Plant Capacity
5. Limited Growth with Extensive Conservation Measures

The "Drought-proof" full basal well backup strategy calls for new basal groundwater wells to provide sufficient water to meet projected UCWS water demand assuming limited or no availability of water from surface water sources. While the proposed improvements to and reopening of the Hamakuapoko Well Nos. 1 and 2 do not represent new basal well development or development of new backup wells, the reopening of the wells will provide for water for agricultural use, use during declared drought events, and as backup to the UCWS at a lower cost than any other strategy.

Analysis of the five (5) candidate strategies was conducted to develop a Recommended

Upcountry District Plan. The Plan identified the pressing need for additional water production capacity. The proposed improvements to and reopening of the Hamakuapoko Wells will provide additional production capacity by making the Pookela Well, which is currently used as backup, available for production.

G. COASTAL ZONE MANAGEMENT OBJECTIVES AND POLICIES

The Hawaii Coastal Zone Management Program (HCZMP), as formalized in Chapter 205A, HRS, establishes objectives and policies for the preservation, protection, and restoration of natural resources of Hawaii's coastal zone. The project site lies over two (2) miles away from the coast, outside of the County of Maui's Special Management Area (SMA).

Although a SMA Use permit is not required for the project, this section addresses the project's relationship to applicable coastal zone management considerations, set forth in Chapter 205A, Hawaii Revised Statutes.

1. Recreational Resources

Objective:

Provide coastal recreational opportunities accessible to the public.

Policies:

(a) Improve coordination and funding of coastal recreational planning and management; and

(b) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

i. Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

ii. Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;

iii. Providing and managing adequate public access, consistent with conservation of natural resources, to and a long shorelines with

recreational value;

iv. *Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;*

v. *Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;*

vi. *Adopting water quality standards and regulating point and non-point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;*

vii. *Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and*

viii. *Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of Section 46-6.*

Response: The proposed project which is over two (2) miles away from the coastal area is not anticipated to result in adverse impacts to existing coastal or inland recreational resources. The project is not anticipated to limit or compromise any existing shoreline recreational activity.

2. Historic Resources

Objective:

Protect, preserve and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Policies:

(a) *Identify and analyze significant archeological resources;*

(b) *Maximize information retention through preservation of remains and artifacts or salvage operations; and*

(c) *Support state goals for protection, restoration, interpretation, and display of historic resources.*

Response: The proposed project is not anticipated to have an adverse effect on historic or cultural resources. An archaeological field inspection conducted for the proposed project found no historic properties or surface cultural remains and concluded that the project would not have an adverse impact on any significant historic properties.

Should any cultural or historical materials be uncovered during construction-related activities, work shall be halted in the area of the find and SHPD shall be notified for determination of appropriate mitigation measures.

The Cultural Impact Assessment concludes that the exercise of native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities will not be significantly affected by the proposed project, and that the project area has not been used in recent times for traditional cultural purposes.

3. Scenic and Open Space Resources

Objective:

Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies:

(a) *Identify valued scenic resources in the coastal zone management area;*

(b) *Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;*

(c) *Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and*

(d) *Encourage those developments that are not coastal dependent to locate in inland areas.*

Response: The proposed project primarily involves the repair and replacement of existing infrastructure at the Hamakuapoko Well Nos. 1 and 2 sites. A new 150,000

gallon water tank measuring approximately 35 feet in diamter and 20 feet in height is proposed on 0.14 acre of land at Well No. 2. Like the other existing infrastructure at the well sites, the proposed water tank will not be visible from Holomua Road or Hamakuapoko Road and is not in a scenic vista. As such, adverse impacts to scenic and open space resources are not anticipated as a result of the proposed project.

4. Coastal Ecosystems

Objective:

Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:

(a) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;

(b) Improve the technical basis for natural resource management;

(c) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;

(d) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and

(e) Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

Response: The proposed project is not anticipated to result in significant, adverse impacts to coastal ecosystems. The Hamakuapoko Wells Nos. 1 and 2 are located over two (2) miles away from the coast. Nevertheless, Best Management Practices (BMPs) will be implemented during the construction of the proposed improvements to mitigate potential impacts to the coastal environment.

5. Economic Uses

Objective:

Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policies:

(a) Concentrate coastal dependent development in appropriate areas;

(b) Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and

(c) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:

i. Use of presently designated locations is not feasible;

ii. Adverse environmental effects are minimized; and

iii. The development is important to the State's economy.

Response: The proposed project is not a coastal dependent development. There will be no coastal development in the implementation of this project. The project will provide short-term economic benefits during the construction-phase. From a long-term perspective, the proposed improvements will provide enhanced system reliability in the Upcountry Water System to better serve residents and businesses in the region.

6. Coastal Hazards

Objective:

Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence and pollution.

Policies:

(a) *Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;*

(b) *Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint pollution hazards;*

(c) *Ensure that developments comply with requirements of the Federal Flood Insurance Program; and*

(d) *Prevent coastal flooding from inland projects.*

Response: The subject property is not located in a tsunami zone. It is located in Flood Zone X, an area of minimal flooding action and without developmental restrictions. As such, adverse impacts related to flood and tsunami hazards are not anticipated as a result of the proposed project.

7. Managing Development

Objective:

Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policies:

(a) *Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;*

(b) *Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements; and*

(c) *Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life-cycle and in terms understandable to the public to facilitate public participation in the planning and review process.*

Response: A Final EA was prepared in 1999 for conversion of the Hamakuapoko Wells from exploratory wells into production wells. Public input opportunities were provided during preparation of the 1999 Final EA and issuance of the Finding of No Significant Impact (FONSI) Determination. Further, opportunities for public involvement were provided as part of the Chapter 343 EA review process for the

current proposed well improvements.

8. Public Participation

Objective:

Stimulate public awareness, education, and participation in coastal management.

Policies:

(a) Promote public involvement in coastal zone management processes;

(b) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and

(c) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Response: As mentioned above, public awareness and participation opportunities were provided during preparation of the 1999 Final EA and further facilitated through the Chapter 343, HRS process for the subject improvements.

9. Beach Protection

Objective:

Protect beaches for public use and recreation.

Policies:

(a) Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;

(b) Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and

(c) Minimize the construction of public erosion-protection structures seaward of the shoreline.

Response: The proposed project is located over two (2) miles beyond the vicinity of the shoreline area and will not impact natural beach processes.

10. Marine Resources

Objective:

Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

Policies:

(a) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;

(b) Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;

(c) Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;

(d) Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and

(e) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Response: The project is not located in the vicinity of the shoreline. The use of appropriate BMPs will be implemented during the construction of the proposed improvements to mitigate any potential impacts to marine resources.

In addition to the foregoing objectives and policies, Hawaii Revised Statutes (HRS) Section 205A-30.5 Prohibitions, provides specifications for the limitation of lighting in coastal shoreline areas in relation to the granting of SMA permits:

No special management area use permit or special management area minor permit shall be granted for structures that allow artificial light from floodlights, uplights, or spotlights used for decorative or aesthetic purposes when the light:

(1) Directly illuminates the shoreline and ocean waters; or

(2) Is directed to travel across property boundaries toward the shoreline and ocean waters.

(b) Subsection (a) shall not apply to special management area use permits for structures with:

(3) Artificial lighting provided by a government agency or its authorized users for government operations, security, public safety, or navigational needs; provided that a government agency or its authorized users shall make reasonable efforts to properly position or shield lights to minimize adverse impacts.

Response: The proposed project is located over two (2) miles from the shoreline. No impacts on the shoreline or ocean waters will occur with implementation of the project and its related improvements. The project will comply with applicable requirements of the County's Outdoor Lighting Ordinance.

IV. SUMMARY OF UNAVOIDABLE IMPACTS ON THE ENVIRONMENT AND RESOURCES

IV. SUMMARY OF UNAVOIDABLE IMPACTS ON THE ENVIRONMENT AND RESOURCES

Project construction may result in certain unavoidable construction-related impacts, including noise-generated impacts and air quality impacts associated with the operation of construction equipment. Air quality may also be temporarily impacted by dust generated from site work. The construction-related impacts will be temporary and mitigated through implementation of appropriate Best Management Practices (BMPs).

The development of the proposed project will involve the commitment of approximately 0.14 acre of land currently utilized for sugarcane cultivation for construction of a new water tank. In addition, the proposed action would involve a commitment of fuel, labor, funding, and material resources. However, the commitment of resources necessary to implement the proposed project is considered justified, given the benefits associated with reopening the Hamakuapoko Wells.

In the long term, the reopening of the Hamakuapoko Well Nos. 1 and 2 is not anticipated to create any significant, long-term adverse environmental effects.

V. ALTERNATIVES TO THE PROPOSED ACTION

V. ALTERNATIVES TO THE PROPOSED ACTION

A. PREFERRED ALTERNATIVE

The proposed project involves the construction of the improvements to the existing Hamakuapoko Well Nos. 1 and 2 to allow for the wells to be reopened for agricultural use, use during declared drought events and as backup to the existing Upcountry Water System (UCWS). For these reasons, the proposed project has been selected as the preferred alternative, as it fulfills the intent of Ordinance No. 3859 (2011) passed by the Maui County Council in October 2011 and meets both the current and future needs of the UCWS region and its residents.

B. NO ACTION ALTERNATIVE

The "no action" alternative would result in the abandonment of the existing Hamakuapoko Well Nos. 1 and 2 and the loss of a readily available source of groundwater for agricultural use, use during declared drought events, and as backup for the UCWS. The Hamakuapoko Wells have already been tested and proven to be a desirable location for groundwater pumping based on drawdown tests conducted for the Paia Aquifer. The "no action" alternative would result in the under utilization of previously expended County funds that have already been invested in developing the infrastructure at the Hamakuapoko Wells. In addition, this alternative would not provide for groundwater for agricultural use, use during declared droughts and back up to the UCWS. As such, the "no action" alternative is not deemed appropriate given the recent adoption of Ordinance No. 3859 by the Maui County Council.

C. DEFERRED ACTION ALTERNATIVE

A "deferred action" alternative would have similar consequences to the "no action" alternative in terms of loss of County funds and infrastructure as well as underutilization of an available groundwater source. This alternative could also result in increased development costs due to higher costs resulting from deferred maintenance at the wells.

D. ALTERNATIVE TANK SITE LOCATION

The DWS considered several tank site alternatives for the new 150,000 gallon water storage tank at the Well No. 2 site and has consulted with Hawaiian Commercial & Sugar Company (HC&S) to identify an appropriate location for the tank. The preferred alternative involves the construction of a new water tank on 0.14 acre of land across an access road at the Well No. 2 site. Two (2) alternative tank locations were considered. Option A would have located the tank site east of the well site. However, existing utility lines and poles are located in this area and placing the new tank in this location would require the relocation of the utility poles. Option A would also have required the relocation of an existing cane access road. As such, this alternative location was not pursued. Option B, west of the well site, was also considered but was deemed inappropriate due to interference with an existing access road on the south side of the project site. The site presented in the preferred alternative (see **Figure 13**) was selected as it minimizes impacts on existing agricultural activities occurring around the site and also presents desirable topographic conditions that will require minimal grading to prepare the site for construction of the tank.

E. WATER AVAILABILITY ALTERNATIVES

The following two (2) alternatives have been evaluated by the DWS in an effort to increase water source availability for the UCWS.

1. Demand Side Management Alternative

The demand side management (DSM) alternative uses water conservation or efficiency-based measures that improve existing infrastructure to reduce or eliminate leaky pipes, reduce waste, or reduce use. The Division of Water Resources and Planning section of DWS has a number of programs to address DSM. They are listed below with a brief description:

- Leak Detection- The DWS has a proactive Leak Detection program surveying the infrastructure to locate pipe breaks, leaking pipes, leaking connections, etc.
- Annual Water System Audit- DWS conducts water audits on their own system to identify and correct areas showing high water loss.

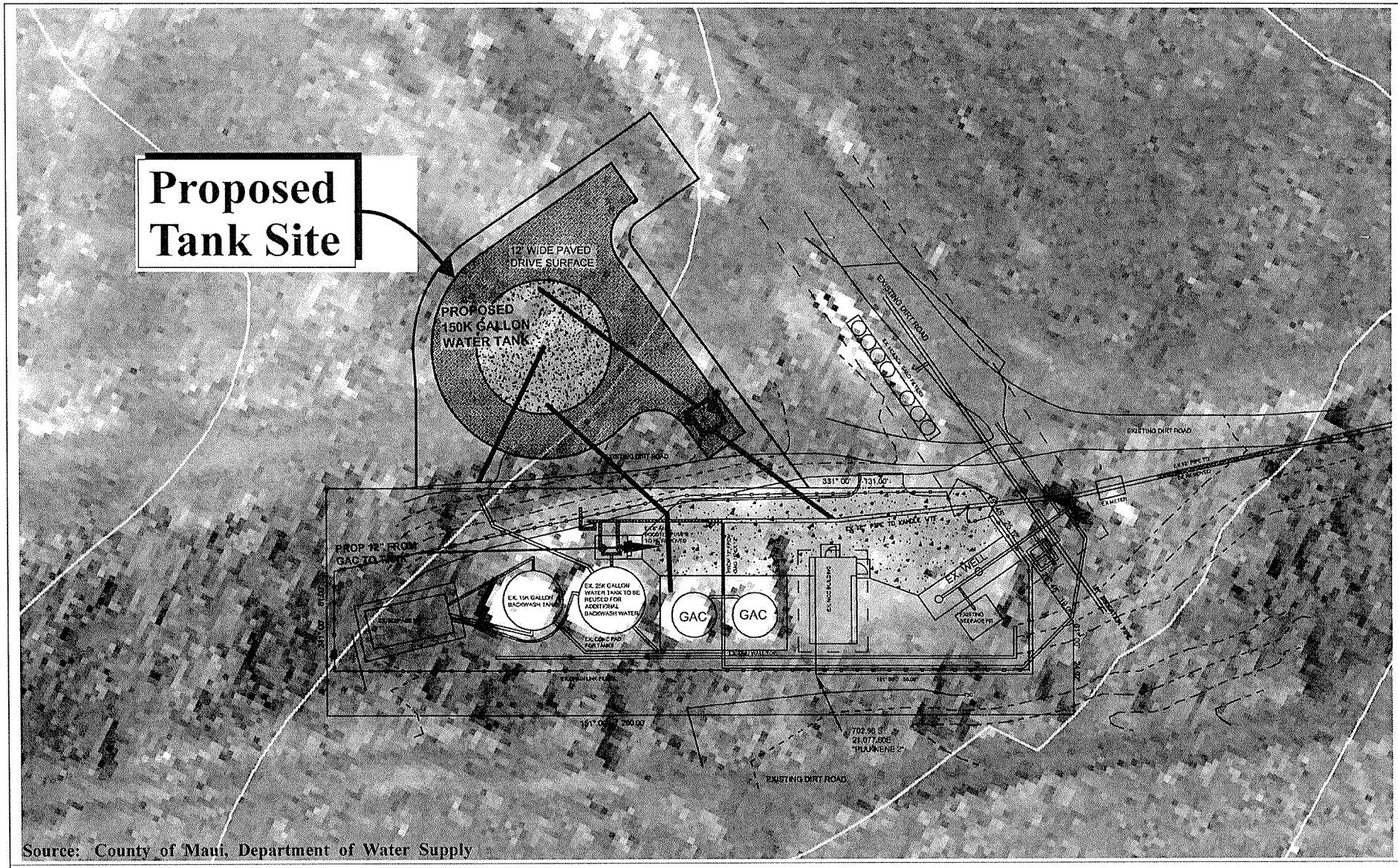


Figure 13

Proposed Improvements at Hamakuapoko Well Nos. 1 and 2

Tank Site Location at Well No. 2

NOT TO SCALE

MUNEKIYO & HIRAGA, INC.

Prepared for: County of Maui, Department of Water Supply

COM/DWS HamakuapokoWells/TankSiteWell2

- Residential Water Audit- DWS will provide assistance to residents with high water bills to evaluate the source of the high water use and assist in reducing the high water use areas, i.e., best management practice for irrigation use, repairing leaking customer laterals, etc.

- Fixture Retrofit- DWS has worked with high use customers to retrofit toilets and faucets to reduce water use.

- Public Education- DWS staff educates customers and keiki by visiting schools to teach students about the value of water, participates in community events, encourages water conservation by running ads in the paper and on radio, conducts a student water conservation poster contest, now in its third year.

The Division of Water Resources and Planning also helps to fund watershed protection projects for watersheds in Maui County. Projects involve restoring degraded watersheds through proper planting, eradicating invasive species, and fencing to better manage feral ungulate populations.

However, because the UCWS has been on mandatory water restrictions for years, large decreases in upcountry water use due to DSM efforts are not anticipated in the near term. The programs listed above help in many ways, but will not reduce water usage enough to be a competitive alternative to the improvements of the Hamakuapoko Wells and the utilization of Pookela Well in order to be considered a source with reliable back up for the UCWS. As such, DSM is not considered to be a viable alternative to the proposed improvements at the Hamakuapoko wells.

2. New Source Development Alternatives

The second alternative evaluated by DWS was the investigation of other potential sources for the UCWS including new surface water sources or groundwater sources.

a. New Surface Water Source Development

Surface water sources rely on rain water and the UCWS has in place surface water treatment facilities at Piiholo and Olinda along with raw water storage to maximize the water collected from surface water sources. Any alternative to increase surface water source would only increase reliability with the expansion of storage for raw water. The time and cost associated with development of new surface water sources is significantly greater than the

cost of improving an existing source facility such as the Hamakuapoko Wells due to factors such as land acquisition and planning and entitlement processing requirements. The development of a new surface water source is, therefore, not considered to be a viable alternative to the proposed action.

b. <u>New Ground Water Source Development Alternative</u>

DWS has also evaluated the option of pursuing new groundwater sources as an alternative to the proposed improvements at the Hamakuapoko Wells. Development of an alternate groundwater source would be similar to the surface water alternative in that it would require significant costs for planning, design, and land acquisition in comparison to the subject project. Further, there is the added risk that when developing groundwater sources the well may not yield the pumpage required for the source to be a viable operation. Regardless of the well location and elevation, operation costs would be essentially equal, based on the total height required to pump the water from sea level. Groundwater sits on top of seawater, at or near zero sea level, and the height required to pump the water to the UCWS is the same regardless of where the well is located. For any new groundwater source, a new tank for storage would be required, just as a tank will be needed for the Hamakuapoko wells improvements. Given that the Hamakuapoko wells have already been drilled and constructed, pursuit of a new alternative groundwater source development venture is not considered to be a cost effective option for the DWS at this time. DWS is prioritizing, where possible, projects that can improve existing infrastructure in order to ensure that existing sources can be utilized on a cost-effective basis. The development of a new ground water source is, therefore, not considered to be a viable alternative to the proposed action.

VI. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

VI. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The proposed improvements to the Hamakuapoko Well Nos. 1 and 2 are anticipated to result in the irreversible and irretrievable commitment of land and fiscal resources. Other resource commitments include energy, labor, and material resources. Impacts relating to the use of these resources should be minimal as pumpage of 1.5 mgd is not anticipated to present significant adverse impacts on the aquifer or degradation in water quality of the groundwater source, especially when weighed against the expected positive socio-economic benefits to be derived from the project, versus the consequences of taking no action.

In addition, the proposed project is not anticipated to require a substantial commitment of government services or facilities, nor is it anticipated to place additional demands on other services such as police, medical, and social care.

VII. SIGNIFICANCE CRITERIA ASSESSMENT

VII. SIGNIFICANCE CRITERIA ASSESSMENT

The significance criteria of Section 12, of the Administrative Rules of Title 11, Chapter 200, "Environmental Impact Statement Rules", were reviewed and analyzed to determine whether the proposed project will have a significant adverse impact to the environment. The following analysis is provided:

1. **No Irrevocable Commitment to Loss or Destruction of any Natural or Cultural Resources Would Occur as a Result of the Project**

   An archaeological field inspection conducted for the proposed project found no historic properties or surface cultural remains and concluded that the project would not have an adverse impact on any significant historic properties. Refer to **Appendix "H"**. Should any cultural or historical materials be uncovered during construction-related activities, work shall be halted in the area of the find and SHPD shall be notified for determination of appropriate mitigation measures. The Cultural Impact Assessment for the project concluded that there are no impacts on cultural resources anticipated with the proposed action. Refer to **Appendix "I"**.

   Impacts to the underlying aquifer and water quality tests were assessed when the wells were drilled as exploratory wells and when the wells were converted to production wells in 1999. The results of the tests at each well indicate that the basal aquifer is highly permeable and can accommodate substantial pumping rates without degrading the quality of water being pumped (Mink & Yuen, Inc., 1999).

   As previously mentioned, the sustainable yield for the Paia Aquifer is 7 mgd. However, this sustainable yield is based on basal groundwater only and does not account for the significant importation of surface water into Paia from outside the aquifer system area through return irrigation recharge. This explains the ability to withdraw freshwater from the aquifer at significantly higher rates than the sustainable yield without negative impacts, such as rising chloride concentrations or decreasing water levels (Wilson Okamoto Corporation, 2008). Generally, chloride concentration trends are used as an indicator of the influence of pumped wells on aquifer conditions. For drinking water, the EPA established a maximum contaminant level

of 250 mg/l for chloride. Water analysis from 2000 to 2004 shows that chloride levels at the Hamakuapoko Well Nos. 1 and No. 2 are below the EPA maximum contaminant level and range between 74 to 110 mg/l.

The Biological Resources Study conducted by Robert Hobdy concludes that the proposed Hamakuapoko Well Nos. 1 and 2 improvements and new water tanks are not expected to have a significant adverse impact in this region. No Federally listed endangered or threatened flora and fauna species, any candidates for such listed status, or special plant habitats were found in the project area. Refer to **Appendix "G"**.

2. The Proposed Action Would Not Curtail the Range of Beneficial Uses of the Environment

The proposed action is not anticipated to result in significant adverse environmental impacts. There will be no consequent curtailment of uses of the environment resulting from the proposed action.

3. The Proposed Action Does Not Conflict with the State's Long-Term Environmental Policies or Goals or Guidelines as Expressed in Chapter 344, Hawaii Revised Statutes

The State's Environmental Policy and Guidelines are set forth in Chapter 344, Hawaii Revised Statutes (HRS). The proposed action is in consonance with the policies and guidelines of Chapter 344, HRS.

4. The Economic or Social Welfare of the Community or State Would Not Be Substantially Affected

The proposed action would provide direct, short-term economic benefits during the construction phase. From a long-term perspective, the proposed improvements will provide enhanced system reliability in the Upcountry Water System to better serve residents and businesses in the region. There are no adverse long-term economic or social welfare impacts associated with the proposed action.

5. **The Proposed Action Does Not Affect Public Health**

A Granular Activated Carbon (GAC), installed at Well No. 2 in 1999, treats groundwater from both wells. In 2000, the State Department of Health approved the Hamakuapoko Well Nos. 1 and 2 for use as drinking water after treatment. Refer to **Appendix "C"**. When the wells are reopened, DWS will regularly monitor water quality to ensure that drinking water produced by the wells and treated by the GAC is in compliance with applicable water quality standards. No adverse impacts to public health are anticipated to result from the proposed action.

6. **No Substantial Secondary Impacts, Such as Population Changes or Effects on Public Facilities are Anticipated**

Adverse secondary or cumulative impacts are not anticipated as a result of the proposed project. The reopening of the Hamakuapoko Well Nos. 1 and 2 will allow the Pookela Wells to be used for full-time production and as a result will allow the DWS to issue new water meters in the Upcountry Water System service area. New development associated with these new water meters will be guided and managed by the County of Maui General Plan. The Directed Growth Strategy of the Maui Island Plan (MIP), including the Urban, Small Town, and Rural growth boundaries, incorporate future growth projections as well as the availability and expansion of infrastructure and services.

7. **No Substantial Degradation of Environmental Quality is Anticipated**

During project implementation, appropriate measures such as Best Management Practices (BMPs), will be utilized to mitigate potential adverse environmental impacts. The proposed action will have no substantial adverse impact to environmental quality.

8. **The Proposed Action Does Not Involve a Commitment to Larger Actions, Nor Would Cumulative Impacts Result in Considerable Effects on the Environment**

As previously discussed, the Hamakuapoko Wells were initially proposed as part of the East Maui Water Development Plan (EMPLAN) to meet future water requirements for the Central Maui System. However, as previously discussed, the Final EIS and Final Supplemental EIS were ultimately accepted only for Phase 1 of

the EMPLAN, which included the Hamakuapoko Wells. The two (2) wells were first put into operation to address the drought emergency in the UCWS. The proposed reopening of the wells is for agricultural use, use during declared drought event, and as backup to the UCWS. In this context, the proposed action is not part of or linked to any larger action. The proposed project is not anticipated to create any considerable effects upon the environment.

9. **No Rare, Threatened or Endangered Species or Their Habitats Would Be Adversely Affected By the Proposed Action**

The Biological Resource Survey report of the project area concludes that the proposed Hamakuapoko Well Nos. 1 and 2 improvements and new water tank are not expected to have a significant negative impact in this region. No Federally listed endangered or threatened plant and animal species, any candidates for such listed status, or special plant habitats were found on the project areas. Refer to **Appendix "G"**.

10. **Air Quality, Water Quality or Ambient Noise Levels Would Not Be Detrimentally Affected by the Proposed Project**

During the construction of the proposed improvements, there may be short-term impacts to air and noise quality. Appropriate BMP's will be implemented to minimize these short-term impacts, which will not extend into the long term. BMPs will include a diversion ditch just mauka of the new water storage tank site to divert storm water around the construction site, a silt fence to capture sediment laden water from exiting the construction site, and waddles (or similar product) to prevent oils from the asphalt from entering the on site storm drain. No significant adverse impacts to water quality are anticipated with the proposed action.

11. **The Proposed Project Would Not Affect Environmentally Sensitive Areas, Such as Flood Plains, Tsunami Zones, Erosion-prone Areas, Geologically Hazardous Lands, Estuaries, Fresh Waters or Coastal Waters**

The project site is not located within and would not affect environmentally sensitive areas. The project site is located in Flood Zone X, an area of minimal flooding. In addition, the project site is located entirely upland and beyond the reaches of the tsunami inundation zones. The project site is not a shoreline property, nor is it situated in close vicinity to streams, wetland areas or other areas which may pose

flooding concerns. There are no geologically hazardous lands, estuaries, or coastal waters within or adjacent to the project site. Based on the relative elevations of the Hamakuapoko Well Nos. 1 and 2 and Maliko Gulch to the east, it is not anticipated that pumping at the two (2) wells would present significant adverse impacts on streamflow in the region or the underlying Paia aquifer.

The project site is not located in or adjacent to any environmentally sensitive areas. Potential impacts to downstream properties will be mitigated through appropriate BMPs during construction-related activities.

12. <u>The Proposed Action Would Not Substantially Affect Scenic Views and Viewplanes Identified in County Plans or Studies</u>

The proposed project primarily involves the repair and replacement of existing infrastructure at the Hamakuapoko Well Nos. 1 and 2 sites. A new 150,000 gallon water tank will measure approximately 20 feet in height. This is comparable to the two (2) water tanks that currently exists at the Well No. 2 project site. The Hamakuapoko Wells are surrounded by agricultural fields and are not anticipated to adversely impact visual resources in the region.

13. <u>The Proposed Action Would Not Require Substantial Energy Consumption</u>

The proposed action will involve the short-term commitment of fuel for equipment, vehicles, and machinery during construction activities. However, this is not anticipated to result in an increase of substantial consumption of energy. Once operational, the energy requirements at the two (2) well sites will be comparable to the energy consumption when the wells were in operation between 2000 and 2004.

In conclusion, based on the analysis and findings presented in this Final Environmental Assessment, a Finding of No Significant Impact (FONSI) has been issued by the Department of Water Supply for the proposed improvements at Hamakuapoko Well Nos. 1 and 2.

VIII. LIST OF PERMITS AND APPROVALS

VIII. LIST OF PERMITS AND APPROVALS

The following permits and approvals will be required prior to the implementation of the project.

State of Hawaii

1. Department of Health, Community Noise Permit, as applicable

2. Department of Land and Natural Resources, Commission on Water Resource Management - Installation and Operation Permits

County of Maui

1. Construction Permits (Grubbing, Grading and Work to Perform on County Highway), as applicable

IX. AGENCIES CONSULTED DURING THE PREPARATION OF THE DRAFT ENVIRONMENTAL ASSESSMENT; LETTERS RECEIVED AND RESPONSES TO SUBSTANTIVE COMMENTS

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The following agencies and organizations were consulted during the preparation of the Draft Environmental Assessment. Comment letters received, as well as responses to substantive comments, are contained in this chapter.

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Wailuku, Hawaii 96793

35. Jo Anne Johnson Winer, Director
County of Maui
Department of Transportation
200 South High Street
Wailuku, Hawaii 96793

36. Honorable Danny Mateo, Council Chair
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

37. Honorable Don Couch
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

38. Honorable G. Riki Hokama
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

39. Honorable Mike Victorino
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

40. Honorable Michael White
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

41. Honorable Joseph Pontanilla
Council Vice Chair
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

42. Honorable Gladys Baisa
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

43. Honorable Robert Carroll
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

44. Honorable Elle Cochran
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

45. **A&B Properties, Inc.**
11 Puunene Avenue
Kahului, Hawaii 96732

46. **Hawaiian Commercial & Sugar Company**
P.O. Box 266
Puunene, Hawaii 96784

47. **Hawaiian Telcom**
60 South Church Street
Wailuku, Hawaii 96793

48. Dan Takahata
Manager – Engineering
Maui Electric Company, Ltd.
P.O. Box 398
Kahului, Hawaii 96733

49. **Haiku Community Association**
P. O. Box 1036
Haiku, Hawaii 96708

50. Ron Montgomery, President
Kula Community Association
P.O. Box 417
Kula, Hawaii 96790

51. **Makawao Community Association**
P.O. Box 733
Makawao, Hawaii 96768

52. Pamela Tumpap
Executive Director
Maui Chamber of Commerce
The Office Center
270 Ho'okahi Street, Suite 212
Wailuku, Hawaii 96793

APR 27 2012

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, HONOLULU DISTRICT
FORT SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF:

April 23, 2012

Regulatory Branch **POH-2012-00110**

Munekiyo and Hiraga, Inc.
Attn: Cheryl K. Okuma
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Okuma:

We have received your request for the Department of the Army to review and comment on the proposed repair and maintenance improvements at Hamakuapoko Well Nos. 1 and 2, TMK (2) 2-5-004:039, Hamakuapoko, Maui. We have assigned the project the reference number **POH-2012-00110**. Please cite this reference number in any correspondence with us concerning this project. We have completed our review of the submitted document and have the following comments:

Section 10 of the Rivers and Harbors Act of 1899 (Section 10) requires that a Department of the Army (DA) permit be obtained from the U.S. Army Corps of Engineers (Corps) prior to undertaking any construction, dredging, and other activities occurring in, over, or under navigable waters of the U.S. Navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Section 404 of the Clean Water Act (Section 404) of 1972 (33 U.S.C. 1344) requires that a DA permit be obtained for the discharge, or placement, of dredge and/or fill material into waters of the U.S., including wetlands. Fill material is any material that replaces a jurisdictional aquatic area with dry land or changes the bottom elevation of a waterbody. Fill may be temporary or permanent and often includes, but is not limited to, rock, sand, concrete, sandbags, etc.

Based on our review of the information provided in your letter dated April 17, 2012 it appears that the project location consists entirely of uplands and no navigable waters of the U.S. are present. As such, authorization under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act do not appear to be required for the proposed project.

If the project design should change and work is to be proposed in wetlands, streams, drainage ditches, the Pacific Ocean, or other aquatic resources, (whether or not water is present in that resource during project construction) we advise you to contact our office to request a jurisdictional determination. We can then determine if any regulatory requirements apply to work that may impact those resources.

Thank you for contacting us regarding this project. We look forward to working with you on this project as well as any future projects. Should you have any questions, please contact Kaitlyn Seberger, at (808) 438-0390 or via email at Kaitlyn.R.Seberger@usace.army.mil.

Sincerely,

George P. Young, P. E.
Chief, Regulatory

Copy Furnish:
County of Maui, Department of Water Supply, Attn: Curtis Eaton, 200 South High Street, Wailuku, Maui 96793

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

December 14, 2012

Mr. George P. Young, P.E., Chief
Department of the Army
U.S. Army Corps of Engineers,
Honolulu District
Fort Shafter, Hawaii 96858-5440

Dear Mr. Young:

Subject: Early Consultation Request for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii
Project Reference No. POH-2012-00110

Thank you for your letter, dated April 23, 2012, providing early consultation comments on the proposed improvements at Hamakuapoko Well Nos. 1 and 2. The County of Maui, Department of Water Supply (DWS) offers the following information in response to the comments noted in your letter.

We acknowledge your determination that the Hamakuapoko Well Nos. 1 and 2 project sites consist entirely of uplands and is absent of navigable waters of the United States. Therefore, Department of Army authorization under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act is not required for the proposed project.

We appreciate your input and will include a copy of your Department's comment letter in the Draft Environmental Assessment for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc. at (808) 244-2015.

Sincerely,

David Taylor, P.E., Director

cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

"By Water All Things Find Life"

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NEIL ABERCROMBIE
GOVERNOR

MAY 0 4 2012

DEAN H. SEKI
COMPTROLLER

(P)1091.2

STATE OF HAWAI'I
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAI'I 96810-0119

MAY - 3 2012

Ms. Cheryl K. Okuma
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Dear Ms. Okuma:

Subject: Request for Proposed Improvements at Hamakuapoko
Well No. 1 and 2 Hamakuapoko, Maui, Hawaii
TMK: (2) 2-5-004:039 (Por)

Thank you for the opportunity to provide comments for the subject project. This project does not impact any of the Department of Accounting and General Services' projects or existing facilities in the general area and we have no comments to offer at this time.

If you have any questions, please call me at 586-0400 or have your staff call Mr. Alva Nakamura of the Public Works Division at 586-0488.

Sincerely,

DEAN H. SEKI
State Comptroller

c: Mr. David Taylor, Department of Water Supply

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

December 14, 2012

Mr. Dean H. Seki, State Comptroller
Department of Accounting and General Services
State of Hawaii
P.O. Box 119
Honolulu, Hawaii 96818-0119

Dear Mr. Seki:

Subject: Early Consultation Request for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated May 3, 2012, providing early consultation comments on the proposed improvements at Hamakuapoko Well Nos. 1 and 2. The County of Maui, Department of Water Supply (DWS) acknowledges that the proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities in the area.

We appreciate your input and will include a copy of your comment letter in the Draft Environmental Assessment for the proposed project. Should you have any questions, please contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc. at (808) 244-2015.

Sincerely,

David Taylor, P.E.
Director

cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

"By Water All Things Find Life"

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APR 26 2012

NEIL ABERCROMBIE
GOVERNOR

DARRYLL D.M. WONG
MAJOR GENERAL
ADJUTANT GENERAL

JOSEPH K. KIM
BRIGADIER GENERAL
DEPUTY ADJUTANT GENERAL

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

April 25, 2012

Munekiyo & Hiraga, Inc.
Attention: Cheryl K. Okuma
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Okuma:

Reference the April 17, 2012, letter from Mr. David Taylor, P. E., Director , Department of Water Supply, County of Maui, regarding the proposed improvements at Hamakuapoko Well Nos. 1 and 2 in Hamakuapoko, Maui, Hawaii.

We have no comments to the proposal.

We appreciate the opportunity to comment on this project.

Sincerely,

Neal S. Mitsuyoshi, P. E.
Lieutenant Colonel
Hawaii National Guard
Chief Engineering Officer

6

JUN 12 2012

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
SAFE DRINKING WATER BRANCH
919 ALA MOANA BLVD., ROOM 308
HONOLULU, HI 96814-4920

In reply, please refer to:
File: SDWB
Hamakuapoko1.doc

June 6, 2012

Munekiyo & Hiraga, Inc.
Attention: Cheryl K. Okuma
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Okuma:

SUBJECT: EARLY CONSULTATION REQUEST FOR PROPOSED IMPROVEMENTS AT HAMAKUAPOKO WELL NOS. 1 AND 2
HAMAKUAPOKO, MAUI, HAWAII

The Safe Drinking Water Branch (SDWB) has reviewed the subject document and has the following comments:

1. The Maui DWS in its operation of the Hamakuapoko Wells No. 1 and 2, shall comply with all relevant provisions of Hawaii Administrative Rules (HAR), Title 11, Chapter 20, "Rules Relating to Public Water Systems."
2. The Hamakuapoko Wells No. 1 and 2 shall deliver drinking water of the quality in compliance with HAR Chapter 11-20. The water quality shall be subject to verification by the SDWB.
3. Since the source has been inactive for greater than five years, the source will be subject to retesting of the source water quality as required under HAR, Section 11-20-29, "Use of New Sources of Raw Water for Public Water System."
4. Materials used in the construction shall have NSF certification. Proper procedures shall be followed for the cleaning and disinfection of the various water system components involved in the improvement project.
5. Other requirements include development and submission of an operations and maintenance manual for the GAC system.

If there are any questions, please call Craig Watanabe of the SDWB Engineering Section at (808) 586-4258.

Sincerely,

JOANNA L. SETO, P.E., CHIEF
Safe Drinking Water Branch
Environmental Management Division

CW:slm

c: EPO Reference No. 12-076

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

December 14, 2012

Ms. Joanna L. Seto, P.E., Chief
Safe Drinking Water Branch
Environmental Management Division
Department of Health
State of Hawaii
919 Ala Moana Boulevard, Room 308
Honolulu, Hawaii 96814-4920

Dear Ms. Seto:

Subject: Early Consultation Request for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated June 6, 2012, providing early consultation comments on the proposed improvements at Hamakuapoko Well Nos. 1 and 2. The County of Maui, Department of Water Supply (DWS) offers the following information in response to your comments:

1. DWS will comply with all relevant provisions of Hawaii Administrative Rules (HAR), Title 11, Chapter 20, "Rules Relating to Public Water Systems" in its operation of the Hamakuapoko Well Nos. 1 and 2.
2. We acknowledge that the Hamakuapoko Well Nos. 1 and 2 shall deliver drinking water of quality in compliance with HAR Chapter 11-20 and that water quality shall be subject to verification by the Safe Drinking Water Branch.
3. DWS understands that because the source has been inactive for more than five (5) years, retesting of the source water quality will be required as per HAR, Section 11-20-29, "Use of New Sources of Raw Water for Public Water System."
4. DWS confirms that materials used in construction of the proposed project will have National Sanitation Foundation (NSF) certification and proper procedures shall be followed for the cleaning and disinfection of the various water system components involved in the improvement project.

5. An operations and maintenance manual for the Granulated Activated Carbon (GAC) system is in place from earlier operations at the Hamakuapoko wells. As necessary, the plan will be resubmitted to the Safe Drinking Water Branch.

We appreciate your input and will include a copy of your comment letter in the Draft Environmental Assessment for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc. at (808) 244-2015.

Sincerely,

David Taylor, P.E.
Director

cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

MAY 07 2012

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

LORRIN W. PANG, M.D., M.P.H.
DISTRICT HEALTH OFFICER

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

May 4, 2012

Ms. Cheryl K. Okuma
Planning Consultant
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Suyama:

Subject: Early Consultation Request for Proposed Improvements at Hamakuapoko Well Nos. 1 & 2 TMK: (2) 2-5-004:039 (por.)

Thank you for the opportunity to review this project. We have the following comments to offer:

> National Pollutant Discharge Elimination System (NPDES) permit coverage maybe required for this project. The Clean Water Branch should be contacted at 808 586-4309.

It is strongly recommended that the Standard Comments found at the Department's website: http://hawaii.gov/health/environmental/env-planning/landuse/landuse.html be reviewed, and any comments specifically applicable to this project should be adhered to.

Should you have any questions, please call me at 808 984-8230 or E-mail me at patricia.kitkowski@doh.hawaii.gov.

Sincerely,

Patti Kitkowski

Patti Kitkowski
District Environmental Health Program Chief

c EPO

10

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

December 14, 2012

Ms. Patti Kitkowski, District Environmental Health Program Chief
Maui District Health Office
Department of Health
State of Hawaii
54 High Street
Wailuku, Hawaii 96793

Dear Ms. Kitkowski:

Subject: Early Consultation Request for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated May 4, 2012, providing early consultation comments on the proposed improvements at Hamakuapoko Well Nos. 1 and 2. The County of Maui, Department of Water Supply (DWS) offers the following information in response to your comments.

1. A National Pollutant Discharge Elimination System Permit will be obtained for the project, as applicable.
2. The Clean Water Branch was sent a request for early consultation on the proposed project.

The DWS has reviewed the standard comments found on the Department of Health's website. Enclosed is a list of applicable comments as well as responses to each. See **Exhibit "A".**

We appreciate your input and will include a copy of your comment letter in the Draft Environmental Assessment for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc. at 244-2015.

Sincerely,

David Taylor, P.E.
Director

Enclosure
c: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

EXHIBIT "A"

REVIEW OF STANDARD COMMENTS RELATING TO STATE ENVIRONMENTAL HEALTH PROGRAMS

Hazard Evaluation and Emergency Response Office

- *A Phase I Environmental Site Assessment (ESA) should be conducted for developments or redevelopments. If the investigation shows that a release of petroleum, hazardous substance, pollutants or contaminants occurred at the site, the site should be properly characterized through an approved Hawaii State Department of Health (DOH)/Hazard Evaluation and Emergency Response Office (HEER) soil and or groundwater sampling plan. If the site is found to be contaminated, then all removal and remedial actions to clean up hazardous substance or oil releases by past and present owners/tenants must comply with Chapter 128D, Environmental Response Law, HRS, and Title 11, Chapter 451, HAR, State Contingency Plan.*

Response:

The proposed project is limited to improvements to the existing Hamakuapoko Well Nos. 1 and 2 and construction of a new water storage tank adjacent to Well No. 2. An Environmental Assessment (EA) was prepared for the construction of improvements to convert the existing Hamakuapoko wells from exploratory wells to production wells in 1999. Water quality testing was conducted and water from both wells exhibited contamination from volatile organic chemicals associated with pesticides. In 1999, DWS installed a Granular Activated Carbon (GAC) Treatment facility at Well No. 2 that is capable of treating water from both wells. Water from Hamakuapoko Well No. 1 is transported to Well No. 2 where the combined water drawn from the two (2) wells flow through the treatment process provided by the GAC facility. The GAC method treats water when the water flows downward from the top of a pressurized vessel through a bed of activated carbon. In 2000, the Department of Health granted conditional approval for the Hamakuapoko Well Nos. 1 and 2 for use as drinking water after treatment.

- *All lands formerly in the production of sugarcane should be characterized for arsenic contamination, If arsenic is detected above the US EPA Region (preliminary remediation goal (PRG) for non-cancer effects, then a removal and or remedial plan must be submitted to the Hazard Evaluation and Emergency Response (HEER) Office of the State Department of Health for approval. The plan must comply with Chapter 128D, Environmental Response Law, HRS, and Title 11, Chapter 451, HAR, State Contingency Plan.*

Response:

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The existing Hamakuapoko Well Nos. 1 and 2 were constructed within former plantation roadways and did not utilize lands in active sugarcane cultivation. The installation of necessary water appurtenances within sugarcane fields was minimal and involved less than one (1) acre of land. The proposed new water storage tank adjacent to the Hamakuapoko Well No. 2 will involve the acquisition of approximately 0.14 acre of land currently utilized for sugarcane cultivation.

As previously mentioned, an EA was prepared to convert the Hamakuapoko Wells from exploratory wells into production wells. Water quality testing was conducted and a GAC treatment facility was installed to treat water from both wells. The Department of Health granted conditional approval for the Hamakuapoko Well Nos. 1 and 2 for use as drinking water after treatment in 2000.

Clean Air Branch

- *A significant potential for fugitive dust emissions exists during all phases of construction and operations. Proposed activities that occur in proximity to existing residences, businesses, public areas or thoroughfares, exacerbate potential dust problems. It is recommended that a dust control management plan be developed which identifies and addresses all activities that have a potential to generate fugitive dust. The plan, which does not require DOH approval, would help with recognizing and minimizing the dust problems from the proposed project.*

  Activities must comply with the provisions of Hawaii Administrative Rules, § 11-60-1-33 on Fugitive Dust. In addition, for cases involving mixed land use, we strongly recommend that buffer zones be established, wherever possible, in order to alleviate potential nuisance problems.

  The contractor should provide adequate measures to control the fugitive dust from the road areas and during the various phases of construction. Examples of measures that can be implemented to control dust include, but are not limited to, the following:

  a) Planning the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact;
  b) Providing an adequate water source at the site prior to start-up of construction activities;
  c) Landscaping and providing rapid covering of bare areas, including slopes, starting from the initial grading phase;
  d) Minimizing dust from shoulders and access roads;
  e) Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and

f) *Controlling dust from debris being hauled away from the project site.*

Response:

Best Management Practices will be implemented pursuant to applicable requirements to minimize the potential for dust-related impacts from the construction of the proposed project.

Safe Drinking Water Branch

- *Federal and state regulations define a public water system as a system that serves 25 or more individuals at least 60 days per year or has at least 15 service connections. All public water system owners and operators are required to comply with Hawaii Administrative Rules, Title 11, Chapter 20, titled Rules Relating to Potable Water Systems.*

Response:

The proposed project will comply with the applicable provision of Hawaii Administrative Rules, Title 11, Chapter 20. The Department of Health granted conditional approval for the Hamakuapoko Well Nos. 1 and 2 as drinking water on December 22, 2000 (State Well Nos. 6-5420-02 and 6-5320-01, respectively).

- *All new public water systems are required to demonstrate and meet minimum capacity requirements prior to their establishment. This requirement involves demonstration that the system will have satisfactory technical, managerial and financial capacity to enable the system to comply with safe drinking water standards and requirements.*

Response:

The proposed improvements to the existing Hamakuapoko Well Nos. 1 and 2 do not represent development of a new public water system. DWS has the technical, managerial and financial capacity to enable the water from the Hamakuapoko Wells to comply with safe drinking water standards and requirements.

- *Projects that propose development of new sources of potable water serving or proposed to serve a public water system must comply with the terms of Section 11-20-29 of Chapter 20. This section requires that all new public water system sources be approved by the Director of Health prior to its use. Such approval is*

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based primarily upon the submission of a satisfactory engineering report which addresses the requirements set in Section 11-20-29.

Response:

The Hamakuapoko Well Nos. 1 and 2 are existing wells that were operational as production wells from 2000 to 2006, with pumping taking place between 2000 and 2004. The proposed improvements would allow for the reopening of these wells. The wells are existing facilities and do not represent the development of new sources of potable water. Prior to the operation of the Hamakuapoko Wells, the source water and GAC effluent will be tested to ensure compliance with State DOH standards.

- *The engineering report must identify all potential sources of contamination and evaluate alternative control measures which could be implemented to reduce or eliminate the potential for contamination, including treatment of the water source. In addition, water quality analyses for all regulated contaminants, performed by a laboratory certified by the State Laboratories Division of the state of Hawaii, must be submitted as part of the report to demonstrate compliance with all drinking water standards. Additional parameters may be required by the Director for this submittal or additional tests required upon his or her review of the information submitted.*

Response:

As previously mentioned, the Department of Health granted conditional approval for the Hamakuapoko Well Nos. 1 and 2 as a drinking water source on December 22, 2000 (State Well Nos. 6-5420-02 and 6-5320-01, respectively). An Environmental Assessment (EA) was prepared in 1999 for improvements to convert the Hamakuapoko Wells from exploratory wells to production wells. Water quality tests were conducted as part of the Final EA. In 1999, DWS installed a Granular Activated Carbon (GAC) Treatment Facility at Well No. 2 that is capable of treating both wells. Water from Hamakuapoko Well No. 1 is transported to Well No. 2 where the combined water drawn from the two (2) wells flow through the treatment process provided by the GAC chambers. This treatment process is completed before the water from the Hamakuapoko Well Nos. 1 and 2 are pumped into the clear well at Kamole Weir Water Treatment Plant. Water quality tests conducted between 1999 and 2004 determined that after treatment at the GAC facility, DBCP, EDB, and TCP were not detected in the water.

- *All sources of public water systems must undergo a source water assessment which will delineate a source water protection area. This process is preliminary to the creation of a source water protection plan for that source and activities which will take place to protect the source of drinking water.*

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Response:

A source water assessment was conducted for the Hamakuapoko Wells when they were first developed and a source water protection plan is in place.

- *Projects proposing to develop new public water systems or proposing substantial modifications to existing public water systems must receive approval by the Director of Health prior to construction of the proposed system or modification. These projects include treatment, storage and distribution systems of public water systems. The approval authority for projects owned and operated by a County Board or Department of Water or Water Supply has been delegated to them.*

Response:

The Department of Health granted conditional approval for the Hamakuapoko Well Nos. 1 and 2 for drinking water on December 22, 2000 (State Well Nos. 6-5420-02 and 6-5320-01, respectively). The County of Maui, Department of Water Supply operates the Hamakuapoko Wells.

- *All public water systems must be operated by certified distribution system and water treatment plant operators as defined by Hawaii Administrative Rules, Title 11, Chapter 11-25 titled; Rules Pertaining to Certification of Public Water System Operators.*

Response:

The Hamakuapoko Well Nos. 1 and 2 will be part of the Department of Water Supply's Upcountry Water System. The DWS is a certified public water system operator.

- *All projects which propose the use of dual water systems or the use of a non-potable water system in proximity to an existing potable water system to meet irrigation or other needs must be carefully designed and operated to prevent the cross-connection of these systems and prevent the possibility of backflow of water from the non-potable system to the potable system. The two systems must be clearly labeled and physically separated by air gaps or reduced pressure principle backflow prevention devices to avoid contaminating the potable water supply. In addition backflow devices must be tested periodically to assure their proper operation. Further, all non-potable spigots and irrigated areas should be clearly labeled with warning signs to prevent the inadvertent consumption on non-potable water. Compliance with Hawaii Administrative Rules, Title 11, Chapter 11-21 titled; Cross-Connection and Backflow Control is also required.*

Response:

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The proposed project does not propose the use of dual water systems or the use of a non-potable water system in proximity to an existing water system.

- *All projects which propose the establishment of a potentially contaminating activity (as identified in the Hawai`i Source Water Assessment Plan) within the source water protection area of an existing source of water for a public water supply should address this potential and activities that will be implemented to prevent or reduce the potential for contamination of the drinking water source.*

Response:

The proposed project does not propose the establishment of a potentially contaminating activity within the source water protection area of an existing public water source.

Solid and Hazardous Waste Branch

- *The state regulations for hazardous waste are in Chapters 11-260 to 11- 280, Hawaii Administrative Rules (HAR). These rules apply to the identification, handling, transportation, storage and disposal of regulated hazardous waste. Generators, transporters and treatment, storage and disposal facilities of hazardous waste must adhere to these requirements or be subject to fines and penalties.*

Response:

The proposed project will comply with applicable requirements of HAR, Chapters 11-260 to 11-280.

- *Generators of solid waste are required to ensure that their wastes are properly delivered to permitted solid waste management facilities. Managers of construction and demolition projects should require their waste contractors to submit disposal receipts and invoices to ensure proper disposal of wastes.*

Response:

Construction waste for the project will be properly disposed of at an approved construction waste disposal facility. Following project construction, the proposed project will generate minimal solid waste, if any.

- *HRS Chapter 342G encourages the reduction of waste generation, reuse of discarded materials, and the recycling of solid waste. Businesses, property managers and developers, and government entities are highly encouraged to develop solid waste management plans to ensure proper handling of wastes. Solid waste management plans should also seek to maximize waste diversion and*

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minimize disposal. Such plans should include designated areas to promote the collection of reusable and recyclable materials.

Response:

The Hamakuapoko Well Nos. 1 and 2 will generate minimal solid waste, if any. Any waste from the cleaning and maintenance of the GAC filters will be disposed of by approved methods.

Noise, Radiation, and Indoor Air Quality Branch

- *Project activities shall comply with Chapter 11-39 (Air Conditioning and Ventilating), Chapter 11-45 (Radiation Control) and 11-46 (Community Noise Control) of the Administrative Rules of the Department of Health.*

Response:

The proposed project will comply with applicable requirements of HAR, Chapter 11-46, community noise control. HAR, Chapter 11-39 (Air Conditioning and Ventilating) and Chapter 11-45 (Radiation Control) do not apply to the proposed project.

SEP 1 2 2012

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON

WILLIAM D. BALFOUR, JR.
SUMNER ERDMAN
LORETTA J. FUDDY, A.C.S.W., M.P.H.
NEAL S. FUJIWARA
JONATHAN STARR
TED YAMAMURA

WILLIAM M. TAM
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

September 10, 2012

Mr. David Taylor, Director
Department of Water Supply
County of Maui
200 South High St.
Wailuku, HI 96793-2155

Dear Mr. Taylor:

SUBJECT: Hamakuapoko Wells 1 & 2 Proposed Improvements Early Consultation
TMK No.:(2) 2-5-004:039 (por), Hamakuapoko, Maui

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at *http://www.hawaii.gov/dlnr/cwrm*.

Our comments related to water resources are checked off below.

☒ 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.

☐ 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

☐ 3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the redistribution of agricultural resources into the State's Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.

☒ 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at http://www.usgbc.org/leed. A listing of fixtures certified by the EPA as having high water efficiency can be found at http://www.epa.gov/watersense/pp/index.htm.

☐ 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at http://hawaii.gov/dbedt/czm/initiative/lid.php.

☒ 6. We recommend the use of alternative water sources, wherever practicable.

☐ 7. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM:
Additional information and forms are available at *www.hawaii.gov/dlnr/cwrm/forms.htm.*

☐ 8. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water. The Water Use Permit may be conditioned on the requirement to use dual line water supply systems for new industrial and commercial developments.

☐ 9. A Well Construction Permit(s) is (are) required before the commencement of any well construction work.

☒ 10. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

☐ 11. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.

☐ 12. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

☐ 13. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a stream channel.

☐ 14. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.

☐ 15. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.

☐ 16. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.

☒ OTHER:

The use of these wells is affected by a court decision in *Coalition to Protect East Maui Water Ressources vs. Maui Board of Water Supply* (Civ No. 93-0734). The accepted uses must be clarified in light of the court decision. Both County ordinances and a Governor's Proclamation may affect any use of these wells. The jurisdiction must be clarified. Ultimately, any pump installation permit by the Water Commission must accurately reflect applicable special conditions and limitations.

If there are any questions, please contact Charley Ice at (808) 587-0218.

Sincerely,

WILLIAM M. TAM
Deputy Director

c: Munekiyo Hiraga, Inc. (Attn: Ms. Cheryl K. Okuma)

DRF-GN 03/02/2006

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

December 14, 2012

Mr. William M. Tam, Deputy Director
State of Hawaii
Department of Land and Natural Resources
Commission on Water Resource Management
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Tam:

SUBJECT: Early Consultation Request for Proposed Hamakuapoko Well Improvements Hamakuapoko, Maui, Hawaii

Thank you for your letter dated September 10, 2012 responding to our request for early consultation comments on the Draft Environmental Assessment (EA) that is being prepared for the proposed Hamakuapoko Well improvements in Hamakuapoko, Maui, Hawaii. The County of Maui Department of Water Supply (DWS) offers the following information in the order of the comments in your letter:

1. **COUNTY'S WATER USE AND DEVELOPMENT PLAN**

DWS is in the process of analyzing the major strategies to be considered for the District in the Maui County Water Use and Development Plan.

2. **LEED CERTIFICATION**

The Project consists of various repair and maintenance improvements at the existing Hamakuapoko Well Nos. 1 and 2 sites. As such, Leadership in Energy and Environmental Design (LEED) certification is not applicable to this project.

3. **ALTERNATIVE WATER SOURCES**

The Project involves the construction of improvements to allow the Hamakuapoko Well Nos. 1 and 2 to be reopened for agricultural use, use during declared drought events and as an alternative drinking water source and backup to the DWS's existing Upcountry Water Systems (UCWS). This Project fulfills the intent of Ordinance No. 3859 (2011) that was passed by the Maui County Council in October 2011.

Alternative sources such as the use of reclaimed wastewater are not available in the UCWS region.

4. **PERMITS REQUIRED BY CWRM**

DWS acknowledges that an application for a Pump Installation Permit will need to be submitted to the Commission on Water Resource Management (CWRM) before re-initiating the operations of Hamakuapoko Well Nos. 1 and 2.

5. **USE OF WELLS**

DWS confirms that the subject improvements will be completed in accordance with applicable terms and conditions of the consent decree that resulted from the court decision in Coalition To Protect East Maui Water Resources vs. Maui Board of Water Supply (Civ. No. 93-0734), as well as County Ordinance No. 3404 (October 2, 2006) and No. 3859 (October 13, 2011) and the Governor's Proclamations dated April 1, 1988 and amended July 28, 1999.

We appreciate your input and will include a copy of your comment letter in the Draft EA for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc. at (808) 244-2015.

Sincerely,

David Taylor, P.E.
Director

DT
cc: Curtis Eaton, County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

MAY 23 2012

NEIL ABERCROMBIE
GOVERNOR

GLENN M. OKIMOTO
DIRECTOR

Deputy Directors
JADE T. BUTAY
FORD N. FUCHIGAMI
RANDY GRUNE
JADINE URASAKI

IN REPLY REFER TO:

STP 8.0843

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

May 17, 2012

Ms. Cheryl K. Okuma
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Okuma:

Subject: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
Early Consultation for Draft Environmental Assessment

Thank you for requesting the State Department of Transportation's (DOT) review of the subject project.

DOT understands the County of Maui, Department of Water Supply (DWS) plans to undertake various repair and maintenance improvements for the subject project. The proposed improvements include replacement of the existing motors and pumps that will transport water from the two wells through existing transmission lines into a new water storage tank.

Given the project location and the nature of the project, it is not expected to significantly impact the State highway facilities. However, DWS is required to obtain a permit from DOT Highways Division, Maui District Office for the transport of oversized and/or overweight materials and equipment on State highway facilities.

DOT appreciates the opportunity to provide comments. If there are any questions, including the need to meet with DOT Highways Division staff, please contact Mr. Garrett Smith of the DOT Statewide Transportation Planning Office at 831-7976.

Very truly yours,

GLENN M. OKIMOTO, Ph.D.
Director of Transportation

c: Maui County Department of Water Supply

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

December 14, 2012

Dr. Glenn M. Okimoto, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Dr. Okimoto:

Subject: Early Consultation Request for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii (STP 8.0843)

Thank you for your letter, dated May 17, 2012, providing early consultation comments on the proposed improvements at Hamakuapoko Well Nos. 1 and 2. The County of Maui, Department of Water Supply (DWS) acknowledges that the proposed project is not expected to significantly impact State highway facilities. DWS understands that it is required to obtain a permit from the Department of Transportation, Highways Division, Maui District Office for the transportation of any oversized and/or overweight materials and equipment on State highway facilities.

We appreciate your input and will include a copy of your comment letter in the Draft Environmental Assessment for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc. at (808) 244-2015

Sincerely,

David Taylor, P.E.
Director

cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

"By Water All Things Find Life"

25

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ALAN M. ARAKAWA
MAYOR

MAY 24 2012

JEFFREY A. MURRAY
CHIEF

ROBERT M. SHIMADA
DEPUTY CHIEF

COUNTY OF MAUI

DEPARTMENT OF FIRE AND PUBLIC SAFETY
FIRE PREVENTION BUREAU

313 MANEA PLACE • WAILUKU, HAWAII 96793
(808) 244-9161 • FAX (808) 244-1363

May 22, 2012

Cheryl K. Okuma
Munekiyo & Hiraga, Inc.
305 Hight Street, Suite 104
Wailuku, HI 96793

Re: Early Consultation request for Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
Hamakuapoko, Maui, HI
TMK: (2) 2-5-004: 039 (por.)

Dear Cheryl:

Thank for the allowing the Department of Fire and Public Safety the opportunity to comment on the above subject. At this time, our office has no specific comments in regards to this subject.

If there are any questions or comments, please feel free to contact me at 244-9161 ext. 23.

Sincerely,

Paul Haake
Captain, Fire Prevention Bureau
Department of Fire and Public Safety, Maui County

cc: Neal Dixon; Munekiyo & Hirage, Inc.

APR 30 2012

DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
HOUSING DIVISION
COUNTY OF MAUI

ALAN M. ARAKAWA
Mayor
JO-ANN T. RIDAO
Director
JAN SHISHIDO
Deputy Director

35 LUNALILO STREET, SUITE 102 • WAILUKU, HAWAII 96793 • PHONE (808) 270-7351 • FAX (808) 270-6284

April 24, 2012

Ms. Cheryl K. Okuma
Planning Consultant
Munekiyo & Hiraga
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Cheryl K. Okuma:

Subject: Early Consultation Request for Proposed Improvements at Hamakuapoko Well Nos. 1 and 2, TMK (2)2-5-004:039 (por), Hamakuapoko, Maui, Hawaii

The Department has reviewed the request for Early Consultation for the above subject project. Based on our review, we have determined that the subject project is not subject to Chapter 2.96, Maui County Code. At the present time, the Department has no additional comments to offer.

Please call Mr. Veranio Tongson Jr. of our Housing Division at (808) 270-1741 if you have any questions.

Sincerely,

for WAYDE T. OSHIRO
Housing Administrator

cc: Director of Housing and Human Concerns

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

December 14, 2012

Mr. Wayde T. Oshiro, Housing Administrator
Department of Housing and Human Concerns
County of Maui
35 Lunalilo Street, Suite 102
Wailuku, Hawaii 96793

Dear Mr. Oshiro:

Subject: Draft Environmental Assessment for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated April 24, 2012, providing early consultation comments on the proposed improvements at Hamakuapoko Well Nos. 1 and 2. The County of Maui, Department of Water Supply (DWS) acknowledges that the proposed project is not subject to Chapter 2.96, Maui County Code.

We appreciate your input and will include a copy of your Department's comment letter in the Draft Environmental Assessment for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc. at (808) 244-2015.

Sincerely,

David Taylor, P.E.
Director

cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

"By Water All Things Find Life"

Printed on recycled paper

ALAN M. ARAKAWA
Mayor

MAY 07 2012

GLENN T. CORREA
Director

PATRICK T. MATSUI
Deputy Director

(808) 270-7230
FAX (808) 270-7934

DEPARTMENT OF PARKS & RECREATION

700 Hali'a Nakoa Street, Unit 2, Wailuku, Hawaii 96793

May 1, 2012

Cheryl K. Okuma
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hi 96793

Dear Ms. Okuma:

SUBJECT: Early consultation request for the proposed improvements at Hamakuapoko, Well Nos. 1 and 2, TMK (2)2-5-004:039 (por.) Hamakuapoko, Maui, Hawaii

Thank you for the opportunity to review and comment on the subject action. We have no comment to be noted at this time.

Should you have any questions or concerns, please feel free to contact me, or Steve Grogan, Capital Improvements Project Coordinator, at stephen.grogan@co.maui.hi.us or 808-270-6158.

Sincerely,

GLENN T. CORREA
Director of Parks & Recreation

c: Robert Halvorson, Chief of Planning & Development

GTC:RH:sg

S:\PLANNING\Steve G\No Objections\No Objections - Hamakuapoko Well Improvements.doc

ALAN M. ARAKAWA
Mayor

WILLIAM R. SPENCE
Director

MICHELE CHOUTEAU McLEAN
Deputy Director

MAY 0 4 2012

COUNTY OF MAUI

DEPARTMENT OF PLANNING

May 4, 2012

Ms. Cheryl Okuma
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Okuma:

SUBJECT: EARLY CONSULTATION REQUEST FOR THE PREPARATION OF A DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE PROPOSED IMPROVEMENTS AT HAMAKUAPOKO WELLS NUMBERS 1 AND 2, LOCATED IN HAMAKUAPOKO, MAUI, HAWAII; TMK: (2) 2-5-004:039 (POR.) (RFC 2012/0061)

The Department of Planning (Department) has reviewed the above-referenced letter dated April 17, 2012, and provides the following comments:

1. The parcel listed above is in the County zoned Agricultural and Interim Districts, Paia-Haiku Community Plan Agricultural, Rural and Public/Quasi-Public Districts and in the State Agricultural District. It is not located within the Special Management Area (SMA). You should get a Zoning Confirmation from the Department's Zoning Administration & Enforcement Division (ZAED) to verify what the land use classifications are for your specific portions of the overall parcel;

2. A SMA Assessment will not be required for this proposed project;

3. The project is located in the Paia-Haiku Community Plan District. Discuss how the proposal is consistent with the goals, objectives, and implementation strategies of this Community Plan;

4. Discuss in detail the Best Management Practices which will be implemented during the construction phases of the project to reduce impacts on air and water quality as well as promote soil conservation;

5. Discuss any proposed grading and grubbing requirements and if any new ground will be disturbed; and

6. Discuss the anticipated timetable for the construction of the project.

Thank you for the opportunity to comment. Should you require further clarification, please contact Staff Planner Joseph Prutch at joseph.prutch@mauicounty.gov or at (808) 270-7512.

Sincerely,

CLAYTON I. YOSHIDA, AICP
Planning Program Administrator

for WILLIAM SPENCE
Planning Director

xc: Aaron H. Shinmoto, PE, Planning Program Administrator (PDF)
Joseph M. Prutch, Staff Planner (PDF)
Project File
General File

WRS:CIY:JMP:sa
K:\WP_DOCS\PLANNING\RFC\2012\0061_HamakuapokoWell\Comment.wpd

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

December 14, 2012

Mr. William Spence, Director
Attention: Joseph Prutch
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Spence:

Subject: Early Consultation Request for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated May 4, 2012, providing early consultation comments on the proposed improvements at Hamakuapoko Well Nos. 1 and 2. The Department of Water Supply (DWS) provides the following information in response to your comments.

1. Thank you for the information regarding the zoning and land use designations for the proposed project. A Zoning and Flood Confirmation Form has been submitted to the Department's Zoning Administration and Enforcement Division to verify the land use classifications specifically for the well sites within the overall parcel. See **Exhibit "A"**.

2. DWS notes that a SMA Assessment will not be required for the proposed project.

3. The Draft Environmental Assessment (EA) will discuss how the proposed project is consistent with the goals, objectives, and implementation strategies of the Paia-Haiku Community Plan.

4. The Draft EA will provide information on the Best Management Practices that will be implemented during the construction phase of the proposed project to reduce impacts on air and water quality as well as promote soil conservation.

5. A Preliminary Engineering and Drainage Report will be prepared for the proposed project. The Report, which will be discussed and included as an appendix in the Draft EA, will provide information on any proposed grading and grubbing requirements and areas of new ground disturbance.

6. The Draft EA will summarize the anticipated construction timeline for the proposed project.

We appreciate your input and will include a copy of your comment letter in the Draft Environmental Assessment for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc. at 244-2015.

Sencerely,

David Taylor, P.E.
Director

Enclosures
cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

10/1367

DEPT. OF PLANNING
COUNTY OF MAUI

MAR 20 2012

MAR 13 2012
RECEIVED

COUNTY OF MAUI
DEPARTMENT OF PLANNING
Kalana Pakui Building
250 South High Street
Wailuku, Hawaii 96793

Zoning Administration and
Enforcement Division (ZAED)
Telephone: (808) 270-7253
Facsimile: (808) 270-7634
E-mail: planning@mauicounty.gov

ZONING AND FLOOD CONFIRMATION FORM

APPLICANT INFORMATION *(To be completed by Applicant)*

APPLICANT NAME Munekiyo & Hiraga, Inc. **TELEPHONE** 244-2015

PROJECT NAME Hamakuapoko Well Nos. 1 and 2 and Related Improvements **E-MAIL** planning@mhplanning.com

ADDRESS/LOCATION Near Maliko Gulch (see attached map) **TAX MAP KEY** (2)2-5-004:039

☐ Yes ☒ No Will this Zoning and Flood Confirmation Form be used with a Subdivision Application, including four (4) or more dwelling units on a parcel, but NOT including subdivisions listed and processed under the exceptions in Section 18.04.030(B), Maui County Code? **IF YES, LIST THE PROPOSED LAND USES BELOW:**

NOTE: 1) **Use a separate Zoning and Flood Confirmation Form for each Tax Map Key (TMK) number.**
2) **If the above "Yes" box is checked AND if the zoning information for the subject property contains multiple State Land Use Districts, Community Plan Designations, or County Zoning, a signed and dated Land Use Designations (LUD) Map, prepared by a licensed surveyor showing all the various districts, designations, zonings, and any subdistricts, shall be submitted for review and approval.**
3) **If the above "Yes" box is checked AND if there are multiple State Land Use District designations, the applicant shall procure a District Boundary Interpretation from the State Land Use Commission.**

FOR COUNTY USE ONLY *(To be completed by ZAED)*

ZONING INFORMATION

STATE LAND USE DISTRICT(S) AG-Agriculture

COMMUNITY PLAN DESIGNATION(S) AG-Agriculture

COUNTY ZONING(S) AG-Agriculture

OTHER DESIGNATION(S)

☐ Yes ☐ No See Additional Comments On Page Two

☐ Yes ☐ No See The Attached Land Use Designation Map

☐ Yes ☑ No SPECIAL MANAGEMENT AREA (SMA)

☐ Yes ☑ No PLANNED DEVELOPMENT

☐ Yes ☑ No PROJECT DISTRICT

FLOOD INFORMATION

FLOOD HAZARD AREA ZONE(S) X * Per attached map * For Flood Zone AO, FLOOD DEPTH

BASE FLOOD ELEVATION(S) N/A feet mean sea level, Local Tidal Datum.

*FLOODWAY ☐ Yes ☑ No *FLOOD DEVELOPMENT PERMIT REQUIRED ☐ Yes ☑ No

*For flood hazard area zones X or XS, a flood development permit would be required if any work is done in any drainage facility or stream area that would reduce the capacity of the drainage facility, river, or stream, or adversely affect downstream property.

*For subdivisions in ALL FLOOD HAZARD AREA ZONES (including zones X or XS) that involve streams, gulches, low areas, or any type of draingeway, a designation of the 100 year flood inundation limits or a drainage reserve may be required.

SUBDIVISION CONSISTENCY [*Section 18.04.030(D), Maui County Code*]

☐ N/A (Not Applicable) ☐ **The proposed land uses appear to be consistent _____ a unilateral agreement.

Except as permitted in Section 18.04.030(B) MCC, property containing any Interim Zoning shall NOT be subdivided.

Comments:

☐ **The proposed land uses appear to NOT be consistent.

Comments:

** All proposed subdivisions will be further reviewed during the subdivision application process to verify subdivision consistency, unilateral agreement requirements, and the conditions associated with a unilateral agreement.

REVIEWED & CONFIRMED BY:

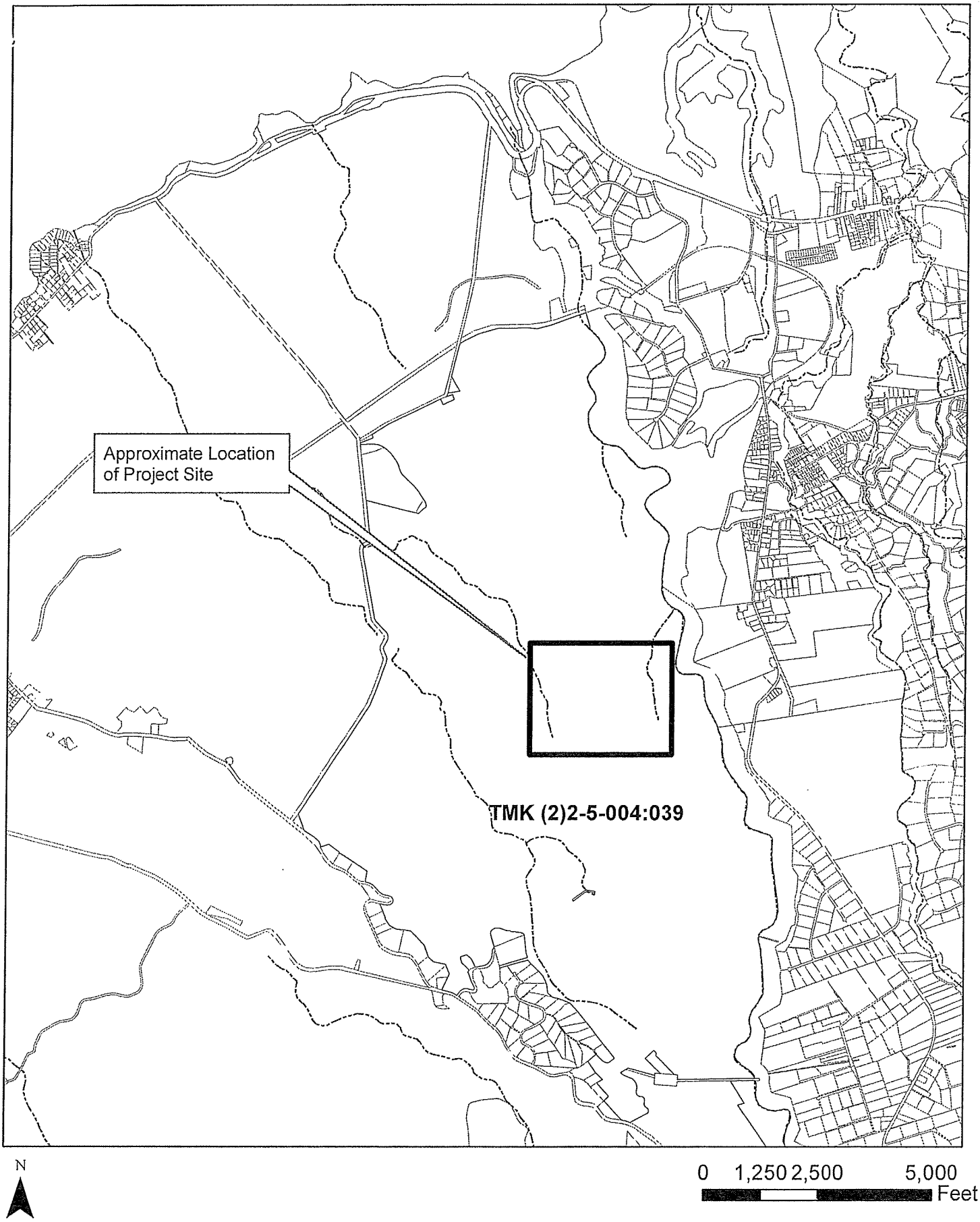
[signature] 3/14/12

(Signature) (Date)

For: AARON SHINMOTO, Planning Program Administrator, Zoning Administration and Enforcement Division

EXHIBIT A

34


Approximate Location
of Project Site
TMK (2)2-5-004:039
N
0 1,250 2,500 5,000
Feet

APR 27 2012

POLICE DEPARTMENT

COUNTY OF MAUI

ALAN M. ARAKAWA
MAYOR

OUR REFERENCE

YOUR REFERENCE

55 MAHALANI STREET
WAILUKU, HAWAII 96793
(808) 244-6400
FAX (808) 244-6411

GARY A. YABUTA
CHIEF OF POLICE

CLAYTON N.Y.W. TOM
DEPUTY CHIEF OF POLICE

April 23, 2012

MEMORANDUM

TO: DAVID TAYLOR, DIRECTOR
DEPARTMENT OF WATER SUPPLY

FROM : GARY A. YABUTA, CHIEF OF POLICE

SUBJECT : EARLY CONSULTATION REQUEST FOR PROPOSED IMPROVEMENTS AT HAMAKUAPOKO WELL NOS. 1 AND 2, TMK (2)2-5-004:039 (POR.), HAMAKUAPOKO, MAUI, HI

_X_ No recommendation or comment to offer.

____ Refer to enclosed comments and/or recommendations.

Thank you for giving us the opportunity to comment on this project.

Assistant Chief Victor K. Ramos
For: GARY A. YABUTA
Chief of Police

c: Cheryl K. Okuma, Munekiyo & Hiraga, Inc.

MAY 07 2012

ALAN M. ARAKAWA
Mayor

DAVID C. GOODE
Director

ROWENA M. DAGDAG-ANDAYA
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
200 SOUTH HIGH STREET, ROOM NO. 434
WAILUKU, MAUI, HAWAII 96793

RALPH NAGAMINE, L.S., P.E.
Development Services Administration

CARY YAMASHITA, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

May 3, 2012

Ms. Cheryl K. Okuma
MUNEKIYO & HIRAGA, INC.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Dear Ms. Okuma:

SUBJECT: EARLY CONSULTATION REQUEST FOR PROPOSED IMPROVEMENTS AT HAMAKUAPOKO WELL NOS. 1 AND 2; TMK: (2) 2-5-004:039 (POR.)

We reviewed your early consultation request and have the following comments:

1. The document indicated that access would be from Holomua Road. The applicant should be advised that Holomua Road coming from Baldwin Avenue to the Old Maui High School is a dirt road. During heavy rains, mud has had occasion to flow onto Holomua Road making this road nearly impassable.

2. Holomua Road coming from Hana Highway crosses a bridge of unknown weight-bearing capacity. An assessment of this bridge structure would be needed if heavy equipment/materials are proposed to be transported over the bridge.

Please call Rowena M. Dagdag-Andaya at 270-7845 if you have any questions regarding this letter.

Sincerely,

DAVID C. GOODE
Director of Public Works

DCG:ls
xc: Highways Division
Engineering Division
S:\LUCA\CZM\prop_improv_at_hamakuapoko_well_1_2_ec_25004039_por_ls.wpd

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

December 14, 2012

Mr. David C. Goode, Director
Department of Public Works
County of Maui
200 South High Street, Room No. 434
Wailuku, Hawaii 96793

Dear Mr. Goode:

Subject: Early Consultation Request for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated May 3, 2012, providing early consultation comments on the proposed improvements at Hamakuapoko Well Nos. 1 and 2. The Department of Water Supply (DWS) offers the following information in response to your comments:

1. Thank you for the information regarding the condition of Holomua Road from Baldwin Avenue to the Old Maui High School. It is noted that the sugarcane access road off is located off of a paved portion of Holomua Road, between Hana Highway and the Old Maui High School. As such, use of the unpaved, dirt segment of Holomua Road is not anticipated.

2. Thank you for the information regarding the bridge structure on Holomua Road coming from Hana Highway. DWS will coordinate with the Department of Public Works to assess the weight-bearing capacity of this bridge if heavy equipment or materials will be transported over the bridge.

We appreciate your input and will include a copy of your comment letter in the Draft Environmental Assessment for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc. at 244-2015.

Sincerely,

David Taylor, P.E.
Director

cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

MAY 1 1 2012

ALAN M. ARAKAWA
Mayor

JO ANNE JOHNSON-WINER
Director

MARC I. TAKAMORI
Deputy Director

Telephone (808) 270-7511

DEPARTMENT OF TRANSPORTATION

COUNTY OF MAUI
200 South High Street
Wailuku, Hawaii, USA 96793-2155

May 4, 2012

Ms. Cheryl Okuma
Munekiyo & Hiraga Inc.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Subject: Proposed Improvements at Hamakuapoko Well No 1 and 2, Maui

Dear Ms. Okuma,

Thank you for the opportunity to comment on this project. We have no comments to make at this time.

Please feel free to contact me if you have any questions.

Sincerely,

Jo Anne Johnson Winer
Director

40

APR 25 2012

Council Chair
Danny A. Mateo

Vice-Chair
Joseph Pontanilla

Council Members
Gladys C. Baisa
Robert Carroll
Elle Cochran
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Director of Council Services
Ken Fukuoka

COUNTY COUNCIL
COUNTY OF MAUI
200 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793
www.mauicounty.gov/council

April 23, 2012

Munekiyo and Hiraga, Inc.
Attention: Cheryl K. Okuma
305 High Street, Suite 104
Wailuku, HI 96793

SUBJECT: Early Consultation Request for Proposed Improvements at Hamakuapoko Well Nos. 1 and 2, TMK (2)2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Dear Ms.Okuma:

Thank you for the opportunity to provide early review and comments for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2, TMK (2)2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii.

After review of the information presented, I am in support of the proposed improvements and have no further comments at this time.

Sincerely,

JOSEPH PONTANILLA,
COUNCIL VICE CHAIR

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

December 14, 2012

Joseph Pontanilla, Council Vice Chair
County Council
County of Maui
200 S. High Street
Wailuku, Hawaii 96793

Dear Council Vice Chair Pontanilla:

Subject: Early Consultation Request for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated April 23, 2012, providing early consultation comments on the proposed improvements at Hamakuapoko Well Nos. 1 and 2. The Department of Water Supply (DWS) acknowledges and thanks you for your support of the proposed project.

We appreciate your input and will include a copy of your comment letter in the Draft Environmental Assessment for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc. at (808) 244-2015.

Sincerely,

David Taylor, P.E.
Director

cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

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822 Bishop Street
Honolulu, Hawaii 96813
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Honolulu, Hawaii 96801-3440
www.alexanderbaldwin.com
tel (808) 525-6669
fax (808) 525-6677
email mching@abinc.com

ALEXANDER & BALDWIN, INC.

MEREDITH J. CHING
Senior Vice President

May 9, 2012

Munekiyo & Hiraga, Inc.
Attention: Cheryl K. Okuma
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Okuma:

RE: Early Consultation Request for Proposed Improvements at Hamakuapoko Well Nos. 1 and 2, TMK (2)2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letters of April 17, 2012 to A&B Properties and HC&S advising us of the upcoming preparation of a Draft EA for the subject project, intended to provide agricultural water, water for use by consumers on the DWS' Upcountry Water System (UCWS) during declared drought events, and to serve as backup capacity for the UCWS.

Your letter notes that the County is currently in negotiations with A&B on the subdivision and acquisition of the two wells sites, as well as a new tank site. Please note that the County will also need to work with the company on securing various easements across A&B land for the pipelines as well as to provide access to the wells. We can provide a list of the specific easements which we believe are involved with this project.

Thank you for this opportunity to comment. We look forward to further consultation with you and the DWS.

Very truly yours,

Meredith J. Ching

Meredith J. Ching

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

December 14, 2012

Ms. Meredith Ching
Alexander & Baldwin, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

Dear Ms. Ching:

Subject: Early Consultation Request for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated May 9, 2012, providing early consultation comments on the proposed improvements at Hamakuapoko Well Nos. 1 and 2. The Department of Water Supply (DWS) acknowledges that the County will work with Alexander & Baldwin, Inc. to secure various easements across A&B land for pipelines and to provide access to the well sites. DWS staff will coordinate with your office regarding the specific easements that would be involved for the proposed project.

We appreciate your input and will include a copy of your comment letter in the Draft Environmental Assessment for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc. at (808) 244-2015.

Sincerely,

David Taylor, P.E.
Director

cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, AICP, Munekiyo & Hiraga, Inc.

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MAUI HC&S
HAWAIIAN COMMERCIAL & SUGAR COMPANY

JUN 22 2012

June 21, 2012

Department of Water Supply
c/o Munekiyo & Hiraga Inc.
Attention: Ms. Cheryl K. Okuma
305 High Street, Suite 304
Wailuku, Hawaii 96793

Dear Ms. Okuma:

Re: Hamakuapoko Wells

As per your request below is a list of the specific easements which we believe are involved with the above referenced project:

1) Access easement from County owned Holomua Road through HC&S field 100 hauler road to H'Poko Well # 1. Access easement area required is 3.917 acres.
2) Access and pipeline easement from H'Poko Well # 1 through field 118 hauler road and 117 field road to H'Poko Well # 2. Access easement area required is 1.959 acres.
3) Pipeline easement from H'Poko Well # 2 through field 116 and along field 118 hauler road up to Kamole water treatment plant. Pipeline easement area required is 3.376 acres.
4) Pipeline easement (36" pipeline connection to County system) from H'Poko Well # 2 through fields 117 and 102 to County owned Holomua Road. The original plan shows the pipeline easement area from H'Poko Well # 1 to Holomua Road at 5.770 acres but the area needs to be revised to reflect the route beginning from H'Poko Well # 2.
5) Pipeline easement (36" pipeline) from County owned Baldwin Avenue through fields 200, 205 and 208 and along Paia Mill hauler road to the top of field 600. The map shows an easement area of 11.327 acres but this area needs to be revised because the section from the top of field 600 to the Hana Highway has not been constructed.

Please contact me at 877-6950 if you have any questions

Sincerely,

Garret Hew

Garret Hew
Manager, Water Resources

HAWAIIAN COMMERCIAL & SUGAR COMPANY A DIVISION OF ALEXANDER & BALDWIN, INC.
P. O. BOX 266 PUUNENE, MAUI, HAWAII 96784 TEL 808-877-6978 FAX 808-871-2149

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

December 14, 2012

Mr. Garret Hew
Hawaiian Commercial & Sugar Company
P.O. Box 266
Puunene, Hawaii 96784

Dear Mr. Hew:

Subject: Early Consultation Request for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated June 21, 2012, providing early consultation comments on the proposed improvements at Hamakuapoko Well Nos. 1 and 2. The Department of Water Supply has reviewed the list of easements noted in your letter and the Department of Water Supply (DWS) will work with Alexander & Baldwin, Inc. and Hawaiian Commercial & Sugar Company to secure the various easements that will be necessary for the subject project.

We appreciate your input and will include a copy of your comment letter in the Draft Environmental Assessment for the proposed project. Should you have any questions, please feel free to contact our planning consultants, Mark Alexander Roy or Tessa Munekiyo Ng of Munekiyo & Hiraga, Inc. at (808) 244-2015.

Sincerely,

David Taylor, P.E., Director

cc: Jeff Pearson, County of Maui, Department of Water Supply
Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, AICP, Munekiyo & Hiraga, Inc.

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APR 27 2012

April 25, 2012

Munekiyo & Hiraga, Inc.
Attn: Ms. Cheryl Okuma
305 High Street, Suite 104
Wailuku, Hawaii 96793

Subject: Early Consultation Request for Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
Tax Map Key: (2) 2-5-004:039 (por.)
Hamakuapoko, Maui, Hawaii

Dear Ms. Okuma,

Thank you for allowing us to comment on the Early Consulation for the subject project.

In reviewing our records and the information received, Maui Electric Company (MECO) would like to highly encourage the customer's electrical consultant to submit electrical drawings to us as soon as practical to address and coordinate any possible relocations of our facilities. Since this project's anticipated electrical demand may have a substantial impact to our system, we encourage the customer's electrical consultant to submit the electrical demand requirements and project time schedule as soon as practical so that service can be provided on a timely basis. MECO may need to complete system upgrades to accommodate the anticipated electrical load.

Should you have any questions or concerns, please call Kelcie Kawamura 872-3246.

Sincerely,

Ray Okazaki
Supervisor, Engineering

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

December 14, 2012

Mr. Ray Okazaki, Supervisor
Maui Electric Company, Ltd.
P.O. Box 398
Kahului, Hawaii 96733-6898

Dear Mr. Okazaki:

Subject: Early Consultation Request for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated April 25, 2012, providing early consultation comments on the proposed improvements at Hamakuapoko Well Nos. 1 and 2. The Department of Water Supply (DWS) offers the following information in response to the comments noted in your letter.

The proposed improvements to and subsequent reopening of the Hamakuapoko Well Nos. 1 and 2 would allow for 1.5 million gallons per day (mgd) of water to be pumped at the two (2) wells. This is the same level of pumping that occurred between 2000 and 2006 when the Hamakuapoko wells were in operation. As such, the anticipated electrical demand associated with the reopening of the two (2) wells is comparable to the electrical demand from the well sites between 2000 and 2006.

DWS will coordinate with Maui Electric Company, Ltd. to provide information on electrical demand requirements in advance of the reopening of the wells. The Draft Environmental Assessment for the proposed project will outline the anticipated project time schedule.

We appreciate your input and will include a copy of your organization's comment letter in the Draft Environmental Assessment for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc. at (808) 244-2015.

Sincerely,

David Taylor, P.E.
Director

cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

MAY 01 2012

Hawaiian Telcom

April 27, 2012

Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

ATTN: Cheryl K. Okuma
Phone: (808) 244-2015

SUBJECT: EARLY CONSULTATION REQUEST FOR PROPOSED IMPROVEMENTS AT HAMAKUAPOKO WELL NOS. 1 AND 2
TMK: (2) 2-5-004:039 (por)
HAMAKUAPOKO, MAUI, HAWAII

Dear Ms. Okuma:

Thank you for providing Hawaiian Telcom Incorporated, the opportunity to comment on the early consultation for the proposed improvements at Hamakuapoko Well Nos. 1 and 2 project.

The described subject project occurs near existing aerial facilities. Please contact our Outside Plant Engineering Department area engineer Sheri Tihada at (808) 242-5258 regarding any facility rearrangement or pole shoring/reinforcement, if required, or with any questions regarding this project.

Sincerely,

Gerry Saguciо
Section Manager –
Network Engineering & Planning

C: File (3005 1204-016)
S. Tihada

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

December 14, 2012

Mr. Gary Sagucio, Section Manager
Hawaiian Telcom
P.O. Box 2200
Honolulu, Hawaii 96841

Dear Mr. Sagucio:

Subject:: Early Consultation Request for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated April 27, 2012, providing early consultation comments on the proposed improvements at Hamakuapoko Well Nos. 1 and 2. The County of Maui, Department of Water Supply (DWS) offers the following information in response to the comments noted in your letter.

We acknowledge that the project occurs near existing aerial facilities. The proposed improvements are primarily limited to the replacement of existing equipment within the Hamakuapoko Well Nos. 1 and 2 project sites. A new 150,000 gallon water tank is also proposed on land adjacent to the Well No. 2 project site. It is noted that several alternative locations were analyzed for the new tank and the location of existing aerial utility facilities was taken into consideration during the site selection process.

DWS does not anticipate the need for any facility rearrangement or pole shoring or reinforcement. However, should the need for this arise, DWS will contact Hawaiian Telcom's Outside Plant Engineering Department area engineer.

We appreciate your input and will include a copy of your organization's comment letter in the Draft Environmental Assessment for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc. at (808) 244-2015.

Sincerely,

David Taylor, P.E.
Director

cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

Mark Roy

From: Alan Kaufman [alankaufmandvm@gmail.com]
Sent: Thursday, May 03, 2012 4:11 PM
To: Colleen Suyama
Subject: H'poko wells

County Water Director David Taylor is requesting that

the public submit questions and issues of concern

regarding the resurrection of the two water wells at

Hamakuapoko

It's time for the Hamakuapoko wells to be brought into the county system and water made available for those who need it.
Concerns about contaminants are legitimate and can be legitimately addressed with proper treatment and filtration protocols. Institute those protocols and get the water into the system.
Thank you.

--
Alan Kaufman, DVM
808 870 9861

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

December 14, 2012

Mr. Alan Kaufman
Via e-mail: alankaufmandvm@gmail.com

Dear Mr. Kaufman:

Subject: Early Consultation Request for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your email, dated May 3, 2012, providing early consultation comments on the proposed improvements at Hamakuapoko Well Nos. 1 and 2. The County of Maui, Department of Water Supply (DWS) offers the following information in response to your comments:

1. DWS acknowledges your comment about the need for the Hamakuapoko wells to be returned to the County system and water made available for those who need it. The Hamakuapoko Well Nos. 1 and 2 will be reopened for agricultural use, use for customers of the Upcountry Water System (UCWS) during declared drought events, and also to serve as backup capacity for the UCWS. Once the Hamakuapoko Wells are reopened, the existing Pookela Well, which currently serves as backup for the UCWS, will be made available for full-time production and new water meters may be issued to applicants on the water meter waiting list.

2. We note your desire for DWS to institute proper water treatment protocols to address concerns regarding contaminants in the water. In 1999, DWS installed a Granular Activated Carbon (GAC) Treatment facility at Well No. 2 that is capable of treating water from both wells. Water from Hamakuapoko Well No. 1 is transported to Well No. 2 where the combined water drawn from the two (2) wells flow through the treatment process provided by the GAC chambers. The GAC method treats water when the water flows downward from the top of a pressurized vessel through a bed of activated carbon. Active carbon refers to an extremely porous form of carbon, which gives it a very large surface area for absorption of contaminants. The GAC treatment process will be utilized

again when the Hamakuapoko wells are reopened. The treated water from the system meets State Department of Health standards for drinking water. GAC systems are an industry standard and have been proven in Maui County. The Department of Health approved the Hamakuapoko Well Nos. 1 and 2 for use as drinking water after treatment in 2000 and DOH reaffirmed that position during Maui County Council deliberations in 2011.

We appreciate your input and will include a copy of your e-mail in the Draft Environmental Assessment for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc. at (808) 244-2015.

Sincerely,

David Taylor, P.E.
Director

cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

From: Colleen Suyama <Colleen@mhplanning.com>
Date: May 7, 2012 4:28:40 PM HST
To: Cheryl Okuma <Cheryl@mhplanning.com>, Mark Roy <mark@mhplanning.com>
Subject: H'poko Wells

Colleen Suyama
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793
Telephone: (808) 244-2015
Facsimile: (808) 244-8729
Email: colleen@mhplanning.com

CONFIDENTIAL AND PRIVILEGED COMMUNICATION: This message (including attachments) is intended for the use of the designated recipient(s) named above. The contents of this correspondence is considered privileged and confidential. If you have received this message in error, kindly notify us immediately by email or telephone, and delete this email from your computer system. Thank you.

Aloha Colleen,
I'm submitting the following comments in response to a request for input regarding the preparation of draft EA for the proposed H'poko Wells 1 and 2 Improvement Project:

1) Presumably, water from H'poko wells 1 and 2 will be stored until need is triggered by any of the three conditions. What's the size of proposed storage tank(s) at site #2 and how long is the anticipated holding time in between triggers of events? Will the water be chlorinated before or after storage? This could have bearing on where at Kamole Weir treatment plant H'poko water is introduced.
2) Will GAC treatment of the water done to a level that will allow for dilution when mixed with Kamole Weir water, or will treatment be to absolute potable water quality standards?
3) At what point in Kamole Weir treatment plant will water from H'poko wells be mixed? Location of introduction point could probably provide additional level of hazardous contaminant reduction/removal without additional treatment, which means additional level of safety for the users. It is my understanding that Kamole Weir treatment plant removes organic solids by a combination of flocculation and membrane filtration. If so, the organics can possibly provide additional surface for adsorption of dissolved contaminants remaining in the H'poko water (although it would be argued that the GAC removes them to "safe" level).
4) Will the Old Maui high be allowed to connect to the H'poko wells for source of "potable water" and for fire protection? As you may know, the Old Maui High rehabilitation project depends on having adequate water standards.

Thank you for the opportunity to comment. Please feel free to ask should you have any questions.
Mahalo- Victor

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

December 14, 2012

Mr. Victor Reyes
vgreyes@hawaiiantel.net

Dear Mr. Reyes:

Subject: Early Consultation Request for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your email, dated May 7, 2012, providing early consultation comments on the proposed improvements at Hamakuapoko Well Nos. 1 and 2. The Department of Water Supply (DWS) offers the following information in response to your comments.

1. The proposed water tank at Well No. 2 will be 150,000 gallons. Water will be chlorinated prior to entering the tank. Flow through the tank will be continuous and will only take place when there is need for water in the Upcountry Water System.

2. Consistent with the Department of Health's approval of the Hamakuapoko Wells as a drinking water source, the GAC treatment units will deliver potable water of the quality that meets the drinking water standards established by Hawaii Administrative Rules, Title 11, Chapter 20. The treatment will achieve potable water quality standards before it enters the clear well at Kamole Weir Water Treatment facility. In other words, compliance with water quality standards will be achieved prior to dilution with treated surface water from the Wailoa Ditch in the clear well.

3. The water from the Hamakuapoko Wells intended for potable uses, following treatment by the GAC unit, will enter the Kamole Water Treatment Facility at the infiltrate line before the clearwell chlorine contact chamber. In addition to the treatment provided by the GAC units, the combined flows shall be continuously disinfected in compliance with the Surface Water Treatment Rule requirement.

The water from the Hamakuapoko Well Nos. 1 and 2 will be made available for agricultural use, use during declared drought events, and as backup for the UCWS. The Old Maui High School is located within the Central Maui Water System. However, connection between the Old Maui High School and the Hamakuapoko Wells is not included in the scope of work for this repair and maintenance project.We appreciate your input and will include a copy of your email in the Draft Environmental Assessment for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc. at (808) 244-2015.

Sincerely,

David Taylor, P.E.
Director

cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

FROM: Dick Mayer 1111 Lower Kimo Dr. Kula, HI 96790
dickmayer@earthlink.net **May 7, 2012**

TO: Ms. Cheryl K. Okuma, Munekiyo and Hiraga, Inc.
cheryl@mhplanning.com

RE: ENVIRONMENTAL ASSESSMENT: HAMAKUAPOKO WELLS:
QUESTIONS TO BE ANSWERED IN THE ENVIRONMENTAL ASSESSMENT

Mahalo for the opportunity to provide comments for the two Hamakuapoko Wells Environmental Assessment. I am pleased that you are soliciting matters to be discussed at this early stage, before actually preparing the EA.

Hopefully the issues raised and the questions asked below will be fully discussed in the upcoming environmental assessment or in a more complete environmental impact statement. Although some issues overlap more than one category, my comments are divided into three categories: a) Economic; b) Reliability; c) Health.

ECONOMIC QUESTIONS:

1. **What does the 1999 County DBCP Water Well settlement cover?**
Hamakuapoko well number 1 appears from County testing records to now have TCP, but not DBCP contamination. Does the County's 1999 settlement with the chemical companies still cover all costs of filtering that water, or is the County obligated to pay, since the agreement refers to DBCP only, and the need for DBCP to "exceed specified levels" in the well?

For reference: Maui County's 1999 settlement states that: "until December 1, 2039", *the DBCP manufacturers will ". . . pay for 90% of the capital cost to install filtration systems in any future water wells if the presence of a nematocide, commonly known as DBCP, exceeds specified levels, and for the ongoing maintenance and operating cost for filtration systems on existing and future wells."*

2. **Costs of pumping well water up to the ditch?**
Former DWS Water Director Eng stated (2009 Water Resources Committee Meeting) that it would be too costly, ($2 to $3 /1000 gal.) to pump Hamakuapoko well water to a nearby EMI ditch for agricultural use, yet the wells must be used regularly or the carbon filters can become subject to bacteria growth. Each well pump has a capacity of 500 gpm. If they are both pumped daily at capacity, cost would be around $3,000/day or nearly $1 million/yr. How many days will the wells be pumped when they are not being used for back up, and where will the water go? Are all pumping costs covered by the 1999 legal settlement, or will DWS have to bear the costs? Will the County system get any water in exchange from HC&S system if Hamakuapoko wells are pumped to an EMI irrigation ditch? What is the rate that the County will charge HC&S for the H'poko well water that is put into the ditch? Will HC&S be willing to pay that rate?

3. **Costs of pumping H'poko well water to Upcountry reservoirs?**

If the H'poko wells become back-up wells, how much will it cost to pump them to the surface and then send the water upcountry, compared to pumping and distributing water from the County's Po'okela well which they are replacing? How much will it cost to deliver the water to the ditch, or Kamaole treatment plant year round, or pump the water up to the upper system when needed? Director Taylor says it's the same cost to use either the Po'okela or Hamakuapoko wells. Please show the comparative cost estimates: A) Are there any capital costs putting in any new distribution lines? B) To install pumps to send water uphill (in addition to the pumps within the wells)? C) To build water tanks and/or reservoirs to store the additional water from H'poko wells?

4. **Costs of Nitrate monitoring and clean up?**

In a 2006 meeting DWS staff promised that the Dept. "will install a continuous nitrate meter on wells." Will the DWS comply? If testing shows nitrate levels having risen since 2004, as has happened in Oahu wells, will the DWS need to install a separate filter system to remove the nitrates, since the Granulate Active Charcoal (GAC) filter does not remove nitrates? Can nitrates interfere with absorption of the pesticide residue in the pumped water and make GAC filter changes more frequent and costly? Mayor Arakawa said a nitrate treatment plant would cost an additional $2 million. Is there land and funding available for such a facility? Does the DBCP settlement cover these costs?

5. **Costs of pumping equipment or tests?**

Will the Hamakuapoko wells need new pumps or filters, since they haven't been used in seven years? How much will that cost? Will a 10 day test be done to determine a sustainable pumping rate, and to determine chemical levels present in the wells? Will there be costs for these tests? Does the 1999 settlement with the chemical companies pay for this testing? If not, is it in the DWS budget?

6. **Added costs of monitoring contaminant removal?**

Jackie Takakura, DWS spokesperson, stated (2006) that compliance samples for nitrates and DBCP, etc. will be done monthly and sent to an independent lab, with results submitted to DOH. She also noted that GAC filters will be tested every two weeks. She offered that "testing will be double what is required. Nitrates will be monitored continuously". Former Director Eng (2009) on the other hand, told the Water Resources Committee that monitoring of the filters "could go as infrequent as every quarter."

Since the Hamakuapoko wells have not been tested since 2004, what will be the County's NEW policy on monitoring for Nitrates, DBCP, TCP, EDB and other chemicals in the two wells and how much would this extra effort cost in staff time and lab fees? Are these costs covered by the settlement? If not, will this water be more costly per gallon than other sources? Please provide actual costs and comparisons.

7. **Are there added costs of debt service?**
Mr. Taylor told the Water Resource Committee that it would take two years and cost $2 million to get the Hamakuapoko wells operational. Will the DWS need to borrow the funds needed for the upgrades and then pay them back gradually as water meters are issued, or are funds now available? Will the true costs of Hamakuapoko activation be more than the $2 million cost? For example, if the full activation costs were $4 million, and the well allowed 500 meters to be issued, that would only bring in $3 million at current rates of $6,000/meter. Will rates need to go up to $8,000/ meter to cover real costs of well activation and infrastructure improvements? How much of the cost of the upgrades will be paid from 1999 settlement funds?

8. **The big question: Cost effective choices?**
Please complete a cost comparison: getting water from the H'poko wells as compared to alternatives: a) taking additional non-chemically saturated water from the ditch at Kamaole (since the County has additional, low-cost rights to this water supply, and HC&S could take over the H'poko wells for agricultural use); b) drilling a new well upcountry (in addition to Po'okela); c) repairing the Waikamoi flume; and d) any other viable alternative.

RELIABILITY QUESTIONS:

8. **On site infrastructure needs?**
In 2006 DWS was working to get electricity connected at the well site. Has this been done, or will pump tests require use of the generator that has been on site for years? And will electrical connections now have to be provided? What is the long-term proposal to provide electricity? Is wind power a viable option? What are the costs?

9. **Sustainable yield / water quality data?**
The Water Department wanted a 10-day pump test of a private upcountry well's capacity before it would be acceptable. Hamakuapoko wells were only tested for 48 hrs. back in the 1990's. The State DOH also mentioned in 2009 that continuous pumping would be needed to test the well's water quality. If testing, or continuous use shows the wells' sustainable yields to be lower than expected, will the County be able to still have the wells qualify as back up for Po'okela well? Is there a Plan B?

10. **Is other infrastructure ready for Upcountry meter list customers?**
A main purpose of activating the Hamakuapoko wells is to issue meters to those on the upcountry list as soon as possible. Do Haiku and Makawao storage tanks have additional capacity to serve those on the meter list if water would become available, or would more improvements be needed to supplement the upcountry storage and distribution system? Describe these improvements and their costs.

11. <u>Pa'ia Aquifer Capacity.</u>

The Pa'ia aquifer from which the Hamakuapoko wells would draw is described in several water studies as thin, mostly brackish, and relying on artificial recharge from leaking reservoirs and agricultural irrigation for its potable water capacity. The State's 2008 Water Resources Protection Plan (WRPP) describes Pa'ia Aquifer (p. 83) as being artificially augmented by surface (stream) water imported from East Maui. If this imported source diminishes, will the wells remain viable? This is important data to have if we want to offer Upcountry homeowners and farmers a long-term reliable water source.

The exact quote from WRPP:

> <u>"Sustainable Yield ignores significant importation of surface water into Paia from outside the aquifer system area. This explains the ability to withdraw fresh water from the aquifer at significantly higher rates than the sustainable yield without apparent negative impacts (i.e. rising chloride concentrations or decreasing water levels)."</u>

Will the Hamakuapoko wells yield 1.5 MGD of potable water? If A&B converts HC&S sugar plantation to housing or reduces/eliminates sugar farming (as all of the other Hawaii sugar plantations have already done), would the Hamakuapoko wells still reliably produce up to .75 MGD each? How can we protect our investment, or should we make the investment at all?

12. Again the big question: <u>Cost effective choices?</u>

Is it more cost effective to spend two years and several million dollars to bring a water source on line for the upcountry system which is at a low elevation, has an untested output, and has potentially ongoing water quality issues and related rising maintenance costs; or let A&B have the use of H'poko water and have the DWS take more water from the ditch at the Kamaole Wier site, as is allowed in the agreement with A&B?

13. Unusual situations:

One of the conditions allowed in the ordinance is for the "agricultural use" of H'poko water. Will agriculture-destined water be GAC filtered just like drinking water? If not, how will agricultural water be separated from the public drinking water supply? If yes, is this a cost-effective approach?

The H'poko well is intended as a back-up. When another part of the Upcountry Water Supply system fails, how quickly can the H'poko filter system and the water it filters be lab tested as safe drinking water?

HEALTH QUESTIONS: Residents should have healthful choices available. The DWS has the ability and obligation to provide water from safe and clean sources.

14. Safe system waste disposal.

What is the current Department view on filtration system design? How many pounds of GAC filter material a year will the chemical company settlement pay for? Will the GAC filters from the Hamakuapoko wells be backwashed? If so where do the concentrated toxins in the effluent go? If nitrate treatment is needed, where will the toxic effluent go? The remote Hamakuapoko well location has no sewer system.

15. Effect of nitrates in the water supply.

Nitrates are very dangerous for infants, the young and elderly; exposure over time to tiny amounts can cause liver and kidney damage. DWS staff member, Ms. Takakura informed the public in 2006 that Hamakuapoko well 2 has higher nitrate levels than well 1. The figures she gave for well 2: between 3.5 and 6.75 mg/ltr, are as high as the infamous Kunia wells on O'ahu. That drinking water source, although its wells did not test above the Health Department's "maximum levels" for nitrates, impacted the health of nearby residents and the Honolulu Water Dept. is securing funds for installation of a filter to remove the nitrates.

Nitrate levels have risen over time in O'ahu wells. The Hamakuapoko wells, surrounded by active cane fields which have nitrate fertilizer regularly applied, are may do the same. GAC (charcoal) filters don't remove nitrates. How will public health be protected if this nitrate contaminated water is sent upcountry? Does the Kamaole treatment plant have ion filters to remove them? Is this well location a good long-term investment?

If the H'poko well water is sent upcountry during drought periods, as it is being programmed to do, it may not be diluted with other waters, scarce during that period. Therefore, it is absolutely necessary to remove the nitrates.

16. Frequency and effectiveness of water quality testing?

How often will the GAC filters be monitored to make sure they are not "full' or "furrowed" and letting contaminants pass through? Ms. Takakura informed the public that water will flow through two GAC filters, and each filter has sampling points at four different locations "to ensure removal of all 3 contaminants to no detectible levels." Mr. Eng told the Council in 2009 that only one filter would be used.

Either way, the interpretation of "no detectible levels" can mean low levels of pollutants ARE present after filtration, but not detectable. However, "no detectable levels" does NOT mean the water is safe and without a health threat.

17. **The Vulnerable**

For those people whose medical situation makes them most in danger from some of the chemicals in the well water, what provision can be made to notify them that water from the H'poko wells is being introduced into the water supply? This would allow them to use bottled water or some other alternative to DWS water.

18. **Are EPA and Health Department Water quality standards behind the times?**

When DBCP was banned in 1979 across the mainland, Hawaii Health Dept. officials told EPA it could be safely used in Hawaii, because they were certain it wouldn't leach into our aquifers. Apparently this was not the case; perhaps a political and financial decision was made.

Many potentially toxic products continue to be approved for use by EPA, only to be eventually proven harmful. No standards or testing is done for these for many years, yet they can combine in our water supply to form a chemical soup. Our keiki and kupuna are particularly at risk.

Since the public cannot always assume that state and federal regulators have adequate information to protect public health, what can be done to go beyond what DOH and EPA require, to minimize the public's exposure to even small doses of deadly or dangerous chemicals?

19. **What is the long-term water testing program for these H'poko waters?**

Since health concerns were the major reason that the Maui County Council previously banned the use of these waters, it is absolutely necessary for the Environmental Assessment to assure the general public, those who have compromised medical situations, and those who are elderly or very young that this water is safe. The EA must provide a complete description of the water testing program: a) when the wells are first pumped, and b) thereafter on an ongoing basis whenever the water is inserted into the drinking water supply.

Who will do the testing? What is the competency of the personnel, and of the testing lab? How often will the tests be conducted? What chemicals will be tested? How will the public be rapidly informed of the results (instead of the present system of year-end reports of what chemicals were found in the water)?

CC: Director David Taylor, Department of Water Supply **david.taylor@mauicounty.gov**
Councilmember Gladys Baisa **gladys.baisa@mauicounty.us**
Councilmember Mike White **mike.white@mauicounty.us**

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December 14, 2012

Mr. Dick Mayer
1111 Lower Kimo Drive
Kula, Hawaii 96788

Dear Mr. Mayer:

Subject: Early Consultation Request for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated May 7, 2012, providing early consultation input on the Draft Environmental Assessment (EA) that is being prepared for the proposed improvements at Hamakuapoko Well Nos. 1 and 2 in Hamakuapoko, Maui, Hawaii. The following responses are provided in the order of the comments presented in your letter:

- ***Comment (1): What does the 1999 County DBCP Water Well settlement cover?***

  Hamakuapoko Well No. 1 appears from County testing records to now have TCP, but not DBCP contamination. Does the County's 1999 settlement with the chemical companies still cover all costs of filtering that water, or is the County obligated to pay, since the agreement refers to DBCP only, and the need for DBCP to "exceed specified levels" in the well?

  For reference: Maui County's 1999 settlement states that: "until December 1, 2039", the DBCP manufacturers will ... pay for 90 percent of the capital cost to install filtration systems in any future water wells if the presence of a nematocide, commonly known as DBCP, exceeds specified levels, and for the ongoing maintenance and operating cost for filtration systems on existing and future wells."

Response:

The terms of the 1999 settlement agreement requiring that manufacturers of 1 and 2 dibromo-3-chloro propane (DBCP) reimburse the County for certain capital costs is effective until December 1, 2039. The requirement that DBCP manufacturers reimburse the capital costs incurred by the County for the installation of Granulated Activation Carbon (GAC) filtration systems in existing and future water wells is triggered when DBCP is found in the water supply and exceeds Maximum Contaminant Levels (MCL) set by State Department of Health (DOH) regulations. The agreement covers several DWS facilities, including Hamakuapoko Well Nos. 1 and 2.

The 1999 settlement agreement limits the DBCP manufacturers' responsibility to pay for the capital costs of installing GAC systems when DBCP exceeds the MCLs. DBCP manufacturers' payment for GAC operations and maintenance costs varies and the amounts are capped based on well yields and the number of GAC vessels. The County is reimbursed by DBCP manufacturers under the terms set forth in the agreement.

The DCBP manufacturer's obligation under the settlement agreement does not apply to the presence of other chemicals beyond DBCP. In accordance with requirements set by the U.S. Environmental Protection Agency (EPA) and DOH, the Department of Water Supply (DWS) monitors and tests the quality of water pumped from its wells for other regulated chemicals, including DBCP and these results are reported to DOH and DWS customers.

DOH has established a State MCL for TCP at .6 parts per billion (ppb). TCP has been detected at the wellheads where water is first pumped from the ground source. The drawn groundwater is fed to the GAC unit located at the Hamakuapoko Well No. 2 site and is then treated. Testing conducted after GAC treatment has not detected TCP in the water. The treated water is then pumped to the Kamole Water Treatment Plant (WTP).

- ***Comment (2): Costs of pumping well water up to the ditch?***

Former DWS Director Jeffrey Eng stated (2009 Water Resources Committee Meeting) that it would be too costly, ($2 to $3 /1000 gal.) to pump Hamakuapoko well water to a nearby EMI ditch for agricultural use, yet the wells must be used regularly or the carbon filters can become subject to bacteria growth. Each well pump has a capacity of 500 gpm. If they are both pumped daily at capacity, cost would be around $3,000/day or nearly $1 million/yr. How many days will the wells be pumped when they are not being used for back-up, and where will the water go? Are all pumping costs covered by the 1999 legal settlement, or will DWS have to bear the costs? Will the County system get any water in exchange from HC&S system if Hamakuapoko wells are pumped to an EMI

irrigation ditch? What is the rate that the County will charge HC&S for the Hamakuapoko well water that is put into the ditch? Will HC&S be willing to pay that rate?

Response:

Pumping costs associated with well operations are not covered by the 1999 settlement agreement and remain the responsibility of the County.

When Hamakuapoko Well Nos. 1 and 2 are not used for back-up they will be pumped as needed to keep the wells operational and to maintain the integrity of the GAC treatment unit. The GAC carbon filters are regularly maintained and replaced. After undergoing treatment through the GAC chambers at the Hamakuapoko Well No. 2 site, the water will feed into a new water storage tank adjacent to this well site. Water from the new storage tank will be pumped through a 12-inch pipe to the Kamole WTP which is located approximately 1 mile south of Hamakuapoko Well No. 2. The water pumped from the Hamakuapoko Well Nos. 1 and No. 2 will not be pumped to the EMI irrigation ditch owned by Hawaiian Commercial & Sugar Company.

- ***Comment (3): Costs of pumping Hamakuapoko well water to Upcountry reservoirs?***

If the Hamakuapoko wells become back-up wells, how much will it cost to pump them to the surface and then send the water upcountry, compared to pumping and distributing water from the County's Pookela well which they are replacing? How much will it cost to deliver the water to the ditch, or Kamaole treatment plant year round, or pump the water up to the upper system when needed? Director Taylor says it's the same cost to use either the Po'okela or Hamakuapoko wells. Please show the comparative cost estimates: A) Are there any capital costs putting in any new distribution lines? B) To install pumps to send water uphill (in addition to the pumps within the wells)? C) To build water tanks and/or reservoirs to store the additional water from Hamakuapoko wells?

Response:

DWS staff will operate the Hamakuapoko wells to provide enhanced reliability for the Upcountry Water System. The wells will be used as back-up during times of reduced surface water storage due to drought conditions or when there is high customer demand. In regards to pumpage, as groundwater sits on top of seawater at or near zero sea level, the height distance required to pump groundwater to Upcountry Water System users is generally about the same for any well regardless of location.

To provide storage capacity as part of this project a new water tank is being proposed at the Hamakuapoko Well No. 2 site. A site plan identifying the selected location for this new tank will be provided in the Draft EA as well as an estimated construction cost for the subject project.

- ***Comment (4): Costs of Nitrate monitoring and clean up?***

In a 2006 meeting DWS staff promised that the Dept. "will install a continuous nitrate meter on wells." Will the DWS comply? If testing shows nitrate levels having risen since 2004, as has happened in Oahu wells, will the DWS need to install a separate filter system to remove the nitrates, since the Granulate Active Charcoal (GAC) filter does not remove nitrates? Can nitrates interfere with absorption of the pesticide residue in the pumped water and make GAC filter changes more frequent and costly? Mayor Arakawa said a nitrate treatment plant would cost an additional $2 million. Is there land and funding available for such a facility? Does the DBCP settlement cover these costs?

Response:

DWS has a program to regularly monitor and test for nitrates in all its groundwater wells and this program will include the Hamakuapoko Well Nos. 1 and 2 once they become operational.

Prior monitoring results at the wells (following GAC treatment) detected the presence of nitrates at levels below the MCL, which is the standard set by DOH as being safe for potable water use. Nitrates do not interfere with the GAC filters and will not increase the frequency of filter replacement or costs. As the 1999 settlement agreement does not cover the cost of nitrate removal, additional funding and available land would be needed for the construction of a nitrate treatment system, in the event that this would be warranted due to possible elevated nitrate levels in the future. This additional level of treatment is, however, not anticipated to be warranted at this time and as such, is not included in the proposed scope of work for this project.

- ***Comment (5): Costs of pumping equipment or tests?***

Will the Hamakuapoko wells need new pumps or filters, since they haven't been used in seven years? How much will that cost? Will a 10 day test be done to determine a sustainable pumping rate, and to determine chemical levels present in the wells? Will there be costs for these tests? Does the 1999 settlement with the chemical companies pay for this testing? If not, is it in the DWS budget?

Response:

Constant rate tests to determine sustainable pumpage were completed in 1999 during the initial commissioning of Hamakuapoko Well Nos. 1 and 2.

In regards to the proposed improvements, existing motors and pumps will be replaced with submersible pumps at the two (2) wells. The GAC chambers located on the Hamakuapoko Well No. 2 site will have new filter media installed prior to re-initiation of operations. The cost of replacement of GAC filter media will be reimbursed to the County by the DBCP manufacturers in accordance with the terms of the 1999 settlement agreement. The settlement agreement does not cover the cost of well testing to determine the presence of chemicals in the wells, other than DBCP. Similar to other County owned and operated drinking water facilities, water quality testing at Hamakuapoko Wells Nos. 1 and 2 is an operational cost that would be borne by DWS.

The Hamakuapoko Well Nos. 1 and 2 will deliver drinking water of the quality that complies with the State DOH drinking water requirements as set forth in Hawaii Administrative Rules (HAR) Chapter 11-20.

- ***Comment (6): Added costs of monitoring contaminant removal?***

Jackie Takakura, DWS spokesperson, stated (2006) that compliance samples for nitrates and DBCP, etc. will be done monthly and sent to an independent lab, with results submitted to DOH. She also noted that GAC filters will be tested every two weeks. She offered that "testing will be double what is required. Nitrates will be monitored continuously". Former Director Eng (2009) on the other hand, told the Water Resources Committee that monitoring of the filters "could go as infrequent as every quarter."

Since the Hamakuapoko wells have not been tested since 2004, what will be the County's NEW policy on monitoring for Nitrates, DBCP, TCP, EDB and other chemicals in the two wells and how much would this extra effort cost in staff time and lab fees? Are these costs covered by the settlement? If not, will this water be more costly per gallon than other sources? Please provide actual costs and comparisons.

Response:

DWS regularly monitors and tests its wells for approximately 100 chemicals, including nitrates, DBCP, 1/2/3 trichloropropane (TCP) and ethylene dibromide (EDB) in compliance with the requirements of the DOH. TCP and EDB though used in the agricultural fields have not been detected during prior testing in any of the Hamakuapoko well water after undergoing GAC treatment. DBCP has also not been detected after GAC

treatment. As mentioned previously, reimbursement to the County for operational costs for staff and lab work involved in the monitoring for regulated chemicals is not covered by the 1999 settlement agreement but would be an operational cost that would be included in the annual DWS budget request to the County Council.

- ***Comment (7): Are there added costs of debt service?***

Mr. Taylor told the Water Resource Committee that it would take two years and cost $2 million to get the Hamakuapoko wells operational. Will the DWS need to borrow the funds needed for the upgrades and then pay them back gradually as water meters are issued, or are funds now available? Will the true costs of Hamakuapoko activation be more than the $2 million cost? For example, if the full activation costs were $4 million, and the well allowed 500 meters to be issued, that would only bring in $3 million at current rates of $6,000/meter. Will rates need to go up to $8,000/ meter to cover real costs of well activation and infrastructure improvements? How much of the cost of the upgrades will be paid from 1999 settlement funds?

Response:

Other than for costs associated with the maintenance of the GAC system, capital costs to upgrade the Hamakuapoko Well Nos. 1 and 2 are not subject to the 1999 settlement agreement. In regards to funding, an allocation of $2.0 million for the proposed Hamakuapoko Well improvements is included in the Fiscal Year 2013 budget. These funds were approved by Council and are to be funded by DWS unrestricted funds. DWS will seek additional funding, as may be required, through DWS restricted or unrestricted funds, State Revolving Funds, financing partnerships or County Bond funding.

- ***Comment (8): The big question: Cost effective choices?***

Please complete a cost comparison: getting water from the Hamakuapoko wells as compared to alternatives: a) taking additional non-chemically saturated water from the ditch at Kamaole (since the County has additional, low-cost rights to this water supply, and HC&S could take over the Hamakuapoko wells for agricultural use); b) drilling a new well upcountry (in addition to Pookela); c) repairing the Waikamoi flume; and d) any other viable alternative.

Response:

Alternatives have been evaluated as part of the process of planning the proposed improvements to Hamakuapoko Wells Nos. 1 and 2. In specific regards to the comments noted in your letter, the Kamole WTP will not be able to increase the volume it draws for

treatment during times the water level in the Wailoa Ditch is low. Although the use of the ditch water is a lower cost alternative, it is an unreliable source during drought conditions. On the other hand, drilling a new well will incur significant capital costs on the part of DWS and there is the risk a new well would not produce a viable source of potable water. The capital costs (and risks) associated with the new well development will always be greater than the capital costs of improvements to an existing production well.

In regards to the Waikamoi Flume, design for replacement of the existing timber flume is currently in progress in order to eliminate leakages from this system and increase the amount of water conveyed to the Upcountry Water System. This improvement project is being pursued by DWS in addition to the proposed improvements at the existing Hamakuapoko Wells Nos. 1 and 2. A section discussing potential alternatives considered for this project will be included in the Draft EA.

- ***Comment (9): On site infrastructure needs?***

In 2006 DWS was working to get electricity connected at the well site. Has this been done, or will pump tests require use of the generator that has been on site for years? And will electrical connections now have to be provided? What is the long-term proposal to provide electricity? Is wind power a viable option? What are the costs?

Response:

Connections to overhead electrical power currently exist at both the Hamakuapoko Well Nos. 1 and 2 well sites. Energy production by wind is a potentially cost effective option in the upcountry water system. Several wind generation sites have been considered by DWS (separate to the proposed action), including net energy metering at the Kamole WTP. DWS will continue to evaluate the feasibility and cost of wind energy at its facilities across the County as well as potential financing opportunities.

- ***Comment (10): Sustainable yield / water quality data?***

The Water Department wanted a 10-day pump test of a private upcountry well's capacity before it would be acceptable. Hamakuapoko wells were only tested for 48 hrs. back in the 1990's. The State DOH also mentioned in 2009 that continuous pumping would be needed to test the well's water quality. If testing, or continuous use shows the wells' sustainable yields to be lower than expected, will the County be able to still have the wells qualify as back-up for Pookela well? Is there a Plan B?

Response:

DWS will coordinate testing requirements, as may be applicable, with DOH for the re-initiation of use of the Hamakuapoko Well Nos. 1 and 2. Engineering designs for the original construction of these wells considered the capacity of the wells and ability to yield a certain volume for pumping which was determined to be 1.5 mgd. Should that volume adjust downward in the future, the Hamakuapoko wells could still continue to be utilized as a back-up well for the Pookela Well. Testing for water quality and well capacity at Hamakuapoko Well Nos. 1 and 2 will meet all applicable DOH and State Commission of Water Resource Management (CWRM) requirements.

- ***Comment (11): Is other infrastructure ready for Upcountry meter list customers?***

A main purpose of activating the Hamakuapoko wells is to issue meters to those on the upcountry list as soon as possible. Do Haiku and Makawao storage tanks have additional capacity to serve those on the meter list if water would become available, or would more improvements be needed to supplement the upcountry storage and distribution system? Describe these improvements and their costs.

Response:

The existing storage infrastructure within the upcountry water system is anticipated to be adequate to accommodate the water from Hamakuapoko Well Nos. 1 and 2. Specific improvements may, however, be necessary for new water meter customers in order to meet fire protection standards. Water meter applications would need to address DWS requirements for certain improvements based on factors such as the existing infrastructure in place at the location for which the meter is being requested.

- ***Comment (12): Paia Aquifer Capacity.***

The Paia aquifer from which the Hamakuapoko wells would draw is described in several water studies as thin, mostly brackish, and relying on artificial recharge from leaking reservoirs and agricultural irrigation for its potable water capacity. The State's 2008 Water Resources Protection Plan (WRPP) describes Paia Aquifer (p. 83) as being artificially augmented by surface (stream) water imported from East Maui. If this imported source diminishes, will the wells remain viable? This is important data to have if we want to offer Upcountry homeowners and farmers a long-term reliable water source.

The exact quote from WRPP:

"Sustainable Yield ignores significant importation of surface water into Paia from outside the aquifer system area. This explains the ability to withdraw fresh water from the aquifer at significantly higher rates than the sustainable yield without apparent negative impacts (i.e. rising chloride concentrations or decreasing water levels)."

Will the Hamakuapoko wells yield 1.5 MGD of potable water? If Alexander & Baldwin converts HC&S sugar plantation to housing or reduces/eliminates sugar farming (as all of the other Hawaii sugar plantations have already done), would the Hamakuapoko wells still reliably produce up to .75 MGD each? How can we protect our investment, or should we make the investment at all?

Response:

We note your concern regarding the potential impact that a reduction in agricultural activity may have on groundwater recharge rates within the Paia Aquifer. While there is no definitive hydrologeological study of the Paia Aquifer, there is some belief that the Paia Aquifer may also benefit from overflow from the nearby Makawao and Haiku ground water systems which are at higher elevations. Our understanding is that the U.S. Geological Survey (USGS) is currently undertaking a study of the hydrologeology of the Haiku, Honopou and Makawao aquifers in order to collect improved information regarding the interaction and capacity of these respective groundwater systems.

The existing Hamakuapoko wells, have been designed and approved with the capacity to cumulatively draw up to 1.5 mgd of water. Re-initiation of use of these wells will be conducted in accordance with all applicable DOH and CWRM requirements.

- ***Comment (13): Again the big question: Cost effective choices?***

Is it more cost effective to spend two years and several million dollars to bring a water source on line for the upcountry system which is at a low elevation, has an untested output, and has potentially ongoing water quality issues and related rising maintenance costs; or let Alexander & Baldwin have the use of Hamakuapoko water and have the DWS take more water from the ditch at the Kamaole Weir site, as is allowed in the agreement with Alexander & Baldwin?

Response:

The DWS is proposing this project to increase reliability within the Upcountry Water System. The Hamakuapoko Wells were utilized from 2000 to 2004 and have been

previously approved with a capacity to draw up to 1.5 mgd from the Paia Aquifer. The wells have been tested and proven to be a desirable location for groundwater pumping based on drawdown tests conducted in 1999 during the original development of the wells. Existing transmission infrastructure is already in place to transport water from the Hamakuapoko wells to the Kamole WTP. Water quality tests during the operation of the well have also demonstrated the effectiveness of the GAC treatment process in providing the quality of water necessary to meet State DOH drinking water requirements. The Wailoa Ditch source water at Kamole Weir, on the other hand, is unreliable during drought conditions, and is not considered to be a viable project aternative.

- ***Comment (14): Unusual situations:***

One of the conditions allowed in the ordinance is for the "agricultural use" of H`poko water. Will agriculture-destined water be GAC filtered just like drinking water? If not, how will agricultural water be separated from the public drinking water supply? If yes, is this a cost-effective approach?

The H`poko well is intended as a back-up. When another part of the Upcountry Water Supply system fails, how quickly can the H`poko filter system and the water it filters be lab tested as safe drinking water?

Response:

Water pumped from Hamakuapoko Wells will undergo GAC treatment prior to being used for agricultural and drinking water purposes. The water will not be separated and will meet all applicable DOH water quality requirements prior to the conveyance to the Kamaole WTP.

Water quality tests will be conducted on an ongoing basis by DWS as required by DOH to ensure that the water pumped from the Hamakuapoko Wells meet all EPA and DOH drinking water standards and is available, on demand, to serve as backup to the Upcountry Water Systems via conveyance to the Kamaole WTP.

- ***Comment (15): Safe system waste disposal.***

What is the current Department view on filtration system design? How many pounds of GAC filter material a year will the chemical company settlement pay for? Will the GAC filters from the Hamakuapoko wells be backwashed? If so where do the concentrated toxins in the effluent go? If nitrate treatment is needed, where will the toxic effluent go? The remote Hamakuapoko well location has no sewer system.

Response:

GAC filtration systems are widely used throughout the water industry and provide an acceptable method of treatment by DOH and EPA standards. For existing and future wells when the MCL for DBCP is exceeded, the 1999 settlement agreement requires the DBCP manufacturers to reimburse the County for the capital cost of installing GAC filters, as well as its operations and maintenance costs. The amount of the reimbursement for capital costs, operations and maintenance costs varies under the terms of the agreement depending on certain criteria for existing and future wells. Reimbursement payments are adjusted by the Consumer Price Index (CPI) annually.

Chemical concentrations are captured in the GAC filter media which undergo replacement as recommended by the manufacturers of the systems. Based on prior testing results, nitrates at the Hamakuapoko Well Nos. 1 and 2 are not expected to exceed the MCL as established by DOH. As such, the installation of a nitrate removal system is not necessary at this time and has not been included in the scope of work for the proposed project, as part of this project. If nitrate treatment is deemed necessary and implemented in the future due to elevated levels, the residual chemicals will be properly disposed at a licensed DOH disposal facility.

- ***Comment (16): Effect of nitrates in the water supply.***

Nitrates are very dangerous for infants, the young and elderly; exposure over time to tiny amounts can cause liver and kidney damage. DWS staff member, Ms. Takakura informed the public in 2006 that Hamakuapoko well 2 has higher nitrate levels than well 1. The figures she gave for well 2: between 3.5 and 6.75 mg/ltr, are as high as the infamous Kunia wells on Oahu. That drinking water source, although its wells did not test above the Health Department's "maximum levels" for nitrates, impacted the health of nearby residents and the Honolulu Water Dept. is securing funds for installation of a filter to remove the nitrates.

Nitrate levels have risen over time in Oahu wells. The Hamakuapoko wells, surrounded by active cane fields which have nitrate fertilizer regularly applied, are may do the same. GAC (charcoal) filters don't remove nitrates. How will public health be protected if this nitrate contaminated water is sent upcountry? Does the Kamole treatment plant have ion filters to remove them? Is this well location a good long-term investment?

If the H'poko well water is sent upcountry during drought periods, as it is being programmed to do, it may not be diluted with other waters, scarce during that period. Therefore, it is absolutely necessary to remove the nitrates.

Response:

As previously discussed, nitrates levels within water drawn from the Hamakuapoko wells are not expected to exceed MCL as established by the State DOH. Should elevated levels be detected by future monitoring of the wells, the need for additional treatment to remove nitrates from the water will be evaluated at that time by the DWS.

Water from the Hamakuapoko wells will be treated by the GAC system to meet or exceed all applicable DOH water quality standards prior to it being mixed and diluted with other treated drinking water in the clear well at the Kamole WTP. All water leaving the Kamole WTP will be monitored in accordance with DOH requirements to ensure that it is suitable for human consumption as drinking water.

- ***Comment (17): Frequency and effectiveness of water quality testing?***

How often will the GAC filters be monitored to make sure they are not "full' or "furrowed" and letting contaminants pass through? Ms. Takakura informed the public that water will flow through two GAC filters, and each filter has sampling points at four different locations "to ensure removal of all 3 contaminants to no detectible levels." Mr. Eng told the Council in 2009 that only one filter would be used.

Either way, the interpretation of "no detectible levels" can mean low levels of pollutants ARE present after filtration, but not detectable. However, "no detectable levels" does NOT mean the water is safe and without a health threat.

Response:

Water testing, monitoring and reporting of any exceedences of regulated chemical levels is mandated by the DOH drinking water quality standards for public water systems. GAC filters will be monitored and replaced by the DWS in accordance with the industry-established recommendations to ensure compliance with DOH requirements and the protection of public health.

As required by the EPA through DOH, DWS prepares an annual report on the quality of drinking water which is provided to customers of the County water system. More than 100 substances with established health-based water quality standards are tested in drinking water, including bacteria, pesticides and herbicides, asbestos, lead, copper, petroleum projects, and by-products of industrial and water treatment processes.

- ***Comment (18): The Vulnerable***

  For those people whose medical situation makes them most in danger from some of the chemicals in the well water, what provision can be made to notify them that water from the Hamakuapoko wells is being introduced into the water supply? This would allow them to use bottled water or some other alternative to DWS water.

  Response:

  The State DOH approved the Hamakuapoko Well Nos. 1 and 2 as a public drinking water source in 2000. Upon re-initiation of these wells, DWS will regularly monitor water from the wells to ensure that drinking water quality standards are met or exceeded and that the public is provided drinking water that is safe for human consumption. DWS will issue a notification to its customers in the Upcountry Water System prior to the initial reactivation of the wells.

- ***Comment (19): Are EPA and Health Department Water quality standards behind the times?***

  When DBCP was banned in 1979 across the mainland, Hawaii Health Dept. officials told EPA it could be safely used in Hawaii, because they were certain it wouldn't leach into our aquifers. Apparently this was not the case; perhaps a political and financial decision was made.

  Many potentially toxic products continue to be approved for use by EPA, only to be eventually proven harmful. No standards or testing is done for these for many years, yet they can combine in our water supply to form a chemical soup. Our keiki and kupuna are particularly at risk.

  Since the public cannot always assume that state and federal regulators have adequate information to protect public health, what can be done to go beyond what DOH and EPA require, to minimize the public's exposure to even small doses of deadly or dangerous chemicals?

Response:

As discussed previously, water from the Hamakuapoko wells will be tested for approximately 100 various contaminants as required by DOH to protect public health and ensure that the water is fit for human consumption as drinking water. A copy of our 2011 Water Quality Report is attached for reference as **Exhibit "A"**. If any levels of regulated contaminants are exceeded, remedial action will be taken immediately by the DWS to avert potential public health risks.

- ***Comment (20): What is the long-term water testing program for these Hamakuapoko waters?***

Since health concerns were the major reason that the Maui County Council previously banned the use of these waters, it is absolutely necessary for the Environmental Assessment to assure the general public, those who have compromised medical situations, and those who are elderly or very young that this water is safe. The EA must provide a complete description of the water testing program: a) when the wells are first pumped, and b) thereafter on an ongoing basis whenever the water is inserted into the drinking water supply.

Who will do the testing? What is the competency of the personnel, and of the testing lab? How often will the tests be conducted? What chemicals will be tested? How will the public be rapidly informed of the results (instead of the present system of year-end reports of what chemicals were found in the water)?

Response:

DWS's water testing program will apply to the ground water from the Hamakuapoko wells from the time of extraction to when the water is placed into the drinking water supply.

Water Quality sampling will be conducted by DWS staff or a sub-contractor with experience in water sampling for lab analysis and then the data results will be submitted to DOH. A list of the kinds of contaminants that are monitored during the water quality testing process is provided in **Exhibit "A"**. In the event that MCLs are exceeded, DWS will utilize various media sources such as the County website, press releases, public announcements and social media to immediately inform the public.

Prior to well start-up, both Hamakuapoko wells will be required by DOH to undergo testing that is equivalent to the requirements for a new well start-up. The results of the water quality analysis will be reviewed and accepted by the DOH before any water from

the Hamakuapoko Well Nos. 1 and 2 enters the DWS water system for human consumption.

Thank you for your participation in the Chapter 343, Hawaii Revised Statutes (HRS) review process for this important infrastructure improvement project. A copy of your letter will be included in the Draft EA. In the meantime, if there are any questions or if additional information is needed, please feel free to contact our planning consultants Mark Alexander Roy or Tessa Ng of Munekiyo & Hiraga, Inc. at 244-2015.

Sincerely,

Dave Taylor, P.E.
Director

DT:
Enclosures
cc: Jeff Pearson, County of Maui, Department of Water Supply
Curtis Eaton, County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

2011 Water Quality Report

Department of Water Supply
County of Maui
200 South High Street
Wailuku, Maui, HI 96793
www.mauiwater.org

Department of Water Supply
County of Maui
614 Palapala Drive
Kahului, Maui, Hawaii 96732

Phone: 808-270-7550
FAX: 808-270-6133

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EXHIBIT A

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June, 2012

Dear Customers:

I am pleased to share the 14th Annual Water Quality Report with you. The Department of Water Supply (DWS) prepares this report every summer as mandated by the US EPA. The report provides you with an easy-to-understand overview of your drinking water, based on water quality tests taken in 2011. Included are details of the source of your water, what's in your water, and how it compares to US EPA and Hawaii state health standards. Also listed are phone numbers and resources for you to learn more about your water.

Providing water service and new meters to customers has been a top priority for the department this past year. We have focused on data analyses and operations review to determine the actual source capacity of existing facilities, and are working to identify the unique needs for each system and how we can provide more water to customers. The end result is system optimization or "debottlenecking." Work plans may show that waterline or tank waterline improvements may increase reliability and allow for more meters. Once we know all the options and costs, we will work closely with the Administration and County Council to follow their direction for system optimization.

Drinking water is provided to your tap 24 hours per day and 7 days per week for less than a nickel per gallon. It is by far the best deal around. Your water rates help us pay for capital investments that will provide safe drinking water for generations to come. I urge you to take a few minutes to look through this report and learn about your water system. Learn why we believe, "By Water All Things Find Life."

Sincerely,

David S. Taylor, P.E.
Director of Water Supply

WHAT IS THIS REPORT ABOUT?

The Water Quality Report is sent to all customers every summer. The federal Safe Drinking Water Act (SDWA) requires that public water systems provide customers with a water quality report that summarizes water quality information for the previous calendar year. We are committed to providing our customers with this information because informed customers are our best allies.

IS MY DRINKING WATER SAFE?

Yes. The Department of Water Supply makes the quality of your drinking water its number one priority. To maintain our commitment to you, we routinely collect and test water samples every step of the way - from the source waters right to your home - checking purity and identifying potential problems. We monitor your drinking water according to EPA regulations to ensure that it meets all state and federal standards.

Our goal is and always has been to provide you with a safe and dependable supply of drinking water.

SOURCE WATER ASSESSMENT

A Source Water Assessment document was completed in 2004 by the University of Hawaii Water Resources Research Center in conjunction with the Department of Health Safe Drinking Water Branch. The assessment provides technical assistance to public water systems to develop protection programs for drinking water sources. The document includes: (1) delineation of the area around a drinking water source through which contaminants may travel to the drinking water supply, (2) inventory of activities that may lead to the release of contaminants within the delineated area, and (3) determination of the susceptibility of the water source experiencing a future contamination. The Department of Water Supply has developed a wellhead protection program to protect the areas around drinking water wells. You will receive a separate brochure about this program later this summer. To find out more, contact the Water Resources and Planning Division at 808-463-3110.

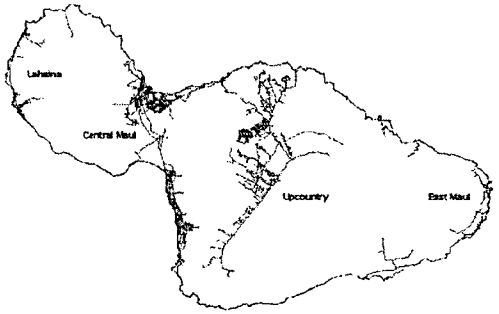
SPECIAL NOTICE TO USERS OF KIDNEY DIALYSIS MACHINES AND FISH OWNERS

Maui DWS water in the Upper Kula area is treated with chloramines, a disinfectant that produces fewer disinfection by-products such as trihalomethanes. As such, customers who have unique water quality needs including those who use specialized treatments such as kidney dialysis machines or fish owners should make the necessary adjustments to remove chloramines. Go to our website for more information at :
www.mauiwater.org, click on Maui Water

Where Does My Water Come From?

Depending on where you live on Maui or Molokai, you receive either ground water or surface water. Ground water starts as rain falling over the mountains. The water is filtered naturally as it seeps through the porous volcanic rock to reach large underground formations called aquifers. Pumps are used to get this water from the aquifers to you. Surface water accumulates mainly as a result of direct runoff from rain into streams and rivers and is filtered to meet water quality standards.

On Maui there are five water districts:



Central : A blend of surface water treated at the Iao Treatment Plant and ground water serves Kahului, Kihei, Maalaea, Makena, Paia, Waihee, Wailea and Wailuku.

East Maui : Keanae, Nahiku and Hana have ground water in all districts

Lahaina : A blend of ground and surface water treated at the Lahaina and Mahinahina Treatment Plants serves all of Lahaina and Napili

Molokai : Ground water in all districts.

Upcountry :
Lower Kula: Surface water treated at the Lower Kula Treatment Plant serves areas from Piiholo to Omaopio
Makawao: A blend of surface treated at Kamole Treatment Plant and ground water serves Hali'imaile, Haiku, Makawao and Pukalani
Upper Kula: Surface water treated at the Upper Kula Treatment Plant serves Olinda to Kanaio

Your Comments Are Welcome!

We welcome your questions, concerns and observations. We also encourage our customers to attend and participate at our meetings regarding our water utility. The Board of Water Supply usually meets on the 4th Thursday of the month at 9:00 a.m. Please call 270-7304 for meeting locations or check out our website for details.

FLUSHING PROGRAM IN THE UPCOUNTRY AREA TO IMPROVE WATER QUALITY

The DWS is flushing waterlines in the Upcountry area to improve water quality in its dead-end distribution lines. The purpose of this program is to comply with the Lead and Copper rule of the federal Safe Drinking Water Act. Flushing a waterline involves turning on the water at a fire hydrant or standpipe at full force to rid the pipeline of any buildup in the pipe. This process can take up to 20 minutes at any one point. Staff also take samples of the water before and after the flushing to ensure that water delivered to consumers meets the requirements of the Safe Drinking Water Act. Consumers should contact the Field Operations office at 270-7633 if water at their tap is discolored.

Automatic Flushing Devices

This automatic flushing device (AFD) allows water to be flushed from a hydrant or standpipe several times a day. This automatic flushing will help keep the water flowing through the pipes which will prevent water quality problems that can happen when the water does not move enough. You will be seeing these devices more frequently as the DWS installs these devices throughout the water systems.

Why Is There Anything In My Water?

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. Sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs and wells.
As water travels over the surface of the land or through the ground it dissolves naturally-occurring minerals, and in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.
Contaminants that may be present in source waters before we treat it include:
Microbial Contaminants - such as virus, protozoa and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
Inorganic Contaminants - such as salts and metals, which may be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

Pesticides and Herbicides— may come from a variety of sources such as agriculture and residential uses.
Radioactive Contaminants—are naturally occurring.
Organic Chemical Contaminants—including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm-water runoff, and septic systems.
For more information about contaminants and potential health effects call the EPA Safe Drinking Water hotline @ 1-800-426-4791.

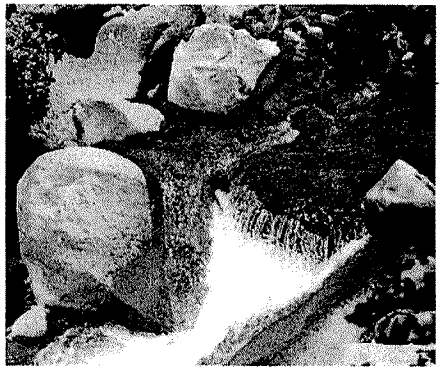
In April 2004, the DWS stopped using phosphates for lead control in the Upcountry water system. We now use soda ash (sodium carbonate) for pH adjustment to minimize lead leaching from customers' plumbing. We also flush the Upcountry water system on a regular basis. Lead can have devastating effects on children's health. If you think your child may be exposed to lead, please contact your primary care physician.

Lead and Copper in your drinking water. Are you at risk?

Lead is not detectable in the Maui DWS systems. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Maui DWS is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned abut lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at
http://www.epa.gov.safewater.lead.

Home water filters are not necessary. They can be helpful if you have lead plumbing in your home or want to remove chlorine. **HOWEVER**, if you choose to have a water filter, it must be maintained and replaced according to manufacturer instructions. Talk to your supplier if you have questions about your filter.

Customers can maintain water quality in various ways.
Backflow protection - a simple, but important component in plumbing that safeguards the drinking water supply. Higher water pressures elsewhere can cause a reversal in the normal flow of water. This may allow contaminated water to enter the water distribution system. Backflow prevention devices allow the water to flow in only one direction. The air gap between a faucet and water in the sink is the most common form of backflow prevention. Never leave a running hose in a bucket of water. The contents of the bucket could be "sucked back" into your home plumbing and potentially contaminate the water. Businesses in Maui County that are required to have backflow prevention devices should check them annually to ensure that they are working properly.



Proper use of pesticides/herbicides - Always follow label instructions on pesticides, fertilizers and other household chemicals. Also try to use less toxic alternatives to household chemicals when possible. Find lots of tips on how you can help protect our water supply at www.mauiwater.org. Navigate to: Water Resources and Planning Division Wellhead Protection.

Proper disposal of hazardous materials - hazardous materials such as paint, solvents, used oil and other household cleaning supplies must not be dumped on the ground. Call the Recycle Maui County Hotline at 270-7880 to find out where you can properly dispose these materials to avoid groundwater contamination or at http://www.co.maui.hi.us/recycle

IMPORTANT HEALTH INFORMATION

Some people may be more vulnerable to drinking water contaminants than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. For information about the Environmental Protection Agency's (EPA) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium or other microbial contaminants and potential health effects call the EPA's Safe Drinking Water Hotline (800-426-4791) .

We are required by Federal and State laws to test your drinking water for different contaminants. The following is a list of contaminants that we routinely test for in your water:

Regulated Contaminants

Kanaha Intake

Microbiological Contaminants

Total coliform
Fecal coliform
E. coli
Giardia
Cryptosporidium

Turbidity

Inorganic Contaminants

Antimony
Arsenic
Asbestos(>10um)
Atrazine
Barium
Beryllium
Cadmium
Chromium(total)
Copper
Cyanide(as free cyanide)
Fluoride
Lead
Mercury(total)
Nitrate(as N)
Nitrite(as N)
Selenium
Thallium

Organic Contaminants

2,4-D
2,4,5-TP(Silvex)
Acrylamide
Alachlor
Aroclor 1016,1221,1232,1242
Aroclor 1248,1254,1260
Atrazine
Benzo(a)pyrene(PAHs)
Carbofuran
Chlordane
Di(2-ethylhexyl)adipate
Di(2-ethylhexyl)phthalate]
Dibromochloropropane
Dinoseb
Dioxin
Diquat
Endothall
Endrin
Epichlorohydrin
Ethylene dibromide(EDB)
Glyphosate
Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Hexachloropentadiene
Lindane
Methoxychlor
Oxamyl(Vydate)
PCBs(Polychlorinated biphenyls)
Pentachlorophenol
Pichloram
Simazine
Toxaphene

Volatile Organic Contaminants

Benzene
Carbon tetrachloride(CTC)
Chlorobenzene
o-Dichlorobenzene
p-Dichlorobenzene
1,2-Dichloroethane(EDC)
1,1-Dichloroethylene
cis-1,2-Dichloroethylene
trans-1,2-Dichloroethylene
Dichloromethane
1,2-Dichloropropane(DCP)
Ethylbenzene
Haloacetic Acids(HAA5)
Styrene
Tetrachloroethylene(PCE)
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane(TCA)
1,1,2-Trichloroethane
Trichlorethylene(TCE)
1,2,3-Trichloropropane(TCP)
Total Trihalomethanes(TTHMs)
Toluene
Vinyl chloride
Xylenes(total)

Radioactive Contaminants

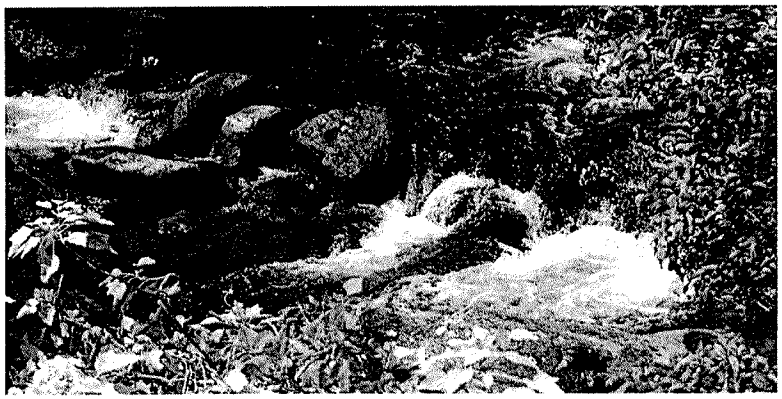
Alpha emitters
Beta particles/photon emitters
Radium 226+228
Uranium

Unregulated Contaminants

2,4-DB
Aldicarb
Aldicarb sulfone
Aldicarb sulfoxide
Aldrin
Butachlor
Carbaryl
Dicamba
Dieldrin
3-Hydroxycarbofuran
Methiocarb
Methomyl
Metolachlor
Metribuzin
Molinate
Nickel
Paraquat
Propachlor
Propoxur
Thiobencarb

Acetochlor
Bromoform
DCPA mono-acid degradate
DCPA di-acid degradate
4,4'-DDE

2,4-dinitrotoluene
2,6-dinitrotoluene
EPTC
Manganese
Methyl t-Butyl Ether(MTBE)
Molinate
Nitrobenzene
Perchlorate
Terbacil



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Frequently Asked Questions (FAQ)

What is the pH of my water?

The pH of water varies by districts:

Central	7.3-7.9
Makawao	7.6-9.1
Lahaina	7.8-8.2
Lower Kula	7.9-9.0
Upper Kula	7.2-9.2
Molokai	7.2-7.3

Do I have hard or soft water?

Hardness is measured in milligrams per liter (mg/L). Any hardness reading over 75 mg/L is considered hard water. Generally, surface water is soft water. Makawao, Pukalani, Lower Kula and Upper Kula have soft water between 17-69 mg/L. Ground (well) water on Maui is usually 52-171 mg/L .

Is there fluoride in my water?

The Maui DWS does not add fluoride to your water. If you are concerned about your children's dental health, please talk to your pediatrician or dentist.

What can I do about chlorine taste and odor?

Chlorine kills organisms that may cause disease. If you choose to remove the chlorine with a filter, refrigerate the water to limit bacterial re-growth. Other alternatives include:
Filling a pitcher and letting it stand in the refrigerator overnight (this is the best way), filling a glass or jar with water and letting it stand in the sunlight for 30 minutes, or heating water to approximately 100 degrees Fahrenheit.

How often is my water tested? And can I get my water tested?

Every week our water is tested by our certified microbiologists at the source and within the distribution system for any bacteriological contamination. Chemicals are analyzed on a timetable established by state/EPA requirements. You may have your own tap water tested by a private water quality testing lab for a fee. A list is available through our laboratory at 270-7550.

I live on a dead-end (cul-de-sac) and my water has a yellow tinge to it. Is this okay?

You should call the DWS service line (270-7633) to have personnel flush the dead-end main. Or, if you prefer, open the faucets in your home until the water clears up; this will bring fresh water to your home and improve its water quality.

How to Contact Us

Questions on water quality: Maui DWS Laboratory:	**808-270-7550**
Questions about DWS Administration:	**808-270-7816**
All other DWS inquiries:	**808-270-8046**
Drinking water in Hawaii - DOH Safe Drinking Water Branch :	**1-800-468-4644 ext. 6-4258**
US EPA Safe Drinking Water Hotline:	**1-800-426-4791**

ABBREVIATIONS

ppm = parts per million = **mg/L** = milligrams per Liter = one second every 12 days

ppb = parts per billion = **µg/L** = micrograms per Liter = one second every 32 years

ppt = parts per trillion = **ng/L** = nanograms per Liter = one second every 32,000 years

ND = None Detected **NQ** = Not Quantifiable **NA** = Not applicable

> = Greater than **≥** = Greater than or equal to **<** = Less than

≤ = Less than or equal to

MCL = Maximum Contaminant Level = The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available technology.

MCLG=Maximum Contaminant Level Goal = The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.

We're also on the web: **www.mauiwater.org**
Other websites:
Department of Health - Safe Drinking Water Branch:
www. hawaii.gov/health/eh/sdwb
EPA (Environmental Protection Agency):
www.epa.gov/safewater

Cover Photo by Samantha Hill

-----Original Message-----
From: Diana Dahl [mailto:melofarm@hawaii.rr.com]
Sent: Tuesday, May 08, 2012 10:26 AM
To: Cheryl Okuma
Subject: Hamakuapoko Well

Dear Cheryl Okuma,

Has this bad idea not died a good and natural death? Using Hamakuapoko well water has me very concerned.
Having been instrumental in developing the organic standards for growing crops in the '90's, I am well aware of the toxins that have been found in the well water and their consequences. How can they be removed economically and with certainty? This well should never have been traded with the intention of it being of use to the county water supply system. Bad idea.

Sincerely,
Diana Dahl
Trustee, Hawaii Organic Farmers Association

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

December 14, 2012

Ms. Diana Dahl, Trustee
Hawaii Organic Farmers Association
melofarm@hawaii.rr.com

Dear Ms. Dahl:

Subject: Early Consultation Request for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your email, dated May 8, 2012, providing early consultation comments on the proposed improvements at Hamakuapoko Well Nos. 1 and 2. The Department of Water Supply (DWS) offers the following information in response to your comments:

DWS notes your concern regarding the use of Hamakuapoko Wells. The DWS mission is to provide clean water on an efficient basis to residents. The reopening of the Hamakuapoko Wells will be undertaken in compliance with all applicable State and Federal water quality standards. Water quality testing was conducted for the 1999 Environmental Assessment for improvements to convert the Hamakuapoko Wells from exploratory wells to production wells. Water quality studies tested for three (3) compounds: DBCP ((1,2-Dibromo-3-chloropropane), EDB (Ethylene Dibromide), and TCP (trichloropropane). Concentrations of DBCP and EDB at Well No. 2 exceeded the Department of Health maximum concentration level. At Hamakuapoko Well No. 1, the concentration of DBCP was at the margin of acceptability while EDB was not detected. With the exception of one (1) test sample at Well No. 1, the concentration of TCP fell below maximum limits in all other test samples for Well No. 1 and Well No. 2.

In 1999, DWS installed a Granular Activated Carbon (GAC) Treatment facility at Well No. 2 that is capable of treating water from both wells. Water from Hamakuapoko Well No. 1 is transported to Well No. 2 where the combined water drawn from the two (2) wells flow through the treatment process provided by the GAC chambers. The GAC method treats water when the water flows downward from the top of a pressurized vessel through a bed of activated carbon.

Active carbon refers to an extremely porous form of carbon which gives it a very large surface area for absorption of contaminants. This treatment process will be completed before the water from the Hamakuapoko Well Nos. 1 and 2 is pumped into the clear well at Kamole Weir Water Treatment Plant. The treated water from the GAC meets State Department of Health standards for drinking water and will not require additional treatment at the Kamole Weir Water Treatment Plant.

Water quality tests were conducted between 1999 and 2004. DBCP, EDB, and TCP were not detected in the water following treatment by the GAC facility. These tests demonstrate the effectiveness of the GAC treatment process for providing safe drinking water.

In December 2000, the Department of Health conditionally approved the Hamakuapoko Well Nos. 1 and 2 for drinking water use after treatment. When the Hamakuapoko Well Nos. 1 and 2 are reopened, DWS will continue to conduct regular water quality monitoring to ensure that the GAC treatment process is effective and the water produced by the wells is safe for drinking water use.

We appreciate your input and will include a copy of your email in the Draft Environmental Assessment for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc. at (808) 244-2015.

Sincerely,

David Taylor, P.E.
Director

cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

-----Original Message-----
From: Mele Stokesberry [mailto:holamaui@earthlink.net]
Sent: Tuesday, May 08, 2012 2:09 PM
To: Cheryl Okuma
Subject: comments on danger of using Hamakuapoko wells

I am sending my comments about the water department's plans to utilize the water from the contaminated Hamakuapoko wells for all purpose household water Upcountry. I am very concerned that it will be impractical and too expensive to continue constant and adequate filtering out of the PCBs, DBCP, EDB and other possible toxins that definitely are in these wells.

I live in Kula but am writing these comments during travel in China. I testified at the hearings on this issue to say that as an Upcountry resident and a Maui citizen I believe it is totally inconsistent with protection of public health to put Hamakuapoko water into the drinking water system.

Mele Stokesberry
51 Mano Dr
Kula, HI 96790

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

December 14, 2012

Ms. Mele Stokesberry
51 Mano Drive
Kula, Hawaii 96790
holamaui@earthlink.net

Dear Ms. Stokesberry:

Subject: Early Consultation Request for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your email, dated May 8, 2012, providing early consultation comments on the proposed improvements at Hamakuapoko Well Nos. 1 and 2. The Department of Water Supply (DWS) offers the following information in response to your comments:

DWS notes your concern regarding the use of Hamakuapoko Wells. The DWS mission is to provide clean water on an efficient basis to residents. The reopening of the Hamakuapoko Wells will be undertaken in compliance with all applicable State and Federal water quality standards. Water quality testing was conducted for the 1999 Environmental Assessment for improvements to convert the Hamakuapoko Wells from exploratory wells to production wells. Water quality studies tested for three (3) compounds: DBCP, EDB, and TCP (trichloropropane). Concentrations of DBCP and EDB at Well No. 2 exceeded the Department of Health maximum concentration level. At Hamakuapoko Well No. 1, the concentration of DBCP was at the margin of acceptability while EDB was not detected. With the exception of one (1) test sample at Well No. 1, the concentration of TCP fell below maximum limits in all other test samples for Well No. 1 and Well No. 2.

In 1999, DWS installed a Granular Activated Carbon (GAC) Treatment facility at Well No. 2 that is capable of treating water from both wells. Water from Hamakuapoko Well No. 1 is transported to Well No. 2 where the combined water drawn from the two (2) wells flow through the treatment process provided by the GAC chambers. The GAC method treats water when the

water flows downward from the top of a pressurized vessel through a bed of activated carbon. This treatment process will be completed before the water from the Hamakuapoko Well Nos. 1 and 2 is pumped into the clear well at Kamole Weir Water Treatment Plant.

In regards to the cost of the GAC treatment process, it is noted that the GAC facility was funded by a 1999 settlement agreement that required the manufacturers of the chemical DBCP to reimburse the County of Maui for certain capital costs through September 1, 2039. The settlement on the case of *Board of Water Supply of the County of Maui v. Shell Oil Company, et al. (Civil Case No. 96-0370(1))* also stipulated that the defendants reimburse the County for operations and maintenance costs associated with the GAC system at the Hamakuapoko Wells when the GAC is in operation for at least 10 percent of a month.

Water quality tests were conducted between 1999 and 2004. DBCP, EDB, and TCP were not detected in the water following treatment by the GAC facility. These tests demonstrate the effectiveness of the GAC treatment process for providing safe drinking water.

In December 2000, the Department of Health conditionally approved the Hamakuapoko Well Nos. 1 and 2 for drinking water use after treatment. When the Hamakuapoko Well Nos. 1 and 2 are reopened, DWS will continue to conduct regular water quality monitoring to ensure that the GAC treatment process is effective and the water produced by the wells is safe for drinking water use.

We appreciate your input and will include a copy of your email in the Draft Environmental Assessment for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc. at (808) 244-2015.

Sincerely,

David Taylor, P.E.
Director

cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

X. COMMENTS RECEIVED DURING THE DRAFT ENVIRONMENTAL ASSESSMENT REVIEW PERIOD AND RESPONSES TO SUBSTANTIVE COMMENTS

X. COMMENTS RECEIVED DURING THE DRAFT ENVIRONMENTAL ASSESSMENT REVIEW PERIOD AND RESPONSES TO SUBSTANTIVE COMMENTS

1. Larry Yamamoto, State Conservationist
U.S. Department of Agriculture
Natural Resources Conservation Service
P.O. Box 50004
Honolulu, Hawaii 96850-0001

2. Ranae Ganske-Cerizo
Soil Conservationist
Natural Resources Conservation Service
U.S. Department of Agriculture
77 Hookele Street, Suite 202
Kahului, Hawaii 96732

3. George Young, Chief
Regulatory Branch
U.S. Department of the Army
U.S. Army Engineer District, Honolulu
Regulatory Branch, Building 230
Fort Shafter, Hawaii 96858-5440

4. Wayne Nastri, Regional Administrator
U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, California 94105

5. Loyal A. Mehrhoff, Field Supervisor
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard, Room 3-122
Box 50088
Honolulu, Hawaii 96813

6. Dean H. Seki, Acting Comptroller
Department of Accounting and General Services
1151 Punchbowl Street, #426
Honolulu, Hawaii 96813

7. Russell Kokubun, Chair
Department of Agriculture
1428 South King Street
Honolulu, Hawaii 96814-2512

8. Richard C. Lim, Director
State of Hawaii
Department of Business, Economic Development & Tourism
P.O. Box 2359
Honolulu, Hawaii 96804

9. Alapaki Nahale-a Chairman
Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, Hawaii 96805

10. Loretta J. Fuddy, Chairman
State of Hawaii
Department of Health
919 Ala Moana Blvd., Room 300
Honolulu, Hawaii 96814

11. Alec Wong, P.E., Chief
Clean Water Branch
Department of Health
State of Hawaii
919 Ala Moana Blvd., Room 300
Honolulu, Hawaii 96814

12. William Tam, Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

13. Patti Kitkowski
District Environmental Health Program Chief
Department of Health
State of Hawaii
54 High Street
Wailuku, Hawaii 96793

14. Laura McIntyre, Office Manager
Environmental Planning Office
Department of Health
State of Hawaii
919 Ala Moana Blvd., Suite 312
Honolulu, Hawaii 96814

15. Lene Ichinotsubo
Environmental Management Division
Department of Health
State of Hawaii
919 Ala Moana Blvd., Room 212
Honolulu, Hawaii 96814

16. William J. Aila, Jr., Chairperson
Department of Land and Natural Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

17. Puaalaokalani Aiu, Administrator
Department of Land and Natural Resources
State Historic Preservation Division
State of Hawaii
601 Kamokila Blvd., Room 555
Kapolei, Hawaii 96707

18. Jenny Pickett
Department of Land and Natural Resources
State Historic Preservation Division
State of Hawaii
130 Mahalani Street
Wailuku, Hawaii 96793

19. Glenn Okimoto, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

20. Major General Darryll Wong, Director
Hawaii State Civil Defense
3949 Diamond Head Road
Honolulu, Hawaii 96813-4495

21. Gary Gill, Acting Director
Office of Environmental Quality Control
235 S. Beretania Street, Suite 702
Honolulu, Hawaii 96813

22. Dr. Kamana`opono Crabbe
Chief Executive Officer
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

23. Jesse Souki, Director
State of Hawaii
Office of Planning
P. O. Box 2359
Honolulu, Hawaii 96804

24. Dan Orodenker, Executive Officer
State of Hawaii
State Land Use Commission
P.O. Box 2359
Honolulu, Hawaii 96804

25. Alan Arakawa, Mayor
County of Maui
200 South High Street
Wailuku, Hawaii 96793

26. Teena Rasmussen, Coordinator
County of Maui
Office of Economic Development
2200 Main Street, Suite 305
Wailuku, Hawaii 96793

27. Anna Foust
Officer Management Officer
Maui Civil Defense Agency
200 South High Street
Wailuku, Hawaii 96793

28. Jeffrey A Murray, Fire Chief
County of Maui
Department of Fire and Public Safety
200 Dairy Road
Kahului, Hawaii 96732

29. Jo-Ann Ridao, Director
County of Maui
Department of Housing and Human Concerns
One Main Plaza
2200 Main Street, Suite 546
Wailuku, Hawaii 96793

30. Glenn Correa, Director
County of Maui
Department of Parks and Recreation
700 Halia Nakoa Street, Unit 2
Wailuku, Hawaii 96793

31. William Spence, Director
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawaii 96793

32. Gary Yabuta, Chief
County of Maui
Police Department
55 Mahalani Street
Wailuku, Hawaii 96793

33. David Goode, Director
Department of Public Works
200 South High Street
Wailuku, Hawaii 96793

34. Kyle Ginoza, Director
County of Maui
Department of Environmental Management
One Main Plaza
2200 Main Street, Suite 100
Wailuku, Hawaii 96793

35. Jo Anne Johnson Winer, Director
County of Maui
Department of Transportation
200 South High Street
Wailuku, Hawaii 96793

36. Honorable Gladys Baisa, Council Chair
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

37. Honorable Robert Carroll, Council Vice Chair
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

38. Honorable Don Couch
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

39. Honorable G. Riki Hokama
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

40. Honorable Mike Victorino
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

41. Honorable Michael White
Council Vice Chair
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

42. Honorable Don Guzman
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

43. Honorable Stacy Crivello
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

44. Honorable Elle Cochran
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

45. **A&B Properties, Inc.**
11 Puunene Avenue
Kahului, Hawaii 96732

46. **Hawaiian Commercial & Sugar Company**
P.O. Box 266
Puunene, Hawaii 96784

47. **Hawaiian Telcom**
60 South Church Street
Wailuku, Hawaii 96793

48. Dan Takahata
Manager – Engineering
Maui Electric Company, Ltd.
P.O. Box 398
Kahului, Hawaii 96733

49. **Haiku Community Association**
P. O. Box 1036
Haiku, Hawaii 96708

50. Ron Montgomery, President
Kula Community Association
P.O. Box 417
Kula, Hawaii 96790

51. **Makawao Community Association**
P.O. Box 733
Makawao, Hawaii 96768

52. Pamela Tumpap
Executive Director
Maui Chamber of Commerce
The Office Center
270 Ho'okahi Street, Suite 212
Wailuku, Hawaii 96793

53. **Makawao Public Library**
1159 Makawao Avenue
Makawao, Hawaii 96768

From: Ian Bordenave [mailto:ian_bordenave@fws.gov]
Sent: Wednesday, February 06, 2013 3:38 PM
To: General eMail
Subject: 2013-SL-0119 Draft Environmental Assessment for Proposed Improvements at the Hamakuapoko Well, Maui

In Reply Refer To:
2013-SL-0119

Mr. Mark Roy
Vice President
Munekiyo and Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Subject: Draft Environmental Assessment for Proposed Improvements at the Hamakuapoko Well, Maui

We received your letter on January 7, 2013, requesting comment on the Draft Environmental Assessment for proposed improvements at the Hamakuapoko well, numbers 1 and 2, on Maui [TMK: (2) 2-5-004:039].

Based on information you provided as well as information in our files, including data compiled by the Hawaii Biodiversity and Mapping Program, we have determined that there are no occurrences of federally listed species or designated critical habitat within the proposed project footprint.

If you have any questions or concerns regarding this correspondence, please feel free to contact me using the information provided below.

Ian Bordenave
Biologist
U.S. Fish and Wildlife Service
Pacific Islands Field Office
300 Ala Moana Blvd., Suite 3-122
Honolulu, HI. 96850
Phone: (808) 792-9453
E-Mail: ian_bordenave@fws.gov

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

February 19, 2013

Ian Bordenave, Biologist
U.S. Fish and Wildlife Service
Pacific Islands Field Office
300 Ala Moana Boulevard, Suite 3-122
Honolulu, Hawaii 96850

Dear Mr. Bordenave:

SUBJECT: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your email, dated February 6, 2013, providing comments on the Draft Environmental Assessment (EA) for the proposed improvements at Hamakuapoko Well Nos. 1 and 2.

We acknowledge your office's determination that there are no occurrences of federally listed species or designated critical habitat within the proposed project footprint.

We appreciate your input and will include a copy of your comments in the Final EA for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc., at (808) 244-2015.

Sincerely,

DAVID TAYLOR, P.E.
Director

DT/CE/jm
cc: Mark Alexander Roy, Munekiyo & Hiraga, Inc.

"By Water All Things Find Life"

Printed on recycled paper

JAN 16 2013

NEIL ABERCROMBIE
GOVERNOR

Dean H. Seki
Comptroller

Maria E. Zielinski
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

JAN 15 2013

(P)1005.3

Mr. Dave Taylor, Director
County of Maui, Department of Water Supply
200 South High Street, 5th Floor
Wailuku, Hawaii 96793

Attention: Mr. Curtis Eaton, P.E.

Dear Mr. Taylor:

Subject: Draft Environmental Assessment (EA) for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2, Maui, Hawaii

Thank you for the opportunity to provide comments for the subject project. The project does not impact any of the Department of Accounting and General Services' existing facilities in this area and we have no comments to offer at this time.

If you have any questions, please call me at 586-0400 or have your staff call Mr. Alva Nakamura of the Public Works Division at 586-0488.

Sincerely,

DEAN H. SEKI
Comptroller

c: Mr. David Victor, DAGS-Maui
✓ Mr. Mark Roy, AICP, Munekiyo & Hiraga, Inc.

3

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

February 19, 2013

Dean Seki, Comptroller
Department of Accounting and General Services
P.O. Box 119
Honolulu, Hawaii 96810-0119

Dear Mr. Seki:

SUBJECT: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated January 15, 2013, providing comments on Draft Environmental Assessment (EA) for the proposed improvements at Hamakuapoko Well Nos. 1 and 2.

We acknowledge that the proposed project does not impact any of the Department of Accounting and General Services' existing facilities in the area and that the Department does not have comments to offer at this time.

We appreciate your input and will include a copy of your comment letter in the Final EA for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc., at (808) 244-2015.

Sincerely,

DAVID TAYLOR, P.E.
Director

DT/CE/jm
cc: Mark Alexander Roy, Munekiyo & Hiraga, Inc.

"By Water All Things Find Life"

Printed on recycled paper

JAN 18 2013

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

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

In reply, please refer to:
EMD/CWB

01022PMR.13

January 16, 2013

Mr. Dave Taylor
Director
Department of Water Supply
County of Maui
200 South High Street, 5th Floor
Wailuku, Hawaii 96793

Attention: Mr. Curtis Eaton, P.E.

Dear Mr. Taylor:

SUBJECT: Comments on the Draft Environmental Assessment for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2 Hamakuapoko, Island of Maui, Hawaii TMK: (2) 2-5-004-039 (por.)

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated January 3, 2013, requesting comments on your project. The DOH-CWB has reviewed the subject document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at: http://www.hawaii.gov/health/environmental/env-planning/landuse/CWB-standardcomment.pdf.

1. Any project and its potential impacts to State waters must meet the following criteria:

   a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

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2. You may be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. The NPDES application forms may be picked up at our office or downloaded from our website at http://hawaii.gov/health/environmental/water/cleanwater/forms/environmental/water/cleanwater/forms/indiv-index.html.

3. If your project involves work in, over, or under waters of the United States, it is highly recommend that you contact the Army Corp of Engineers, Regulatory Branch (Tel: 438-9258) regarding their permitting requirements.

   Pursuant to Federal Water Pollution Control Act [commonly known as the "Clean Water Act" (CWA)], Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40 of the Code of Federal Regulations, Section 122.2; and Hawaii Administrative Rules (HAR), Chapter 11-54.

4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

If you have any questions, please visit our website at: http://www.hawaii.gov/health/environmental/water/cleanwater/index.html, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

ALEC WONG, P.E., CHIEF
Clean Water Branch

MR:jst

c: ✓Mr. Mark Roy, Munekiyo & Hiraga, Inc.
DOH-EPO [via email only]

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

February 19, 2013

Alec Wong, P.E., Chief
Clean Water Branch
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Dear Mr. Wong:

SUBJECT: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated January 16, 2013, providing comments on Draft Environmental Assessment (EA) for the proposed improvements at Hamakuapoko Well Nos. 1 and 2. We offer the following information in response to your comments:

1. We acknowledge that the proposed project must comply with the Antidegradation policy (HAR, Section 11-54-1.1), designated uses (HAR, Section 11-54-3), and water quality criteria (HAR, Section 11-54-4 through 11-54-8).

2. The DWS will coordinate with the Clean Water Branch to determine if a National Pollutant Discharge Elimination System permit is required for the project.

3. The proposed project does not involve work in, over, or under waters of the United States. Nevertheless, the Army Corps of Engineers was consulted during the preparation of the Draft EA and was provided a copy of the Draft EA for review.

4. We understand that all discharges related to the project construction or operation activities must comply with the State's Water Quality Standards.

5. The DWS will review the Clean Water Branch's standard comments provided on the website noted in your letter and will adhere to comments specifically applicable to this project.

"By Water All Things Find Life"

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We appreciate your input and will include a copy of your comment letter in the Final EA for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc., at (808) 244-2015.

Sincerely,

DAVID TAYLOR, P.E.
Director

DT/CE/jm
cc: Mark Alexander Roy, Munekiyo & Hiraga, Inc.

JAN 11 2013

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:
13-003
DEA Hamakuapoko Wells

January 8, 2013

TO: Dave Taylor, Director
Department of Water Supply

FROM: Laura McIntyre, Program Manager
Department of Health, Environmental Planning Office

SUBJECT: Draft Environmental Assessment for the Proposed Improvements at Hamakuapoko Wells Nos. 1 and 2, Maui, Hawaii
TMK: (2) 2-5-004: 039 (por.)

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of Munekiyo & Hiraga, Inc.'s letter dated January 3, 2013. Thank you for allowing us to review and comment on the subject document. The document was routed to the relevant Environmental Health divisions and offices. They will provide specific comments to you if necessary. EPO recommends that you review the Standard Comments (www.hawaii.gov/health/epo under the land use tab). You are required to adhere to all Standard Comments specifically applicable to this application.

EPO suggests that you examine the many sources available on strategies to support the sustainable design of communities, including the:
U.S. Environmental Protection Agency's sustainability programs: www.epa.gov/sustainability
U.S. Green Building Council's LEED program: www.new.usgbc.org/leed

The DOH encourages everyone to apply these sustainability strategies and principles early in the planning and review of projects. We also request that for future projects you consider conducting a Health Impact Assessment (HIA). More information is available at www.cdc.gov/healthyplaces/hia.htm. We request you share all of this information with others to increase community awareness on sustainable, innovative, inspirational, and healthy community design.

We request a written response confirming receipt of this letter and any other letters you receive from DOH in regards to this submission. You may mail your response to 919 Ala Moana Blvd., Ste. 312, Honolulu, Hawaii 96814. However, we would prefer an email submission to epo@doh.hawaii.gov. We anticipate that our letter(s) and your response(s) will be included in the final document. If you have any questions, please contact me at (808) 586-4337.

c: Curtis Eaton, County of Maui, Department of Water Supply
✓ Mark Roy, Munekiyo & Hiraga, Inc.

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ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

February 19, 2013

Via e-mail: epo@doh.hawaii.gov

Laura McIntyre, Program Manager
Department of Health, Environmental Planning Office
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Dear Ms. McIntyre:

SUBJECT: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated January 8, 2013, providing comments on the Draft Environmental Assessment (EA) for the proposed improvements at Hamakuapoko Well Nos. 1 and 2. We offer the following information in response to your comments:

1. We acknowledge that the Draft EA was routed to relevant Environmental Health divisions and offices.

2. The Department of Water Supply has reviewed the Environmental Planning Office's standard comments provided on the website noted in your letter and will adhere to comments specifically applicable to this project. A list of applicable comments, as well as responses to each, was provided in our letter to you dated December 14, 2012, which was included in the Draft EA.

3. We thank you for the information regarding sustainable design of communities.

4. The DWS will consider conducting a Health Impact Assessment, where applicable, for future projects. We thank you for the information provided on Health Impact Assessments.

We appreciate your input and will include a copy of your comment letter in the Final EA for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc., at (808) 244-2015.

Sincerely,

DAVID TAYLOR, P.E.
Director

DT/CE/jm
cc: Mark Alexander Roy, Munekiyo & Hiraga, Inc.

JAN 23 2013

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:

January 18, 2013

Mr. Curtis Eaton, P.E.
County of Maui, Department of Water Supply
200 South High Street, 5th Floor
Wailuku, HI 96793

Dear Mr. Eaton:

This correspondence is in response to your request for comments to the Draft Environmental Assessment (EA) for the proposed improvements at Hamakuapoko Well Nos 1 and 2, Maui, Hawaii.

Project activities shall comply with the following Administrative Rules of the Department of Health:

- Chapter 11-46 Community Noise Control
- Chapter 11-501 Asbestos Requirements
- Chapter 11-503 Fees for Asbestos Removal & Certification
- Chapter 11-504 Asbestos Abatement Certification Program

Should you have any questions, please contact me at (808) 586-4701.

Sincerely,

Jeffrey M. Eckerd
Program Manager
Indoor and Radiological Health Branch

C: Mark Roy, Munekiyo & Hiraga, Inc.

12

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

February 19, 2013

Jeffrey M. Eckerd, Program Manager
Indoor and Radiological Health Branch
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Dear Mr. Eckerd:

SUBJECT: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated January 18, 2013, providing comments on Draft Environmental Assessment (EA) for the proposed improvements at Hamakuapoko Well Nos. 1 and 2.

We acknowledge that the project must comply with the Administrative Rules of the Department of Health including Chapter 11-46 Community Noise Control, Chapter 11-501 Asbestos Requirements, Chapter 11-503 Fees for Asbestos Removal & Certification, and Chapter 11-504 Asbestos Abatement Certification Program.

We appreciate your input and will include a copy of your comment letter in the Final EA for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc., at (808) 244-2015.

Sincerely,

DAVID TAYLOR, P.E.
Director

DT/CE/jm
cc: Mark Alexander Roy, Munekiyo & Hiraga, Inc.

"By Water All Things Find Life"

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JAN 25 2013

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:
SDWB
Hamakuapoko2.doc

January 23, 2013

Mr. David Taylor, P.E., Director
Department of Water Supply
Attention: Curtis Eaton, P.E.
County of Maui
200 South High Street, 5th Floor
Wailuku, Hawaii 96793-2155

Dear Mr. Taylor:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT(DEA) FOR THE PROPOSED IMPROVEMENTS AT HAMAKUAPOKO WELL NOS. 1 AND 2 MAUI, HAWAI'I

We would like to acknowledge receipt of the Draft Environmental Assessment (EA) dated December 2012 and express our appreciation for the opportunity to comment on the proposed project.

We refer to our comments provided in our letter dated June 6, 2012, submitted in response your previous request for early consultation on the subject project. We do not have any additional comments at this time.

If you have any questions, please call Mr. Craig Watanabe of the Safe Drinking Water Branch Engineering Section at (808) 586-4258.

Sincerely,

JOANNA L. SETO, P.E., CHIEF
Safe Drinking Water Branch

CW:slm

c: Mark Roy, AICP, Vice President
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

February 19, 2013

Joanna L. Seto, P.E., Chief
Safe Drinking Water Branch
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801- 3378

Dear Ms. Seto:

SUBJECT: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated January 23, 2013, providing comments on the Draft Environmental Assessment (EA) for the proposed improvements at Hamakuapoko Well Nos. 1 and 2.

We acknowledge that the Safe Drinking Water Branch does not have additional comments beyond those provided in your previous letter dated June 6, 2012.

We appreciate your input and will include a copy of your comment letter in the Final EA for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc., at (808) 244-2015.

Sincerely,

DAVID TAYLOR, P.E.
Director

DT/CE/jm
cc: Mark Alexander Roy, Munekiyo & Hiraga, Inc.

"By Water All Things Find Life"

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JAN 29 2013

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

LORRIN W. PANG, M.D., M.P.H.
DISTRICT HEALTH OFFICER

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

January 28, 2013

Mr. Dave Taylor
Director
Department of Water Supply
County of Maui
200 South High Street, 5th Floor
Wailuku, Hawai`i 96793

Attention: Curtis Eaton, P.E.

Dear Mr. Taylor:

Subject: Draft Environmental Assessment for the Proposed Improvements at Hamakuapoko Well Nos. 1 & 2, Maui, Hawaii

Thank you for the opportunity to review this project. We have the following comments to offer:

National Pollutant Discharge Elimination System (NPDES) permit coverage maybe required for this project. The Clean Water Branch should be contacted at 808 586-4309.

It is strongly recommended that the Standard Comments found at the Department's website: http://hawaii.gov/health/environmental/env-planning/landuse/landuse.html be reviewed, and any comments specifically applicable to this project should be adhered to.

Should you have any questions, please call me at 808 984-8230 or E-mail me at patricia.kitkowski@doh.hawaii.gov.

Sincerely,

Patti Kitkowski

Patti Kitkowski
District Environmental Health Program Chief

c EPO
Mark Roy

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

February 19, 2013

Patti Kitkowski
Department of Health
Maui District Health Office
54 High Street
Wailuku, Hawaii 96793

Dear Ms. Kitkowski:

SUBJECT: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated January 28, 2013, providing comments on Draft Environmental Assessment (EA) for the proposed improvements at Hamakuapoko Well Nos. 1 and 2. We offer the following information in response to your comments:

1. The Department of Water Supply (DWS) will coordinate with the Clean Water Branch to determine if a National Pollutant Discharge Elimination System permit is required for the project.

2. The DWS has reviewed the Department of Health's standard comments provided on the website noted in your letter and will adhere to comments specifically applicable to this project. A list of applicable comments as well as responses to each were provided in our letter to you dated December 14, 2012, which was included in the Draft EA.

We appreciate your input and will include a copy of your comment letter in the Final EA for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc., at 244-2015.

Sincerely,

DAVID TAYLOR, P.E.
Director

DT/CE/jm
cc: Mark Alexander Roy, Munekiyo & Hiraga, Inc.

"By Water All Things Find Life"

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FEB 25 2013

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
ENVIRONMENTAL MANAGEMENT DIVISION
SOLID AND HAZARDOUS WASTE BRANCH
919 ALA MOANA BOULEVARD, #212
HONOLULU, HAWAII 96814

In reply, please refer to:
EMD/SHWB

February 20, 2013

S0215LO

Mr. Curtis Eaton, P.E.
Department of Water Supply
County of Maui
Kalana O Maui Building, 5th Floor
200 South High Street
Wailuku, Hawaii 96793

Dear Mr. Eaton:

SUBJECT: DEA for Proposed Improvements at Hamakuapoko Well Nos. 1 and 2 (TMK 2nd, 2-5-004:039)

Thank you for the opportunity to review and provide comments on the subject document. It has been reviewed by the Solid Waste Section (SW), Hazardous Waste (HW) Section, Underground Storage Tank (UST) Section, and Office of Solid Waste Management (OSWM) of the Solid and Hazardous Waste Branch. The SW, HW, and UST sections have no comments to offer at this time. The OSWM offers the following comments:

We understand that the proposed improvements primarily involve replacement of motors and pumps, and the installation of a new 150,000-gallon water tank adjacent to the Well No. 2 site. We also understand that other related site improvements include demolition, equipment removal, site grading and grubbing, installation of process control and security systems, and that a solid waste plan will be developed and implemented. Upon review of the DEA, we have the following comments related to the proposed new construction and demolition activities.

1. The generator of the waste must determine if any demolition building components contain hazardous waste. Please refer to Attachment 1.

2. Any non-hazardous lead-based paint waste must be disposed of at the Department of Health (DOH)-permitted disposal facilities and not recycled. Please refer to Attachment 2.

3. Please make arrangements with DOH-permitted facilities on Maui such as Hawaiian Cement for the potential disposition of any unpainted, uncontaminated concrete (no asbestos, lead-based paint or other types of contamination) from either demolition or new construction. Please be aware that they may choose to accept unpainted, uncontaminated concrete from their own jobs only. Concrete or other wastes that fail the TCLP test for hazardous waste must be managed as hazardous waste.

4. Non-hazardous concrete with lead-based paint must, prior to demolition, be separated from concrete intended for recycling and sent to DOH-permitted disposal facilities. If the project requires abatement of lead-based paint or asbestos activities, then the applicant needs to contact Mr. Tom Lileikis of the Indoor and Radiological Health Branch at 586-4700 as to when such activities will actually occur.

5. If on-site reuse of concrete is intended, then the uncontaminated concrete must also meet the state's definition of "inert fill material" defined as:

   Section 342H-1, Hawaii Revised Statutes Definition.
   "Inert fill material" means earth, soil, rocks, rock-like material such as cured asphalt, brick, and clean concrete less than eight inches in diameter, except as specified by a licensed soils engineer with no exposed steel reinforcing rod. The fill material shall not contain vegetation or organic material, or other solid waste.

6. Appropriately dispose of new construction gypsum and plaster. Currently, no recycling facility in Maui County is permitted to accept gypsum board from demolition projects.

7. We assume that any wood waste from new construction stage is of the treated variety. Such wood waste needs to be disposed of at DOH-permitted disposal facilities, not recycled.

8. Dispose of non-reusable glass at DOH-permitted disposal facilities. We encourage the reuse of glass if in a reusable form. Permitted glass recyclers on Maui County presently only accept glass bottles for recycling.

9. Please send any greenwaste to DOH-permitted facilities on Maui such as Maui Earth Compost Inc. or Maui EKO Systems. Each facility's ability to process greenwaste varies, so please contact them first prior to delivery. Whenever feasible, we also encourage on-site reuse of any trees planned for removal.

10. Please send any ferrous scrap or non-reusable appliances or "white goods" that do not contain refrigeration units to permitted scrap metal facilities such as Hammerhead Metals Recycling, which also accepts and removes fluids/freon from white goods with refrigeration units.

11. Please send any non-ferrous scrap to DOH-permitted facilities such as any of the various Reynolds Recycling, Inc. locations on Maui.

Please be reminded that the applicant's submittal was reviewed with respect to solid waste management and disposal issues only. We recommend that the applicant obtain approval from other agencies (such as OSHA) that may be involved in the oversight and implementation of other various aspects of their proposed action.

If you have any questions or comments, please contact Mr. John Valera of the Office of Solid Waste Management at (808) 586-4226.

Sincerely,

STEVEN Y.K. CHANG, P.E., CHIEF
Solid and Hazardous Waste Branch

Enclosures: Attachment 1, Hawaii Department of Health – Construction and Demolition (C&D) Waste Disposal General Guidance
Attachment 2, Disposal of Lead-Based Paint Waste

c: Mr. Mark Alexander Roy, AICP, Munekiyo & Hiraga, Inc.

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

April 22, 2013

Steven Y.K. Chang, Chief
Solid and Hazardous Waste Branch
Department of Health
State of Hawaii
919 Ala Moana Boulevard #212
Honolulu, Hawaii 96814

Dear Mr. Chang:

SUBJECT: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK (2)2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated February 20, 2013, providing comments on the Draft Environmental Assessment (EA) for the proposed improvements at Hamakuapoko Well Nos. 1 and 2.

We acknowledge that the Department of Health (DOH) Solid Waste Section, Hazardous Waste Section, and Underground Storage Tank Section do not have comments on the Draft EA. We provide the following information in response to the Office of Solid Waste Management of the Solid and Hazardous Waste Branch:

1. The existing water storage tank at Hamakuapoko Well No. 1 will be abandoned in place or demolished. If it is demolished, the Department of Water Supply (DWS) will determine if any components of the tank contain hazardous waste. No other demolition is proposed as part of the proposed project.

2. We acknowledge that non-hazardous lead-based paint waste must be disposed of at a DOH-permitted disposal facility.

3. DWS and its contractor will coordinate with a DOH-permitted facility for any disposition of unpainted, uncontaminated concrete.

4. We understand that non-hazardous concrete with lead-based paint must be separated from concrete intended for recycling and sent to an appropriate DOH-permitted disposal facility.
5. We acknowledge that on-site reuse of concrete is intended and the uncontaminated concrete must also meet the State's definition of "inert fill material".

6. DWS and its contractor will appropriately dispose of any construction gypsum and plaster.

7. Treated wood waste, if any, will be disposed of at a DOH-permitted disposal facility and will not be recycled.

8. Non-reusable glass will be disposed of at a DOH-permitted disposal facility.

9. Green waste will be sent to a DOH-permitted facility such as Maui Earth Compost or Maui EKO Systems.

10. Ferrous scrap or non-reusable appliances or "white goods", if any, that do not contain refrigeration units will be sent to a permitted scrap metal facility.

11. Non-ferrous scrap, if any, will be sent to a DOH-permitted facility.

We appreciate your input. A copy of your letter will be included in the Final EA for the project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc. at (808) 244-2015.

Sincerely,

DAVID TAYLOR, P.E.
Director

DT/CE/pf

cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

FEB 07 2013

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

February 6, 2013

County of Maui, Department of Water Supply
Dave Taylor, Director
Attention: Curtis Eaton, P.E.
200 South High Street, 5th Floor
Wailuku, Hawaii 96793

Munekiyo & Hiraga, Inc.
Attention: Mark Roy, AICP, Vice President
305 High Street, Suite 104
Waikulu, Hawaii 95793

Dear Mr. Eaton and Mr. Roy:

SUBJECT: Draft Environmental Assessment (EA) for the Proposed Improvements at Hamakuapoko Wells Nos. 1 and 2

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, the DLNR has no comments to offer on the subject matter. If you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

cc: Central Files

JAN 31 2013

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON

WILLIAM D. BALFOUR, JR.
SUMNER ERDMAN
LORETTA J. FUDDY, A.C.S.W., M.P.H.
NEAL S. FUJIWARA
JONATHAN STARR
TED YAMAMURA

WILLIAM M. TAM
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

January 28, 2013

Mr. Mark Roy, Vice President
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

Dear Mr. Roy:

SUBJECT: Early Consultation forProposed Hamakuapoko Wells 1 & 2 Improvements
Hamakuapoko, Maui

FILE NO.: Well Nos. 5420-01 & 5320-01
TMK NO.: (2) 2-5-004:039

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at *http://www.hawaii.gov/dlnr/cwrm*.

Our comments related to water resources are checked off below.

☒ 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.

☐ 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

☐ 3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the redistribution of agricultural resources into the State's Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.

☐ 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at http://www.usgbc.org/leed. A listing of fixtures certified by the EPA as having high water efficiency can be found at http://www.epa.gov/watersense/pp/index.htm.

☐ 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at http://hawaii.gov/dbedt/czm/initiative/lid.php.

☐ 6. We recommend the use of alternative water sources, wherever practicable.

☐ 7. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM:
Additional information and forms are available at *www.hawaii.gov/dlnr/cwrm/forms.htm.*

☐ 8. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water. The Water Use Permit may be conditioned on the requirement to use dual line water supply systems for new industrial and commercial developments.

☐ 9. A Well Construction Permit(s) is (are) required before the commencement of any well construction work.

☒ 10. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

☐ 11. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.

☐ 12. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

☐ 13. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a stream channel.

☐ 14. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.

☐ 15. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.

☐ 16. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.

☒ OTHER:

Pump Installation Permits should be transmitted with reference to terms and conditions in the Consent Decree resulting from *Coalition to Protect East Maui Water Resources vs. Maui Board of Water Supply (Civ.No.93-0734)*, County Ordinance No. 3404 (October 2, 2006, and Governor's Proclamations dated April 1, 1988 and amended July 28, 1999.)

If there are any questions, please contact Charley Ice at (808) 587-0218.

Sincerely,

WILLIAM M. TAM
Deputy Director

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

February 19, 2013

William Tam, Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Tam:

SUBJECT: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated January 28, 2013, providing comments on the Draft Environmental Assessment (EA) for the proposed improvements at Hamakuapoko Well Nos. 1 and 2. We offer the following information in response to your comments:

1. The Department of Water Supply (DWS) is in the process of analyzing the major strategies to be considered for the District in the Maui County Water Use and Development Plan.

2. DWS acknowledges that applications for Pump Installation Permits, as applicable, will need to be submitted to the Commission on Water Resource Management (CWRM) before re-initiating the operations of Hamakuapoko Well Nos. 1 and 2.

3. DWS notes that the applications for applicable Pump Installation Permits will be submitted for processing with reference to the terms and conditions in the Consent Decree referenced in your letter.

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We appreciate your input and will include a copy of your comment letter in the Final EA for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc., at (808) 244-2015.

Sincerely,

DAVID TAYLOR, P.E.
Director

DT/CE/jm
cc: Mark Alexander Roy, Munekiyo & Hiraga, Inc.

FEB 2 6 2013

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

February 22, 2013

County of Maui, Department of Water Supply
Dave Taylor, Director
Attention: Curtis Eaton, P.E.
200 South High Street, 5th Floor
Wailuku, Hawaii 96793

Munekiyo & Hiraga, Inc.
Attention: Mark Roy, AICP, Vice President
305 High Street, Suite 104
Waikulu, Hawaii 95793

Dear Mr. Eaton and Mr. Roy:

SUBJECT: Draft Environmental Assessment (EA) for the Proposed Improvements at Hamakuapoko Wells Nos. 1 and 2

Thank you for the opportunity to review and comment on the subject matter. In addition to the comments previously sent you on February 6, 2013, enclosed are comments from the Commission on Water Resource Management on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)
cc: Central Files

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

April 22, 2013

William Tam, Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Tam:

SUBJECT: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2)2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your supplemental letter, dated February 14, 2013, providing comments on the Draft Environmental Assessment (EA) for the proposed improvements at Hamakuapoko Well Nos. 1 and 2. We offer the following information in response to your comments. This letter supplements our letter to you on February 19, 2013.

- The Department of Water Supply (DWS) is in the process of analyzing the major strategies to be considered for the District in the Maui County Water Use and Development Plan.

- The proposed project does not involve the reclassification of agriculturally zoned land or the redistribution of agricultural resources.

- The Project consists of various repair and maintenance improvements at the existing Hamakuapoko Well Nos. 1 and 2 sites. As such, Leadership in Energy and Environmental Design (LEED) certification is not applicable to this project.

- The Project involves the construction of improvements to allow the Hamakuapoko Well Nos. 1 and 2 to be reopened for agricultural use, use during declared drought events and as an alternative drinking water source and backup to the DWS's existing Upcountry

Water Systems (UCWS). This Project fulfills the intent of Ordinance No. 3859 that was passed by the Maui County Council in October 2011.

Alternative sources such as the use of reclaimed wastewater are not available in the UCWS region.

- DWS acknowledges that an application for a Pump Installation Permit will need to be submitted to the Commission on Water Resource Management (CWRM) before re-initiating the operations of Hamakuapoko Well Nos. 1 and 2.

- We confirm your understanding of the proposed project as described in the Draft EA. The GAC water treatment facility produces water that meets standards for potable drinking water. The County Council has approved the wells for use for potable water during drought events, backup to the Upcountry Water System, and for agricultural use. The Final Environmental Impact Statement and Supplemental Environmental Impact Statement remain valid for Phase 1 of the East Maui Water Development Plan, which includes the Hamakuapoko wells.

We appreciate your input and will include a copy of your comment letter in the Final EA for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc., at (808) 244-2015.

Sincerely,

DAVID TAYLOR, P.E.
Director

DT/CE/pf

cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

1/30/13

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

January 10, 2013

2013 JAN 11 AM 10:09

MEMORANDUM

TO: **DLNR Agencies:**
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
X Engineering Division
___Div. of Forestry & Wildlife
___Div. of State Parks
X Commission on Water Resource Management
___Office of Conservation & Coastal Lands
X Land Division – Maui District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment (EA) for the Proposed Improvements at Hamakuapoko Wells Nos. 1 and 2
LOCATION: Hamakuapoko, Island of Maui; TMK: (2) 2-5-004:039 (por.)
APPLICANT: County of Maui, Department of Water Supply

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by February 5, 2013.

Only one (1) copy of the CD is available for your review in Land Division office, Room 220.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

RECEIVED
LAND DIVISION
2013 FEB 21 P2:05
DEPT. OF LAND AND NATURAL RESOURCES
STATE OF HAWAII

Attachments

( ) We have no objections.
( ) We have no comments.
(X) Comments are attached.

Signed: _____
Print Name: _____
Date: _____

cc: Central Files

31

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON

WILLIAM D. BALFOUR, JR.
SUMNER ERDMAN
LORETTA J. FUDDY, A.C.S.W., M.P.H.
NEAL S. FUJIWARA
JONATHAN STARR
TED YAMAMURA

WILLIAM M. TAM
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

February 14, 2013

TO: Russell Tsuji, Administrator
Land Division

FROM: William M. Tam, Deputy Director
Commission on Water Resource Management

SUBJECT: Hamakuapoko Wells 1 & 2 Improvements Draft EA

FILE NO.: N/A
TMK NO.: (2) 2-5-004:039 (por)

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at http://www.hawaii.gov/dlnr/cwrm.

Our comments related to water resources are checked off below.

☒ 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.

☐ 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

☒ 3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the redistribution of agricultural resources into the State's Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.

☒ 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at http://www.usgbc.org/leed. A listing of fixtures certified by the EPA as having high water efficiency can be found at http://www.epa.gov/watersense/pp/index.htm.

☐ 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at http://hawaii.gov/dbedt/czm/initiative/lid.php.

☒ 6. We recommend the use of alternative water sources, wherever practicable.

☐ 7. We recommend participating in the Hawaii Green Business Program, that assists and recognizes businesses that strive to operate in an environmentally and socially responsible manner. The program description can be found online at http://energy.hawaii.gov/programs/achieving-efficiency/green-business-program

☐ 8. We recommend adopting landscape irrigation conservation best management practices endorsed by the Landscape Industry Council of Hawaii. These practices can be found online at http://landscapehawaii.org/_library/documents/lich_irrigation_conservation_bmps.pdf

☐ 9. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM:
Additional information and forms are available at http://hawaii.gov/dlnr/cwrm/resources_permits.htm.

☐ 10. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water. The Water Use Permit may be conditioned on the requirement to use dual line water supply systems for new industrial and commercial developments.

☐ 11. A Well Construction Permit(s) is (are) required before any well construction work begins.

☒ 12. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

☐ 13. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.

☐ 14. Ground water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

☐ 15. A Stream Channel Alteration Permit(s) is (are) required before any alteration(s) can be made to the bed and/or banks of a stream channel.

☐ 16. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is (are) constructed or altered.

☐ 17. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.

☐ 18. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.

☒ OTHER:

We understand from this document that the installation of a GAC water treatment facility has rendered pesticides found in raw water undetectable in treated water.

During County Council deliberations leading to the October 13, 2011 passing of Ordinance 3859, restoring use of the Hamakuapoko Wells, the Department of Health stood by its conditional approval for use of these wells as a drinking water source during drought conditions. Otherwise, the well could be used for irrigation purposes and for backup to the Upcountry Water System.

The Consent Decree from judicial proceedings in Coalition to Protect East Maui Water Resources, et al v. Board of Water Supply stipulated that the Final EIS and Supplemental EIS in question is valid only for Phase One of the East Maui Water Development Plan being challenged, which includes use of Hamakuapoko Wells 1 & 2.

If there are any questions, please contact Charley Ice at 587-0218.

NEIL ABERCROMBIE
GOVERNOR

FEB 15 2013

GLENN M. OKIMOTO
DIRECTOR

Deputy Directors
JADE T. BUTAY
FORD N. FUCHIGAMI
RANDY GRUNE
JADINE URASAKI

IN REPLY REFER TO:

STP 8.1115

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

February 8, 2013

Mr. Dave Taylor
Director
Attention: Curtis Eaton, P.E.
County of Maui
Department of Water Supply
200 South High Street, 5th Floor
Wailuku, Hawaii 96793

Dear Mr. Eaton:

Subject: Hamakuapoko Well Nos. 1 and 2 Improvements
Draft Environmental Assessment (DEA)
TMK: (2) 2-5-004:039 (por.)

Thank you for requesting the State Department of Transportation's (DOT) review of the subject project. DOT understands that the Maui County Department of Water Supply (DWS) proposes various repairs and maintenance improvements for the subject project that include replacing existing motors and pumps, and a new water storage tank.

DOT does not anticipate any significant adverse impacts to the State transportation facilities at this time. We do ask for the DWS's follow up and future compliance to the Highways Division's applicable requirements such as, but not limited to: (a) submittal of future project construction plan; and (b) obtaining a permit from DOT Highways Division, Maui District Office for the transport of oversized and/or overweight materials and equipment on State highway facilities.

DOT appreciates the opportunity to provide comments. If there are any questions, please contact Mr. Garrett Smith of the DOT Statewide Transportation Planning Office at telephone number (808) 831-7976.

Very truly yours,

GLENN M. OKIMOTO, Ph.D.
Director of Transportation

c: Mark Roy, Munekiyo and Hiraga, Inc.

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

February 20, 2013

Glenn Okimoto, Ph.D., Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Okimoto:

SUBJECT: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated February 8, 2013, providing comments on the Draft Environmental Assessment (EA) for the proposed improvements at Hamakuapoko Well Nos. 1 and 2.

We acknowledge that the Department of Transportation (DOT) does not anticipate any significant adverse impacts to the State's transportation facilities. The Department of Water Supply (DWS) will continue to coordinate with the DOT regarding compliance with applicable requirements such as submittal of future project construction plans and obtaining a permit for the transport of oversized or overweight materials or equipment on State Highway facilities.

We appreciate your input and will include a copy of your comment letter in the Final EA for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc., at (808) 244-2015.

Sincerely,

DAVID TAYLOR, P.E.
Director

DT/CE/jm
cc: Mark Alexander Roy, Munekiyo & Hiraga, Inc.

"By Water All Things Find Life"

Printed on recycled paper

NEIL ABERCROMBIE
GOVERNOR

MAJOR GENERAL DARRYLL D. M. WONG
DIRECTOR OF CIVIL DEFENSE

DOUG MAYNE
VICE DIRECTOR OF CIVIL DEFENSE

FEB 15 2013

PHONE (808) 733-4300
FAX (808) 733-4287

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE DIRECTOR OF CIVIL DEFENSE
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

February 13, 2013

Mr. Curtis Eaton, P.E.
County of Maui
Department of Water Supply
200 South High Street, 5th Floor
Wailuku, Hawaii 96793

Dear Mr. Eaton:

Draft Environmental Assessment (EA) for the
Proposed Improvements at Hamakuapoko Well Nos. 1 and 2, Maui, Hawaii

Thank you for the opportunity to comment on the above project. We have no comment at this time.

Please contact this office upon completion of the environmental assessment for further review. If you have any questions or concerns, please have your staff contact Mr. Ian Duncan at (808) 733- 4300, ext. 555.

Sincerely,

DOUG MAYNE
Vice Director of Civil Defense

c: Mr. Mark Roy, AICP, Munekiyo & Hiraga, Inc.

FEB 19 2013

ALAN M. ARAKAWA
Mayor

KYLE K. GINOZA, P.E.
Director

MICHAEL M. MIYAMOTO
Deputy Director

TRACY TAKAMINE, P.E.
Solid Waste Division

ERIC NAKAGAWA, P.E.
Wastewater Reclamation Division

COUNTY OF MAUI
DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT
2200 MAIN STREET, SUITE 100
WAILUKU, MAUI, HAWAII 96793

February 8, 2013

Mr. Dave Taylor, Director
Attention: Mr. Curtis Eaton
County of Maui
Department of Water Supply
200 South High Street, 5th Floor
Wailuku, Hawaii 96793

Dear Mr. Eaton:

SUBJECT: HAMAKUAPOKO WELL NOS. 1 AND 2 IMPROVEMENTS DRAFT ENVIRONMENTAL ASSESSMENT TMK (2) 2-5-004:039, HAMAKUAPOKO, MAKAWAO

We reviewed the subject application and have the following comments:

1. Solid Waste Division comments:

   a. None.

2. Wastewater Reclamation Division (WWRD) comments:

   a. None. There is no County wastewater system in the area of the subject project.

If you have any questions regarding this memorandum, please contact Michael Miyamoto at 270-8230.

Sincerely,

KYLE K. GINOZA, P.E.
Director of Environmental Management

xc: Mr. Mark Roy
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

JAN 30 2013

DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
HOUSING DIVISION
COUNTY OF MAUI

ALAN M. ARAKAWA
Mayor
JO-ANN T. RIDAO
Director
JAN SHISHIDO
Deputy Director

35 LUNALILO STREET, SUITE 102 • WAILUKU, HAWAII 96793 • PHONE (808) 270-7351 • FAX (808) 270-6284

January 22, 2013

Mr. Mark Roy, AICP
Vice President
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Roy:

Subject: Draft Environmental Assessment (EA) for the Proposed Improvements at Hamakuapo Wells Nos. 1 & 2, Maui, Hawaii. TMK (2) 2-5-004:039 (por)

The Department has reviewed the Draft Environmental Assessment (EA) for the above subject project. Based on our review, we have determined that the subject project is not subject to Chapter 2.96, Maui County Code. At the present time, the Department has no additional comments to offer.

Please call Mr. Veranio Tongson Jr. of our Housing Division at (808) 270-1741 if you have any questions.

Sincerely,

Wayde T Oshiro

WAYDE T. OSHIRO
Housing Administrator

cc: Director of Housing and Human Concerns

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

February 19, 2013

Wayde Oshiro, Housing Administrator
Department of Housing and Human Concerns
Housing Division
County of Maui
35 Lunalilo Street, Suite 102
Wailuku, Hawaii 96793

Dear Mr. Oshiro:

SUBJECT: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated January 22, 2013, providing comments on the Draft Environmental Assessment (EA) for the proposed improvements at Hamakuapoko Well Nos. 1 and 2.

We acknowledge that the project is not subject to Chapter 2.96, Maui County Code.

We appreciate your input and will include a copy of your comment letter in the Final EA for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc., at 244-2015.

Sincerely,

DAVID TAYLOR, P.E.
Director

DT/CE/jm
cc: Mark Alexander Roy, Munekiyo & Hiraga, Inc.

"By Water All Things Find Life"

Printed on recycled paper

JAN 24 2013

ALAN M. ARAKAWA
Mayor

GLENN T. CORREA
Director

BRIANNE SAVAGE
Deputy Director

(808) 270-7230
FAX (808) 270-7934

DEPARTMENT OF PARKS & RECREATION
700 Hali'a Nakoa Street, Unit 2, Wailuku, Hawaii 96793

January 16, 2013

Dave Taylor, Director
Department of Water Supply
County of Maui
200 South High Street
Wailuku, Hi 96793

Dear Mr. Taylor:

SUBJECT: Draft Environmental Assessment (EA) for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2, Maui, Hawaii TMK (2) 2-5-004:039 (por)

Thank you for the opportunity to review and comment on the subject Draft Environmental Assessment for the Proposed Improvements at Hamakuapoko Wells No. 1 and No. 2. At this time we have no comment to offer.

Should you have any questions or concerns, please feel free to contact me, or Steve Grogan, Capital Improvements Project Coordinator, at stephen.grogan@co.maui.hi.us or 808-270-6158.

Sincerely,

GLENN T. CORREA
Director of Parks & Recreation

c: Robert Halvorson, Chief of Planning & Development
Curtis Eaton, P.E., Department of Water Supply
Mark Roy, AICP, Vice President, Munekiyo & Hiraga, Inc.

GTC:RH:sg

S:\PLANNING\Steve G\No Objections\No Comment - Hamakuapoko Well.doc

ALAN M. ARAKAWA
Mayor

WILLIAM R. SPENCE
Director

MICHELE CHOUTEAU McLEAN
Deputy Director

MAR 05 2013

COUNTY OF MAUI

DEPARTMENT OF PLANNING

March 4, 2013

Mr. Dave Taylor, Director
County of Maui, Department of Water Supply
200 South High Street
Kalana O Maui Building, 5th Floor
Wailuku, Hawaii 96793

Attention: Mr. Curtis Eaton, P.E.

Dear Mr. Eaton:

SUBJECT: COMMENTS ON THE DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE IMPROVEMENTS AT HAMAKUAPOKO WELL NOS. 1 AND 2, LOCATED AT HAMAKUAPOKO, ISLAND OF MAUI, HAWAII; TMK: (2) 2-5-004:039 (EAC 2013/0001)

The Department of Planning (Department) is in receipt of the above-referenced request for comments on the proposed improvements on the Hamakuapoko Well Nos. 1 and 2 in the Haiku District. At this time, the Department has no comment to offer.

Thank you for the opportunity to comment. Should you require further clarification, please contact Staff Planner Paul Fasi at paul.fasi@mauicounty.gov or at (808) 270-7814.

Sincerely,

CLAYTON I. YOSHIDA, AICP
Planning Program Administrator

for WILLIAM SPENCE
Planning Director

xc: Paul F. Fasi, Staff Planner (PDF)
Mark Roy, Munekiyo & Hiraga, Inc.
2013 EAC File
General File

WRS:CIY:PFF:vb
K:\WP_DOCS\PLANNING\EAC\2013\0001_HamakuapokoWells\EACcommentLtr.doc

FEB 12 2013

POLICE DEPARTMENT

COUNTY OF MAUI

ALAN M. ARAKAWA
MAYOR

OUR REFERENCE

YOUR REFERENCE

55 MAHALANI STREET
WAILUKU, HAWAII 96793
(808) 244-6400
FAX (808) 244-6411

GARY A. YABUTA
CHIEF OF POLICE

CLAYTON N.Y.W. TOM
DEPUTY CHIEF OF POLICE

January 30, 2013

Mr. Mark Alexander Roy, AICP
Vice President
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

Dear Mr. Roy:

SUBJECT: Draft Environmental Assessment for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2

This is in response to the request for comments on the above subject.

We have reviewed the information submitted for this project and have submitted our comments and/or recommendations. Thank you for giving us the opportunity to comment on this project.

Very truly yours,

Acting Assistant Chief Tivoli Faaumu
for: Gary A. Yabuta
Chief of Police

c: William Spence, Planning Department

TO	:	**GARY YABUTA, CHIEF OF POLICE, COUNTY OF MAUI**
VIA	:	**CHANNELS** Recommend forward to CFU for Threat Assessment prior to decision recommendation security / off-duty officer. If threat mild
FROM	:	**STUART KUNIOKA, POLICE OFFICER III, COMMUNITY ORIENTED POLICE** by Mr. Ramos credible - A/A-S 1/28/13
SUBJECT	:	**RESPONSE TO A REQUEST FOR COMMENTS REGARDING DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE PROPOSED IMPROVEMENTS AT HAMAKUAPOKO WELLS NOS. 1 AND 2, MAUI, HAWAII**

This communication is submitted as a response to a request for comments by Mark Alexander ROY, Vice President, Munekiyo & Hiraga, Inc.;

SUBJECT	:	RESPONSE TO A REQUEST FOR COMMENTS REGARDING DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE PROPOSED IMPROVEMENTS AT HAMAKUAPOKO WELLS NOS. 1 AND 2, MAUI, HAWAII

RESPONSE:

In review of the submitted documents, concerns from the police perspective are upon the safety and security of the involved parties working at this site.

Upon commencement and duration of this project, the hiring of security or Special Duty Officers should be taken into consideration for the safety of parties involved in the improvements of the Hamakuapoko Wells numbers 1 and 2, especially after the incident on January 08, 2013. Dave TAYLOR, the director of the Department of Water Supply had mentioned that on 01/08/13, a male identified as Benny RAMOS was at the Velma Santos Community Center in Wailuku for the Water Use & Development Plan for the Island of Maui. At the meeting, RAMOS had threatened to burn several officials in his imu. Plain clothes Police Officers were there at the meeting, and were able to calm RAMOS down and eventually RAMOS left the meeting.

CONCLUSION:

Because water use is a hot topic amongst several Hawaiian Sovereignty groups, it is suggested that some type of security plan be adopted before, during and after this project is completed.

RESPECTFULLY SUBMITTED,

KUNIOKA, STUART #11428
POLICE OFFICER III
COMMUNITY ORIENTED POLICE
01/22/13 @ 1245 HOURS

RECOMMEND OFF. KUNIOKA'S SUGGESTIONS BE TAKEN INTO CONSIDERATION REGARDING THIS PROJECT.
Sgt. [illegible]
1-24-13 @ 1500

Noted:
Capt. [illegible]
1/25/13

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

February 19, 2013

Gary Yabuta, Chief
Police Department
County of Maui
55 Mahalani Street
Wailuku, Hawaii 96793

Dear Chief Yabuta:

SUBJECT: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated January 16, 2013, providing comments on the Draft Environmental Assessment (EA) for the proposed improvements at Hamakuapoko Well Nos. 1 and 2.

We thank you for the information regarding the January 8, 2013 incident at the meeting regarding the Water Use & Development Plan and understand the safety considerations you have raised. The Department of Water Supply (DWS) and its contractors will be cognizant of security at the construction site and will coordinate with the Police Department, as necessary, to ensure safety and security of construction teams. It is noted that the well sites are and will continue to be fenced and locked at all times when DWS staff is not present.

We appreciate your input and will include a copy of your comment letter in the Final EA for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc., at (808) 244-2015.

Sincerely,

DAVID TAYLOR, P.E.
Director

DT/CE/jm
cc: Mark Alexander Roy, Munekiyo & Hiraga, Inc.

"By Water All Things Find Life"

Printed on recycled paper

JAN 25 2013

ALAN M. ARAKAWA
Mayor

DAVID C. GOODE
Director

ROWENA M. DAGDAG-ANDAYA
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
200 SOUTH HIGH STREET, ROOM NO. 434
WAILUKU, MAUI, HAWAII 96793

Development Services Administration

CARY YAMASHITA, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

January 18, 2013

MEMO TO: DAVID TAYLOR, DIRECTOR OF WATER SUPPLY

FROM: DAVID C. GOODE, DIRECTOR OF PUBLIC WORKS

SUBJECT: **DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED IMPROVEMENTS AT HAMAKUAPOKO WELL NOS. 1 AND 2 TMK: (2) 2-5-004:039**

We reviewed the subject application and have the following comments:

Comments from the Highways Division:

1. Well No. 2 is located mauka of Kuau Stream as depicted in Figure 2. Kuau Stream (a non-perennial stream) eventually ends up mauka of Hana Highway across from the Kuau Plaza Condominium. It is unclear how stream flows get from there to the ocean, but the County does have an 18" culvert makai of Poho Place.

2. Due to the potential of flooding properties in the Kuau area by flows from Kuau Stream, recommend that there be mitigative measures to keep discharges from Well No. 2 from impacting properties makai of the facility.

If you have any questions regarding this memorandum, please call Rowena M. Dagdag-Andaya at 270-7845.

DCG:RMDA:ls
xc: Highways Division
Engineering Division
Mark Roy, Munekiyo & Hiraga, Inc.
S:\LUCA\CZM\hamakuapoko_well_1_2_dea_25004039_ls.wpd

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

February 19, 2013

David C. Goode, Director
Department of Public Works
County of Maui
200 South High Street, Room 434
Wailuku, Hawaii 96793

Dear Mr. Goode:

SUBJECT: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated January 18, 2013, providing comments on the Draft Environmental Assessment (EA) for the proposed improvements at Hamakuapoko Well Nos. 1 and 2. We offer the following information in response to your comments:

1. Thank you for the information regarding Kuau Stream and the culvert makai of Poho Place.

2. We note that the only construction work involving earthwork or grading that will be occurring for the Hamakuapoko Well Nos. 1 and 2 project is a new pump control tank and associated piping and site work at Well No. 2. The proposed tank site is 0.144 acre (the tank itself will cover 0.023 acre) and will directly discharge into the surrounding sugar cane field. As such, the impact of additional runoff from the site to Kuau will be negllgible.

We appreciate your input and will include a copy of your comment letter in the Final EA for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc., at 244-2015.

Sincerely,

DAVID TAYLOR, P.E.
Director

DT/CE/jm
cc: Mark Alexander Roy, Munekiyo & Hiraga, Inc.

"By Water All Things Find Life"

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ALAN M. ARAKAWA
Mayor

FEB 05 2013

JO ANNE JOHNSON-WINER
Director
MARC I. TAKAMORI
Deputy Director
Telephone (808) 270-7511

DEPARTMENT OF TRANSPORTATION

COUNTY OF MAUI
200 South High Street
Wailuku, Hawaii, USA 96793-2155

January 23, 2013

Mr. Mark Roy
Munekiyo & Hiraga Inc.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Subject: Proposed Improvements at Hamakuapoko Well No 1 and 2, Maui

Dear Mr. Roy,

Thank you for the opportunity to comment on this project. We have no comments to make at this time.

Please feel free to contact me if you have any questions.

Sincerely,

Jo Anne J. Winer

Jo Anne Johnson Winer
Director

Council Chair
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Vice-Chair
Robert Carroll

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200 S. HIGH STREET
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www.mauicounty.gov/council

Director of Council Services
David M. Raatz, Jr., Esq.

February 22, 2013

Mark Alexander Roy, AICP
Munekiyo and Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mark Alexander Roy:

SUBJECT: **COMMENTS REGARDING DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED IMPROVEMENTS AT HAMAKUAPOKO WELL NOS. 1 AND 2, MAUI HAWAII (TMK (2) 2-5-004:039 (POR.))**

Thank you for the opportunity to comment on the Draft Environmental Assessment for the Proposed Improvements at Hamakuapoko Well Nos. 1 and 2. First, I would like to note that when this issue was brought before the Council, I voted against the reopening of the two wells and sited several concerns, that to date, have not, in my opinion, been sufficiently addressed. Public health and safety should be at the forefront of every decision making process and I do not feel that the troubling circumstances that presented themselves when the two wells were closed down for use, have changed for the better at all.

At the Council meeting on September 16th, 2011 I had expressed my desire to have several unanswered questions addressed by the Department of Water Supply.

1. The 1999 settlement agreement specifically states that it would cover the cost to treat DBCP levels that are over the State or Federal MCL. Why isn't the County negotiating additional agreements that cover costs of filtering out all other contaminants? How much will it cost for the County to cover all filtration costs on Hamakuapoko wells 1 and 2, which were reporting in the County's last tests (2004) to have DBCP levels below MCL, but higher TCP levels?

2. What is being done to filter out nitrates that are currently present in the water? How much will an ion removal system cost if one is needed to treat potentially elevated nitrate levels, once the wells are more frequently used?

3. The Maximum Contaminant Levels (MCL) provided by the EPA are constantly changing. How can the department state that the current MCL's are safe enough for human consumption when presently the EPA recorded TCP on their list of contaminants *that may need more stringent regulations*? Will providing this water to our consumers before the EPA has finished their studies, make the County liable to lawsuits?

4. Will the Maui County DWS be willing to set water quality standards, as the Honolulu Board of Water Supply has, to track and treat well water with nitrate levels that are 50% or more of the State DOH MCL trigger of 10 p/ltr.?

5. The county has invested $14 million into the development of the Hamakuapoko Wells: Will you please provide a cost breakdown (studies, assessments, reports, material cost, labor costs, etc.) of the $14 million used in the development of the Hamakuapoko Wells?

6. The 1999 settlement requires that all wells that receive funding must be in operation at a minimum of 10% of the year and it lists the Hamakuapoko wells as "drought back up." Have the consent decree parties agreed to potentially using the wells full time, as the current draft legislation reads? (For agriculture.)

7. Please provide an inventory of all water sources (wells, weirs, etc.) owned by the County and include a cost breakdown for the purchasing and development of every water source owned by the County; please include the cost estimate for bringing water sources online that are currently offline.

8. Is DWS willing to draw up a formal agreement with A&B and HC&S to utilize the Hamakuapoko wells strictly for agricultural use, therefore displacing potable water currently utilized for agriculture, for human consumption?

9. As Dr. Pang stated: science is ever changing and the levels of DBCP, TCP, EDB may not be detectible, or below the MCL at times- as the well sits now, but these levels can change with increased usage. If the Contaminant levels increase with more use, the County will either have to pay for extra filtering and cleaning of the water, or discontinue use of the wells intermittently, until the levels are brought back down again. Either way this will cost the County more money. If the Contaminant levels decrease with more use, specifically DBCP, the manufacturers that were court-ordered to handle removal of DBCP may not be

required to provide the filters that screen for DBCP any longer. How much will this cost the County?

Thank you for the opportunity to comment. Please feel free to contact my office if you have any questions or need further clarification.

Mahalo,

Elle Cochran

ELLE COCHRAN
Council Member

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

April 22, 2013

Councilmember Elle Cochran
County Council
County of Maui
200 South High Street
Wailuku, Hawaii 96793

Dear Councilmember Cochran:

SUBJECT: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2)2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated February 22, 2013, providing comments on the Draft Environmental Assessment (EA) for the proposed improvements at Hamakuapoko Well Nos. 1 and 2. We offer the following information in response to your comments:

1. The 1999 settlement agreement with the chemical companies covers the cost to treat DBCP and does not include other chemicals. The cost to remove other contaminants that may be found in the future cannot be estimated until the contaminants are detected and there is an understanding of what level of removal is required.

   It is noted that TCP was not detected in tests of water from the Hamakuapoko Wells prior to filtration through the Granulated Activated Carbon (GAC) process, with the exception of one (1) sample date. In the instance when TCP was detected, it was below the Maximum Contaminant Level (MCL). TCP is able to be treated and removed through the GAC filtration process. As such, the County does not bear additional costs to filter TCP.

2. The nitrate levels in the water at Hamakuapoko Well Nos. 1 and 2 are below the established MCL and therefore, do not require removal. DWS will continue to monitor levels of all contaminants and ensure that all Federal and State standards are met. It is noted that it would be speculative to estimate the cost to treat potentially elevated nitrate

levels as nitrates currently fall below the MCL and an understanding of the level of necessary removal is required to provide cost estimates.

3. DWS will meet or exceed the standards that are established by the U.S. Environmental Protection Agency (EPA). Should standards become more stringent in the future based on new studies being completed, DWS will move in a pro-active manner to adhere to the new standards.

   We note your comment regarding the EPA's indication that TCP may need more stringent regulation. However, as noted above, TCP was not detected in tests of water from the Hamakuapoko Wells prior to filtration, with the exception of one (1) sample date. In the instance when TCP was detected, it was below the MCL. TCP is able to be treated and removed through the GAC filtration process.

4. The DWS, at a minimum, will meet all water quality standards as required by established Federal and State standards. No drinking water will be provided to consumers that does not meet current water quality standards.

5. The cost for the Hamakuapoko Wells is consistent with the cost for other well development undertakings throughout the County. Operational and maintenance costs associated with the GAC system are paid for through the 1999 settlement agreement with the chemical companies.

6. The Hamakuapoko Wells were originally planned as part of the East Maui Water Development Plan (EMPLAN) which proposed the development of ten (10) source wells including the two (2) at Hamakuapoko. A judicial proceeding challenging the acceptance of the Final Supplemental Environmental Impact Statement (EIS) for the EMPLAN (*The Coalition to Protect East Maui Water Resources, et al. v. The Board of Water Supply, et al.*) was settled through the formulation of a Consent Decree in 2003. The terms of the Consent Decree stipulated that the acceptance of the Final Supplemental EIS for the EMPLAN was to be valid for only Phase 1 of the EMPLAN. As Phase 1 of the EMPLAN included the two (2) Hamakuapoko wells, the accepted Final EIS for the Hamakuapoko Well Nos. 1 and 2 continues to be valid. Therefore, the use of the wells is not subject to the Consent Decree.

   Ordinance No. 3859 adopted by the County Council in October 2011 allows the Hamakuapoko wells to be used for agricultural use, potable use during declared drought events, and as backup to the Upcountry Water System.

7. The DWS website provides monthly water production data as well as water quality reports for the various water sources on the island. These water sources were developed over many decades as the needs of the island have evolved. As such, a cost breakdown

for the acquisition and development of every water source owned by the County is not readily available. It is not within the purview of this EA to provide an inventory of water sources and associated costs as this does not have a bearing on the Hamakuapoko wells improvements. It is noted that new ground and surface water source development is discussed in Chapter V.E.2 of the Draft EA.

8. DWS is unaware of HC&S or A&B using potable water sources for agricultural uses. During previous discussions with HC&S when the wells were first drilled, HC&S expressed reluctance to accept untreated water into its irrigation system from the Hamakuapoko Wells No. 1 and 2. Without treatment for removal of DBCP and other contaminants, it was unknown whether the untreated water could have had an effect on crops. As noted in the EA, filtration through the GAC system produces water that meets both State and Federal drinking water standards.

9. DWS recognizes that levels of DBCP, TCP, and EDB in groundwater supplies may change over time. The Department will regularly monitor water quality at the Hamakuapoko wells and will meet or exceed the established water quality standards. The potential future cost to remove higher concentrations of contaminants that may be found in the future cannot be estimated until there is an understanding of what level of removal is required. On the other hand, should contaminant levels decrease to low or non-detectable levels, the filtering of the water to remove DBCP may no longer be required. At present, however, DWS will continue to filter the water from the wells to remove DBCP and ensure that safe drinking water is provided to our customers in compliance with established water quality standards.

We appreciate your input and will include a copy of your comment letter in the Final EA for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc., at 244-2015.

Sincerely,

DAVID TAYLOR, P.E.
Director

DT/CE/pf

cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

JAN 22 2013

Hawaiian Telcom

January 16, 2013

County of Maui, Department of Water Supply
Dave Taylor, Director
200 South High Street, 5th floor
Wailuku, HI 96793

ATTN: Curtis Eaton, P.E.

SUBJECT: PROPOSED IMPROVEMENTS AT HAMAKUAPOKO WELL NOS. 1 AND 2
TMK: (2) 2-5-004:039 (por)
HAMAKUAPOKO, MAUI, HAWAII

Dear Mr. Eaton:

Thank you for providing Hawaiian Telcom Incorporated, the opportunity to comment on the draft environmental assessment (EA) for the proposed improvements at Hamakuapoko Well Nos. 1 and 2 project.

The described subject project occurs near existing aerial facilities. Please contact our Outside Plant Engineering Department area engineer Sheri Tihada at (808) 242-5258 regarding any facility rearrangement or pole shoring/reinforcement, if required, or with any questions regarding this project.

Sincerely,

Gerry Sagucio
Section Manager –
Network Engineering & Planning

C: Mark Roy, AICP, Vice President, Munekiyo & Hiraga, Inc.
305 High Street, Suite 104, Wailuku,, HI 96793
File (3005 1204-016)
S. Tihada

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

February 19, 2013

Gerry Sagucio, Section Manager
Network Engineering & Planning
Hawaiian Telcom
P.O. Box 2200
Honolulu, Hawaii 96841

Dear Mr. Sagucio:

SUBJECT: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2) 2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated January 16, 2013, providing comments on Draft Environmental Assessment (EA) for the proposed improvements at Hamakuapoko Well Nos. 1 and 2.

We acknowledge that the proposed project involves work near existing aerial facilities. Relocation of poles or other facility rearrangement is not anticipated as a result of the proposed project. The Department of Water Supply will coordinate with Sheri Tihada, Outside Plant Engineering Department area engineer, with any questions regarding the project.

We appreciate your input and will include a copy of your comment letter in the Final EA for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc., at (808) 244-2015.

Sincerely,

DAVID TAYLOR, P.E.
Director

DT/CE/jm
cc: Mark Alexander Roy, Munekiyo & Hiraga, Inc.

"By Water All Things Find Life"

Printed on recycled paper

MAUI TOMORROW

Protecting Maui's Future

February 22, 2013

County of Maui Department of Water Supply
200 S. High St.
Wailuku, HI 96793-2155

Re: Draft EA for Proposed Improvements at Hamakuapoko Wells Nos. 1 and 2
(TMK (2) 2-5-004:39 (por) Hamakuapoko, Maui, Hawaii

Aloha Director Taylor and Staff:

Thank you for the opportunity to comment on the proposed improvements at Hamakuapoko Wells Nos. 1 and 2. Maui Tomorrow Foundation respectfully requests that the FEA include discussion of the following issues:

The EA should more adequately address possible impacts of operating the wells in relationship to the natural environment, cultural and human activities.

There are several wells and springs directly downslope of the Hamakuapoko wells 1 & 2 near sea level. The DEA and previous DWS documents have noted that the same aquifer the wells will be tapping is also released in stream beds near sea level.

The EA concludes that there will be no effects on any streams based on one seven-day test done in 1996 on a well in Haiku. Several areas of Maliko stream above and below the elevation of the wells are reported by USGS (Gingerich,1999) to have flows, yet the DEA does state whether these flows will be affected? Please provide current data regarding this.

Effects of Hamakuapoko well pumping on springs or private wells located in Maliko Gulch are not discussed but are referred to in the 2002 EMPlan FEIS. USGS in their 2002 comments on the EMPlan noted that: "Streams or springs that are supplied from the lower water table near the coast could have flow reductions, regardless of the distance of the wells from the coast."

HC&S, in their 2002 EMPlan comments noted that levels in some wells in the same aquifer had experienced "low sump levels and increased salinity" over the past three years. This corresponded with a time when the Hamakuapoko wells were pumped for drought emergencies.

In the 1999 Hamakuapoko Well FEA (p. 16) it is suggested that the wells were more connected to underground water sources associated with Maliko gulch than the Paia aquifer.

If this is the case, data should be provided on impacts of pumping on specific wells and springs and ground water discharge into marine waters that also depend upon the Maliko area sources.

The 1999 USGS report on Haiku ground and surface water states: "Nearly all of the ground water currently withdrawn in the study area is from well 5520-01 in Maliko Gulch, where historic withdrawal rates have averaged about 2.8 million gallons per day." Have tests been done to determine effects of Hamakuapoko wells on HC&S well 5520-01 or other HC&S wells? Have tests been conducted to determine any effects on other private water sources in Maliko Gulch or the private wells just Haiku-side of the gulch which appear to be drilled to a similar depth in relationship to sea level as the Hamakuapoko wells? No reference to this data is provided in the DEA, yet conclusions are made that pumping the wells will cause no impact.

Fig 1 Map in the DEA shows Hamakuapoko Well 2 sited along natural drainage leading to sea, labeled on Fig 2 map as a branch of Kuau stream. Has any attempt been made to determine if groundwater's naturally discharging into Ku'au Bay (likely to originate from the lower level Honomanu aquifer) will be affected by well pumping? This could affect cultural impacts, such as fisheries. Taro growing is taking place in Maliko gulch below the well location, utilizing spring fed stream tributaries and could also be affected.

Updated water quality tests for both wells need to be provided in the FEA.

It seems there are no plans to test the wells again for chemical contaminants until they are ready to go "online." This data would prove useful during the environmental review to effectively determine appropriate treatment and associated costs. If nitrate levels in the wells have increased, due to their location in an active agricultural area, additional filtration could be merited and should be examined in the EA.

Chloride levels in the wells averaged 65-89mg/l to in 1992. In the current DEA they are noted as 74 -110 mg/l. No explanation is given for the rise or its implications on future water quality. Other contaminant levels, such as Atrazine, may have also risen and should be checked.

The DEA notes that "water quality tests were conducted between 1999 and 2004." Please state how many tests were conducted. The 1999 FEA says Well 1 was tested 3 times from 1992 to1999 and Well 2 was tested 5 times during the same period. The appendix indicates Well 1 has been tested for DBCP 22 times between 1992 and 2004; Well 2 has been tested 21 times over the same period. Why were the wells not pumped between 2004 and 2006 when emergency pumping was still allowed?

No testing for nitrates is discussed in the body of the EA; while the nitrate levels in Well 2 are within state standards they exceed levels that Honolulu's DWS consider safe. This is of concern as nitrates are not filtered by the proposed GAC system.

The County acknowledges its settlement only covers the cost of filtering waters where DBCP exceeds state standards but acknowledges that Hamakuapoko Well 2 does not exceed those levels yet is being treated. Does the County bear the proportional cost of the treating the one well and is it in violation of its agreement with Shell et al if it is reimbursed for treatment costs?

If levels of DBCP in a well do not exceed state maximum contaminant levels, the settlement allows GAC filters to be removed. This could mean that EDB could exceed state standards in the Hamakuapoko wells, but not be eligible to be filtered out with the DBCP funded equipment. Can the settlement been amended to include EDB and TCP?

Future use of wells beyond uses defined in Ordinance No. 3859 is not considered but should be discussed under the topic of secondary and cumulative impacts.

The 1999 Hamakuapoko Well FEA informs us that both the Haiku and Kaupakalua wells were "envisioned as part of drought emergency plan in 1998," but by 1999 were in use as part of the Upcountry Water System.

Also in the 1999 FEA, DWS stated it would not issue water permits as a basis of the 1999 Hamakuapoko project action, but acknowledged that Hamakuapoko wells could be part of East Maui system. Since the Maui County Council has changed positions several times regarding appropriate use of the Hamakuapoko wells, the possibility of full time, use and impacts should be discussed.

Will the Hamakuapoko wells be used as part of the Central Maui system if the DWS proceeds on the East Maui Water Development Plan? This option should be specifically discussed since a large capacity pipeline was installed connecting the wells to the vicinity of the Paia tank, which is part of the Central Maui system.

Energy demands and costs of Hamakuapoko wells are not specifically discussed in the DEA.

The DEA calls for new well pumps, new booster pumps and an expanded mission for the wells as a backup for the Upcountry System. The expected energy demands and costs should be discussed in the FEA. Are these costs reimbursed as "operational costs" under the County's DBCP treatment agreement with Shell et al?

The issue of long term water quality and groundwater availability in the Paia aquifer sector where the wells are located is not clear.

The DEA acknowledges that ground water pumping in the Paia aquifer appears to exceed the aquifer's sustainable yield of 7 mgd, but notes that the SY is "based upon basal groundwater only and does not account for significant importation of surface water into Paia from outside the aquifer through return irrigation recharge." Please provide information on the amount and source of this "recharge." Is it from leaking HC&S reservoirs or ditches? If so, is it a reliable source of recharge if agricultural patterns change?

During testing for the 1999 Hamakuapoko Wells FEA, one well was pumped 3 days @ 700 gpm. (1 mgd) and chloride levels rose from 58 mg/l to 89 mg/l. Please address this rise in chloride levels.

While the 1999 FEA for the Hamkuapoko wells listed their average chloride levels as 65 mg/l and noted that "normal desirable limit on Maui as 80 mg/l)" the current DEA describes more current chloride levels as between 74 mg/l and 110 mg/l. No explanation is given for this rise or that they now exceed the "normal desirable limit" for public water supplies previously noted.

What levels have the wells been reliably pumped when in use? Public records indicate no higher pumping than .433 mgd or less than half a million gallons a day; will this be sufficient to serve as backup for the Upcountry system?

The DEA states that the Hamakuapoko well system would operate during droughts and only short term impacts to the aquifer would occur. Does DWS have a monitor well for the aquifer that indicates expected ground water levels during drought conditions when HC&S wells are also pumping?

The DEA states that "perched" waters in the Kula volcanic formations are separate from the lower elevation waters in the older Honomanu formations but does not explain how an adequate volume of rain water is able to sufficiently penetrate from surface levels to the deeper aquifer the wells will tap. How do contaminants such as DBCP migrate from the higher "perched" water to the deeper aquifer if there is no connectivity? Is the fresh water available in the Honomanu volcanics actually "fossil water" unlikely to be readily replaced if it is pumped by the Hamakuapoko wells?

Alternative Actions, capable of "drought proofing" the Upcountry Water system and their relative costs are not adequately discussed.

The 1999 Hamakuapoko Wells FEA noted that between 1970 and 1987 Wailoa ditch was affected by severe drought 5 times and predicted a drought of 3 months or longer every 3.6 years. From 1988-1999, DWS had 8 drought occurrences.

"Drought conditions" were defined as ditch flow levels dropping below half of 110 mgd average. Please clarify if this trend has changed and based upon these trends, how often the wells are expected to be used.

The alternative action of creating more surface water reservoir storage capacity at Kamole treatment facility is dismissed as "too costly" yet the DEA provides no comparison of comparative costs over a 50-year cycle of operating and maintaining the Hamakuapoko wells and pumping Po'okela wells "full time" in relationship to constructing and maintaining additional reservoir capacity

It also does not acknowledge that the DWS has publicly stated it has plans to expand use of surface water at Kamole to meet Upcountry meter list needs and has plans to expand reservoir capacity.

Project costs and timing not clearly explained or discussed.

Timetable for well repairs is given as 14 months, yet A&B Properties noted in their 2012 comments that various lease agreements needed to be negotiated and had not begun. Are these negotiations included in the 14 month timetable? How long is testing and certification from DOH expected to take? Is that included in the 14 month timetable?

The DEA on p.12 notes the project costs as $2 million. Please state whether this includes initial water quality testing, test pumping, disposal of old filters, ongoing energy costs and water testing costs? DOH comments specify that monthly testing is required. Which costs are covered under the DBCP settlement and which will be the responsibility of DWS?

The DEA (p.49) describes the GAC filter waste as not hazardous and can be disposed of at the landfill but the 1999 FEA (p. 24) described the GAC filtration material as expensive to dispose of. Please clarify how the GAC will be disposed, how often and what it will cost.

The FEA's Population and Economy discussion does not acknowledge that Ordinance 3859 was passed in 2011 with the express purpose of allowing more meters to be issued for upcountry system from Po'okela well. Therefore the scope of the EA's impacts cannot be limited to primarily "repair and maintenance."

The DEA should disclose the cumulative impacts of bringing Hamakuapoko wells online along with the issuing of more meters; please quantify the costs of increased demand for public services and infrastructure resulting from increased residential construction in the Upcountry area.

The DEA concludes that through the WUDP and CWRM well approval review "processes are in place to ensure that water resources of the underlying Paia aquifer are adequately protected." concluding that the Hamakuapoko wells will cause no impacts yet the WUDP has no mandate to conduct testing and protocols to determine the health of the aquifer.

The CWRM has only limited means to protect aquifer health unless an aquifer is designated a water management area, Since public records indicate Paia aquifer has the greatest number of polluted ground water sources on Maui, the existing levels of protection may not be sufficient.

The DEA also concludes that the Maui Island Plan and State Land Use Commission will manage growth demands on Upcountry and therefore the Hamakuapoko well will not contribute to secondary impacts. These review processes do not specifically consider water availability. Developments such as Kula Ridge received approval by both MIP and LUC last year without a viable water source.

Maui Tomorrow Foundation believes the cumulative impacts discussed in the FEA relied upon triggers and thresholds selectively defined by project consultants and further discussion of impacts is needed.

Mahalo for the opportunity to offer these comments,

Irene Bowie

Irene Bowie, Executive Director

55 N. Church St. Ste. A4, Wailuku, HI 96793 808.244.7570 director@maui-tomorrow.org

ALAN M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
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April 22, 2013

Ms. Irene Bowie, Executive Director
Maui Tomorrow
55 North Church Street, Suite A4
Wailuku, Hawaii 96793

Dear Ms. Bowie:

SUBJECT: Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
TMK: (2)2-5-004:039 (por.), Hamakuapoko, Maui, Hawaii

Thank you for your letter, dated February 22, 2013, providing comments on the Draft Environmental Assessment (EA) for the proposed improvements at Hamakuapoko Well Nos. 1 and 2. We offer the following information in response to your comments which have been listed in the same order as presented in your letter:

The EA should more adequately address possible impacts of operating the wells in relationship to the natural environment, cultural and human activities.

Comment:

There are several wells and springs directly downslope of the Hamakuapoko wells 1 & 2 near sea level. The DEA and previous DWS documents have noted that the same aquifer the wells will be tapping is also released in stream beds near sea level.

The EA concludes that there will be no effects on any streams based on one seven-day test done in 1996 on a well in Haiku. Several areas of Maliko stream above and below the elevation of the wells are reported by USGS (Gingerich,1999) to have flows, yet the DEA does state whether these flows will be affected? Please provide current data regarding this.

Effects of Hamakuapoko well pumping on springs or private wells located in Maliko Gulch are not discussed but are referred to in the 2002 EMPlan FEIS. USGS in their 2002 comments on the EMPlan noted that: "Streams or springs that are supplied from the lower water table near the coast could have flow reductions, regardless of the distance of the wells from the coast."

Response:

As discussed in Chapter II (D.2) of the Draft EA, the Hamakuapoko wells were approved by the State of Hawaii in 2000 for use as production wells to pump water from the basal aquifer in the Honomanu formation (Paia aquifer) and use it to provide drinking water after treatment (by Granular Activated Carbon filtration units) into the Upcountry Water System. The basal water table is located approximately four (4) to five (5) feet above sea level while stream channels in vicinity of the wells are hundreds of feet above sea level. As such, the basal water table does not intersect with these stream channels except within several hundred feet of the coast. According to the U.S. Geological Service (USGS), Maliko Gulch is thought to be fed by a perched spring that is located hundreds of feet above sea level. The Hamakuapoko wells are located over two (2) miles from the nearest area of coastline. Re-initiation of use of the wells at this vertical and horizontal separation distance from the shoreline is not anticipated to result in drawdown at a magnitude that would affect stream flow in the region. This finding was set forth by Mink & Yuen in the 1999 Final EA that was prepared to convert the wells into production wells. Further, a 1996 USGS study on the effects of pumping at the nearby Haiku well (tapping the same elevation of basal source at or near sea level) concluded that after seven (7) days of pumping, there was no evidence of interaction between the aquifer and the streams. Based on review of this information, re-initiation of the Hamakuapoko wells are, therefore, not expected to result in any significant adverse effects on stream flow in the area.

Comment:

HC&S, in their 2002 EMPlan comments noted that levels in some wells in the same aquifer had experienced "low sump levels and increased salinity" over the past three years. This corresponded with a time when the Hamakuapoko wells were pumped for drought emergencies.

Response:

We note your comment that general input was provided by HC&S during the formulation of the 2002 East Maui Plan stating that water quantity and quality fluctuations were being observed at some of the company's wells. It is important to recognize that there are many

factors influencing both the quantity and quality of groundwater supplies over time. DWS is not aware of any study or information that establishes that the previous use of the Hamakuapoko wells directly impacted usage of other approved wells located throughout the region.

Comment:

In the 1999 Hamakuapoko Well FEA (p. 16) it is suggested that the wells were more connected to underground water sources associated with Maliko gulch than the Paia aquifer. If this is the case, data should be provided on impacts of pumping on specific wells and springs and ground water discharge into marine waters that also depend upon the Maliko area sources.

Response:

The USGS is currently in the process of developing a groundwater model as part of its Upcountry Maui Groundwater Availability Study which will provide additional understanding of the groundwater resources throughout the area. According to USGS staff, however, spring-fed flows in Maliko Gulch are interpreted to be coming from a perched high level water body that is located hundreds of feet above sea level. Based on this and other available information, withdrawal of groundwater from the Honomanu formation (located four (4) to five (5) feet) above sea level) by the Hamakuapoko wells is not anticipated to significantly impact flows within this particular stream resource.

Comment:

The 1999 USGS report on Haiku ground and surface water states: "Nearly all of the ground water currently withdrawn in the study area is from well 5520-01 in Maliko Gulch, where historic withdrawal rates have averaged about 2.8 million gallons per day." Have tests been done to determine effects of Hamakuapoko wells on HC&S well 5520-01 or other HC&S wells? Have tests been conducted to determine any effects on other private water sources in Maliko Gulch or the private wells just Haiku-side of the gulch which appear to be drilled to a similar depth in relationship to sea level as the Hamakuapoko wells? No reference to this data is provided in the DEA, yet conclusions are made that pumping the wells will cause no impact.

Response:

As discussed in the Draft EA, the Hamakuapoko wells were originally drilled as exploratory wells in 1992 as part of the Upcountry Water System. Well completion reports were approved by the State Commission on Water Resource Management (CWRM) and the wells were assigned State Well numbers (No. 5420-01 and No. 5420-02). As discussed above, a Final EA/Finding of No Significant Impact was prepared in

1999 for conversion of the exploratory wells into production wells in response to the Governor's Proclamation declaring a drought emergency in Upcountry Maui. On December 22, 2000, the Hamakuapoko wells were placed into operation with capacities of 0.75 million gallons per day (MGD) each (or 1.5 MGD combined) to ease the upcountry drought situation following issuance of a conditional approval by the State Department of Health (DOH) for the wells to provide drinking water into a public water system. During Maui County Council deliberations in 2000, the DOH stated that it continued to stand by its 2000 approval for use of Hamakuapoko Wells as a drinking water source following treatment by Granular Activated Carbon (GAC) filtration units. DWS will continue to work alongside both the Commission on Water Resource Management (CWRM) (the agency responsible for protecting and managing extraction from the State's water resources) and DOH (the agency responsible for ensuring compliance with established water quality requirements) to address any additional permitting requirements that may be necessary during the process of re-initiating use of the approved wells for agricultural use, potable use during declared drought events, and as back-up to the Upcountry Water System.

Comment:

Fig 1 Map in the DEA shows Hamakuapoko Well 2 sited along natural drainage leading to sea, labeled on Fig 2 map as a branch of Kuau stream. Has any attempt been made to determine if groundwater's naturally discharging into Ku'au Bay (likely to originate from the lower level Honomanu aquifer) will be affected by well pumping? This could affect cultural impacts, such as fisheries. Taro growing is taking place in Maliko gulch below the well location, utilizing spring fed stream tributaries and could also be affected.

Response:

As discussed above and in Chapter II (D.2) of the Draft EA, the Hamakuapoko wells were approved in 2000 for use as production wells to pump water from the basal aquifer in the Honomanu formation and use it to provide drinking water after treatment into the Upcountry Water System. The basal water table is located approximately four (4) to five (5) feet above sea level while nearby stream channels, including the Kuau Stream, are hundreds of feet above sea level. As such, the basal water table does not intersect with these stream channels except within several hundred feet of the coast. According to USGS, Maliko Gulch is fed by a perched spring that is located hundreds of feet above sea level and as such, is separated from the Honomanu basal formation. The Hamakuapoko wells are located over two (2) miles from the nearest area of coastline. Re-initiation of use of the wells at this distance from the shoreline is, therefore, not anticipated to result in a drawdown effect at a magnitude that would present significant adverse effects on either stream flow at these locations or natural groundwater discharge rates along the shoreline.

Updated water quality tests for both wells need to be provided in the FEA.

Comment:

It seems there are no plans to test the wells again for chemical contaminants until they are ready to go "online." This data would prove useful during the environmental review to effectively determine appropriate treatment and associated costs. If nitrate levels in the wells have increased, due to their location in an active agricultural area, additional filtration could be merited and should be examined in the EA.

Response:

Based on previous water quality tests, the nitrate levels in the water at Hamakuapoko Well Nos. 1 and 2 are below the established Maximum Contaminant Level (MCL) for nitrates and, therefore, do not require removal. DWS will continue to monitor levels of all contaminants and ensure that all Federal and State standards are met and that potable water provided to the public is safe for consumption.

Comment:

Chloride levels in the wells averaged 65-89mg/l to in 1992. In the current DEA they are noted as 74 -110 mg/l. No explanation is given for the rise or its implications on future water quality. Other contaminant levels, such as Atrazine, may have also risen and should be checked.

Response:

Generally, chloride levels under 200 mg/l are acceptable for human consumption by taste. Existing levels of chloride found at the Hamakuapoko wells are suitable for consumption. Upon re-initiation of use of the wells, the DWS will continue to monitor water quality, including chloride levels, at the wells to ensure that drinking water provided for the Upcountry Water System in compliance with Federal and State water quality standards.

Comment:

The DEA notes that "water quality tests were conducted between 1999 and 2004." Please state how many tests were conducted. The 1999 FEA says Well 1 was tested 3 times from 1992 to1999 and Well 2 was tested 5 times during the same period. The appendix indicates Well 1 has been tested for DBCP 22 times between 1992 and 2004; Well 2 has been tested 21 times over the same period. Why were the wells not pumped between 2004 and 2006 when emergency pumping was still allowed?

Response:

The Hamakuapoko Wells were tested four (4) times in 1999. Between 2000 and 2004, the wells and the water treated by the GAC were tested 12 times. The frequency of testing corresponded to the use of the wells. The water was not tested during times when the wells were not being pumped. As such, the water was not tested during 2004 and 2006 because the wells were not pumped during this time

Comment:

No testing for nitrates is discussed in the body of the EA; while the nitrate levels in Well 2 are within state standards they exceed levels that Honolulu's DWS consider safe. This is of concern as nitrates are not filtered by the proposed GAC system.

Response:

We note your concern regarding nitrates in water pumped at Hamakuapoko wells. The nitrate levels in the water at Hamakuapoko Well Nos. 1 and 2 are below the established MCL and, therefore, do not require removal. DWS will continue to monitor levels of all contaminants and ensure all federal and state standards are met.

Comment:

The County acknowledges its settlement only covers the cost of filtering waters where DBCP exceeds state standards but acknowledges that Hamakuapoko Well 2 does not exceed those levels yet is being treated. Does the County bear the proportional cost of the treating the one well and is it in violation of its agreement with Shell et al if it is reimbursed for treatment costs?

Response:

The settlement agreement between the Board of Water Supply and the chemical companies will be included as an Appendix in the Final EA. The agreement establishes the operations and maintenance costs to be paid based on well yields where DBCP exceeds the MCL. If DBCP levels do not exceed the MCL, DWS does not include the well yields when determining the amount of operations and maintenance costs to be paid through the settlement agreement.

Comment:

If levels of DBCP in a well do not exceed state maximum contaminant levels, the settlement allows GAC filters to be removed. This could mean that EDB could exceed

state standards in the Hamakuapoko wells, but not be eligible to be filtered out with the DBCP funded equipment. Can the settlement been amended to include EDB and TCP?

Response:

The 1999 settlement agreement with the chemical companies covers the cost to treat DBCP and does not include other chemicals such as EDB and TCP. This agreement was reached over 10 years ago and will not be amended.

Future use of wells beyond uses defined in** Ordinance No. 3859 **is not considered but should be discussed under the topic of secondary and cumulative impacts.

Comment:

The 1999 Hamakuapoko Well FEA informs us that both the Haiku and Kaupakalua wells were "envisioned as part of drought emergency plan in 1998," but by 1999 were in use as part of the Upcountry Water System.

Also in the 1999 FEA, DWS stated it would not issue water permits as a basis of the 1999 Hamakuapoko project action, but acknowledged that Hamakuapoko wells could be part of East Maui system. Since the Maui County Council has changed positions several times regarding appropriate use of the Hamakuapoko wells, the possibility of full time, use and impacts should be discussed.

Response:

Ordinance No. 3859, adopted by the County Council in October 2011 allows the Hamakuapoko wells to be used for agricultural use, potable use during declared drought events, and backup to the Upcountry Water System. Change in use of the Hamakuapoko wells to allow it to be part of the East Maui System or to be used on a full-time basis would require adoption of a new ordinance by the County Council. Appropriate assessment of required permits and potential impacts of other uses would need to be addressed if and when the use of the wells is changed. It is noted that the reopening of the Hamakuapoko Wells would allow the Pookela Well, which is currently used for back up, to be used on a full-time production basis. The secondary and cumulative impact assessment provided in Chapter II(E) of the Draft EA includes a discussion of the future use of the Pookela Well.

Comment:

Will the Hamakuapoko wells be used as part of the Central Maui system if the DWS proceeds on the East Maui Water Development Plan? This option should be specifically

discussed since a large capacity pipeline was installed connecting the wells to the vicinity of the Paia tank, which is part of the Central Maui system.

Response:

The Hamakuapoko wells could be used as part of the Central Maui system. However, as mentioned above, Ordinance No. 3859, adopted by the County Council in October 2011, limits the use of the Hamakuapoko wells to agricultural use, potable use during declared drought events, and backup to the Upcountry Water System. A new ordinance would be required to use the wells for the Central Maui system and appropriate analysis would need to be undertaken at that time.

Energy demands and costs of Hamakuapoko wells are not specifically discussed in the DEA.

Comment:

The DEA calls for new well pumps, new booster pumps and an expanded mission for the wells as a backup for the Upcountry System. The expected energy demands and costs should be discussed in the FEA. Are these costs reimbursed as "operational costs" under the County's DBCP treatment agreement with Shell et al?

Response:

As noted in the Draft EA, the electrical demand for the re-opened Hamakuapoko wells is anticipated to be the same as the prior demand when the wells were in operation. Electrical costs are not specifically reimbursed as operational costs. As stated above, the settlement agreement establishes the operations and maintenance costs to be paid based on well yields of each separate well.

The issue of long term water quality and groundwater availability in the Paia aquifer sector where the wells are located is not clear.

Comment:

The DEA acknowledges that ground water pumping in the Paia aquifer appears to exceed the aquifer's sustainable yield of 7 mgd, but notes that the SY is "based upon basal groundwater only and does not account for significant importation of surface water into Paia from outside the aquifer through return irrigation recharge." Please provide information on the amount and source of this "recharge." Is it from leaking HC&S reservoirs or ditches? If so, is it a reliable source of recharge if agricultural patterns change?

Response:

USGS report titled 'Effects of Agricultural Land-Use Changes and Rainfall on Ground-Water Recharge in Central and West Maui, Hawaii 1926-2004' (USGS SIR 2007-5103) indicates that a significant amount of recharge (approximately 61 MGD) in the Paia aquifer is derived from return irrigation flow during sugarcane cultivation activities. Return irrigation rates under different agricultural land use patterns would either increase or decrease beyond existing conditions, the extent of which would depend entirely on the specific crop type being cultivated at that particular point in time.

Comment:

During testing for the 1999 Hamakuapoko Wells FEA, one well was pumped 3 days @ 700 gpm. (1 mgd) and chloride levels rose from 58 mg/l to 89 mg/l. Please address this rise in chloride levels.

Response:

The maximum chloride levels reached during the testing of the Hamakuapoko wells were within the acceptable limits for potable water. Upon re-initiation of use of the Hamakuapoko wells, the DWS will continue to monitor water quality of the wells to ensure that drinking water is provided to the public in compliance with Federal and State water quality standards.

Comment:

While the 1999 FEA for the Hamakuapoko wells listed their average chloride levels as 65 mg/l and noted that "normal desirable limit on Maui as 80 mg/l)" the current DEA describes more current chloride levels as between 74 mg/l and 110 mg/l. No explanation is given for this rise or that they now exceed the "normal desirable limit" for public water supplies previously noted.

Response:

As mentioned previously, chloride levels under 200 mg/l are acceptable for human consumption by taste. Existing levels of chlorides found at the Hamakuapoko wells are suitable for consumption. DWS will continue to closely monitor levels and note any trends in increases in chloride and address these increases should it occur.

Comment:

What levels have the wells been reliably pumped when in use? Public records indicate no higher pumping than .433 mgd or less than half a million gallons a day; will this be sufficient to serve as backup for the Upcountry system?

Response:

Historically, DWS did not operate the wells 24 hours a day, 7 days a week for an entire month. The 0.433 MGD a day represents the average for the entire month. The wells have been approved for pumping of 0.75 MGD at each well or 1.5 MGD combined.

The well completion reports for the two (2) wells were included for reference as Appendix "B" and Appendix "B-1" in the Draft EA.

Comment:

The DEA states that the Hamakuapoko well system would operate during droughts and only short term impacts to the aquifer would occur. Does DWS have a monitor well for the aquifer that indicates expected ground water levels during drought conditions when HC&S wells are also pumping?

Response:

There are no monitoring wells currently located within the Paia aquifer. As mentioned previously, the USGS is currently in the process of developing a groundwater model as part of its Upcountry Maui Groundwater Availability Study that may prove useful in furthering current understanding regarding the variables affecting both the quantity and quality of groundwater in the area. Upon re-initiation of use of the Hamakuapoko wells, the DWS will regularly monitor both quantity and quality of water extracted from the groundwater source and will comply with all applicable DOH reporting requirements as set forth in the 2000 conditional approval that was issued to allow for the wells to be used as drinking water production wells for the Upcountry Water System.

Comment:

The DEA states that "perched" waters in the Kula volcanic formations are separate from the lower elevation waters in the older Honomanu formations but does not explain how an adequate volume of rain water is able to sufficiently penetrate from surface levels to the deeper aquifer the wells will tap. How do contaminants such as DBCP migrate from the higher "perched" water to the deeper aquifer if there is no connectivity? Is the fresh water available in the Honomanu volcanics actually "fossil water" unlikely to be readily replaced if it is pumped by the Hamakuapoko wells?

Response:

USGS report titled 'Ground Water and Surface Water in the Haiku Area, East Maui, Hawaii' (USGS WRI 98-4142) discusses the connectivity of the high level perched aquifer and the freshwater lens in the Haiku aquifer (located adjacent to the Paia aquifer). For the Haiku area, high-level groundwater discharge was measured in most of the study-area streams. This ground-water discharge was only about three (3) to six (6) percent of the estimated recharge to the study area; therefore, more than 90 percent of the recharge must flow downward to the freshwater lens. Because the upper water body is perched, it is underlain by an unsaturated zone. Groundwater can flow downward (due to gravity) through this zone as recharge to the lower water body and can carry contaminants with it. However, pumping from the lower water body will not affect the high-level water body because of the unsaturated zone between them.

Alternative Actions, capable of "drought proofing" the Upcountry Water system and their relative costs are not adequately discussed.

Comment:

The 1999 Hamakuapoko Wells FEA noted that between 1970 and 1987 Wailoa ditch was affected by severe drought 5 times and predicted a drought of 3 months or longer every 3.6 years. From 1988-1999, DWS had 8 drought occurrences.

"Drought conditions" were defined as ditch flow levels dropping below half of 110 mgd average. Please clarify if this trend has changed and based upon these trends, how often the wells are expected to be used.

Response:

Weather and drought conditions are unpredictable. The Hamakuapoko wells will be used for drought relief when conditions at the DWS storage facilities require operations to utilize the wells to ensure water availability in the Upcountry Water System service area.

Comment:

The alternative action of creating more surface water reservoir storage capacity at Kamole treatment facility is dismissed as "too costly" yet the DEA provides no comparison of comparative costs over a 50-year cycle of operating and maintaining the Hamakuapoko wells and pumping Po'okela wells "full time" in relationship to constructing and maintaining additional reservoir capacity

Response:

DWS shares your concern for providing water resources to the community in a manner that maximizes the financial resources of the County. The proposed improvements and

reopening of the Hamakuapoko wells represent the most cost effective alternative available to the County at this time. The Hamakuapoko wells will be used as back-up when pumping of the Pookela well "full time" is not adequate to meet Upcountry water needs. While the DWS may explore options for constructing and maintaining additional reservoir capacity, these alternatives would not be available in the near term. The Hamakuapoko wells are available to address water needs and because they are existing facilities, they represent the best alternative to address these needs in a timely and low-cost manner. Abandoning the Hamakuapoko wells would represent a loss of previously expanded financial resources that the County has already invested into developing the wells.

Comment:

It also does not acknowledge that the DWS has publicly stated it has plans to expand use of surface water at Kamole to meet Upcountry meter list needs and has plans to expand reservoir capacity.

Response:

During County Council deliberations, the use of the Hamakuapoko wells for drought relief was discussed along with possible drought measures at the Kamole Plant. DWS continues to evaluate the most cost effective ways to meet the growing water need of Upcountry and will continue to evaluate all potentially feasible options.

Project costs and timing not clearly explained or discussed.

Comment:

Timetable for well repairs is given as 14 months, yet A&B Properties noted in their 2012 comments that various lease agreements needed to be negotiated and had not begun. Are these negotiations included in the 14 month timetable? How long is testing and certification from DOH expected to take? Is that included in the 14 month timetable?

Response:

The land and easement acquisition process is currently ongoing. However, the time requirements for easement processing are not directly related to the proposed well improvements. Testing and certification of the wells will take place when the wells are operational to allow for sampling. The wells cannot and will not be placed into the Upcountry Water System until DWS meets all requirements of the Environmental Protection Agency (EPA) and DOH, follows testing protocol required, and meets all water quality standards.

Comment:

The DEA on p.12 notes the project costs as $2 million. Please state whether this includes initial water quality testing, test pumping, disposal of old filters, ongoing energy costs and water testing costs? DOH comments specify that monthly testing is required. Which costs are covered under the DBCP settlement and which will be the responsibility of DWS?

Response:

The $2 million budget covers the capital improvements at the Hamakuapoko wells. Operational costs are not included in this cost estimate. The settlement agreement between the Board of Water Suppy and chemical companies, which outlines the operational costs covered, will be included in the Final EA for reference purposes.

Comment:

The DEA (p.49) describes the GAC filter waste as not hazardous and can be disposed of at the landfill but the 1999 FEA (p. 24) described the GAC filtration material as expensive to dispose of. Please clarify how the GAC will be disposed, how often and what it will cost.

Response:

Waste from the GAC filters is disposed of at the local landfill as non-hazardous waste. It is profiled before it is transported and disposed of into the landfill. The transportation and disposal cost of the filter waste is approximately $10,000 for the two (2) GAC filters. The frequency of disposal depends on the actual pumping at the wells.

The FEA's Population and Economy discussion does not acknowledge that Ordinance 3859 was passed in 2011 with the express purpose of allowing more meters to be issued for upcountry system from Po'okela well. Therefore the scope of the EA's impacts cannot be limited to primarily "repair and maintenance."

Comment:

The DEA should disclose the cumulative impacts of bringing Hamakuapoko wells online along with the issuing of more meters; please quantify the costs of increased demand for public services and infrastructure resulting from increased residential construction in the Upcountry area.

Response:

The Draft EA discusses cumulative impacts of the reopening of Hamakuapoko wells and the resulting ability for the DWS to use the Pookela well on a full-time basis. Costs associated with increased demand for public service and infrastructure resulting from increased residential construction in the Upcountry area will depend on the number of new water meters that are issued and the location of the new development. In many cases, the water meters may be issued in areas serviced by existing roads and within existing service areas for other infrastructure. It is also noted that as new development comes online, the new residences or commercial establishments will generate new property taxes which fund public services and will pay fees for services.

As stated in the Draft EA, the proposed project is not anticipated to result in significant adverse cumulative or secondary impacts. The project is not a direct population generator and any future growth within the Upcountry area will be controlled by the Maui County General Plan and the Maui County Council and will not be due directly to allowing for the use of the Hamakuapoko wells for agricultural use, use during declared drought events, and as back-up to the Upcountry Water System.

Comment:

The DEA concludes that through the WUDP and CWRM well approval review "processes are in place to ensure that water resources of the underlying Paia aquifer are adequately protected." concluding that the Hamakuapoko wells will cause no impacts yet the WUDP has no mandate to conduct testing and protocols to determine the health of the aquifer.

Response:

The Water Use and Development Plan serves as the County's long-range planning blueprint for all uses of water in the County. While it does not require water quality testing, the WUDP process included a broad range of considerations including the protection of streams and water resources. Furthermore, the CWRM protects aquifer health through responsible management of water resources. The wells were approved by the State of Hawaii for use as production wells in December 2000. This approval was obtained from DOH following completion of a Final EA assessing the potential impacts of utilizing the wells for production purposes. Preparation of the Final EA in 1999 resulted in a Finding of No Significant Impact (FONSI) being issued for the wells.

Comment:

The CWRM has only limited means to protect aquifer health unless an aquifer is designated a water management area, Since public records indicate Paia aquifer has the greatest number of polluted ground water sources on Maui, the existing levels of protection may not be sufficient.

Response:

We acknowledge your opinion regarding the CWRM's roles and responsibilities.

Comment:

The DEA also concludes that the Maui Island Plan and State Land Use Commission will manage growth demands on Upcountry and therefore the Hamakuapoko well will not contribute to secondary impacts. These review processes do not specifically consider water availability. Developments such as Kula Ridge received approval by both MIP and LUC last year without a viable water source.

Response:

The Maui Island Plan (MIP) establishes urban growth boundaries which considered availability of infrastructure to service and accommodate growth. The State Land Use Commission takes into consideration infrastructure availability in granting district boundary amendments. In this context, existing planning processes are in place to manage future growth on the island. Beyond this, water availability will continue to be a consideration in future development in Upcountry as water meters will still only be issued by the County when there is available source.

Comment:

Maui Tomorrow Foundation believes the cumulative impacts discussed in the FEA relied upon triggers and thresholds selectively defined by project consultants and further discussion of impacts is needed.

Response:

We note your opinion regarding the cumulative impact assessment provided in the Draft EA. The Draft EA assessed cumulative impacts for the project utilizing guidelines and assessment criteria established for the National Environmental Protection Act (NEPA).

We appreciate your input and will include a copy of your comment letter in the Final EA for the proposed project. Should you have any questions, please feel free to contact our planning consultant, Mark Alexander Roy of Munekiyo & Hiraga, Inc., at 244-2015.

Sincerely,

DAVID TAYLOR, P.E.
Director

DT/CE/pf

cc: Curtis Eaton, P.E., County of Maui, Department of Water Supply
Mark Alexander Roy, Munekiyo & Hiraga, Inc.

XI. REFERENCES

XI. REFERENCES

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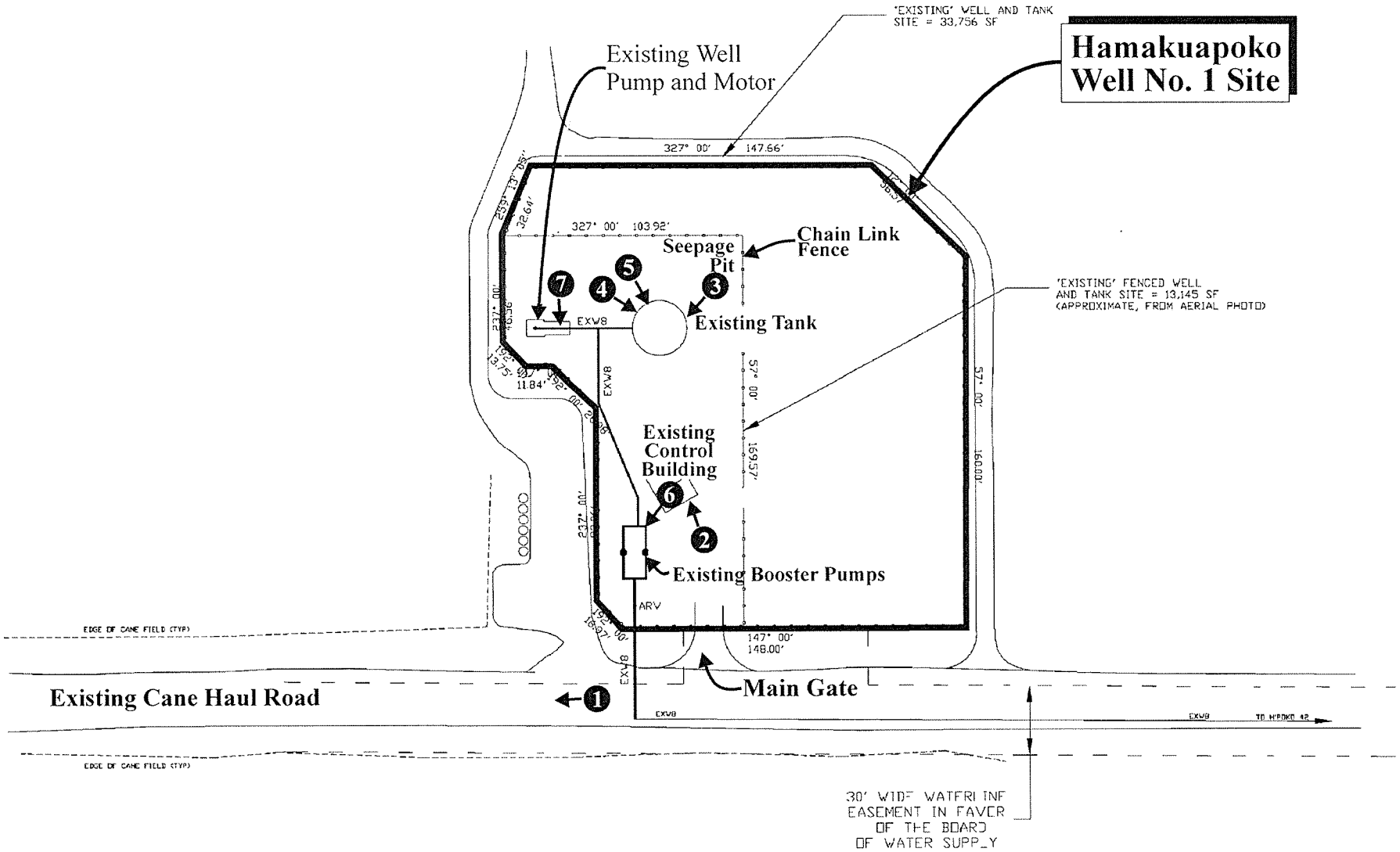
APPENDIX A.

Photo Reference Map and Photos



Source: County of Maui, Department of Water Supply

Proposed Improvements at Hamakuapoko Well Nos. 1 and 2

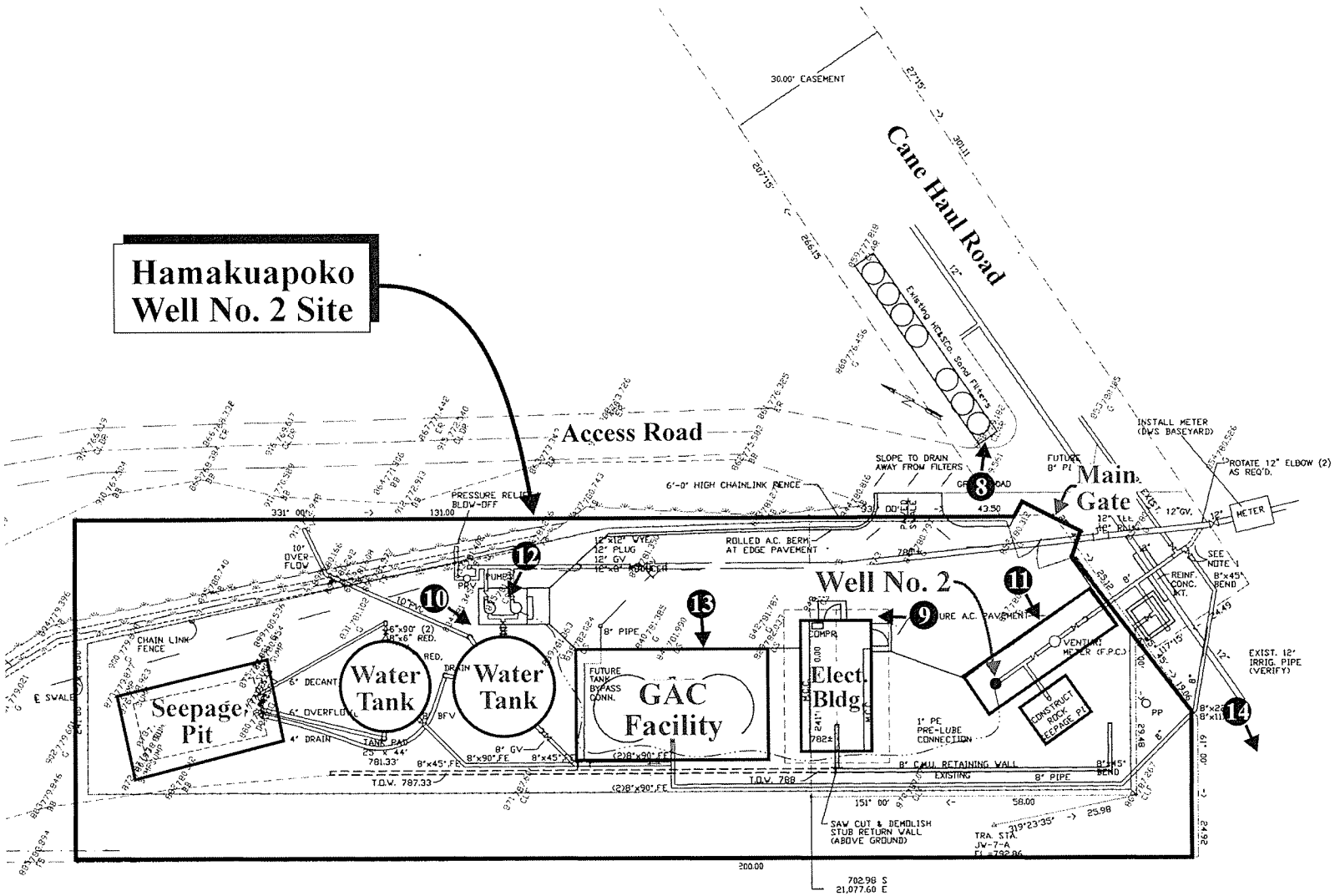
Existing Well No. 1 Photo Reference Map

NOT TO SCALE

MUNEKIYO & HIRAGA, INC.

Prepared for: County of Maui, Department of Water Supply

COM/DWS HamakuapokoWells/Well1PhotoRef



Source: County of Maui, Department of Water Supply, 1999

Proposed Improvements at Hamakuapoko Well Nos. 1 and 2

Existing Well No. 2 Photo Reference Map

NOT TO SCALE

MUNEKIYO & HIRAGA, INC.

Prepared for: County of Maui, Department of Water Supply

COM/DWS HamakuapokoWells/Well2PhotoRef

Photo No. 1: Dirt Access Road from Holomua Road to Hamakuapoko Well No. 1 (Makai North View)

Photo No. 2: Hamakuapoko Well No. 1 Electrical Building (East View)

Photo No. 3: Hamakuapoko Well No. 1 Storage Tank (Northwest View)

Photo No. 4: Hamakuapoko Well No. 1 Storage Tank (South View)

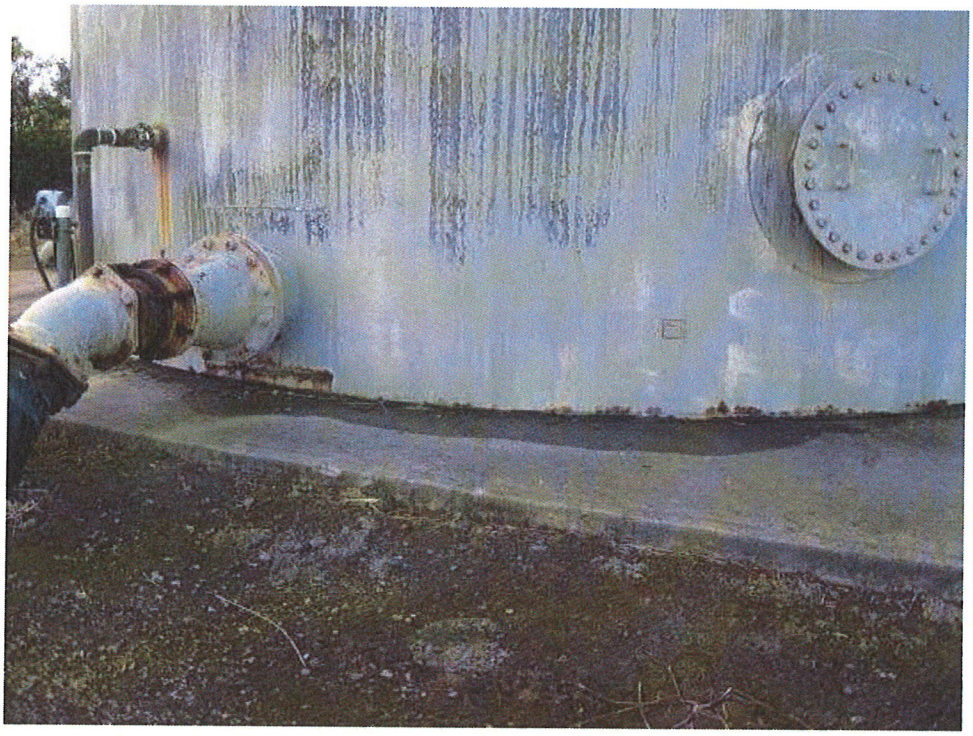


Photo No. 5: Hamakuapoko Well No. 1
Storage Tank (South View)

Photo No. 6: Hamakuapoko Well No. 1
Pumps (Northwest View)

Photo No. 7: Hamakuapoko Well No. 1 Pump (West View)

Photo No. 8: Dirt Access Road from Hamakuapoko Well No. 2 to Well No. 1 (East View)

Photo No. 9: Hamakuapoko Well No. 2
Electrical Building (West View)

Photo No. 10: Hamakuapoko Well No. 2
(Mauka South View)

Photo No. 11: Hamakuapoko Well No. 2
Pump (South View)

Photo No. 12: Hamakuapoko Well No. 2
Storage Tanks (West View)

Photo No. 13: Hamakuapoko Well No. 2
Granulated Activated Carbon Units (West View)

Photo No. 14: Hamakuapoko Well No. 2
Towards Kamaole Treatment Plant (South View)

APPENDIX B.

Well Completion Report, Hamakuapoko Well No. 1, June 23, 1992

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109

RECEIVED
92 JUL 2 A8:46
DIV. OF WATER &
LAND DEVELOPMENT

June 23, 1992

Ms. Rae M. Loui, Deputy Director
Commission on Water Resource Management
P. O. Box 621
Honolulu, HI 96809

Dear Ms. Loui:

Subject: Well Completion Report
Hamakuapoko DWS Well (State Well No. 5420-02)

We are enclosing the Well Completion Report and its supporting data, consisting of the as-built well section, driller's log, pumping test record (5 pages), location map, and chemical analysis (7 pages).

If there are any questions, please call the Engineering Division at 243-7835.

Sincerely,

For David R. Craddick
Director

hk

State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
Division of Water Resource Management

WELL COMPLETION REPORT

INSTRUCTIONS: Please print or type and submit completed report within 30 days of well completion to the Division of Water & Land Development, P.O. Box 373, Honolulu, HI 96809. An as-built drawing of the well and chemical analysis, if available, should also be submitted. If necessary, phone 548-7543, Hydrology, Geology Section for assistance.

A. STATE WELL NO. 5420-02 WELL NAME Hamakuapoko 1 ISLAND Maui

B. LOCATION Hamakuapoko, East Maui TAX MAP KEY 2-5-04:39

C. WELL OWNER Maui Dept of Water Supply

D. DRILLING OR PUMP INSTALLATION CONTRACTOR Richardson Drilling

E. TYPE OF RIG Cable tool DRILLER

F. DATE OF WELL COMPLETION April 1992 DATE OF PUMP INSTALLATION

G. GROUND ELEVATION (msl) 702.1 ft.
Top of Drilling Platform (msl) ____ ft.
Height of drilling platform above ground surface ____ ft.
Bench mark and method used to determine ground elevation ____ ft.

H. TOTAL DEPTH OF WELL BELOW GROUND 736 ft. (plugged back from 762 ft.)

I. HOLE SIZE:
20 inch dia. from 0 ft. to 80 ft. below ground
18 inch dia. from 80 ft. to 736 ft. below ground
____ inch dia. from ____ ft. to ____ ft. below ground

J. CASING INSTALLED:
12 in. I.D. x 0.375 in. wall solid section to 702 ft. below ground
12 in. I.D. x 0.375 in. wall perforated section to 732 ft. below ground
Type of perforation Louvre screen

K. ANNULUS:
Grouted from 0 ft. to 658 ft. below ground
Gravel packed from -- ft. to -- ft. below ground

L. PERMANENT PUMP INSTALLATION:
Pump type, make, serial No. to be determined Capacity ____ gpm
Motor type, H.P., voltage, r.p.m.
Depth of pump intake setting ____ ft. below ____ which elevation is ____ ft.
Depth of bottom of airline ____ ft. below ____ which elevation is ____ ft.

M. PROPOSED USE municipal

N. INITIAL WATER LEVEL 44.2 ft. ~~below ground.~~ Date and time of measurement ____/____

O. INITIAL CHLORIDE ____ ppm. Date and time of sampling ____/____

P. PUMPING TESTS: Reference point (R.P.) used: ____ which elevation is ____ ft.

Date April 6-10, 1992
Start water level ____ ft. below R. P.
End water level ____ ft. below R. P.
Depth of well ____ ft. below R. P.

Elapsed Time (hours)	Rate (gpm)	Draw-down (ft.)	Cl- (ppm)	Temp. °F
to				
to				
to (see attached)				
to				
to				
to				

Date ____
Start water level ____ ft. below R. P.
End water level ____ ft. below R. P.
Depth of well ____ ft. below R. P.

Elapsed Time (hours)	Rate (gpm)	Draw-down (ft.)	Cl- (ppm)	Temp. °F
to				
to				
to				
to				
to				
to				

Q. DRILLER'S LOG:

Depth, ft.	Rock Description & Remarks	Water Level ft.
to		
to		
to (see attached)		
to		
to		
to		
to		
to		
to		
to		

Depth, ft.	Rock Description & Remarks	Water Level ft.
to		
to		
to		
to		
to		
to		
to		
to		
to		
to		

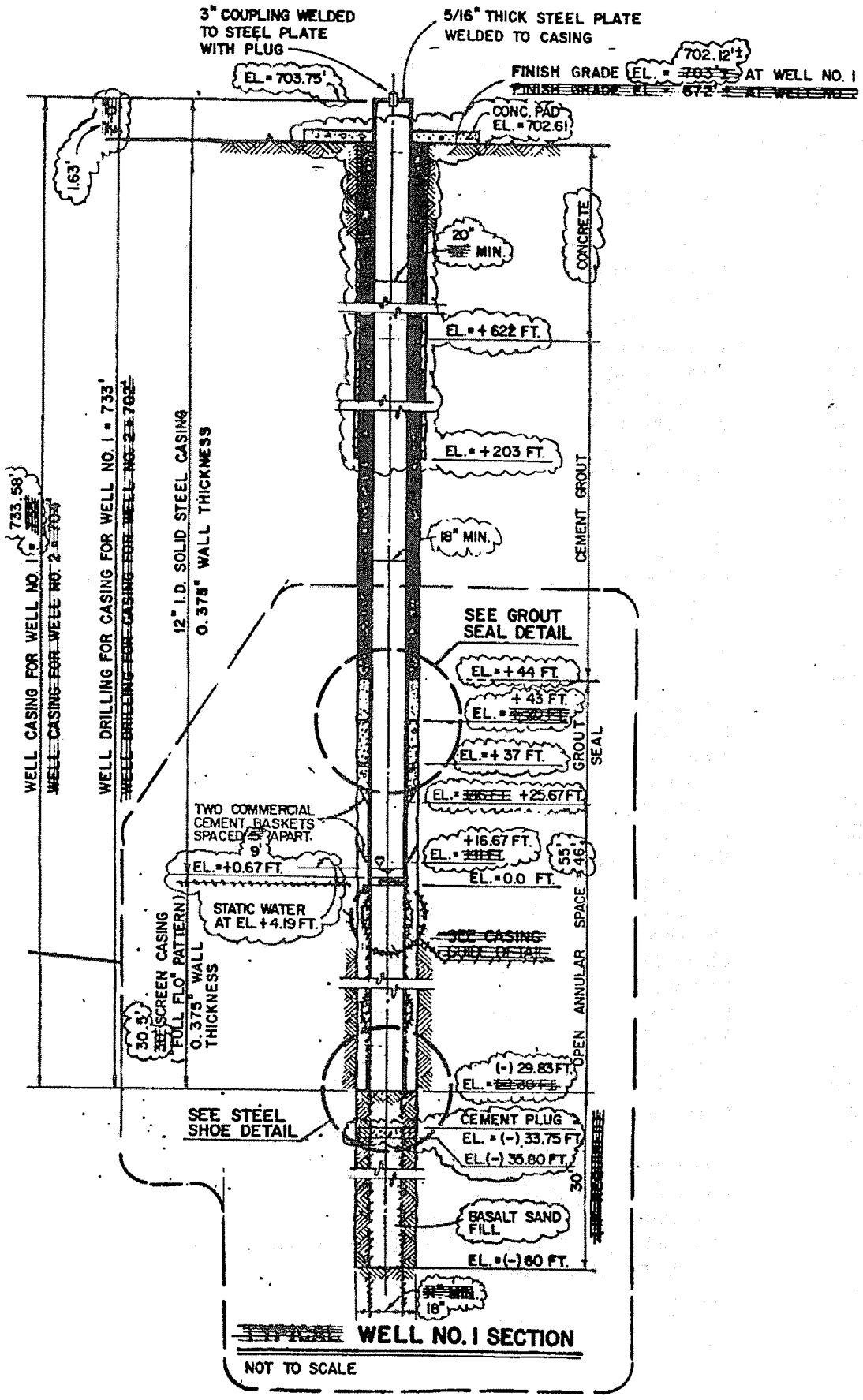
Latitude 20° 54' 25"
Longitude 156° 20' 08"
Well No. 5420-02

DRILLER'S LOG
Hamakuapoko Well 1, East Maui 5420-02

Driller: Richardson Drilling

Depth (ft.)	Description
0 - 41	Brown clay with boulders
41 - 65	Red clay scarce boulders
65 - 90	Blue rock
90 - 101	Very hard blue rock
101 - 105	Hard blue rock
105 - 108	Very hard blue rock
108 - 113	Boulders of blue rock
113 - 122	Hard blue rock
122 - 140	Harder blue rock
140 - 153	Very hard blue rock
153 - 164	Red cinders
164 - 174	Hard
174 - 188	Very hard
188 - 190	Pahoehoe and Aa soft red brown
190 - 200	Hard red brown
200 - 210	Medium hard
210 - 216	Soft red brown
216 - 224	Hard blue rock
224 - 226	Soft rock, same color
226 - 234	ard blue rock
234 - 246	Softer pahoehoe
246 - 248	Aa, hard
248 - 271	Pahoehoe (soft)
271 - 285	Pahoehoe med hard
285 - 302	Blue Aa rock, very hard
302 - 337	Red brown pahoehoe
337 - 378	Black pahoehoe, very porous, lost mud--holds no water
378 - 402	Pahoehoe, some red brown, holds some water
402 - 410	Blue rock AA, hard
410 - 439	Soft blue rock
439 - 449	Red brown pahoehoe with soft blue pahoehoe
449 - 457	Medium hard blue rock
457 - 553	Brown pahoehoe
553 - 558	AA blue rock
558 - 605	Pahoehoe
605 - 606	Harder
606 - 710	Pahoehoe blue
710 - 719	Blue pahoehoe with olivine
719 - 727	Red brown pahoehoe and olivine
727 - 748	Blue rock, some feldspar crystals, very little cuttings bailed in 5' drilling, water clearing
748 - 752	Red pahoehoe
752 - 758	Soft blue rock (pahoehoe)
758 - 765	Hard red pahoehoe & blue

HAMAKUAPOKO 1 5420-02



PUMPING TEST RECORD
Hamakuapoko Well 1, East Maui

5420-02

+4.2 (see well section)

Static Water Level: ~~14.2~~ ft., msl on 3/23/92
Depth of Well: 736 ft. (-34 ft., msl)
Present at Pumping Test:
Dan Lum, Water Resource Associates
Will Garvin, Norman Saito Engineering Consultants, Inc.

Airline Measurement: Mercury Manometer, 0.1 ft., per smallest division
Flow Measurement: Flow meter

Date and Time	Pumping Rate (gpm)	Airline Readings (ft. & psi)	Drawdown (ft.)	Chlorides (ppm)	Water Temp. (°F)
April 6, 1992					
9:35 am	0	6.60 ft.	0		
10:15	0	6.63	0		
10:25	0	6.63	0		
10:30	Start Pump - Adjust to 150 gpm				
10:45	210				
11:00	200	6.25	0.38	55	
11:15	218	6.18	0.45		
11:30	210	6.18			
	Adjust Rate to 350 gpm				
11:41		5.85	0.78		
11:45	360	5.65	0.98		
11:55	383	5.612	1.02		
12:00 N	360	5.61	1.02	48	72.0
	Adjust Rate to 450 gpm				
12:10 pm	500	5.20	1.43		
12:20	500	5.15	1.48		
12:30	510	5.15	1.48		
12:45	480	5.15	1.48		
1:00	480	5.15	1.48	48	
1:15	480	5.18	1.45		
1:30	460	5.125	1.51		
1:45	470	5.15	1.48		
2:00	470	5.125		48	72.0
	Adjust Rate to 600 gpm				
2:05	600				
2:10	600	4.60	2.03		
2:20	570				
2:30	600				
2:40	590				
2:50	600				
3:00	600	4.63	2.00	48	

Pumping Test Record (Cont'd)
Hamakuapoko Well 1

Date and Time	Pumping Rate (gpm)	Airline Readings (ft. & psi)	Drawdown (ft.)	Chlorides (ppm)	Water Temp. (°F)
April 6, 1992 (Cont'd)					
	Adjust Rate to 700 gpm				
3:10 pm	712	3.91 ft.	2.72		
3:15	700	3.91	2.72		
3:30	712	3.89	2.74		
4:00	712	3.89		48	
5:00	700	3.85			
6:00	724	3.83	2.80	50	
7:00	712	3.81			
8:00	724	3.83	2.80	50	
9:00	712	3.85			
10:00	712	3.85	2.78	50	
11:00	712	3.90			
12:00 M	700	3.90	2.73	51	
April 7, 1992					
1:00 am	724	3.90			
2:00	700	3.90	2.73	54	
3:00	712	3.90			
4:00	700	3.90	2.73	53	
5:00	700	3.90			
6:00	700	3.90	2.73	55	
7:00	700	3.90			
8:00	700	3.90	2.73	55	
9:00	712	3.91			
10:00	724	3.90	2.73	54	
11:00	712	3.91			
12:00 N	724	3.9	2.73	53	
1:00 pm	712	3.90			
2:00	712	3.9	2.73	55	
3:00	700	3.9			
4:00	700	3.9	2.73	55	
5:00	724	3.87			
6:00	712	3.85	2.78	55	
7:00	724	3.85			
8:00	712	3.81	2.82	56	
9:00	712	3.85			

Pumping Test Record (Cont'd)
Hamakuapoko Well 1

Date and Time	Pumping Rate (gpm)	Airline Readings (ft. & psi)	Drawdown (ft.)	Chlorides (ppm)	Water Temp. (°F)
April 7, 1992 (cont'd)					
10:00	712	3.85 ft.	2.78	56	
11:00	724	3.85			
12:00 M	712	3.9	2.73	58	
April 8, 1992					
1:00 am	724	3.9			
2:00	700	3.9	2.73	58	
3:00	712	3.90			
4:00	712	3.90	2.73	58	
5:00	712	3.90			
6:00	712	3.90	2.73	56	
7:00	700	3.90			
8:00	724	3.92	2.71	58	
9:00	700	3.91			
10:00	700	3.91	2.72	58	
11:00	700	3.90			
12:00 N	700	3.90	2.73	59	
1:00 pm	712	3.90			
2:00	700	3.90	2.73	59	
3:00	700	3.90 ft.			
4:00	712	1.85 psi	2.74	60	
5:00	712	1.85			
6:00	700	1.85	2.74	60	
7:00	712	1.80			
8:00	712	1.80	2.62	60	
9:00	712	1.80			
10:00	712	1.80	2.62	63	
11:00	712	1.80			
12:00 M	712	1.80	2.62	60	
April 9, 1992					
1:00 am	700	1.85			
2:00	700	1.85	2.74	63	
3:00	700	1.85			
4:00	712	1.85	2.74	61	

Pumping Test Record (Cont'd)
Hamakuapoko Well 1

Date and Time	Pumping Rate (gpm)	Airline Readings (ft. & psi)	Drawdown (ft.)	Chlorides (ppm)	Water Temp. (°F)
April 9, 1992 (cont'd)					
5:00	712	1.85 psi			
6:00	700	1.85	2.74	63	
7:00	700	1.85			
8:00	712	1.85	2.74	63	
9:00	700	1.85			
10:00	724	1.82	2.67	63	
11:00	700	1.85			
12:00 N	724	1.85	2.74	63	
1:00 pm	712	1.85			
2:00	712	1.85	2.74	64	
3:00	700	1.85			
4:00	500	2.35			
4:15	492	2.35	1.58	63	
4:30	492	2.35			
5:00	492	2.35			
6:00	500	2.35	1.58	63	
7:00	500	2.35			
8:00	484	2.35	1.58	65	
9:00	484	2.35			
10:00	484	2.35	1.58	65	
11:00	492	2.35			
12:00 M	484	2.35	1.58	63	
April 10, 1992					
1:00 am	484	2.40			
2:00	484	2.50	1.24	64	
3:00	484	2.50			
4:00	500	2.45	1.35	63	
5:00	492	2.45			
6:00	492	2.45	1.35	61	
7:00	492	2.45			
8:00	492	2.45	1.35	61	
9:00	492	2.45			
10:00	492	2.45	1.35	63	
11:00	492	2.45			
12:00 N	492	2.45	1.35	63	

Pumping Test Record (Cont'd)
Hamakuapoko Well 1

Date and Time	Pumping Rate (gpm)	Airline Readings (ft. & psi)	Drawdown (ft.)	Chlorides (ppm)	Water Temp. (°F)
April 10, 1992 (cont'd)					
1:00 pm	492	2.40 psi			
2:00	492	2.40	1.47	64	
3:00	492	2.40			
4:00	484	2.40	1.47	63	
	Stop Pump - Recovery				
4:05	0	2.45	1.35		
4:06	0	2.5	1.23		
4:07	0	2.55	1.12		
4:08	0	2.8	0.54		
4:10	0	3.02	0.03		
4:12	0	3.03	0.01		
4:20	0	3.03	0.01		
4:30	0	3.02	0.03		
4:50	0	3.02	0.03		
5:10	0	3.02	0.03		

BREWER ENVIRONMENTAL INDUSTRIES, INC.
a C. Brewer company

LABORATORY ANALYSIS REPORT
Environmental Laboratories Division

CLIENT: NORMAN SAITO ENGINEERING CONSUL.
2158 MAIN STREET
WAILUKU, HI 96793

ATTN: WILL GARVIN

JOB NUMBER: 6982-1

DATE: MAY 1, 1992

SAMPLE LOCATION: EAST MAUI SOURCE DEV.
PROJECT #C-65-C

Date/Time Sampled: ----
Date/Time Received: 04/15/92 @ 0715

Matrix: WATER
SAMPLE #: HAMAKUAPOKO WELL #1

ANALYSIS	RESULT mg/L	DETECTION LIMIT mg/L	ANALYSIS DATE	METHOD NUMBER
ARSENIC	ND	0.002	04/28/92	7060/7061
BARIUM	ND	0.1	04/29/92	7080
CADMIUM	ND	0.005	04/28/92	7130
CHROMIUM	0.01	0.01	04/28/92	7190
LEAD	0.02	0.01	04/28/92	7420/7421
MERCURY	ND	0.0002	04/27/92	7471
SELENIUM	ND	0.002	04/28/92	7740/7741
SILVER	ND	0.01	04/28/92	7760
COPPER	0.07	0.01	05/01/92	7210
MAGNESIUM	8.7	0.01	04/25/92	7450
MANGANESE	0.034	0.01	05/01/92	7460
NICKEL	ND	0.05	05/01/92	7520
POTASSIUM	1.5	0.01	04/25/92	7610
SODIUM	36.3	0.01	05/01/92	7770
ZINC	0.51	0.01	05/01/92	7950
CALCIUM	3.7	0.01	04/25/92	7140
IRON	1.4	0.03	05/01/92	7380

ND = NOT DETECTED

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BREWER ENVIRONMENTAL LABORATORIES
P.O. BOX 552
PAPAIKOU, HI 96781
PHONE (808) 964-5522

Approved by Jana Malcolm Brown

BREWER ENVIRONMENTAL INDUSTRIES, INC.
A C BREWER company

LABORATORY ANALYSIS REPORT
Environmental Laboratories Division

CLIENT: NORMAN SAITO ENGINEERING CONSUL.
2158 MAIN STREET
WAILUKU, HI 96793

ATTN: WILL CARVIN

JOB NUMBER: 6982-1A

DATE: MAY 1, 1992

SAMPLE LOCATION: EAST MAUI SOURCE DEV.
PROJECT C-65-C

Date/Time Sampled: ----
Date/Time Received: 04/15/92 @ 0715

Matrix: WATER
SAMPLE #: HAMAKUAPOKO WELL #1

ANALYSIS	RESULT mg/L	DETECTION LIMIT mg/L	ANALYSIS DATE	METHOD NUMBER
ALKALINITY	53	0.2	04/15/92	310.1
CHLORIDE	70	1	04/28/92	AOAC 3.067
FLUORIDE	0.1	0.1	04/24/92	340.2
TOTAL HARDNESS	64	0.2	04/20/92	130.2
NITRATE	3.8	0.01	04/15/92	353.3
NITRITE	ND	0.01	04/15/92	353.3
pH (units)	7.8		04/15/92	150.1
DISSOLVED SOLIDS	158	1	04/10/92	160.1
SULFATE	12.5	1	04/28/92	375.4
TURBIDITY (NTU)	0.10	0.01	04/15/92	180.1
SILICA	47.5	0.01	04/24/92	370.1
CARBONATE	ND	0.2	04/20/92	
BICARBONATE	53	0.2	04/20/92	

ND = NOT DETECTED

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Approved by: Jana Malcolm-Bo

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LABORATORY ANALYSIS REPORT
Environmental Laboratories Division

CLIENT: NORMAN SAITO ENGINEERING CONSUL
2158 MAIN STREET
WAILUKU, HAWAII 96793

ATTN: WILL GARVIN

JOB NUMBER: 6982-2

DATE: MAY 1, 1992

SAMPLE LOCATION: EAST MAUI SOURCE DEV.
PROJECT C-65-C

Date/Time Sampled:-----
Date/Time Received: 04/15/92 @ 0715

Matrix: WATER
SAMPLE #: HAMAKUAPOKO WELL #1

ANALYSIS	RESULT mg/L	DETECTION LIMIT mg/L	ANALYSIS DATE	METHOD NUMBER
BENZENE	ND	0.005	04/17/92	M 602
TOLUENE	ND	0.005	04/17/92	M 602
ETHYLBENZENE	ND	0.005	04/17/92	M 602
XYLENE	ND	0.010	04/17/92	M 602
TRIHALOMETHANES				
CHLOROFORM	ND	0.001	04/15/92	501.1
BROMODICHLOROMETHANE	ND	0.001	04/15/92	501.1
DIBROMOCHLOROMETHANE	ND	0.001	04/15/92	501.1
BROMOFORM	ND	0.001	04/15/92	501.1
TOTAL TRIHALOMETHANES	ND	0.004	04/15/92	
HERBICIDES				
2,4-D	ND	0.005	04/28/92	615
2,4,5-TP (SILVEX)	ND	0.001	04/28/92	615

ND = NOT DETECTED

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Approved by: Jana Malcolm-Cox

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LABORATORY ANALYSIS REPORT
Environmental Laboratories Division

CLIENT: NORMAN SAITO ENGINEERING CONSUL
2158 MAIN STREET
WAILUKU, HAWAII 96793

ATTN: WILL GARVIN

JOB NUMBER: 6982-3

DATE: MAY 1, 1992

SAMPLE LOCATION: EAST MAUI SOURCE DEV.
PROJECT C-65-C

Date/Time Sampled: ---
Date/Time Received: 04/15/92 @ 0715
PESTICIDES/PCB

Matrix: WATER
SAMPLE #: HAMAKUAPOKO WELL #1
METHOD #: 608

ANALYSIS	RESULT mg/L	DETECTION LIMIT mg/L	ANALYSIS DATE
ALACHLOR	ND	0.00005	04/22/92
ATRAZINE	ND	0.00005	04/22/92
CHLORDANE	ND	0.00005	04/22/92
ALDRIN	ND	0.00005	04/22/92
DICHLORAN	ND	0.00005	04/22/92
DIELDRIN	ND	0.0005	04/22/92
ENDRIN	ND	0.0001	04/22/92
HEPTACHLOR	ND	0.0001	04/22/92
HEPTACHLOR EPOXIDE	ND	0.0001	04/22/92
LINDANE	ND	0.0001	04/22/92
METHOXYCHLOR	ND	0.0001	04/22/92
SIMAZINE	ND	0.0001	04/22/92
TOXAPHENE	ND	0.0001	04/22/92
TRIFLURALIN	ND	0.0001	04/22/92
DIAZINON	ND	0.0001	04/22/92
MALATHION	ND	0.00005	04/22/92
DIURON	ND	0.00005	04/22/92
BROMACIL	ND	0.00005	04/22/92
AMETRYN	ND	0.00005	04/22/92
HEXAZINONE	ND	0.00005	04/22/92
GLYPHOSATE	ND	0.00005	04/22/92
BENOMYL	ND	0.00005	04/22/92
FENAMIPHOS	ND	0.00005	04/22/92
VELPAR	ND	0.00005	04/22/92
DALAPON	ND	0.00005	04/22/92
ETHEPON	ND	0.00005	04/22/92
DIFOLATON	ND	0.00005	04/22/92
MIREX	ND	0.00005	04/22/92
CHLOROFLURENOL	ND	0.00005	04/22/92
FOSETHYL-AL	ND	0.00005	04/22/92

ND = NOT DETECTED

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Approved by: Jana Malcolm-Brown

BREWER ENVIRONMENTAL INDUSTRIES, INC.
A BREWER COMPANY

LABORATORY ANALYSIS REPORT
Environmental Laboratories Division

CLIENT: NORMAN SAITO ENGINEERING CONSUL
2158 MAIN STREET
WAILUKU, HAWAII 96793

ATTN: WILL GARVIN

JOB NUMBER: 6982-3A

DATE: MAY 1, 1992

SAMPLE LOCATION: EAST MAUI SOURCE DEV.
PROJECT C-65-C

Date/Time Sampled: ---
Date/Time Received: 04/15/92 @ 0715
PESTICIDES/PCB

Matrix: WATER
SAMPLE #: HAMAKUAPOKO WELL #1
METHOD #: 608

ANALYSIS	RESULT ug/L	DETECTION LIMIT ~~ug/L~~ mg/l		ANALYSIS DATE
PCB - 1242	ND	0.5	0.0005	04/22/92
PCB - 1254	ND	1.0	0.001	04/22/92
PCB - 1221	ND	0.5	0.0005	04/22/92
PCB - 1232	ND	0.5	0.0005	04/22/92
PCB - 1248	ND	0.02	0.00002	04/22/92
PCB - 1260	ND	0.02	0.00002	04/22/92
PCB - 1016	ND	0.02	[illegible]	04/22/92

ND = NOT DETECTED

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Approved by: Jana Malcolm-Brown

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a C BREWER company

LABORATORY ANALYSIS REPORT
Environmental Laboratories Division

CLIENT: NORMAN SAITO ENGINEERING CONSUL
2158 MAIN STREET
WAILUKU, HAWAII 96793

ATTN: WILL GARVIN

JOB NUMBER: 6982-4

DATE: MAY 1, 1992

SAMPLE LOCATION: EAST MAUI SOURCE DEV.
PROJECT C-65-C

Date/Time Sampled: ----
Date/Time Received: 04/15/92 @ 0715

Matrix: WATER
SAMPLE #: HAMAKUAPOKO WELL #1
METHOD #: 624/625

ANALYSIS	RESULT mg/L	DETECTION LIMIT mg/L	ANALYSIS DATE
Bromobenzene	ND	0.005	04/17/92
Bromomethane	ND	0.005	04/17/92
Carbon Tetrachloride	ND	0.005	04/17/92
Chlorobenzene	ND	0.005	04/17/92
Chloroethane	ND	0.005	04/17/92
Chloromethane	ND	0.005	04/17/92
2-Chlorotoluene	ND	0.005	04/17/92
4-Chlorotoluene	ND	0.005	04/17/92
Dibromomethane	ND	0.005	04/17/92
1,2-Dichlorobenzene	ND	0.005	04/17/92
1,3-Dichlorobenzene	ND	0.005	04/17/92
1,4-Dichlorobenzene	ND	0.005	04/17/92
1,1-Dichloroethane	ND	0.005	04/17/92
1,2-Dichloroethane	ND	0.005	04/17/92
1,1-Dichloroethylene	ND	0.005	04/17/92
trans-1,2-Dichloroethylene	ND	0.005	04/17/92
Dichloromethane	ND	0.005	04/17/92
1,2-Dichloropropane	ND	0.005	04/17/92
trans-1,3-Dichloropropene	ND	0.005	04/17/92
1,1,2,2-Tetrachloroethane	ND	0.005	04/17/92
1,1,1,2-Tetrachloroethane	ND	0.005	04/17/92
Tetrachloroethylene	ND	0.005	04/17/92
1,1,1-Trichloroethane	ND	0.005	04/17/92
1,1,2-Trichloroethane	ND	0.005	04/17/92
Trichlorofluoromethane	ND	0.005	04/17/92
Vinyl chloride	ND	0.001	04/17/92

ND = NOT DETECTED

RECEIVED
MAY 18 1992
NORMAN SAITO ENGINEERING CONSULTANTS, INC.

Approved by: Jana Malcolm-Brown

BREWER ENVIRONMENTAL LABORATORIES
P.O. BOX 552
PAPAIKOU, HI 96781
PHONE (808) 964-5522
FAX (808) 964-5309

BREWER ENVIRONMENTAL INDUSTRIES, INC.
a C. BREWER company

LABORATORY ANALYSIS REPORT
Environmental Laboratories Division

CLIENT: NORMAN SAITO ENGINEERING CONSUL
2158 MAIN STREET
WAILUKU, HAWAII 96793

ATTN: WILL GARVIN

JOB NUMBER: 6982-5

DATE: MAY 1, 1992

SAMPLE LOCATION: EAST MAUI SOURCE DEV.
PROJECT C-65-C

Date/Time Sampled: ----
Date/Time Received: 04/15/92 @ 0715

Matrix: WATER
SAMPLE #: HAMAKUAPOKO WELL #1
METHOD #: 624/625

ANALYSIS	RESULT mg/L	DETECTION LIMIT mg/L	ANALYSIS DATE
Trichloroethylene	ND	0.005	04/17/92
1,1-Dichloroethylene	ND	0.005	04/17/92
Chloroethylvinyl ether	ND	0.005	04/17/92
1,3-Dichloropropene	ND	0.005	04/17/92
Dibromochloropropane	ND	0.00004	04/17/92
cis-1,2-Dichloroethylene	ND	0.005	04/17/92
trans-1,3-Dichloropropene	ND	0.005	04/17/92
cis-1,3-Dichloropropene	ND	0.005	04/17/92
2,2-Dichloropropane	ND	0.005	04/17/92
1,1-Dichloropropane	ND	0.005	04/17/92
1,3-Dichloropropane	ND	0.005	04/17/92
Ethylenedibromide	ND	0.00004	04/17/92
Styrene	ND	0.005	04/17/92
Trichlorobenzene	ND	0.005	04/17/92
1,2,3-Trichloropropane	ND	0.005	04/17/92
1,1,1-Trichloroethane	ND	0.005	04/17/92
1,4-Dichlorobenzene	ND	0.005	04/17/92
Chlorobenzene	ND	0.005	04/17/92
Chloroethane	ND	0.005	04/17/92
Chloromethane	ND	0.005	04/17/92
2-Chlorotoluene	ND	0.005	04/17/92
4-Chlorotoluene	ND	0.005	04/17/92
Dibromomethane	ND	0.005	04/17/92
Dichlorofluoromethane	ND	0.005	04/17/92
Hexachlorobenzene	ND	0.010	04/22/92
Hexachloropentadiene	ND	0.010	04/22/92
Pentachloronitrobenzene	ND	0.010	04/22/92

ND = NOT DETECTED

RECEIVED
MAY 18 1992
NORMAN SAITO ENGINEERING CONSULTANTS, INC.

Approved by: Jana Malcolm-Brown

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P.O. BOX 552
PAPAIKOU, HI 96781
PHONE (808) 964-5522
FAX (808) 964-5309

APPENDIX B-1.

Well Completion Report, Hamakuapoko Well No. 2, June 3, 1993

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109

RECEIVED
6/10/93
93 JUN 10 AM 10 : 56
COMMISSION ON WATER
RESOURCE MANAGEMENT

June 3, 1993

Ms. Rae Loui, Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809

Dear Ms. Loui:

Attention: Mr. Edwin Sakoda

Subject: Hamakuapoko Well 2
State Well No. 5320-01

We are submitting herewith Well Completion Report for Hamakuapoko Well 2 (State Well No. 5320-01) for your information and use. We have also included an as-built drawing of the well and the chemical analysis is included in the attached report.

If there are any questions, please call our Engineering Division at 243-7835.

Sincerely,

for David R. Craddick
Director

/hk

"By Water All Things Find Life"

Printed on recycled paper

State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources

WELL COMPLETION REPORT 6/6/93

Instructions: Please print or type and submit completed report within 30 days after well completion to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809. An as-built drawing of the well and chemical analysis should also be submitted. For assistance call the Commission Regulation Branch at 587-0225.

1. STATE WELL NO. 5320-01 WELL NAME Hamakuapoko Well 2 ISLAND Maui
2. LOCATION: Address Hamakuapoko, East Maui Tax Map Key 2-5-04:39
3. DRILLING OR PUMP INSTALLATION CONTRACTOR Richardson Well Drilling, Inc.
4. CONTRACTOR'S C-57 LICENSE NUMBER C-12552
5. NAME OF DRILLER WHO PERFORMED WORK Lynn Enloe
6. TYPE OF RIG/CONSTRUCTION Cable Tool
7. DATE OF WELL DRILLING COMPLETION 6/1/93
(NOTE: Report must be submitted within 30 days after this date)
8. GROUND ELEVATION (msl) 780 ft.
   Top of Drilling Platform (msl) _____ ft.
   Height of Drilling Platform above Ground surface _____ ft.
   Bench Mark and Method Used to Determine Ground Elevation Reference MSL ft.
9. DRILLER'S LOG: (see Attached Report)

Depth (ft.)	Rock Description, Remarks, Dates	Water Level (ft.)	Depth (ft.)	Rock Description, Remarks, Dates	Water Level (ft.)
to			to		
to			to		
to			to		
to			to		
to			to		
to			to		

(If more space is needed, continue on back.)

10. TOTAL DEPTH OF WELL BELOW GROUND 812 ft.
11. HOLE SIZE: 20" inch dia. from 0 ft. to 70 ft. below ground
    18" inch dia. from 70 ft. to 812 ft. below ground
    _____ inch dia. from _____ ft. to _____ ft. below ground
12. CASING INSTALLED:
    12 in. I.D. x 0.375 in. wall solid section to 780 ft. below ground
    12 in. I.D. x 0.375 in. wall perforated section to 810 ft. below ground
    Type of Perforation _____
13. ANNULUS: Grouted from 0 ft. below ground to 698 ft. below ground
    Gravel packed from 698 ft. below ground to 763 ft. below ground
14. INITIAL WATER LEVEL 775.65 ft. below ground. Date and time of measurement 11am 1/19/93
15. INITIAL CHLORIDE 49 ppm Date and time of sampling 4pm 11/18/92
16. INITIAL TEMPERATURE _____ °F Date and time of sampling _____
17. DATE OF PUMP INSTALLATION n/a
18. PUMP INSTALLATION:
    Pump Type, Make, Serial No. _____ Capacity _____ gpm
    Motor type, H.P., Voltage, rpm _____
    Depth of Pump Intake Setting _____ ft. below _____, which elevation is _____ ft.
    Depth of bottom of airline _____ ft. below _____, which elevation is _____ ft.
    Pumping Head is _____ ft.
19. PUMPING TESTS: Reference Point (R.P.) used: _____, which elevation is _____ ft.
    Date 11-18-22-92 (see Attached Reports) Date 11-30-92 12-7-92
    Start water level _____ ft. below R.P. Start water level _____ ft. below R.P.
    End water level _____ ft. below R.P. End water level _____ ft. below R.P.
    Depth of well _____ ft. below R.P. Depth of well _____ ft. below R.P.

Elapsed Time (hours)	Rate (gpm)	Draw-down (ft.)	Cl- (ppm)	Temp. °F	Elapsed Time (hours)	Rate (gpm)	Draw-down (ft.)	Cl- (ppm)	Temp. °F
to					to				
to					to				
0 to 96	700	.46	58	71.6	0 to 168	840	.60	66	
to					to				
to					to				
to					to				

(If more space is needed, continue on back.)

Remarks: _____
(If more space is needed, continue on back.)

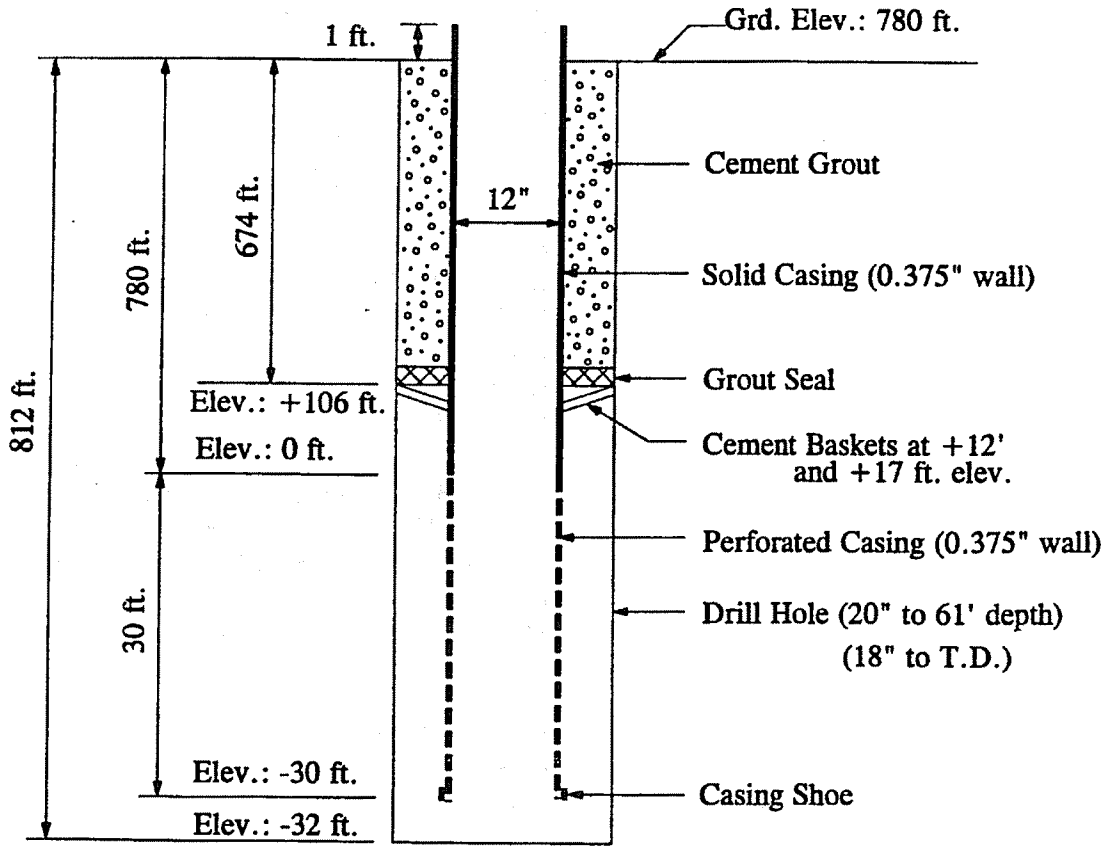
Contractor (print) _____ Title _____
Signature _____ Date 6/6/93

For Driller's Use. Job Name _____ Job No _____

For Official Use. Longitude 156 20 08 Well No. 5320-01 Latitude 20 53 25

HAMAKUAPOKO WELL 2 (5320-01)
East Maui, Hawaii

As-Built Section



Not to Scale

Source of Data: NSEC

Water Resource Associates
032ASB2

Figure 2

DRILLER'S LOG
Hamakuapoko Well 2 (5320-01)

Driller: Richardson Drilling

Depth (ft)	Driller's Description
0-17	DECOMPOSED BASALT: Silty
17-35	STICKY CLAY
35-78	CLAY & DECOMPOSED ROCK
78-94	HARD BLUE ROCK
94-97	VERY HARD BLUE ROCK
97-109	HARD BLUE ROCK
109-112	SOFT BLUE ROCK & RED PAHOEHOE
112-125	RED CINDER, CLAY GRAVEL
125-127	BROWN CINDER, CLAY GRAVEL
127-163	SOFT BROWN PAHOEHOE
163-171	HARD ROCK
171-175	SOFT BROWN PAHOEHOE
175-186	RED PAHOEHOE: Soft
186-192	VERY HARD BLUE ROCK
192-200	HARD BLUE ROCK (no water)
200-214	RED BROWN CLAY & PAHOEHOE
214-220	HARD BLUE ROCK (no water)
220-226	SOFT CLAY & PAHOEHOE (no water
226-244	HARD BLUE ROCK (no water)
244-253	MED. HARD BLUE ROCK (no water)
253-259	BROWN SOFT PAHOEHOE (no water)
259-267	HARD BLUE ROCK (no water)
267-297	SOFT LT. BROWN PAHOEHOE (no water)
297-301	PAHOEHOE: with olivine
301-315	SOFT PAHOEHOE
315-319	SOFT PAHOEHOE (some red)
319-323	HARD PAHOEHOE
323-333	SOFT PAHOEHOE
333-338	HARD PAHOEHOE
338-350	SOFT PAHOEHOE
350-352	HARD PAHOEHOE
352-362	SOFT PAHOEHOE
362-365	HARD PAHOEHOE
365-368	SOFT PAHOEHOE
368-375	HARD PAHOEHOE
375-384	RED PAHOEHOE
384-397	HARD BLUE ROCK
397-407	SOFT PAHOEHOE

Table 1

Driller's Log
Hamakuapoko Well 2 (Cont'd)

Depth (ft)	Driller's Description
407-413	HARD BLUE ROCK
413-418	SOFT PAHOEHOE
418-434	MED. HARD BLUE ROCK
434-447	LOOSE PAHOEHOE
447-452	BLUE ROCK
452-462	BROWN PAHOEHOE
462-471	RED BROWN PAHOEHOE
471-540	BLACK PAHOEHOE
540-570	HARD PAHOEHOE: with olivine
570-585	HARD BLUE PAHOEHOE
585-590	BLUE PAHOEHOE
590-595	RED BROWN PAHOEHOE
595-600	HARD PAHOEHOE: with olivine
600-617	HARD BLUE ROCK
617-650	BROWN PAHOEHOE
650-655	SOFT BLUE ROCK
655-670	BROWN & BLUE PAHOEHOE
670-675	HARD BLUE ROCK
675-710	BROWN & BLUE PAHOEHOE
710-718	RED BROWN PAHOEHOE
718-728	SOFT BLUE ROCK
728-733	BLUE PAHOEHOE
733-746	BROWN PAHOEHOE
746-751	HARD BLUE ROCK
751-755	RED BROWN PAHOEHOE
755-772	HARD BLUE ROCK
772-812 (Total Depth)	RED BROWN PAHOEHOE

Compiled: 1/7/93 - WRA

Hamakuapoko Well 2 (5320-01)
PUMPING TEST NO. 2 RECORD
November 30 to December 7, 1992

DEPTHS (Below Ground Surface):
Solid Csg: 780 ft. Perforated Csg: 810 ft.
Total Depth: 812 ft.
DISCHARGE MEASUREMENT: Flowmeter
DRAWDOWN MEASUREMENT: Pressure Gage

ELEVATIONS (Mean Sea Level):
Ground Surface: 780 ft.
Bottom of Solid Csg: 0 ft.
Bottom of Perf. Csg: -30 ft.
Bottom of Well: -32 ft.
Static Water Level: 4.66 ft. on 1/19/93

Date & Time	Pumping Rate (gpm)	Airline Reading (psi)	Drawdown (feet)	Chlorides (ppm)	Temp. (°F)
11-30-92					
9:00 am	0	1.81	0		
9:15	Start Pump - Adjust to 850 gpm				
9:20	857				
9:30	857	1.62	0.44		
10:00	845	1.62	0.44		70.7
12:00 N		1.65	0.37	52	
2:00 pm	845	1.65	0.37	52	
4:00	845	1.65	0.37	53	
6:00	848	1.64	0.39	54	
8:00	848	1.64	0.39		
10:00	842	1.65	0.37	55	
12-1/92					
12:00 am	842	1.63	0.42	55	
2:00		1.63	0.42		
4:00	832	1.64	0.39	56	
4:51	Stop pump to check oil				
6:00		1.63	0.42		
8:00	838	1.63	0.42	56	
10:00	829	1.63	0.42		
10:19	Stop pump to check oil				
12:00 pm	827	1.65	0.37	57	
2:00	836	1.66	0.35		
4:00	836	1.65	0.37		

Table 3

Pumping Test Record
Hamakuapoko Well #2

Date & Time	Pumping Rate (gpm)	Airline Reading (psi)	Drawdown (feet)	Chlorides (ppm)	Temp. (°F)
12-1-92					
6:00	836	1.63	0.42	56	
8:00	836	1.60	0.49		
10.00	836	1.62	0.44	57	
12-2-92					
12:00 am	836	1.62	0.44		
2:00	836	1.60	0.49	57	
4:00	836	1.60	0.49	59	
6:00	836	1.60	0.49		
8:00	836	1.60	0.49	59	
10:00	836	1.60	0.49	59	
12:00 pm	836	1.62	0.44	59	
2:00	836	1.65	0.37		
4:00	836	1.65	0.37	59	
6:00	836	1.64	0.39	60	
8:00	836	1.61	0.46		
10:00	836	1.61	0.46	60	
12-3-92					
12:00 am	836	1.61	0.46		
2:00	836	1.61	0.46	60	
4:00	836	1.61	0.46		
6:00	836	1.63	0.42	60	
8:00	836	1.63	0.42		
10:00	820	1.63	0.42		
12:00 pm	831	1.65	0.37	62	
2:00	831	1.65	0.37		
4:00		1.65	0.37	62	
6:00	833	1.62	0.44		

Pumping Test Record
Hamakuapoko Well #2

Date & Time	Pumping Rate (gpm)	Airline Reading (psi)	Drawdown (feet)	Chlorides (ppm)	Temp. (°F)
12-3-92					
8:00	832	1.61	0.46	61	
10:00	830	1.61	0.46	61	
12-4-92					
12:00 am	830	1.61	0.46		
2:00	830	1.60	0.49	61	
4:00	830	1.60	0.49		
6:00	830	1.60	0.49	61	
8:00	828	1.60	0.49	62	
10:00	828	1.60	0.49	62	
12:00 pm	830	1.62	0.44		
2:00	830	1.62	0.44	63	
4:00	832	1.62	0.44		
6:00	830	1.60	0.49	63	
8:00	826	1.59	0.51		
10:00	813	1.57	0.55	63	
12-5-92					
12:00 am	849	1.57	0.55		
2:00	851	1.57	0.55	63	
4:00	851	1.57	0.55		
6:00	833	1.59	0.51	63	
8:00	839	1.58	0.53		
10:00	856	1.56	0.58	63	
12:00 pm	846	1.57	0.55		
2:00	846	1.60	0.49	63	
4:00	846	1.58	0.53		
6:00	848	1.57	0.55	64	
8:00	848	1.57	0.55		

Pumping Test Record
Hamakuapoko Well #2

Date & Time	Pumping Rate (gpm)	Airline Reading (psi)	Drawdown (feet)	Chlorides (ppm)	Temp. (°F)
12-5-92					
10:00	857	1.52	0.67	64	
12-6-92					
12:00 am	857	1.55	0.60		
2:00	857	1.56	0.58	64	
4:00	857	1.56	0.58	64	
6:00	857	1.56	0.58	65	
8:00	857	1.55	0.60		
10:00	857	1.55	0.60	65	
12:00 pm	854	1.56	0.58		
2:00	857	1.56	0.58	64	
4:00	842	1.57	0.51		
6:00	846	1.56	0.58	65	
8:00	846	1.55	0.60		
10:00	847	1.55	0.60	65	
12-7-92					
12:00 am	847	1.55	0.60		
2:00	847	1.55	0.60	66	
4:00	847	1.56	0.58		
6:00	847	1.55	0.60	65	
8:00	847	1.55	0.60		
9:15	852	1.55	0.60	66	
Stop Pump - Recovery					
9:17:11		1.65	0.37		
9:17:33		1.70	0.25		
9:18:20		1.74	0.16		
9:19:20		1.73	0.18		
9:20:04		1.72	0.20		

Pumping Test Record
Hamakuapoko Well #2

Date & Time	Pumping Rate (gpm)	Airline Reading (psi)	Drawdown (feet)	Chlorides (ppm)	Temp. (°F)
12-7-92					
9:21:19 am		1.71	0.23		
9:22:10		1.70	0.25		
9:58:00		1.75	0.14		
10:47:00 am		1.75	0.14		
4:12:00 pm		1.80	0.02		

Total pumpage: 8,394,100 gal.

032\pumptes2

Pumping Test Record (Continued)
Well Name: Hamakuapoko Well #2

Date & Time	Pumping Rate (gpm)	Drawdown (feet)	Chlorides (ppm)	Temp. (°F)
November 21, 1992				
12:00 am	700	0.46	56	
2:00	700		56	
4:00	700	0.46	56	71.6
6:00	700			
8:00	700	0.46	56	
10:00	700		56	
12:00 Noon	700	0.44	56	
2:00 pm	700		57	
4:00	700	0.39	57	
6:00	700		57	
8:00	700	0.44		
10:00	700		57	
November 22, 1992				
12:00 am	700	0.42	57	
2:00	700		57	
4:00	700	0.39	58	
6:00	700		58	
8:00	700	0.42	58	
10:00	700		58	
12:00 Noon	700	0.69*	58	
2:00 pm	700		58	
4:00	700	0.39	58	
5:00 pm	700	0.37	58	
END OF TEST				
November 24, 1992				
10:30 am	Start Pump	Sample	54	
12:50 pm	Start Pump	Sample	54	

*Drop due to change 02 tank.

032/HP2PTEST

APPENDIX C.

Department of Health Conditional Approval for Hamakuapoko Well Nos. 1 and 2, December 22, 2000

Cani

0101002

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

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

In reply, please refer to:
EMD / SDWB

December 22, 2000

Mr. David Craddick, Director
Department of Water Supply
County of Maui
P.O. Box 1109
Wailuku, Hawaii 96793-7109

Dear Mr. Craddick:

SUBJECT: PUBLIC WATER SYSTEM NO. 213, DWS MAKAWAO
HAMAKUAPOKO WELL NOS. 1 AND 2
STATE WELL NOS. 6-5420-02 AND 6-5320-01

We have completed our review of the engineering report for the Hamakuapoko Wells No. 1 and 2, State Well Nos. 6-5420-02 and 6-5320-01 respectively, prepared by the County of Maui and the supplemental information provided on September 26, 2000 and December 6, 2000. The Department of Health hereby grants conditional approval for the use of the Hamakuapoko Wells Nos. 1 and 2 as a drinking water source for a public water system. In addition, the use of these wells as a drinking water source shall be subject to the following conditions.

1. All water from the Hamakuapoko Wells Nos. 1 and 2, State Well Nos. 6-5420-02 and 6-5320-01 respectively, shall be treated by Granular Activated Carbon (GAC) treatment units. The GAC treated water shall enter the Kamole Water Treatment Facility at the infiltrate line before the clearwell chlorine contact chamber. The combined flows shall be continuously disinfected to achieve adequate CT in compliance with the Surface Water Treatment Rule requirements.

2. The GAC treatment units shall deliver potable water of the quality in compliance with Hawaii Administrative Rules, Title 11, Chapter 20, "Rules Relating to Potable Water Systems." In other words, the GAC effluent shall meet all drinking water standards with the exception of coliform bacteria. Compliance shall not be achieved through dilution with surface water from the Wailoa Ditch. The water quality shall be subject to verification by the Department of Health (DOH).

3. The Board of Water Supply, County of Maui, in its operation of the Hamakuapoko Wells Nos. 1 and 2, State Well Nos. 6-5420-02 and 6-5320-01 respectively, shall comply with all other relevant provisions of Hawaii Administrative Rules, Title 11, Chapter 20, "Rules Relating to Potable Water Systems."

4. The Board of Water Supply, County of Maui, shall notify the Department of Health of any condition that may arise or be revealed that the operation of these wells and the GAC units may pose a threat to human health.

5. The Hamakuapoko Wells Nos. 1 and 2, GAC contactor port sample taps, individual GAC contactor effluent, and combined GAC contactor effluent must be tested for nitrate, Ethylene Dibromide (EDB), Dibromochloropropane (DBCP), and 1,2,3- Trichloropropane (TCP) once every month. In addition, pH, alkalinity, calcium, conductivity, and temperature shall be monitored once a month at the Hamakuapoko Wells Nos. 1 and 2, GAC contactor combined effluent, Wailoa Ditch (Kamole WTF influent), and the clearwell effluent in Vault "C" and the Maunaolu Vault. Please refer to the attached table that summarizes these monitoring requirements. With the exception of the water quality parameters, all analyses must be performed by a laboratory approved by the Hawaii Department of Health, State Laboratories Division, using EPA approved drinking water methods. The Maui Department of Water Supply must submit the monthly laboratory report(s) and flow data by the 30th day of the following month.

6. The Board of Water Supply, County of Maui, shall notify the Safe Drinking Water Branch of the planned well activation date(s), at least thirty (30) days in advance. This will help the Department incorporate the wells into its monitoring schedules.

7. Hawaii Revised Statues, Chapter 340E-24, requires suppliers of water to notify the Department of Health, in writing, of any previously undetected chemical contaminant found in a source of drinking water, within seven days of the positive detection.

8. This approval only covers compliance with section 11-20-29, Hawaii Administrative Rules and section 340E-2, Hawaii Revised Statues. The Maui Department of Water Supply remains responsible for compliance with all other applicable county, state, and federal laws.

The Department would also like to clarify the State Well reference well numbers for the Hamakuapoko Wells Nos. 1 and 2. We concur with you that the well numbers for Hamakuapoko Wells Nos. 1 and 2 are assigned as State Well Nos. 6-5420-02 and 6-5320-01, respectively. The "Engineering Report for Hamakuapoko Well Nos. 1 and 2," dated June 2000, references these well numbers on the title page and on page 5. However, the Department would like to note that in the appendix, "Preliminary Engineering Report for GAC Treatment Facility at Hamakuapoko Wells 1 and 2," page 1-1 refers to a different well number for Hamakuapoko Well No. 2.

The Department of Health reserves the right to suspend or revoke this conditional approval upon either a finding of violation on any of the above conditions or a determination of a threat to public health from factors which may arise in the future.

Thank you for your attention and concern to these matters. If you should have any questions, please contact the Safe Drinking Water Branch, Engineering Section, at 586-4258.

Sincerely,

Thomas E. Arizumi

THOMAS E. ARIZUMI, P.E., CHIEF
Environmental Management Division

DD:la

Enclosure

c: SDWB Monitoring Section
SDWB Enforcement Section
Charlie Ice, CWRM, DLNR
Gordon Muraoka, Maui SDWB Sanitarian

Hamakuapoko Wells Nos. 1 and 2 Special Monitoring Requirements

Sampling Location	DBCP	EDB	TCP	Nitrate as Nitrogen	Flow	pH	Alkalinity	Calcium	Conductivity	Temperature
Wells and GAC										
Hamakuapoko Well No. 1	Monthly	Monthly	Monthly	Monthly	Continuous	Monthly	Monthly	Monthly	Monthly	Monthly
Hamakuapoko Well No. 2	Monthly	Monthly	Monthly	Monthly	Continuous	Monthly	Monthly	Monthly	Monthly	Monthly
GAC Contactor-50% Bed Depth	Monthly	Monthly	Monthly							
GAC Contactor-75% Bed Depth	Monthly	Monthly	Monthly							
GAC Contactor No. 1 Effluent	Monthly	Monthly	Monthly							
GAC Contactor No. 2 Effluent	Monthly	Monthly	Monthly							
GAC Contactor Combined Effluent	Monthly	Monthly	Monthly	Monthly	Continuous	Monthly	Monthly	Monthly	Monthly	Monthly
Kamole Water Treatment Facility										
Wailoa Ditch (Valve Control Box?)					Continuous	Monthly*	Monthly	Monthly	Monthly	Monthly*
Clearwell Effluent-Vault "C"	Monthly	Monthly	Monthly	Monthly	Continuous	Monthly*	Monthly	Monthly	Monthly	Monthly*
Clearwell Effluent-Maunaolu Vault					Continuous	Monthly*	Monthly	Monthly	Monthly	Monthly*

* **NOTE:** While pH and temperature are monitored at the Kamole Water Treatment Facility on a continuous basis, field measurements are to be taken at the same time that the water quality parameters (alkalinity, calcium, and conductivity) are sampled.

APPENDIX D.

Settlement Agreement from Board of Water Supply of the County of Maui v. Shell Oil Company, et al.

SETTLEMENT AGREEMENT AND RELEASE OF ALL CLAIMS

This Settlement Agreement and Release of All Claims ("Agreement") is entered into by Plaintiff Board of Water Supply of the County of Maui ("Plaintiff"), on the one hand, and The Dow Chemical Company, Occidental Chemical Corporation, successor-in-interest to Occidental Chemical Company, Occidental Petroleum Corporation, Shell Oil Company, individually and dba Shell Chemical Company, AMVAC Chemical Corporation, American Vanguard Corporation, Brewer Environmental Industries LLC, Maui Pineapple Company, Ltd. and Maui Land and Pineapple Company, Inc. (collectively "Defendants"), on the other hand.

RECITALS

Case Name:

1. There is now pending in the Second Circuit Court of the State of Hawaii a civil action entitled "*Board of Water Supply of the County of Maui* v. *Shell Oil Company, et al.,*" Civil Case No. 96-0370(1) (the "Action").

Intent:

2. Plaintiff and Defendants have entered into this Agreement to resolve with finality the Action, as well as all past, pending, potential, continuing and future DBCP claims between them and to avoid the expense of further litigation.

3. In consideration for this Agreement, Defendants agree to pay as tort damages $3,000,000 in settlement of the Action, consisting of the sums of $1,791,231 for the capital cost of GAC facilities for the Napili A well, $404,769 for certain past DBCP related costs, and $804,000 for the cost of the Hamakuapoko 1999 Drought Emergency GAC facility. Defendants also agree (subject to certain limitations) to pay certain sums for the installation and operation of carbon filtration systems (hereinafter "GAC") or alternative remedies to assist Plaintiff in complying with the Maximum Contaminant Level ("MCL") for DBCP on the Island of Maui until September 1, 2039 (a period of forty (40) years).

DEFINITIONS

4. The following definitions apply throughout this Agreement:

a. "Defendants", as the term is used throughout this Agreement, refers collectively to defendants The Dow Chemical Company, Occidental Chemical Corporation, successor- in-interest to Occidental Chemical Company, Occidental Petroleum Corporation, Shell Oil Company, individually and dba Shell Chemical Company, AMVAC Chemical Corporation, American Vanguard Corporation, and Brewer Environmental Industries, LLC, and third-party defendants Maui Land and Pineapple Company, Inc., and Maui Pineapple Company, Ltd. and each of them, and all of their predecessors and successors, their current and former parent and subsidiary companies, divisions and affiliates.

b. "DBCP" refers to 1,2-dibromo-3-chloropropane, and all products containing said compound, including, without limitation, Dow "Fumazone," Occidental "BBC" and "DBCP," Nematocide Granules 50, Nematocide 12.1 EM, Nematocide 15.1 EM, Nematocide Solution 17.1 and Shell "Nemagon".

c. The term "Maximum Contaminant Level" or "MCL" refers to a limit concerning the concentration of DBCP in drinking water supplies enforced by a public agency which applies to Plaintiff. At present, the MCL for DBCP enforced by the Hawaii Department of Health ("DOH") is 40 parts per trillion (ppt), or 0.04 parts per billion (ppb). The parties anticipate that during the period covered by this Agreement the name of the governmental entity enforcing the MCL, the numerical limit, and/or the terminology used to describe the limit may change. This Agreement is intended to secure compliance with whatever MCL is applicable and enforceable at the relevant time during the term of this Agreement.

d. The terms "Exceeds the MCL" or "Exceeded the MCL" refer to a potential situation where either: (1) Plaintiff's well exceeds the MCL for DBCP when tested for the applicable regulatory period; (2) a regulatory authority directs Plaintiff to stop using a well or refrain from connecting a well to its water system unless Plaintiff remediates DBCP in the well; or (3) the well is tested quarterly and the total of such quarterly test results exceeds the applicable MCL when divided by four (4).

e. "CPI" refers to the Consumer Price Index, all urban consumers, water and sewerage maintenance, issued by the U.S. Bureau of Labor Statistics, or its successor, as adjusted for projects in Hawaii.

f. (i) "Napili A" refers to Plaintiff's well, Hawaii State No. 5838-01.
(ii) "Honokahua A" refers to Plaintiff's well, State No. 5838-03.
(iii) "Hamakuapoko 1" refers to Plaintiff's well, State No. 5420-02.
(iv) "Hamakuapoko 2" refers to Plaintiff's well, State No. 5320-01.
(v) "Haiku well" refers to Plaintiff's well, State No. 5419-01.

g. "Existing Wells" refers to all wells on the Island of Maui which were drilled, owned, and/or operated by Plaintiff before the effective date of this Agreement.

h. "Hamakuapoko 1999 Drought Emergency GAC" refers to the temporary installation of GAC on Hamakuapoko Wells Nos. 1 and 2 during the 1999 Upcountry Drought Emergency.

i. "Future Wells" refers to drinking water wells on the Island of Maui, which are drilled and/or acquired by Plaintiff after the effective date of this Agreement.

j. The term "GAC" refers to granular activated carbon facilities for removal of DBCP from water.

k. The term "O&M" refers to the cost of operation and maintenance of GAC or other method used to remove DBCP from water, including, but not limited to, vessel replacement due to age and/or wear and tear.

l. "Regularly Scheduled Well Test" currently means a quarterly raw water analysis conducted by or on behalf of Plaintiff, or for such other period as may be required by any state or federal law or regulator.

m. The term "Regular Use" means a Plaintiff well that has a utilization rate of 10% or more, averaged over a year where water from the well is introduced into the water distribution system.

n. The term "In Operation" refers to that period of time (measured in days) when GAC is installed on an active Plaintiff well and: (1) it is actually removing DBCP from the water; (2) it is not removing DBCP because the well on which it is installed is not pumping due to regular water demand fluctuations; or (3) it is undergoing ordinary maintenance or carbon change-out.

o. "Defendants' Representative" refers to the law firm of Filice, Brown, Eassa & McLeod, LLP, 1999 Harrison Street, 18th Floor, Oakland, California 94612-3541, or such other successor, person or entity designated by Defendants in the future.

p. "Plaintiff's Representatives" refers to the Corporation Counsel, County of Maui, 200 South High Street, Wailuku, Maui, Hawaii, and Miller, Sher & Sawyer, A Professional Corporation, 7 Park Center, Suite 1, Sacramento, California 95825, or such other successor, person or entity designated by Plaintiff in the future.

q. The term "Notice to Proceed" refers to a notice from Plaintiff to a contractor to construct a GAC facility, or alternative technology facility.

r. "DOH" refers to the Hawaii Department of Health or any successor entity charged by the State of Hawaii with regulating water quality.

s. "Event of Default" refers to any of the following events:
- (i) under the terms of paragraph 46, Defendants fail to pay Capital Costs within 30 days of receiving a Notice to Proceed;
- (ii) under the terms of Paragraph 47, Defendants fail to make a timely payment for O&M Costs;
- (iii) under the terms of Paragraph 48, Defendants fail to provide a replacement Letter of Credit.

GENERAL SUMMARY OF TERMS OF AGREEMENT

5. As more specifically described below, in consideration for this Agreement:

Past and Present Costs

6. On or before September 1, 1999, Defendants will make a cash payment as tort damages to Plaintiff and its attorneys of record, "Miller, Sher & Sawyer, a professional corporation," in the amount of Three Million Dollars ($3,000,000), provided Plaintiff has executed this Agreement. This represents a total of $1,791,231 for the capital cost of GAC facilities for the Napili A well, $804,000 for the cost of the Hamakuapoko 1999 Drought Emergency GAC, and $404,769 for other past DBCP-related costs.

7. Third-party defendant, Maui Land and Pineapple Company hereby releases any claim for past transfers of land to Plaintiff in West Maui. Plaintiff will participate in separate negotiations with Maui Land and Pineapple Company to install, operate and maintain a 2.5 inch high density polyethylene (HDPE) pipeline, or its equivalent, and appurtenances, across Maui Land and Pineapple Company land, to connect with the nearest connection to Plaintiff's water system in the Honokahou Valley.

Capital Costs of GAC Facilities For Certain Wells

8. It is anticipated that during the term of this Agreement the concentration of DBCP in the Hamakuapoko 1 and 2, Honokahua A and Haiku wells may Exceed the MCL. Defendants will reimburse Plaintiff during the term of this Agreement for 100% of the capital costs of GAC for each such Well that Exceeds the MCL. Defendants have agreed to make specified payments, as set forth in subparagraphs (i) through (iv), to defray the expense of installing GAC on these wells.

i. Defendants shall pay 100% of the sum of One Million Eight Hundred Thousand Dollars ($1,800,000) for wells that can be treated with two (2) GAC vessels (that is, a well with a yield of 750 gallons per minute ("gpm") or less);

ii. Defendants shall pay 100% of the sum of $2,400,000 for well(s) which can be treated with three GAC vessels (that is, well(s) with a yield of more than 750 gpm and less than 1,500 gpm);

iii. Defendants shall pay 100% of the sum of $ 600,000 for each additional 750 gpm of yield in a well at or above 1,500 gpm, in addition to the base amount of $2.4 million;

iv. Defendants' obligations to pay capital costs under this paragraph shall be reduced by $100,000 for wells with no pump or a non oil-lubed pump;

v. Capital costs to be paid under this Agreement after January 1, 2000 shall be adjusted by the CPI annually, pursuant to Paragraph No. 29 (CPI Adjustment).

Capital Costs of GAC Facilities For Other Wells

9. It is anticipated during the term of this Agreement that the concentration of DBCP in some other Existing and Future Wells may Exceed the MCL. Defendants will reimburse Plaintiff during the term of this Agreement for the capital costs of GAC for each other Existing and Future Well that Exceeds the MCL. Defendants have agreed to make specified payments, as set forth in subparagraphs (i) through (iv), to defray the expense of installing GAC on these wells.

i. Defendants shall pay 90% of the sum of One Million Eight Hundred Thousand Dollars ($1,800,000) for wells that can be treated with two (2) GAC vessels (that is, a well with a yield of 750 gallons per minute ("gpm") or less);

ii. Defendants shall pay 90% of the sum of $2,400,000 for well(s) which can be treated with three GAC vessels (that is, well(s) with a yield of more than 750 gpm and less than 1,500 gpm);

iii. Defendants shall pay 90% of the sum of $600,000 for each additional 750 gpm of well capacity at or above 1,500 gpm, in addition to the base amount of $2.4 million;

iv. Defendants' obligations to pay capital costs under this paragraph shall be reduced by $100,000 for all future wells and existing wells with no pump or a non oil- lubed pump;

v. Capital costs to be paid under this Agreement after January 1, 2000 shall be adjusted by the CPI annually, pursuant to Paragraph No. 29 (CPI Adjustment).

Reimbursement For Operations and Maintenance ("O&M") Of GAC

10. Defendants will reimburse Plaintiff during the term of this Agreement for O&M of GAC for each Plaintiff well that Exceeds the MCL as follows: Napili A, Honokahua A, Hamakuapoko 1 and 2, and the Haiku Wells shall each qualify for 100% of O&M at the annual rate of $68,500 for a two-vessel facility, $74,500 for a three-vessel facility, and an additional $6,000 for O&M for each additional vessel, adjusted by the CPI as set forth in Paragraph No. 29. Existing and Future Wells which are treated with GAC under this Agreement shall qualify for O&M at 90% of the O&M per vessel rate set forth in this paragraph, adjusted by the CPI as set forth in Paragraph No. 29. The number of vessels for which Defendants will pay will be based on well yield and will be determined pursuant to Paragraph No. 20 (for the Honokahua A, Hamakuapoko 1 and 2, and Haiku wells) or Paragraph No. 23 (for other Existing or Future Wells).

i The O&M payments specified above shall be made on or before January 10, 2000, and each successive year thereafter. The payments made shall be adjusted by the CPI annually pursuant to Paragraph No. 29.

ii. Defendants' obligation to pay annual O&M under this Agreement ends on September 1, 2039.

Limitation on Number of Wells

11. The number of wells for which Defendants will be obligated to pay for the capital and O&M costs for GAC is limited to fifty (50) wells.

Termination Of Obligations

12. Any obligation of Defendants to make any payment under this Agreement will end on September 1, 2039, provided that all payments due as of that date have been made.

TERMS OF AGREEMENT

Dismissal of Actions

13. Plaintiff agrees to dismiss with prejudice Defendants and the Action in its entirety, and Plaintiff further agrees to release and waive all rights to bring any future DBCP claims, lawsuits or actions arising in whole or in part from the past, present, continuing or future presence of DBCP in Plaintiff's wells on the Island of Maui, subject to the exceptions set forth in Paragraph

42 [indemnity] and Paragraph 43 [claims related to the Islands of Molokai and/or Lanai].

Denial of Liability

14. This Agreement is not an admission of liability, nor an admission that any of the facts alleged by Plaintiff are true, nor an admission that the Action or any portion thereof asserted by Plaintiff are well-founded, and Defendants deny that they, or any of them, are liable to Plaintiff for any of the claims asserted in the Action.

Joint Tortfeasor Release

15. It is understood, agreed, and intended as follows:

a. The release contained in Paragraph 57 of this Agreement (the "Release") is intended to be and shall be construed as a joint tortfeasor release, and any damages otherwise recoverable by the Board against any other persons (natural, corporate, or otherwise) in connection with events and transactions which are the subject of the release shall be and hereby are reduced to the extent of (1) the consideration paid for this Release, or (2) the pro rata share that Defendants would be responsible to pay to the Board if it were determined that Defendants were jointly liable to the Board, whichever is greater.

b. The Release is given and taken pursuant to the provisions of the Uniform Contribution Among Tortfeasors Act, sections 663-11 through 663-17, Hawaii Revised Statutes, as amended ("UCATA"), and shall operate to release Defendants from any and all liability to make contribution for the Covered Claims (as that term is defined in the statute) to any person found to be a joint tortfeasor with Defendants.

c. The parties hereto intend that the Release and provisions of UCATA shall be applicable to all Covered Claims, whether asserted under federal statutes or under Hawaii statutes or under common law, including claims to which UCATA may not otherwise (in the absence of this Release) apply.

Payment for Past and Present Costs

16. Plaintiff agrees to release Defendants from all claims for DBCP-related costs incurred to date by Plaintiff, including, but not limited to, the capital costs of GAC on the Napili A well, the costs of the 1999 Hamakuapoko Drought Emergency GAC, and certain other costs, for which Defendants agree to pay Plaintiff as tort damages the amount of Three Million Dollars ($3,000,000), payable to "Board of Water Supply of the County of Maui and its attorneys of record, Miller, Sher & Sawyer, a professional corporation," on or before September 1, 1999, if Plaintiff has executed this Agreement.

Payment for O&M Costs

17. On or before January 10 of each year, Defendants will reimburse Plaintiff for O&M of GAC for the preceding year in conformity with this Agreement, if GAC was in place and In Operation during the preceding year. The first payment will be made on or before January 10, 2000, for the portion of 1999, if any, that such facilities were in operation. Defendants will reimburse Plaintiff for O&M on the Hamakuapoko 1999 Drought Emergency GAC for each

month GAC was in place and in operation at least 10% of the month at a monthly rate of $5,708. Reimbursement for O&M costs will be requested and paid in accordance with the terms of paragraph 47.

18. The amounts payable for O&M for GAC will be adjusted by the CPI annually, pursuant to Paragraph No. 29.

CERTAIN WELLS THAT EXCEED THE MCL

19. If the concentration of DBCP in the Honokahua A, Hamakuapoko 1, Hamakuapoko 2, and/or the Haiku wells Exceeds the MCL, then upon issuance of a Notice to Proceed for installation of GAC facilities on any such well, Defendants will pay 100% of the capital costs and O&M for GAC on those wells.

Capital Costs

20. Capital costs associated with installation of GAC for the Honokahua A, Hamakuapoko 1, Hamakuapoko 2, and/or the Haiku wells are determined as follows:

a. Plaintiff will determine the number of GAC vessels to be installed for a well(s) that Exceeds the MCL based on actual peak well yield capacity as follows: Up to 750 gpm (two vessel), and 751-1,500 gpm (three vessels). One additional vessel will be installed for each additional 750 gpm increment, or fractions thereof, in actual peak well capacity. Plaintiff may locate vessels on a well site, a remote site or at a centralized site at its option.

b. The capital costs of which Defendants will pay 100% are as follows: two vessels -- $1, 800,000, three vessels -- $2, 400,000. Defendants will pay 100% of an additional $600,000 for each additional vessel above three. Defendants' obligations to pay capital costs under this paragraph shall be reduced by $100,000 for any of these wells with no pump or a non oil-lubed pump. The foregoing amounts are deemed to include, but are not limited to, the costs of land acquisition, design, and construction of GAC.

c. Subject to Defendants' obligation to reinstall GAC on previously treated wells from which GAC has been removed, capital costs of which Defendants will pay 100% do not include the costs of GAC vessel replacement, including due to age or wear and tear. (See Paragraph No. 4 k.) Such vessel replacement costs are included in, and/or to be paid by Plaintiff out of, O&M.

d. Reimbursement will be requested and paid in accordance with Paragraph No. 46.

O&M Costs

21. The O&M costs on the Honokahua A, Hamakuapoko 1, Hamakuapoko 2, and/or Haiku wells are determined as follows:

a. O&M costs will be based on well yield as follows: Up to 750 gpm (two vessels), $68,500/year; 751-1,500 gpm (three vessels), $74,500/year; and an additional $6,000/year for each additional 750 gpm of well yield.

b. On or before January 10 of each year, for each such well, Defendants will reimburse Plaintiff for 100 percent of the O&M of GAC for the preceding year if GAC was In Operation on such well during the preceding year.

c. For any such well for which GAC has been In Operation for less than one year, Defendants' obligation to reimburse Plaintiff for O&M will be limited to 100% of the monthly per vessel rate set forth in Paragraph No. 21 e. for O&M of GAC for each month GAC was In Operation.

d. Defendants' obligation to pay annual O&M on any such well, as set forth above, will be conditioned on Plaintiff's Regular Use of such well. For any such well with an average annual utilization rate of less than 10%, Defendants will pay O&M of $1,000 for such well for each month GAC was In Operation if GAC was not installed and In Operation for the entire year.

e. For any such well at which GAC was In Operation for less than one year, the payment will be a calculated amount for each month the GAC was In Operation for more than fifteen (15) days. The amount paid for each month under this paragraph will be calculated by dividing 12 into the annual rate for O&M payments set forth under subparagraph (a) above.

f. The amounts payable for capital costs for the Honokahua A, Hamakuapoko 1, Hamakuapoko 2, and/or Haiku wells under Paragraph 20 will be adjusted by the CPI annually, pursuant to Paragraph No. 29. The amounts payable for O&M for such wells under Paragraph No. 21 will be adjusted by the CPI annually, pursuant to Paragraph No. 29.

g. Reimbursement will be requested and paid in accordance with the terms of Paragraph No. 47.

OTHER WELLS THAT EXCEED THE MCL IN THE FUTURE

22. Where Existing or Future Wells Exceed the MCL, Defendants will pay 90% of the capital costs and O&M for GAC on those Wells, upon Plaintiff's issuance of a Notice to Proceed for installation of GAC facilities on any Existing or Future Wells.

Capital Costs

23. Capital costs associated with installation of GAC for Existing or Future Wells are determined as follows:

a. Plaintiff will determine the number of GAC vessels to be installed for a well(s) that Exceeds the MCL based on actual peak well yield capacity as follows: Up to 750 gpm (two vessel), and 751-1,500 gpm (three vessels). One additional vessel will be installed for each additional 750 gpm increment, or fractions thereof, in actual peak well capacity. Plaintiff may locate vessels on a well site, a remote site or at a centralized site at its option.

b. The capital costs of which Defendants will pay 90% are as follows: two vessels -- $1, 800,000, three vessels -- $2, 400,000. Defendants will pay 100% of an additional $600,000 for each additional vessel above three. Defendants' obligations to pay capital costs under this paragraph shall be reduced by ninety percent (90%) of $100,000 for all future wells and for existing wells with no pump or a non oil-lubed pump. The foregoing amounts are

deemed to include, but are not limited to, the costs of land acquisition, design, and construction of GAC.

c. Subject to Defendants' obligation to reinstall GAC on previously treated wells from which GAC has been removed, capital costs of which Defendants will pay 90% do not include the costs of GAC vessel replacement, including due to age or wear and tear. (See Paragraph No. 4 k.) Such vessel replacement costs are included in, and/or to be paid by Plaintiff out of, O&M.

d. Reimbursement will be requested and paid in accordance with Paragraph No. 46.

O&M Costs

24. The O&M costs on Existing and Future Wells are determined as follows:

a. O&M costs will be based on well yield as follows: Up to 750 gpm (two vessels), $68,500/year; 751-1,500 gpm (three vessels), $74,500/year; and an additional $6,000/year for each additional 750 gpm of well yield.

b. On or before January 10 of each year, for each Existing and/or Future Well, Defendants will reimburse Plaintiff for 90 percent of the O&M of GAC for the preceding calendar year, if GAC was In Operation on such Existing or Future Well for the entire year.

c. For any Existing and/or Future Well for which GAC has been In Operation for less than one year, Defendants' obligation to reimburse Plaintiff for O&M will be limited to 90% of the monthly per vessel rate set forth in Paragraph No. 24 e. for O&M of GAC for each month GAC was In Operation.

d. Defendants' obligation to pay annual O&M on any Existing or Future Well, as set forth above, will be conditioned on Plaintiff's Regular Use of such Well. For any Existing or Future Well with an average annual utilization rate of less than 10%, Defendants will pay O&M of $1,000 for such Well for each month GAC was in operation (if GAC was not installed and In Operation for the entire year).

e. For any Existing and/or Future Well at which GAC was In Operation for less than one year, the payment will be a calculated amount for each month the GAC was In Operation for more than fifteen (15) days. The amount paid for each month under this paragraph will be calculated by dividing 12 into the annual rate for O&M payments set forth under subparagraph (a) above.

f. Reimbursement will be requested and paid in accordance with the terms of Paragraph No. 47.

CPI

25. The amounts payable for capital costs for wells under Paragraphs 20 and 23 will be adjusted by the CPI annually, pursuant to Paragraph No. 29. The amounts payable for O&M for wells under Paragraphs 21 and 24 will also be adjusted by the CPI annually, pursuant to

Paragraph No. 29.

Selection of Alternative Sites for Future Wells

26. Future Wells (other than wells under construction as of the date this Agreement is fully executed) constructed by Plaintiff or contractors retained by Plaintiff, must be in substantial compliance with the following procedures before Plaintiff may obtain reimbursement from Defendants for the cost of constructing, operating or maintaining GAC on such well.

a. Plaintiff shall select a proposed well site and notify Defendants' representative thereof, and provide Defendants with available relevant information concerning the presence of DBCP in groundwater underlying the site, including historic land use information, hydrogeologic characteristics and DBCP test results (if any).

b. Defendants shall have 21 days after receipt of said notice to notify Plaintiff that: (1) Defendants do not object to Plaintiff proceeding with the production well at that location, or (2) a pilot test well should be drilled and tested at that location (at defendants' sole expense), or (3) an alternative well site should be considered.

c. If Defendants request a pilot test well at the proposed well site, Defendants shall have 15 days after receipt of test results from that pilot test well to notify Plaintiff that Defendants do not object to Plaintiff proceeding with the production well at that location or that an alternative well site should be considered.

d. If Defendants notify Plaintiff to consider an alternative well site, Defendants' representative must meet and confer with Plaintiff's representative to select an alternative site at least one-half mile from any existing or planned Plaintiff well, and within one-half mile of the connection to Plaintiff's water system that would have been serviced by the original well site. After consideration of potential environmental issues, Plaintiff shall not unreasonably withhold consent for the selection of alternative well sites. If Plaintiff or a controlling regulatory entity determines that a proposed alternative well site is too environmentally sensitive to be used for a production well, Plaintiff shall promptly notify Defendants of that determination so that the parties may consider additional alternative well sites. Potential environmental issues may be identified through existing documents (if any) prepared pursuant to the Hawaii Environmental Policy Act, or otherwise, that assess the original well site and include the alternative well site as a project alternative. Nothing in this Agreement shall impose any additional environmental analysis obligations on Plaintiff under the Hawaii Environmental Policy Act or otherwise.

e. The parties shall also meet and confer regarding the estimated cost of constructing, operating, and maintaining the well at the alternative well site. The parties intend that should the construction of a well proceed at an alternative well site, any estimated increased costs (compared to the original well site) incurred in connection with constructing, connecting, operating and maintaining a well at the alternative site shall be borne exclusively by Defendants including, but not limited to:

(i) the cost of acquiring at least 20,000 square feet of land for the well site and any treatment facilities which may be required;

(ii) the cost of drilling, constructing, and connecting the well to Plaintiff's distribution system, all in conformance with Plaintiff's standard specifications and construction standards;

(iii) the cost of any electrical costs (see attached formula, Exhibit A) and/or pressure reducing facilities associated with the alternative site;

(iv) the cost of constructing and maintaining and/or obtaining easements for any access road to the replacement well;

(v) the cost of obtaining all necessary permits and authorizations, including, but not limited to, those required by the Hawaii Environmental Policy Act and the Department of Land and Natural Resources and/or successor legislation;

(vi) the amount of increased allowance for change orders, based on a 10 percent allowance for such change orders; and

(vii) all other reasonably anticipated costs associated with the project.

In calculating any increased costs associated with the alternative well site, the parties will subtract the amount Plaintiff would have expended in constructing, connecting, operating and maintaining the well at the original well site from the costs of constructing, connecting, operating, and maintaining the well at the alternative site.

f. Upon completion of the meet and confer process, Plaintiff shall serve a written notice upon Defendants with Plaintiff's itemized comparison of the reasonably anticipated cost of constructing, connecting, operating, and maintaining a well at the original and alternative well sites. If the estimated costs at the alternative site are higher than those estimated at the original well site, Plaintiff may make a demand on Defendants for those increased costs ("Increased Cost Demand").

g. Within twenty-one (21) calendar days of receipt of said itemized comparison, Defendants shall: (1) inform Plaintiff that Defendants do not object to proceeding with construction of a well at the original well site; (2) inform Plaintiff that Defendants agree to pay the Increased Cost Demand; or (3) serve a written notice of specific objections to the Increased Cost Demand together with an estimate by a qualified contractor to perform the work at the alternative well site to Plaintiff's specifications for construction of a well.

h. If the parties are unable to agree on the selection and/or increased cost of the alternative well site, either party may elect to arbitrate the dispute as provided in Paragraph 54. In any such arbitration, Defendants shall bear the burden of proof.

i. In the event new or materially different environmental issues associated with the selection of the alternative well site ("New Issues") are a substantial factor leading to environmental litigation by a third party, then either: (1) Defendants shall assume the cost of defense of that litigation; or (2) if Defendants do not assume the cost of defense of that litigation, Plaintiff may proceed with construction at the original well site with reimbursement by Defendants if the well exceeds the MCL as specified in this Agreement.

j. If Defendants fail to serve Plaintiff with a timely objection to the Increased Cost Demand described above, Plaintiff may elect to proceed with construction at the original well site.

k. If the well constructed at an alternative site fails to yield water that meets all then applicable water quality standards, Defendants shall pay the full cost of installing treatment

facilities to correct any such deficiency and shall reimburse Plaintiff for the full cost of operating and maintaining any such equipment. Defendants' obligation to reimburse Plaintiff for such treatment facilities shall not apply to disinfection facilities or any treatment or other water quality technology which Plaintiff is required to install on all Plaintiff wells In Operation, other than wells treated with GAC.

l. Any well constructed at an alternative site must yield at least eighty percent (80%) as much water (gallons per minute ("gpm")) as the original site selected by Plaintiff.

m. If the well constructed at the alternative well site fails to operate as provided in the previous sub-paragraph, Defendants may elect to construct at their sole expense an additional well to Plaintiff's standards at another site approved by Plaintiff so that the combined flow from both wells equals or exceeds that anticipated at the original proposed site.

n. If Defendants pay the Increased Cost Demand or amount determined in Arbitration under this Agreement, then: (1) any increased capital costs will be paid within 30 days of Defendants' receipt of a notice to proceed to a contractor to construct a well at the alternative well site; and (2) any increased operations and maintenance costs will be adjusted by the CPI under Paragraph No. 29 and January 10 for each preceding year the well is operation during the term of this Agreement.

ADMINISTRATIVE APPEALS

27. If a regulatory authority incorrectly, mistakenly, or in excess of its authority directs Plaintiff to stop using a well or refrain from connecting a well to its water system unless Plaintiff remediates DBCP in the well, Plaintiff may, within 60 days of receipt of the directive, petition the regulatory authority for reconsideration of the directive. If Plaintiff chooses not to petition the regulatory authority for reconsideration of the directive, Plaintiff shall notify Defendants and Defendants, at their own expense, may choose to challenge the regulatory authority's decision. Plaintiff shall provide Defendants with information from its files concerning the status of the well in question.

CESSATION OF O&M

28. For any Plaintiff well on which GAC or other remediation equipment to remove DBCP is installed, Defendants' obligation to pay O&M shall cease upon the occurrence of the following:

a. If any Regularly Scheduled Well Test for DBCP results in a concentration below the MCL, a second confirming sample will be taken within ten (10) days. If the average of those two samples is below the applicable DBCP MCL, the well is to be tested for the time period specified by the then applicable drinking water regulation. If the average of those tests is below the applicable MCL, Plaintiff may within sixty (60) days of receipt of the laboratory result for the last sample petition DOH for a permit amendment allowing removal of GAC or other DBCP remediation equipment. If the amendment is granted, Defendants' responsibility to pay O&M on the well is terminated thirty (30) days after notification to Plaintiff by DOH of the amendment approval. If Plaintiff chooses not to petition DOH for a permit amendment, Defendants' obligation to pay O&M on the well is terminated on the thirtieth day after the events described in this paragraph.

b. Within 90 days, either DOH will grant Plaintiff's petition, or Plaintiff must make a good faith effort to obtain such relief from DOH. If the petition is denied, Plaintiff shall again petition DOH in a good faith effort to persuade DOH to grant the petition. If the second petition is denied, Plaintiff shall notify Defendants and the parties shall cooperate should Defendants, at their own expense, choose to challenge the DOH decision in Plaintiff's name. Defendants' responsibility to pay O&M on the site or well in question will cease 30 days after DOH grants the petition.

c. Plaintiff is entitled to leave the GAC or other DBCP remediation equipment in place and/or operate same at its own expense for at least twelve (12) months after Defendants' obligation to pay O&M on the well has ceased.

d. If GAC or other DBCP remediation equipment has been removed from a well which has previously been treated and which subsequently requires treatment, the cost of such treatment will be borne by Defendants to the same extent as it was when GAC or other DBCP remediation equipment was originally installed, and will not be counted twice against the well limits set forth in Paragraph No. 30.

CPI ADJUSTMENT

29. This Agreement contains provisions for: (a) Defendants' payment of specified sums for the installation of GAC, which are expressed in 1999 dollars, and O&M, which are expressed in 1999 dollars; and (b) credits and offsets to Defendants, which are expressed in 1999 dollars. All payments of capital costs and O&M made by Defendants to Plaintiff and all credits and offsets to which Defendants are entitled under this Agreement for the year beginning January 1, 2000, and each year thereafter will be adjusted according to the CPI. The CPI adjustment shall operate as follows: The payments made, and credits and offsets applied, for the year 2000 shall be adjusted to reflect inflation or deflation pursuant to the CPI, except as limited by this Paragraph, with each successive year's payments being similarly adjusted according to the prior year's inflation or deflation pursuant to the CPI.

a. For the purpose of calculating inflation or deflation for capital costs, 1999 expressed dollars (as established by the June 1999 figure for the CPI) are to be used in this Agreement and are to be modified annually using the June CPI for subsequent years.

b. For the purpose of calculating inflation or deflation for O & M, 1999 expressed dollars (as established by the June 1999 figure for the CPI) are to be used in this Agreement and are to be modified annually using the June CPI for subsequent years. The first CPI adjustment to O&M shall commence with the January 10, 2001 payment using the June 2000 CPI.

LIMIT ON NUMBER OF WELLS FOR WHICH DEFENDANTS MAY BE RESPONSIBLE

30. The number of wells for which Defendants will be obligated to pay for the capital and O&M costs for GAC is limited to fifty (50) wells.

TERMINATION OF OBLIGATIONS

31. All obligations on the part of Defendants under this Agreement, including but not

limited to payments of capital costs and O&M to Plaintiff, end on September 1, 2039, provided that all payments due as of that date have been paid.

RE-USE OF GAC VESSELS

32. As GAC vessels become available when they are taken out of service on wells that no longer require DBCP remediation, Defendants may choose to move those units to another well requiring DBCP remediation. If Defendants pay for the installation or reinstallation of surplus GAC vessels, Defendants will receive a credit of $95,000 per vessel (adjusted by the CPI) to be applied to Defendants' portion of the capital cost of GAC on any well covered by this Agreement. Defendants will pay for the cost of moving, installing, inspecting, repairing and refilling these units, such activities to be performed by Plaintiff to Plaintiff's standards.

33. If a GAC vessel is moved to another site, and the well on which it had previously been installed once again Exceeds the MCL, then Defendants shall pay the appropriate portion of capital costs and O&M (either 90% or 100%) required to install or reinstall and operate GAC on that well.

ALTERNATIVE TECHNOLOGY AND/OR REMEDIES

34. Defendants may propose that Plaintiff utilize a less expensive wellhead treatment method approved by U.S. EPA or State of Hawaii for the remediation of DBCP. Defendants agree to pay the actual cost of designing, procuring, and installing all appropriate equipment and modifications to existing equipment, including capital and O&M costs under the conditions of this Agreement, on any well on which such equipment is installed. If any such less expensive wellhead treatment method is installed, then in lieu of O&M payments for GAC, Defendants will reimburse Plaintiff for the actual cost of O&M for the less expensive wellhead treatment method pursuant to Paragraph 47.

35. After meeting and conferring, Plaintiff's or Defendants' representatives may submit any disputed claim concerning the reliability, practicability, or efficacy, or actual cost, including capital and O&M costs, of employing any less expensive well-head treatment to binding arbitration pursuant to Paragraph 54 (Arbitration) of this Agreement. Notwithstanding any other provision of this Agreement, Plaintiff shall not be required to use any technology approved by the EPA, but disapproved by the DOH.

36. Plaintiff may elect to implement alternative remedies for DBCP. If Plaintiff elects to implement an alternative remedy, Defendants will only be obligated to pay the lesser of either: (a) 100% of the capital and O&M costs of the alternative remedy, or (b) 90% of the capital and O&M costs for the appropriately sized GAC facility, based on the capacity of the subject well(s), as appropriate. Plaintiff and Defendants shall submit any disputed claim concerning the actual cost, including capital and O&M costs, of any alternative remedy for DBCP to binding arbitration pursuant to Paragraph 54 (Arbitration) of this Agreement.

37. If EPA or DOH directs Plaintiff that modifications or additions to GAC (other than disinfection equipment) are required to continue use of GAC solely for the removal of DBCP, and Plaintiff and Defendants are unable to agree on the amount of the reasonably necessary expense of

such treatment that should be borne by Defendants, Plaintiff and Defendants will submit Plaintiff's claim for the reasonably necessary expense of such treatment to binding arbitration pursuant to Paragraph 54 (Arbitration) of this Agreement.

38. The activities set forth in Paragraph Nos. 34 through 37 are subject to approval by both Plaintiff and Defendants; said approval will not be unreasonably withheld.

LABORATORY ANALYSIS AND REPORTING

39. Plaintiff and Defendants each retain the right to challenge any reported laboratory test result for DBCP and may take the steps necessary, at their own cost, to verify the result, including such steps as obtaining a confirming sample for analysis or requesting that the laboratory confirm its calculations or reanalyze the initial sample.

40. Plaintiff will provide Defendants' Representative with a complete report of all DBCP test results from Plaintiff production wells every six months throughout the duration of this Agreement on the first business days of May and December of each year. The report need only contain the DBCP results for the year preceding the date of the report.

41. Defendants may, at their own expense, participate in Plaintiff's regularly scheduled sampling, take split samples, and make reasonable site inspections upon request; said requests will not be unreasonably made by Defendants.

INDEMNITY

42. Plaintiff will retain its right, if any, to seek indemnity from Defendants if it is sued by a third party for personal injuries or property damage allegedly attributable to DBCP. Plaintiff certifies that it is presently unaware of any such claims.

LANAI AND MOLOKAI

43. Notwithstanding any other provision of this Agreement, Plaintiff will retain its right, if any, to bring any future DBCP claims, lawsuits, or actions, including but not limited to, claims for compensatory and/or punitive damages, arising in whole or in part from the past, present, continuing, or future presence of DBCP on the Islands of Lanai and Molokai.

COSTS

44. All parties will bear their own costs and attorney's fees incurred in the Action.

45. As to Plaintiff, Defendants will waive costs and attorneys' fees for all dismissed Defendants.

PAYMENT OF ANY FUTURE OBLIGATIONS

Capital Costs

46. In addition to the conditions that must be met under this Agreement before

Defendants' obligations to pay future capital costs arise under this Agreement, Plaintiff must submit to Defendants' Representative and representatives for defendants AMVAC, Occidental, and Maui Land and Pineapple Company (the names and addresses of which will be provided and updated by Defendants' Representatives) a copy of a Notice to Proceed to a contractor to construct a GAC or alternative technology facility to treat a well that Exceeds the MCL. Within 30 days of Defendants' receipt of the Notice to Proceed, Defendants must pay Plaintiff the amount owed under the terms of this Agreement. In the event that Defendants fail to make timely payment, payment will be made under Paragraph 48 of this Agreement (Letter of Credit). Any disputed claims shall be submitted to arbitration pursuant to Paragraph 54, provided that Plaintiff shall be entitled to immediate payment pursuant to Paragraph 48, regardless of whether the claim is disputed.

O&M

47. In addition to the conditions that must be met under this Agreement before Defendants' obligations to pay future O&M arise under this Agreement, Plaintiff must submit by December 1 of each year starting in 2000 a qualifying claim for O&M that provides sufficient information to evaluate whether and to what extent Plaintiff's well(s) qualify for O&M payment. This will include, but not be limited to, DBCP test results and information concerning whether the wells were In Operation and In Regular Use during the preceding twelve months. Provided Plaintiff's O&M claim is timely submitted, Defendants shall make payment in the amount claimed by the following January 10. In the event Defendants fail to make timely payment, payment will be made under Paragraph 48 of this Agreement (Letter of Credit). Any disputed claims shall be submitted to arbitration pursuant to Paragraph 54, provided that Plaintiff shall be entitled to immediate payment pursuant to Paragraph 48, regardless of whether the claim is disputed. If Plaintiff fails to submit a timely claim (i.e., by December 1), then Defendants' obligation to make a timely payment (i.e., by January 10) shall be extended one day for each day Plaintiff's claim is late.

LETTER OF CREDIT

48. To secure the obligations of Defendants under this Agreement, and as a condition precedent to the obligations of Plaintiff hereunder, Defendants shall, at their sole cost and expense, furnish to Plaintiff, on or prior to October 1, 1999, and thereafter maintain during the entire term of this Agreement, continuing to a date thirty (30) days after the later of (i) September 1, 2039 or (ii) satisfaction of all Defendants' obligations to Plaintiff under this Agreement, an irrevocable standby letter of credit ("Letter of Credit") in favor of Plaintiff in form and substance reasonably satisfactory to Plaintiff, issued or confirmed by a United States banking institution having capital and surplus of not less than One Billion United States Dollars (USD 1,000,000,000) and advised by a banking institution with a banking office in Honolulu, Hawaii,

a. The Letter of Credit shall have a principal amount of Twenty Million United States Dollars (USD 20,000,000), and shall provide for payment to Plaintiff under this Agreement by a draft at sight to which is attached Plaintiff's Signed Statement (as defined in the Letter of Credit). The draft at sight and the Signed Statement which shall be conclusive that there has occurred an event of default under this Agreement and any applicable cure period has lapsed. A draft at sight presented as the result of an Event of Default related to claims under either Paragraph 46 or 47 will be limited to the amount of the claim. A draft at sight presented as the

result of an Event of default based on the failure of the Defendants to renew the Letter of Credit may be presented for the full amount of the Letter of Credit.

b. Should any Letter of Credit furnished by Defendants hereunder expire prior to the term of this Agreement, Defendants shall automatically provide Plaintiff with a replacement, in the same tenor, no later than sixty (60) days prior to the expiration of the then-current Letter of Credit. Failure to provide a replacement for a Letter of Credit shall be an Event of Default under this Agreement, and shall permit Plaintiff to draw on the then-current Letter of Credit as provided above. Plaintiff's realization of the amount payable under the Letter of Credit shall not affect Plaintiff's right to elect any other remedy on default available to Plaintiff under this Agreement, or under applicable law.

c. Where Plaintiff draws on a Letter of Credit because of the occurrence of an Event of Default based on the failure of the Defendants to renew the Letter of Credit, the amount drawn on the Letter of Credit shall first be applied to any then existing claims for Capital Costs and/or O&M Costs under this Agreement and thereafter the balance of the amount drawn shall be applied as credit against future claims under the Agreement or reconveyed to the banking institution that issued the Letter of Credit upon Defendants obtaining a new Letter of Credit.

d. The principal amount of the Letter of Credit may be adjusted upon agreement of all the parties at the time of any renewal or replacement of the Letter of Credit. In the absence of such agreement, the principal amount of the Letter of Credit shall remain Twenty Million United States Dollars (USD 20,000,000) so long as Defendants are required to maintain a Letter of Credit under this Paragraph 48.

CREDITS

49. a. Upon Defendants' initial payment of $3,000,000 pursuant to Paragraph 16 of this Agreement, Defendants shall be entitled to a one-time credit against the amount otherwise payable for installation of permanent GAC facilities on the Hamakuapoko Well Nos. 1 or 2 of $804,000, less the amount described in Paragraph 32 (Re Use of GAC Vessels), if, at Defendants' option, the vessels are used to treat any other well.

b. If any disputed claims under this Agreement are resolved in favor of Defendants, any amount determined to have been paid by Defendants in excess of the amount found to be due shall be credited to Defendants to offset future obligations under this Agreement.

c. Any credit or offset to which Defendants become entitled shall be applied to reduce the next occurring obligation of Defendants related to capital cost, and Defendants shall owe no additional amounts for capital costs until all credits and offsets to which Defendants are entitled have been applied and exhausted. Except as provided in this paragraph, and notwithstanding any other provision of this Agreement, Plaintiff shall not be obligated to pay Defendants cash on any accumulated credits or offsets. Except as otherwise set forth in this paragraph, any credits remaining as of September 1, 2039, shall be extinguished. Credits remaining as of September 1, 2039 that are the result of a claim made by Plaintiff after September 1, 2038 and disputed by Defendants thereafter, where the dispute is subsequently resolved in favor of Defendants, will be reimbursed to Defendants within thirty (30) days of such resolution.

50. If Plaintiff receives a payment under this Agreement for a GAC project that is not constructed, Defendants shall receive a credit in the amount of such payment toward the capital cost of the next GAC project that would otherwise trigger a further payment by Defendants.

DESIGNATED CONTACTS

51. Defendants' Representative and Plaintiff's Representatives are the parties' respective designated contacts for all reports, correspondence, and notices concerning the subject matter of this Agreement. If another representative is substituted, Defendants or Plaintiff, as appropriate, must provide written notice of same within ten (10) days.

GOOD FAITH EFFORT

52. Consistent with this Agreement, the parties agree to make a good faith effort to mitigate both Defendants' obligations under this Agreement and any adverse impact on Plaintiff's water system.

ARBITRATION AGREEMENT

53. In the event of any dispute between Plaintiff and Defendants arising out of or relating to this Agreement, the parties agree to try in good faith to settle the dispute by negotiation and/or mediation.

54. If the dispute cannot be resolved to the parties' mutual satisfaction through negotiation and/or mediation within thirty (30) days, Plaintiff and/or Defendants' Representative may elect to seek arbitration, and the dispute shall be resolved through binding arbitration. It is the intent of the parties that the arbitration be structured in such a way as to minimize costs and delay. The arbitration shall be conducted in accordance with the Commercial Arbitration Rules of the American Arbitration Association (the "AAA Rules") with the following stipulations:

a. The arbitration hearing shall be held before Hon. Ret. Judge Weinstein at JAMS, San Francisco, or if he is not available or declines to serve, a single arbitrator if the parties agree upon a single arbitrator. If the parties cannot agree upon a single arbitrator, then each shall select an arbitrator, and those arbitrators shall select a third arbitrator. If they are unable to agree upon a third arbitrator within fifteen (15) days, the third arbitrator shall be selected as provided in the AAA Rules.

b. Unless otherwise ordered, each party's presentation at the arbitration hearing shall be limited to 14 hours, and the hearing shall be completed within ten (10) business days.

c. The arbitration decision shall be rendered not later than thirty (30) days after the final day of the hearing and shall be judicially enforceable, nonappealable and binding.

d. Summaries of any expert testimony, along with copies of all documents to be submitted as exhibits, shall be exchanged at least ten (10) business days before arbitration under procedures set up by the arbitrators.

e. Except as otherwise specified herein, there shall be no discovery or dispositive motion practice except as may be permitted by the arbitrators, who may authorize only such discovery as is shown to be necessary to ensure a fair hearing. No discovery or motions permitted by the arbitrators shall in any way alter the time limits specified herein.

f. Arbitration costs, arbitrators' fees, and attorneys' fees and costs shall be awarded to the prevailing party, if any, by the arbitrators.

g. The arbitration shall occur in San Francisco, California.

55. In the event of arbitration arising out of, or related to, this Agreement, the prevailing party shall be entitled to recover its costs, expenses, and reasonable attorneys' fees, in addition to any other relief to which it may be entitled.

RELEASE

NOW THEREFORE, in reliance on the recitals stated above and for consideration, Plaintiff agrees as follows:

56. The foregoing recitals are true and correct and by this reference incorporated herein.

57. Subject to the provisions of this Agreement, on behalf of itself, its assigns, Board representatives, and past, present or future agents, Plaintiff hereby releases Defendants, individually and collectively, and their respective predecessors, successors, assigns, present and potential indemnitees, insurers, subsidiaries, affiliates, attorneys, and past or present employees, directors, officers, agents, shareholders, and representatives from any and all DBCP claims, demands, Action, causes of action, obligations, liens, damages, and liabilities, of any nature whatsoever, whether or not known, suspected or claimed, present or future, relating to or arising out of any act, cause, matter or thing stated, claimed, or alleged, or that could have been stated, claimed, or alleged by Plaintiff in the Action. Plaintiff understands and acknowledges that it is releasing and waiving all past, present, continuing and future claims it has or may have against Defendants for the presence of DBCP, except as specifically set forth in this Agreement.

58. Plaintiff declares and warrants that no other person or entity has had nor now has any interest in the claims, demands, Action, causes of action, obligations, liens, damages, and liabilities released in Paragraph No. 57, above; and that it has not sold, assigned, transferred, conveyed, or otherwise disposed of any DBCP claim, demand, action, cause of action, obligation, lien, damage, or liability released in Paragraph No. 57, above.

59. Plaintiff declares that, prior to the execution of this Agreement, it has apprised itself of sufficient data, either through experts or other sources of its own selection, in order that it might intelligently exercise its judgment in deciding on the contents of this Agreement and in deciding whether to execute it. Plaintiff further declares that its decision to enter into this Agreement is not predicated on or influenced by any declarations or representations of Defendants, or any of them, or by Defendants' respective predecessors, successors, assigns, subsidiaries, affiliates, insurers or attorneys or past or present employees, officers, directors, agents, shareholders, or representatives. Plaintiff declares that this Agreement is executed voluntarily and with full knowledge of its significance.

60. The parties acknowledge that they have an understanding of the facts underlying the Action and have negotiated in good faith and that this Agreement represents a good faith settlement with regard to the interests of all parties to the Agreement.

61. Plaintiff authorizes and directs its counsel to execute appropriate Requests for Dismissal, with prejudice, of the entire Action as to all Defendants, and to deliver the executed Requests for Dismissal to Defendants' Representative. All parties authorize and direct their respective counsel to execute whatever documents are necessary to implement this Agreement.

62. This Agreement shall bind the parties and each successor and assign of each party.

63. This document embodies the entire terms and conditions of the Agreement between the parties, and supersedes any prior documents signed by the parties in the course of resolving the Action. All words, phrases, sentences, and paragraphs, including the recitals hereto, are material to the execution of this Agreement.

64. This Agreement shall be governed by, and interpreted and construed in accordance with, the laws of the State of Hawaii.

65. Upon the occurrence of an uncontrollable circumstance, the party affected shall be excused from any failure or delay in performance under this Agreement. For purposes of this Agreement, an "uncontrollable circumstance" includes, but is not limited to, acts of God, fire, flood, civil unrest, earthquake, declaration of a public emergency, injunction, and labor disputes. However, the parties recognize that delays in Defendants' performance under the terms of this Agreement could uniquely subject Plaintiff to third parties' disputes. Therefore, in the event Defendants' performance of any option or obligation described in Paragraph 26 and its subparts is delayed due to force majeure circumstances, Plaintiff may proceed with the construction of wells, notwithstanding any right of Defendants to construct replacement wells and select alternative well sties. Defendants shall promptly reimburse Plaintiff for the cost of well construction incurred under these circumstances.

66. In the event any of the terms, conditions or covenants contained in this Agreement are held to be invalid, then any such invalidity shall not affect any other terms, conditions or covenants contained herein which shall remain in full force and effect.

67. Plaintiff warrants that this Agreement has been approved by Plaintiff's Board of Water Supply, and each of the signatories to this Agreement warrants that he or she is fully authorized to enter into the terms and conditions stated herein and to execute this Agreement.

68. This Agreement will be effective whether or not executed in multiple counterparts.

Dated: 8/31/99

BOARD OF WATER SUPPLY
OF THE COUNTY OF MAUI
By _____
Its: Chairman

(signatures continued)

Approved as to form: MILLER, SHER & SAWYER
A Professional Corporation

Dated: Aug. 31, 1999 By _____ Gary W. Zakian Deputy Corporation Counsel
DUANE C. MILLER
VICTOR M. SHER
Attorneys for Plaintiff, Board of
Water Supply of the County of Maui

Dated: _____ THE DOW CHEMICAL COMPANY

By _____
Its: _____

Approved as to form: FILICE, BROWN, EASSA & MCLEOD, LLP

Dated: _____ By _____

Attorneys for Defendant
The Dow Chemical Company

Dated: _____ OCCIDENTAL CHEMICAL COMPANY

By _____
Its: _____

Dated: _____ OCCIDENTAL PETROLEUM CORPORATION

By _____
Its: _____

Dated: _____ OCCIDENTAL CHEMICAL CORPORATION

By _____
Its: _____

(signatures continued)

Approved as to form: MILLER, SHER & SAWYER
A Professional Corporation

Dated:_____ By_____
DUANE C. MILLER
VICTOR M. SHER
Attorneys for Plaintiff, Board of
Water Supply of the County of Maui

Dated: August 31, 1999 THE DOW CHEMICAL COMPANY

By_____ 8/31/99
Its: Thomas J. Cressweil
Associate General Counsel

Approved as to form: FILICE, BROWN, EASSA & MCLEOD, LLP

Dated:_____ By_____

Attorneys for Defendant
The Dow Chemical Company

Dated:_____ OCCIDENTAL CHEMICAL COMPANY

By_____
Its:_____

Dated:_____ OCCIDENTAL PETROLEUM CORPORATION

By_____
Its:_____

Dated:_____ OCCIDENTAL CHEMICAL CORPORATION

By_____
Its:_____

(signatures continued)

Approved as to form:

MILLER, SHER & SAWYER
A Professional Corporation

Dated: _____

By _____
DUANE C. MILLER
VICTOR M. SHER
Attorneys for Plaintiff, Board of
Water Supply of the County of Maui

Dated: _____

THE DOW CHEMICAL COMPANY

By _____
Its _____

Approved as to form:

RILEY, BROWN, PASSA & MCLEOD, LLP

Dated: _____

By _____

Attorneys for Defendant
The Dow Chemical Company

Dated: 9/2/99

OCCIDENTAL CHEMICAL COMPANY

By _____
Its Senior Vice President & General Counsel

Dated: 9/1/99

OCCIDENTAL PETROLEUM CORPORATION

By _____
Its _____

Dated: 9/2/99

OCCIDENTAL CHEMICAL CORPORATION

By _____
Its Senior Vice President & General Counsel

(signatures continued)

MAUI PINEAPPLE COMPANY, LTD.

By_____
Its:_____

Approved as to form:

TOM & PETRUS

Dated:_____

By_____
STEPHEN M. TEVES
Attorneys for Third-Party Defendants, Maui Land & Pineapple Co. and Maui Pineapple Co., Ltd.

Dated: 30 Aug 1999

AMVAC CHEMICAL CORPORATION

By
Its: Vice Chairman

Dated: 30 Aug 1999

AMERICAN VANGUARD CORPORATION

By
Its: Co-Chairman

Approved as to form:

RUSH MOORE CRAVEN SUTTON MORRY & BEH

Dated: August 30, 1999

By
RICHARD C. SUTTON, JR.
Attorneys for Defendants
AMVAC CHEMICAL CORPORATION and
AMERICAN VANGUARD CORPORATION

Dated: 9/2/99

SHELL OIL COMPANY

By Burt Bollenbach
Its: Senior Litigation Counsel

Approved as to form:

KOBAYASHI, SUGITA & GODA

By_____
DALE W. LEE
Attorneys for Defendant
Shell Oil Company

Dated: _____

MAUI LAND & PINEAPPLE COMPANY AND
MAUI PINEAPPLE COMPANY, LTD.

By_____
Its:_____

Approved as to form:

TOM & PETRUS

Dated:_____

By_____
STEPHEN M. TEVES
Attorneys for Third-Party
Defendants, Maui Land &
Pineapple Co. and Maui Pineapple
Co., Ltd.

Dated _____

By _____
STEPHEN C. LEWIS
Attorneys for Defendants
Occidental Chemical Company,
Occidental Petroleum Corporation, and
Occidental Chemical Corporation

Dated _____

AMVAC CHEMICAL CORPORATION

By _____
Its: _____

Dated: _____

AMERICAN VANGUARD CORPORATION

By _____
Its: _____

Approved as to form:

RUSH, MOORE, CRAVEN,
SUTTON, MORRY & BEH

Dated: _____

By _____
RICHARD C. SUTTON, JR.
Attorneys for Defendant
AMVAC Chemical Corp. and
American Vanguard Corp.

Dated: Sept 1, 1999

BREWER ENVIRONMENTAL INDUSTRY, FKA
BREWER CHEMICAL COMPANY

By _____
Its: Sec

Approved as to form:

MANCINI, ROWLAND & WELCH

Dated: September 1, 1999

By Paul R. Mancini
PAUL R. MANCINI
Attorneys for Defendant
Brewer Environmental Industry, fka
Brewer Chemical Company

(signatures continued)

Dated:_____ SHELL OIL COMPANY

By_____
Its:_____

Approved as to form: KOBAYASHI, SUGITA & GODA

By_____
DALE W. LEE
Attorneys for Defendant
Shell Oil Company

Dated: _____ MAUI LAND & PINEAPPLE COMPANY AND MAUI PINEAPPLE COMPANY, LTD.

By_____
Its: Executive Vice President/Finance

Approved as to form: TOM & PETRUS

Dated:_____ By_____
STEPHEN M. TEVES
Attorneys for Third-Party
Defendants, Maui Land &
Pineapple Co. and Maui Pineapple
Co., Ltd.

ADDENDUM TO SETTLEMENT AGREEMENT AND RELEASE OF ALL CLAIMS

This ADDENDUM TO SETTLEMENT AGREEMENT AND RELEASE OF ALL CLAIMS ("Addendum") is entered into by and between Plaintiff MAUI COUNTY BOARD OF WATER SUPPLY ("Board") and Third-party defendants MAUI LAND AND PINEAPPLE COMPANY, INC., AND MAUI PINEAPPLE COMPANY, LTD. ("Maui Pineapple") (collectively referred to as the "Parties"), and relates to the SETTLEMENT AGREEMENT AND RELEASE OF ALL CLAIMS pertaining to the case entitled "Maui County Board of Water Supply v. Shell Oil Company, et al.", Civil No. 96-0370(1).

The Parties hereby agree and supplement the SETTLEMENT AGREEMENT AND RELEASE OF ALL CLAIMS as follows:

1. Paragraph 7 of the SETTLEMENT AGREEMENT AND RELEASE OF ALL CLAIMS relates to the release of certain claims Maui Pineapple may have against the Board regarding rental amounts for property on which Napili Wells "A" and "B" are located. By this Addendum Maui Pineapple hereby releases the Board from any rental amounts owed to Maui Pineapple arising out of the transfer to the Board of the property on which Napili Wells "A" and "B" are located.

2. All other terms of the SETTLEMENT AGREEMENT AND RELEASE OF ALL CLAIMS remain unchanged and in full force and effect.

Approved as to form
and legality

Gary W. Zakian
Deputy Corporation Counsel
S:\ATTORNEY\GWZ\DBCP\addend.2.wpd

Maui County Board
of Water Supply

By: Robert K. Takitani,
Its: Chair

Maui Land & Pineapple
Company, Inc.

By:
Its:

Approved as to Form

Thomas R. Sylvester
Attorney for
Maui Pineapple

Maui Pineapple
Company, Ltd.

By:
Its:

ADDENDUM TO SETTLEMENT AGREEMENT AND RELEASE OF ALL CLAIMS

This ADDENDUM TO SETTLEMENT AGREEMENT AND RELEASE OF ALL CLAIMS ("Addendum") is entered into by and between Plaintiff MAUI COUNTY BOARD OF WATER SUPPLY ("Board") and Third-party defendants MAUI LAND AND PINEAPPLE COMPANY, INC., AND MAUI PINEAPPLE COMPANY, LTD. ("Maui Pineapple") (collectively referred to as the "Parties"), and relates to the SETTLEMENT AGREEMENT AND RELEASE OF ALL CLAIMS pertaining to the case entitled "Maui County Board of Water Supply v. Shell Oil Company, et al.", Civil No. 96-0370(1).

The Parties hereby agree and supplement the SETTLEMENT AGREEMENT AND RELEASE OF ALL CLAIMS as follows:

1. Paragraph 7 of the SETTLEMENT AGREEMENT AND RELEASE OF ALL CLAIMS relates to the release of certain claims Maui Pineapple may have against the Board regarding rental amounts for property on which Napili Wells "A" and "B" are located. By this Addendum Maui Pineapple hereby releases the Board from any rental amounts owed to Maui Pineapple arising out of the transfer to the Board of the property on which Napili Wells "A" and "B" are located.

2. All other terms of the SETTLEMENT AGREEMENT AND RELEASE OF ALL CLAIMS remain unchanged and in full force and effect.

Approved as to form
and legality

Gary W. Zakian
Deputy Corporation Counsel
C:\MyFiles\Maui\Maui Settlement\addend.2.wpd

Approved as to Form

Thomas R. Sylvester
Attorney for
Maui Pineapple

Maui County Board
of Water Supply

By: Robert K. Takitani,
Its: Chair

Maui Land & Pineapple
Company, Inc.

By:
Its:

Maui Pineapple
Company, Ltd.

By:
Its:

TOTAL P.02

APPENDIX E.

Ordinance No. 3404 for Closure of Hamakuapoko Well Nos. 1 and 2, October 2, 2006

ORDINANCE NO. 3404

BILL NO. 51 (2006)

A BILL FOR AN ORDINANCE REPEALING CHAPTER 2.88A, MAUI COUNTY CODE, AND AMENDING TITLE 14, MAUI COUNTY CODE, RELATING TO THE COUNTY WATER CODE

BE IT ORDAINED BY THE PEOPLE OF THE COUNTY OF MAUI:

SECTION 1. The purpose of this ordinance is to establish the County Water Code, which shall provide policies relating to the functions of the Department of Water Supply, consistent with Article 8, Chapter 11, Revised Charter of the County of Maui (1983), as amended.

SECTION 2. Chapter 2.88A, Maui County Code, is repealed.

SECTION 3. Title 14, Maui County Code, is amended by amending Article 1 to read as follows:

"Article 1. Water"

SECTION 4. Title 14, Maui County Code, is amended by adding a new chapter to be appropriately designated and to read as follows:

"Chapter 14.01

GENERAL PROVISIONS

Sections:

14.01.010 Title.
14.01.020 Purpose.
14.01.030 Administration.
14.01.040 Definitions.
14.01.050 Hamakuapoko Wells.
14.01.060 Rules.

14.01.010 Title. This article shall be known as the "County water code".

14.01.020 Purpose. The County water code is intended to comply with and complement the State water code, chapter 174C, Hawaii Revised Statutes. The County water code seeks to provide a just and fair distribution of water to the people of the County of Maui. It is the policy of the County of Maui to provide clean, healthful, and plentiful water to its residents. The County water code shall be liberally interpreted and applied in a manner that conforms to the general plan.

14.01.030 Administration. Except as otherwise provided in this article, the director shall administer, implement, and enforce the provisions herein. Any powers granted to, or duties imposed upon, the director may be delegated by the director to other County personnel.

14.01.040 Definitions. For the purpose of this article, unless it is plainly evident from the context that a different meaning is intended, certain words and phrases used herein are defined as follows:

"Board" means the board of water supply of the County of Maui.

"Commission" means the commission on water resource management of the State of Hawaii.

"Consolidated metering system" means the means by which water is furnished through a centralized metering system to multiple consumer units.

"Consumer" means the person, firm, corporation, association, or governmental entity, whether owner or tenant, whose name appears on the records of the department as the party responsible and liable for receiving water service from the department.

"Consumer's supply pipe" means the pipe extending from the consumer's end of the service connection.

"Cost of service lateral" means the sum of the cost of the labor, materials, meter box, transportation, equipment, and road repair, if any, and other charges necessary for the complete installation of a service lateral, but excluding the cost of the meter.

"Council" means the council of the County of Maui.

"Department" means the department of water supply of the County of Maui.

"Director" means the director of the department of water supply of the County of Maui or an authorized representative of the director.

"Dwelling unit" means any building, addition, extension, or any portion thereof, which is designated or intended for occupancy by one family or persons living together or by a person living alone.

"Irrigation" means the use of water for grazing and agricultural purposes.

"Main" or "main pipe" means the department's supply

or distribution pipe from which service connections are made.

"Off-site water improvements" means that portion of a subdivision water system from the point of adequacy to the point of entry of such system into the subdivision boundaries.

"On-site water improvements" means that portion of the subdivision water system constructed within the property limits of the subdivision, to include all fire hydrant assemblies and service laterals whether on or off said property and as required by the department.

"Plan" means the water use and development plan.

"Premises" means the parcel of land, lot or lots, on which the development, improvement, or service is planned.

"Private water system" means a water system constructed, owned, operated, and maintained by private individuals, corporations, or organizations.

"Public water system" means the water system owned, operated, and maintained by the County of Maui.

"Service lateral" means the main tap, pipes, fittings, and valves and appurtenances from the water main to and including the meter box.

"State water code" means chapter 174C, Hawaii Revised Statutes.

"Water service" means the complete installation of pipes, fittings, appurtenances, and meter necessary to provide service to a consumer. This term also refers to the delivery of water to consumers.

"Water system" means a network of pipelines, storage, pumps, and other appurtenances, wells, or other sources which furnishes a supply of water to the consumer.

"Water system development fee" means a monetary charge imposed on an applicant to fund a portion of costs to construct water system improvements or to recover the cost of existing water system improvements made in anticipation of additional demand on water system.

14.01.050 Hamakuapoko Wells. Water from Hamakuapoko Wells 1 and 2 shall not be provided for human consumption.

14.01.060 Rules. The director may adopt, amend, and repeal rules for administration and enforcement of this article, which shall have the force and effect of law, as provided in chapter 91, Hawaii Revised Statutes."

SECTION 5. Title 14, Maui County Code, is amended by adding a new chapter to be appropriately designated and to read as follows:

"**Chapter 14.02**

WATER USE AND DEVELOPMENT PLAN

Sections:

14.02.010 Purpose.
14.02.020 Adoption of the plan.
14.02.030 Application of the plan.
14.02.040 Amendment.

14.02.010 Purpose. The purpose of the water use and development plan is to meet the mandate of the State water code relative to statewide water resources planning and aid the commission on water resource management and the County of Maui in the conservation, development, and use of the water resources of the County.

14.02.020 Adoption of the plan. The council adopted the plan by ordinance no. 1948, and any revision, amendment or modification of the same, pursuant to section 14.02.040 of this chapter, shall be deemed part of the plan without further adoption or amendment to this chapter and shall be incorporated into this chapter by reference.

14.02.030 Application of the plan. The plan shall serve as a guideline to the council, the department, and all other agencies of the County:

1. In approving or recommending to other agencies the use or commitment of the water resources in the County; and
2. In using public funds to develop water resources to meet existing or projected future demands on the public water system as set forth in the plan.

14.02.040 Amendment. A. If a proposed community plan amendment will impact the plan, the director shall initiate any necessary plan amendments.

B. An amendment to the plan proposed by the council, the director, or any agency shall be referred to the board of water supply for its review and recommendation. The board shall hold appropriate public hearings on proposed revisions or amendments and shall transmit the proposed revisions or amendments, with its

findings and recommendations, to the council. Within forty-five days of receipt of a proposed amendment, the council shall act upon the amendment. If the council fails to act within forty-five days, the amendment shall be deemed disapproved.

C. The mayor shall appoint a nine-member task force to be chaired by the director to assist the board with the review and amendment of the plan whenever the planning director recommends revisions to the general plan pursuant to section 8-8.3(3) of the revised charter of the County of Maui (1983), as amended. The task force shall recommend to the board amendments to the plan so as to be consistent with any community plan amendment."

SECTION 6. The following chapters are reserved.

"Chapter 14.04
WATER SERVICES
[Reserved]

Chapter 14.05
REQUIREMENTS FOR SUBDIVISION WATER SYSTEMS
[Reserved]

Chapter 14.06
CONTROL OF WATER USAGE DURING PERIODS OF DROUGHT
[Reserved]

Chapter 14.07
WATER SYSTEM DEVELOPMENT FUND
[Reserved]

Chapter 14.08
RESTRICTIONS ON USE OF POTABLE WATER FOR GOLF COURSES
[Reserved]

Chapter 14.09
REGULATION OF PERMITS AND WATER USE
[Reserved]

Chapter 14.10
RATES AND FEES
[Reserved]"

SECTION 7. New material is underscored. In printing this bill, the County Clerk need not include the underscoring.

SECTION 8. This ordinance shall take effect upon its approval.

APPROVED AS TO FORM
AND LEGALITY:

EDWARD S. KUSHI, JR.
Deputy Corporation Counsel
County of Maui
S:\ALL\ESK\Ords\Title14article 1.doc

I, JEFFREY T. KUWADA, Deputy County Clerk of the County of Maui, State of Hawaii, DO HEREBY CERTIFY that the foregoing BILL NO. 51 (2006) was passed on Second and Final Reading by the Council of the County of Maui, State of Hawaii, on the 15th day of September, 2006, by the following vote:

AYES: Councilmembers Michelle Anderson, Dain P. Kane, Joseph Pontanilla, Charmaine Tavares, Vice-Chair Robert Carroll, and Chair G. Riki Hokama.

NOES: Councilmembers Jo Anne Johnson and Michael J. Molina.

EXCUSED: Councilmember Dennis A. Mateo.

I FURTHER CERTIFY that on the 18th day of September, 2006, said BILL NO. 51 (2006) was presented to the Mayor of the County of Maui for his approval or otherwise; that on the 2nd day of October, 2006, the Mayor returned said BILL NO. 51 (2006) without his signature; therefore, pursuant to Section 4-3 of the Charter of the County of Maui, said BILL NO. 51 (2006) was designated as ORDINANCE NO. 3404 of the County of Maui.

DATED at Wailuku, Maui, Hawaii, this 3rd day of October, 2006.

JEFFREY T. KUWADA, DEPUTY COUNTY CLERK
COUNTY OF MAUI, STATE OF HAWAII

Passed First Reading: September 1, 2006

Effective Date of Ordinance: October 2, 2006

APPENDIX E-1.

Ordinance No. 3859 for Re-Opening of Hamakuapoko Well Nos. 1 and 2, October 13, 2011

ORDINANCE NO. 3859

BILL NO. 56 (2011)

A BILL FOR AN ORDINANCE AMENDING SECTION 14.01.050, MAUI COUNTY CODE, RELATING TO THE USE OF WATER FROM HAMAKUAPOKO WELLS

BE IT ORDAINED BY THE PEOPLE OF THE COUNTY OF MAUI:

SECTION 1. Section 14.01.050, Maui County Code, is amended to read as follows:

"**14.01.050 Hamakuapoko Wells.** Water from Hamakuapoko Wells 1 and 2 shall [not be provided for human consumption.] only be provided for:

1. Agricultural purposes;

2. Consumers of the department's upcountry water system as defined in section 14.13.030 of this code when a drought is declared pursuant to section 14.06.010 of this code; and

3. Backup to the department's existing upcountry water system facilities.

Water quality sampling schedules shall comply with department of health regulations and with standards set by the United States Environmental Protection Agency."

SECTION 2. Material to be repealed is bracketed. New material is underscored. In printing this bill, the County Clerk need not include the brackets, the bracketed material, or the underscoring.

SECTION 3. This ordinance shall take effect upon its approval.

APPROVED AS TO FORM AND LEGALITY:

EDWARD S. KUSHI
Department of the Corporation Counsel
County of Maui
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WE HEREBY CERTIFY that the foregoing BILL NO. 56 (2011)

1. Passed FINAL READING at the meeting of the Council of the County of Maui, State of Hawaii, held on the 7th day of October, 2011, by the following vote:

Dennis A. MATEO Chair	Joseph PONTANILLA Vice-Chair	Gladys C. BAISA	Robert CARROLL	Eleanora COCHRAN	Donald G. COUCH, JR.	G. Riki HOKAMA	Michael P. VICTORINO	Michael B. WHITE
Aye	Aye	Aye	Aye	No	Excused	Excused	Aye	Aye

2. Was transmitted to the Mayor of the County of Maui, State of Hawaii, on the 7th day of October, 2011.

DATED AT WAILUKU, MAUI, HAWAII, this 7th day of October, 2011.

DENNIS A. MATEO, CHAIR
Council of the County of Maui

JEFFREY T. KUWADA, COUNTY CLERK
County of Maui

RECEIVED
2011 OCT ... OFFICE OF THE MAYOR

THE FOREGOING BILL IS HEREBY APPROVED THIS DAY OF October 13, 2011.

~~ALAN M. ARAKAWA, MAYOR~~
County of Maui

KEITH A. REGAN
ACTING MAYOR
COUNTY OF MAUI

I HEREBY CERTIFY that upon approval of the foregoing BILL by the Mayor of the County of Maui, the said BILL was designated as ORDINANCE NO. 3859 of the County of Maui, State of Hawaii.

JEFFREY T. KUWADA, COUNTY CLERK
County of Maui

Passed First Reading on September 16, 2011.
Effective date of Ordinance October 13, 2011

RECEIVED
2011 OCT 13 PM 2:18
OFFICE OF THE COUNTY CLERK

I HEREBY CERTIFY that the foregoing is a true and correct copy of Ordinance No. 3859, the original of which is on file in the Office of the County Clerk, County of Maui, State of Hawaii.

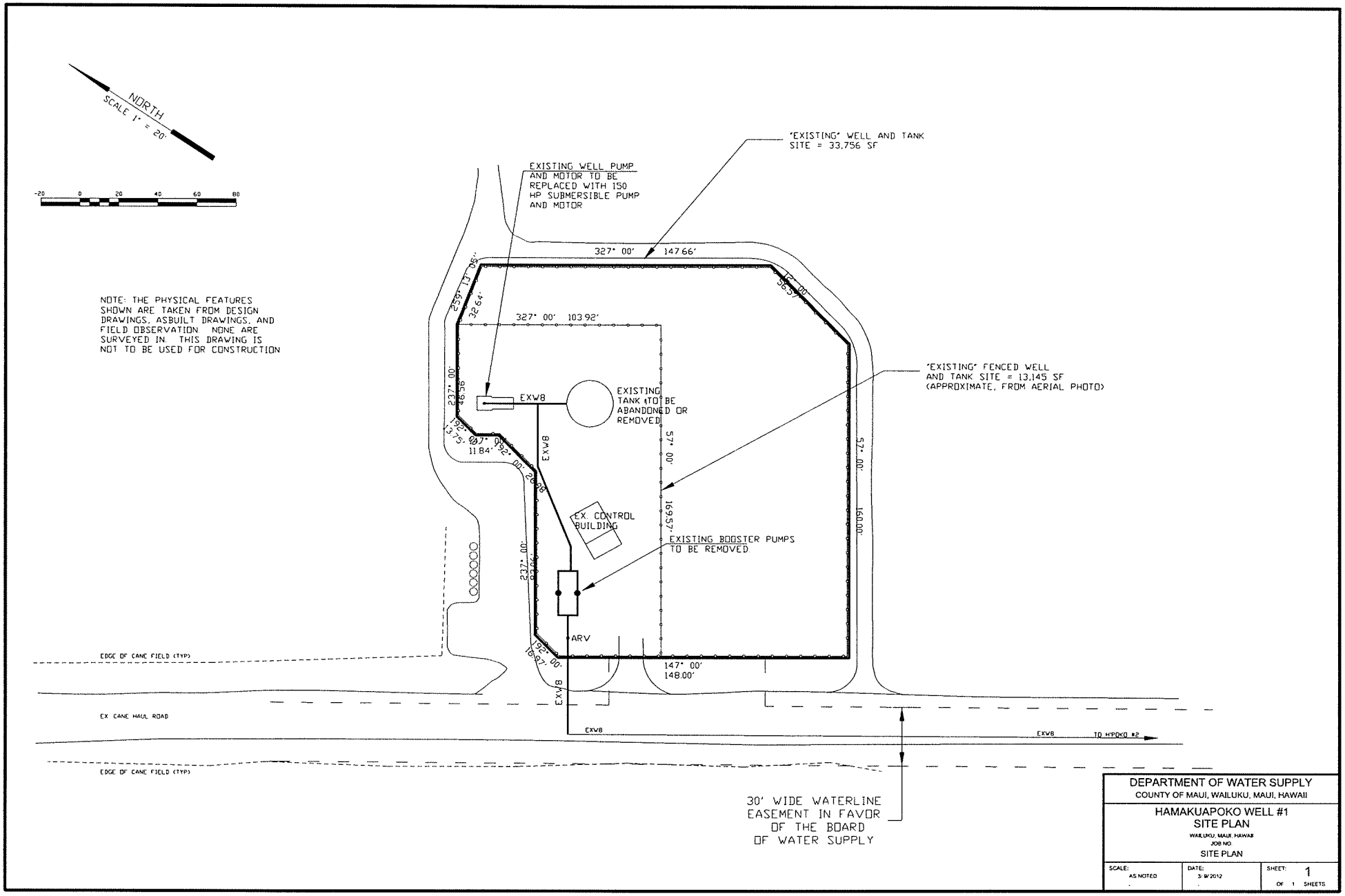
Dated at Wailuku, Hawaii, on

County Clerk, County of Maui

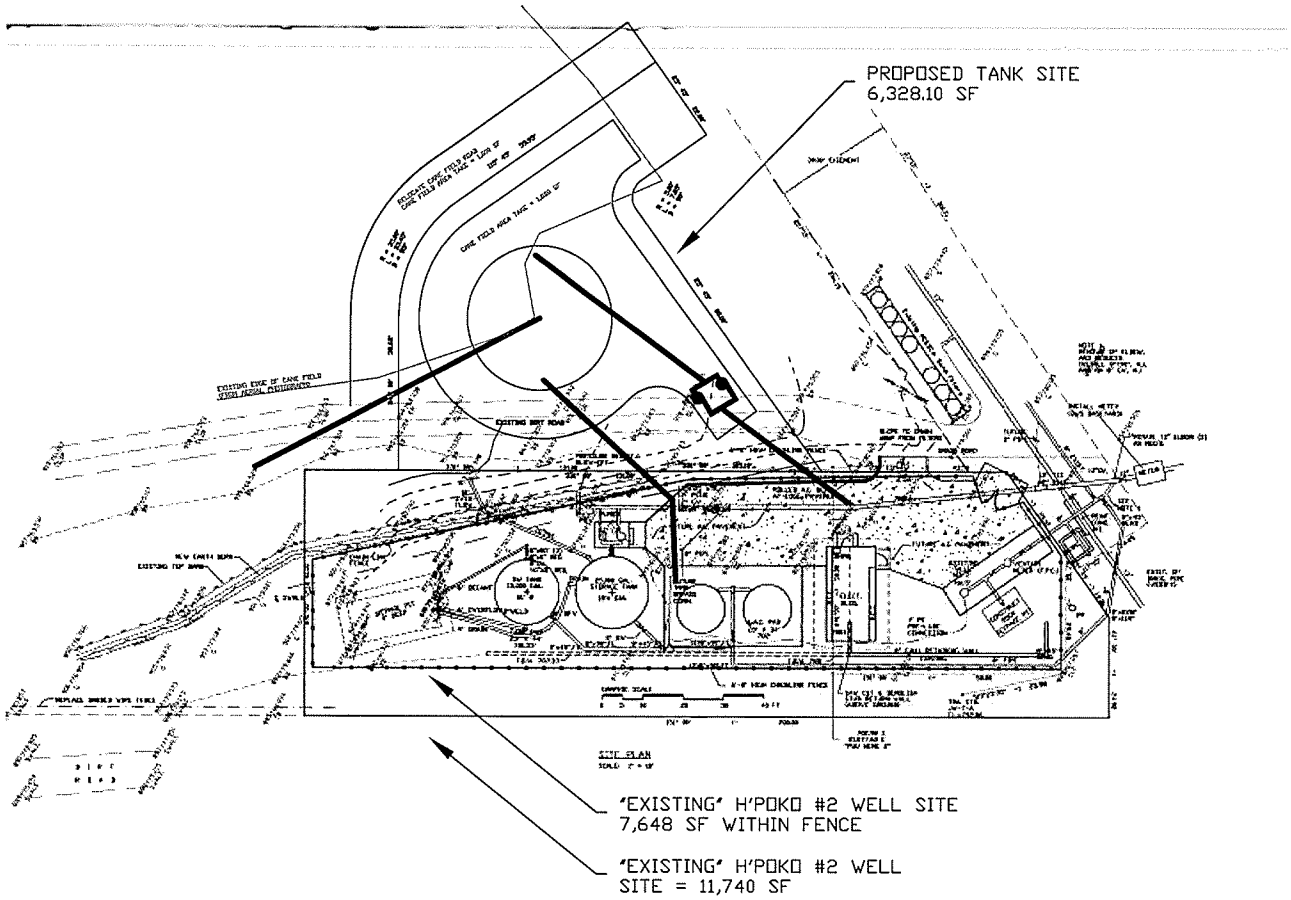
APPENDIX F.

Preliminary Engineering Plans

Hamakuapoko Well No. 1
Site Plan


NORTH
SCALE 1" = 20'
-20 0 20 40 60 80
NOTE: THE PHYSICAL FEATURES SHOWN ARE TAKEN FROM DESIGN DRAWINGS, ASBUILT DRAWINGS, AND FIELD OBSERVATION. NONE ARE SURVEYED IN. THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION
"EXISTING" WELL AND TANK SITE = 33,756 SF
EXISTING WELL PUMP AND MOTOR TO BE REPLACED WITH 150 HP SUBMERSIBLE PUMP AND MOTOR
327° 00' 147.66'
327° 00' 103.92'
"EXISTING" FENCED WELL AND TANK SITE = 13,145 SF (APPROXIMATE, FROM AERIAL PHOTO)
EXISTING TANK (TO BE ABANDONED OR REMOVED)
EXW8
EX. CONTROL BUILDING
EXISTING BOOSTER PUMPS TO BE REMOVED
ARV
57° 00'
169.57'
160.00'
147° 00'
148.00'
EDGE OF CANE FIELD (TYP)
EX CANE HAUL ROAD
TO H'POKO #2
30' WIDE WATERLINE EASEMENT IN FAVOR OF THE BOARD OF WATER SUPPLY
DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI, WAILUKU, MAUI, HAWAII
HAMAKUAPOKO WELL #1
SITE PLAN
WAILUKU, MAUI, HAWAII
JOB NO.
SITE PLAN
SCALE: AS NOTED
DATE: 3/8/2012
SHEET: 1 OF 1 SHEETS

Hamakuapoko Well No. 2
Site Plan (As Built)



AS-BUILT

HAWAIIAN POKO 2 GAC PROJECT

APPENDIX G.

Biological Resources Study

BOTANICAL AND FAUNA SURVEY AND ASSESSMENT

HAMAKUAPOKO WELL SITES 1 & 2 DEPARTMENT OF WATER SUPPY-

HAMAKUAPOKO, MAUI, HAWAII

by

ROBERT W. HOBDY
ENVIRONMENTAL CONSULTANT
Kokomo, Maui
June 2012

Prepared for:
Department of Water Supply
Maui County

BOTANICAL AND FAUNA SURVEY
DEPARTMENT OF WATER SUPPLY – MAUI COUNTY
HAMAKUAPOKO WELL SITES 1 & 2

INTRODUCTION

The Maui County Department of Water Supply's Hamakuapoko Wells 1 and 2 are situated in upper Hamakuapoko at the elevation of 700 feet and 780 feet above sea level respectively (see Figures 1 & 2). They both lie to the west of Maliko Gulch and are surrounded by a broad expanse of sugar cane fields on the HC & S Plantation. This study covers these two approximately ¼ acre sites for proposed improvements to pumps and water transmission lines as well as an additional tank site adjacent to wellsite 2. This study was initiated by the County of Maui in fulfillment of environmental requirements of the planning process.

SITE DESCRIPTION

Sites 1 & 2 are similar in that they are both situated on disturbed areas that have been set aside from lands that had been in continuous sugar cane production for about 100 years. Both sites are leveled and fenced enclosures that contain vertical well shafts, pumps and water transmission lines. Well site 1 is located on a gently sloping ridge top while well site 2 is located on a leveled terrace at the base of a slope between two cane fields. Both sites are currently closely mowed within their fenced enclosures, and on the outside retain narrow perimeters of grass and brush surrounded by active sugar cane fields. Annual rainfall in the area averages about 40 inches (Armstrong, 1983). Soils are Hamakuapoko silty clay, 3-7% slopes at both well sites (Foote et al, 1972).

SURVEY OBJECTIVES

This report summarizes the findings of a flora and fauna survey of the Department of Water Supply Maui County – Hamakuapoko Well Sites 1 & 2. The objectives of the survey were to:

1. Document what plant and animal species occur on the property or may likely occur in the existing habitat.
2. Document the status and abundance of each species.
3. Determine the presence or likely occurrence of any native flora and fauna, particularly any that are Federally listed as Threatened or Endangered. If such occur, identify what features of the habitat may be essential for these species.
4. Determine if the project area contains any special habitats which if lost or altered might result in a significant negative impact on the flora and fauna in this part of the island.

BOTANICAL SURVEY REPORT

SURVEY METHODS

A walk-through botanical survey method was used following routes to ensure that all parts of the project area were covered. Areas most likely to harbor native or rare plants such as gullys were more intensively examined. Notes were made on plant species, distribution and abundance as well as terrain and substrate.

DESCRIPTION OF THE VEGETATION

Both Hamakuapoko well sites 1 and 2 are significantly altered in their terrain and vegetation. Both sites have been leveled and fenced and are maintained in a mowed condition with outer perimeters of grasses and brush. Site 2 also includes a proposed adjacent new tank site that is presently part of a sugar cane field.

Site 1 had 30 species of plants recorded. Most common were Guinea grass (*Megathyrsus maximus*), Spanish needle (*Bidens pilosa*), graceful spurge (*Euphorbia hypericifolia*) and koa haole (*Leucaena leucocephala*). All of the species recorded were non-native agricultural weeds.

Site 2 had 51 plant species recorded. Most common were Napier grass (*Cenchrus pupureus*), swollen fingergrass (*Chloris barbata*), Guinea grass, sugar cane (*Saccharum officinarum*), Christmas berry (*Schinus terebinthifolius*), Spanish needle, hairy spurge (*Euphorbia hirta*) and graceful spurge. Besides the sugar cane, all of the plant species here were non-native agricultural weeds.

DISCUSSION AND RECOMMENDATIONS

The vegetation on and around these two nearby sites consists entirely of non-native agricultural weeds and one agricultural crop plant. None of these are of any environmental interest or concern. No federally listed Endangered or Threatened plant species (USFWS, 2009), were found on the property, nor were any found that are candidates for such status. No special plant habitats occur here either.

Because of the above existing conditions, there is nothing of botanical concern on these sites, and the proposed improvements are not expected to have a significant negative impact on the botanical resources in this part of Maui. No recommendations with reference to plants are considered to be appropriate or necessary.

PLANT SPECIES LIST

Following is a checklist of all those vascular plant species inventoried during the field studies. Plant families are arranged alphabetically within two groups: Monocots and Dicots. Taxonomy and nomenclature of the plants are in accordance with Wagner et al. (1999) and Palmer (2003).

For each species, the following information is provided:

1. Scientific name with author citation
2. Common English or Hawaiian name.
3. Bio-geographical status. The following symbols are used:
   endemic = native only to the Hawaiian Islands; not naturally occurring anywhere else in the world.
   indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).
   Polynesian = those plants brought to the islands by the Polynesians in the course of their migrations.
   non-native = all those plants brought to the islands intentionally or accidentally after western contact.
4. Abundance of each species within the project area:
   abundant = forming a major part of the vegetation within the project area.
   common = widely scattered throughout the area or locally abundant within a portion of it.
   uncommon = scattered sparsely throughout the area or occurring in a few small patches.
   rare = only a few isolated individuals within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE	
			Well 1	**Well 2**
FERNS				
BLECHNACEAE (Chain-Fern Family)				
Blechnum appendiculatum Willd.	palm fern	non-native		rare
NEPHROLEPIDACEAE (Sword Fern Family)				
Nephrolepis brownii (Desv.) Hovenc. & Miyan.	Asian sword fern	non-native		rare
POLYPODIACEAE (Polypody Fern Family)				
Phymatosorus grossus (Langsd. & Fisch.) Brownlie	laua'e	non-native		rare
PTERIDACEAE (Brake Fern Family)				
Pityogramma austroamericana Domin	gold fern	non-native		rare
MONOCOTS				
CYPERACEAE (Sedge Family)				
Cyperus rotundus L.	nut sedge	non-native	rare	rare
POACEAE (Grass Family)				
Cenchrus echinatus L.	common sandbur	non-native		rare
Cenchrus purpureus (Schumach.) Monrone	Napier grass	non-native		common
Chloris barbata (L.) Sw.	swollen fingergrass	non-native	rare	common
Chloris virgata Sw.	feather fingergrass	non-native		rare
Cynodon dactylon (L.) Pers.	Bermuda grass	non-native		uncommon
Digitaria violascens Link	kukae pua'a 'uka	non-native	uncommon	uncommon
Eleusine indica (L.) Gaertn.	wiregrass	non-native		uncommon
Eragrostis pectinacea (Michx.) Nees	Carolina lovegrass	non-native	uncommon	rare
Megathyrsus maximus (Jacq.) Simons & Jacobs	Guinea grass	non-native	common	common
Melinis repens (Willd.) Zizka	Natal redtop	non-native	uncommon	
Saccharum officinarum L.	sugar cane	non-native		common
Urochloa mutica (Forssk.) Nguyen	California grass	non-native		uncommon
Urochloa subquadripara (Trin.) Webster	tropical signalgrass	non-native		rare
DICOTS				
AMARANTHACEAE (Amaranth Family)				
Amaranthus spinosus L.	spiny amaranth	non-native		rare
ANACARDIACEAE (Mango Family)				
Schinus terebinthifolius Raddi	Christmas berry	non-native	rare	common
ASTERACEAE (Sunflower Family)				
Ageratum conyzoides L.	maile hohono	non-native	rare	
Bidens pilosa L.	Spanish needle	non-native	common	common
Conyza bonariensis (L.) Cronq.	hairy horseweed	non-native	rare	rare
Crassocephalum crepidioides (Benth.) Moore	redflower ragleaf	non-native		rare
Emilia fosbergii Nicolson	red pualele	non-native	rare	rare
Gamochaeta purpurea (L.) Cabrera	purple cudweed	non-native	rare	
Senecio madagascariensis Poir.	fireweed	non-native	rare	uncommon
Sonchus oleraceus L.	pualele	non-native	rare	uncommon

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE	
			Well 1	**Well 2**
BRASSICACEAE (Mustard Family)				
Lepidium virginicum L.	Virginia pepperwort	non-native	rare	uncommon
CONVOLVULACEAE (Morning Glory Family)				
Ipomoea obscura (L.) Ker-Gawl.	----------	non-native	rare	
Ipomoea triloba L.	little bell	non-native	uncommon	uncommon
CUCURBITACEAE (Gourd Family)				
Momordica charantia	bitter melon	non-native	rare	rare
EUPHORBIACEAE (Spurge Family)				
Euphorbia heterophylla L.	kaliko	non-native		uncommon
Euphorbia hirta L.	hairy spurge	non-native	uncommon	common
Euphorbia hypericifolia L.	graceful spurge	non-native	common	common
Euphorbia prostrata Aiton	prostrate spurge	non-native	rare	rare
Phyllanthus debilis Klein ex Willd.	niruri	non-native		uncommon
Ricinus communis L.	Castor bean	non-native	rare	rare
FABACEAE (Pea Family)				
Chamaecrista nictitans (L.) Moench	partridge pea	non-native	uncommon	uncommon
Crotalaria incana L.	fuzzy rattlepod	non-native	uncommon	uncommon
Desmodium triflorum (L.) DC.	three-flowered beggarweed	non-native		rare
Indigofera hendecaphylla Jacq.	creeping indigo	non-native		rare
Indigofera suffruticosa Mill.	'inikō	non-native	uncommon	rare
Leucaena leucocephala (Lam.) de Wit	koa haole	non-native	common	uncommon
Macroptilium atropurpureum (DC.) Urb.	siratro	non-native		rare
Macroptilium lathyroides (L.) Urb.	wild bean	non-native	rare	
Medicago polymorpha L.	bur clover	non-native	uncommon	rare
Neonotonia wightii (Wight) Lackey	glycine	non-native	rare	
Senna occidentalis (L.) Link	coffee senna	non-native		rare
Senna surattensis (Burm.) Irwin & Barneby	kolomona	non-native		rare
MALVACEAE (Mallow Family)				
Abutilon grandifolium (Willd.) Sw.	hairy abutilon	non-native		rare
Malva parviflora L.	cheese weed	non-native		uncommon
Malvastrum coromandelianum (L.) Garcke	false mallow	non-native		uncommon
Sida rhombifolia L.	Cuban jute	non-native		rare
MYRTACEAE (Myrtle Family)				
Psidium guajava L.	common guava	non-native		rare
NYCTAGINACEAE (Four-o'clock Family)				
Boerhavia coccinea Mill.	scarlet spiderling	non-native		rare
PAPAVERACEAE (Poppy Family)				
Argemone mexicana L.	Mexican poppy	non-native		rare
PORTULACACEAE (Purslane Family)				
Portulaca oleracea L.	pig weed	non-native	rare	

FAUNA SURVEY REPORT

SURVEY METHODS

A walk-through fauna survey method was conducted in conjunction with the botanical survey. All parts of the project area were covered. Field observations were made with the aid of binoculars and by listening to vocalizations. Notes were made on species, abundance, activities and location as well as observations of trails, tracks, scat and signs of feeding. In addition an evening visit was made to the area to record crepuscular activities and vocalizations and to see if there was any evidence of occurrence of the Hawaiian hoary bat (*Lasiurus cinereus semotus*) in the two areas.

RESULTS

MAMMALS

Just sign of one non-native species of mammal was seen on these two small sites, a rat (*Rattus* sp.) burrow on Site 1. Taxonomy and nomenclature follow Tomich (1986). Other species one might expect to see on these remote agricultural sites include mice (*Mus domesticus*), mongoose (*Herpestes auropunctatus*) and possibly feral cat (*Felis catus*).

A special effort was made to look for any occurrence of the endemic and endangered Hawaiian hoary bat by making an evening survey in these two areas. When present in an area these bats can be easily identified as they forage for insects, their distinctive flight patterns clearly visible in the glow of twilight. No evidence of such activity was observed though visibility was excellent. In addition an electronic bat detector (Batbox IIID) was utilized, set to the frequency of 27,000 hertz that these bats are known to use for echolocation. No bats were detected using this device.

BIRDS

Birdlife was sparse on and around these two small sites. Just three species of non-native birds were seen during two site visits to the property. These included the house finch (*Carpodacus mexicanus*), zebra dove (*Geopelia striata*) and nutmeg mannikin (*Lonchura punctulata*). Taxonomy and nomenclature follow American Ornithologists' Union (2011). Other non-native birds one might expect to occasionally see include the cattle egret (*Bubulcus ibis*), gray francolin (*Francolinus pondicerianus*), northern cardinal (*Cardinalis cardinalis*) and Japanese white-eye (*Zosterops japonicus*). The habitat is not suitable for Hawaii's native forest birds which can presently survive only at higher elevations, beyond the range of mosquitoes and the avian diseases they carry and transmit.

INSECTS

Insect life was somewhat sparse on these two small sites. Just 6 non-native species in four insect Orders were recorded. Most common were the Australian hoverfly (*Simosyrphus grandicornis*), honey bee (*Apis mellifera*) and the long tail blue butterfly (*Lampides boeticus*). Taxonomy and nomenclature follow Nishida et al (1992).

No native insect species were observed and no host plant species for any Endangered insects were seen.

No species of any reptiles or mollusks were observed.

DISCUSSION AND RECOMMENDATIONS

Just 1 mammal, 3 birds and 6 insects were recorded during the survey of these two nearby well sites. None of these species were native and none are of any particular environmental concern. No Endangered animal species were found and none are known to occur in the vicinity. The proposed improvements are not expected to have a significant negative effect on the fauna resources in this part of Maui. No recommendations regarding the fauna resources are deemed appropriate or necessary.

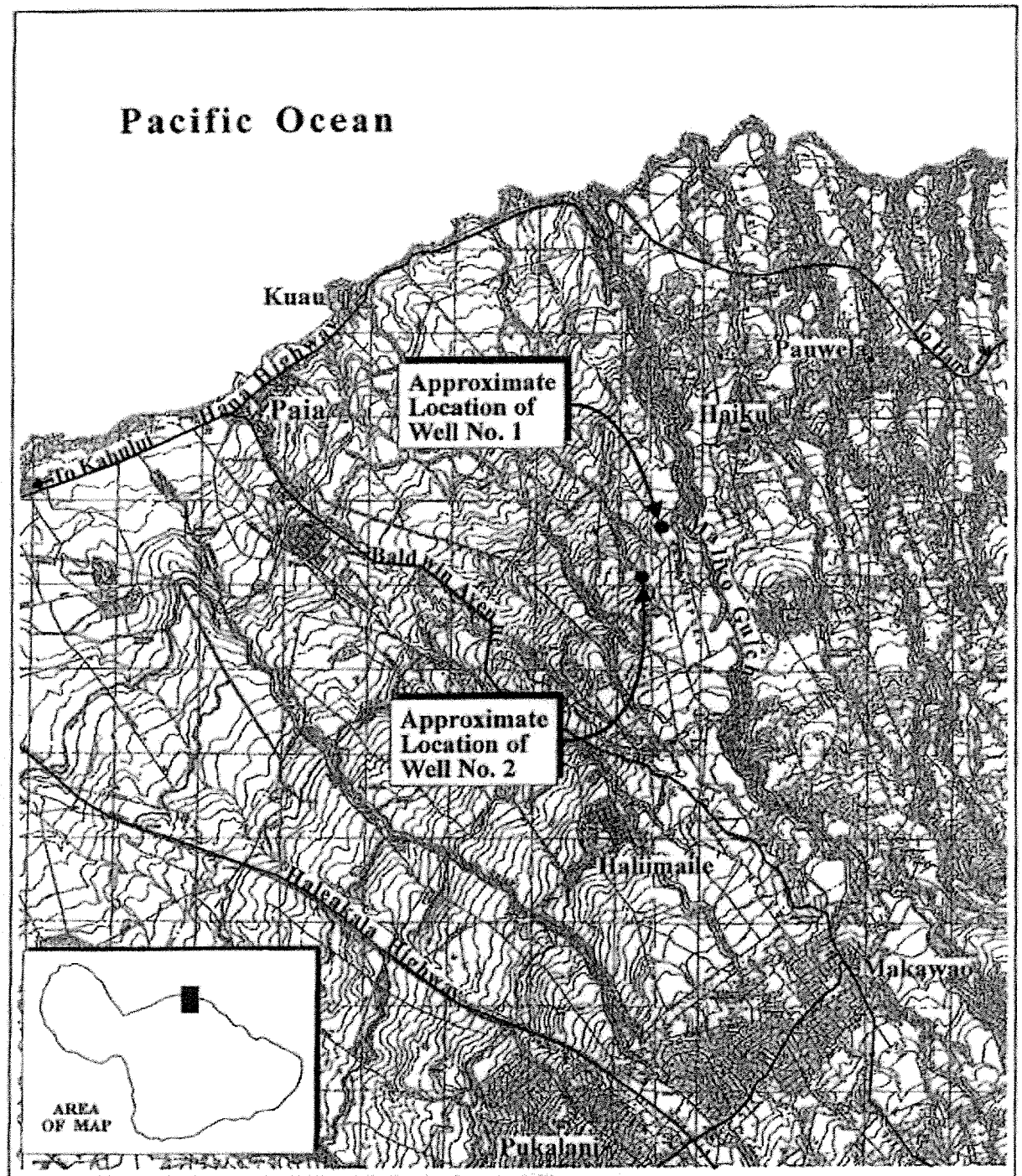
ANIMAL SPECIES LIST

Following is a checklist of the animal species inventoried during the field work. Animal species are arranged in descending abundance within three groups: Mammals, Birds & Insects. For each species the following information is provided:

1. Common name
2. Scientific name
3. Bio-geographical status. The following symbols are used:
   endemic = native only to Hawaii; not naturally occurring anywhere else in the world.
   indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).
   non-native = all those animals brought to Hawaii intentionally or accidentally after western contact.
   migratory = spending a portion of the year in Hawaii and a portion elsewhere. In Hawaii the migratory birds are usually in the overwintering/non-breeding phase of their life cycle.

4. Abundance of each species within the project area:
   abundant = many flocks or individuals seen throughout the area at all times of day.
   common = a few flocks or well scattered individuals throughout the area.
   uncommon = only one flock or several individuals seen within the project area.
   rare = only one or two seen within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE	
			Well 1	**Well 2**
MAMMALS				
Rattus sp.	rat	non-native	rare	
BIRDS				
Carpodacus mexicanus Muller	house finch	non-native	rare	common
Geopelia striata L.	zebra dove	non-native	rare	rare
Lonchura punctulata L.	nutmeg mannikin	non-native		uncommon
INSECTS				
Order DIPTERA - flies				
MUSCIDAE (House Fly Family)				
Musca sorbens Wiedemann	dung fly	non-native	uncommon	
SYRPHIDAE (Hoverfly Family)				
Simosyrphus grandicornis Macquart	Australian hoverfly	non-native		common
Order HYMENOPTERA - bees & wasps				
APIDAE (Honey Bee Family)				
Apis mellifera L.	honey bee	non-native	rare	common
VESPIDAE (Vespid Wasp Family)				
Polistes aurifer Saussure	golden paper wasp	non-native	rare	rare
Order LEPIDOPTERA - butterflies & wasps				
Lampides boeticus L.	long tail blue butterfly	non-native	rare	common
Order ORTHOPTERA - grasshoppers & crickets				
Oeadaleus abruptus Thunberg	short-horned grasshopper	non-native	uncommon	



Source: USGS, Paia Quadrangle, 1997 and Haiku Quadrangle, 1992

Figure 1 Proposed Improvements at Hamakuapoko Well Nos. 1 and 2

Regional Location Map

NOT TO SCALE

MUNEKIYO & HIRAGA, INC.

Prepared for: County of Maui, Department of Water Supply

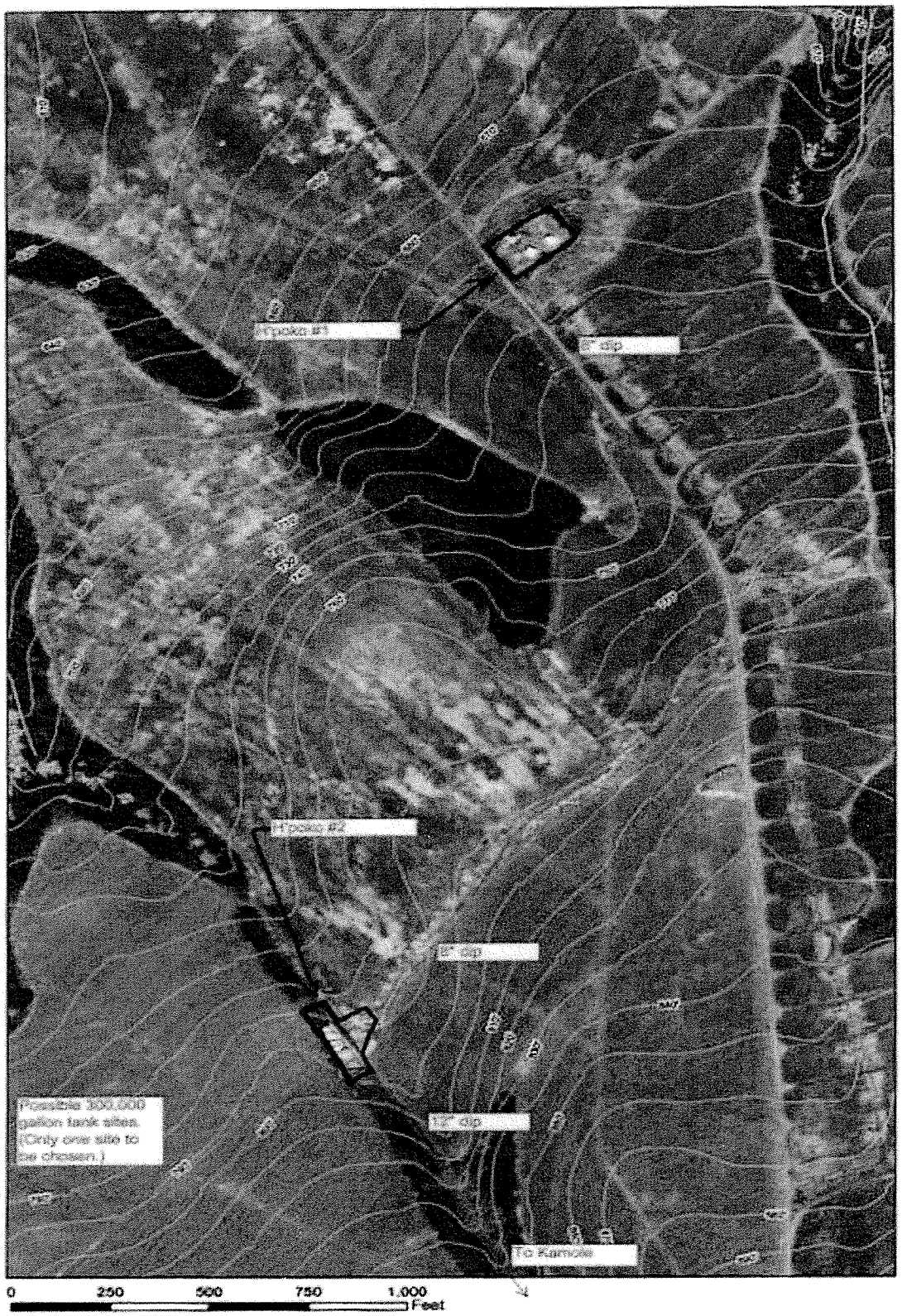
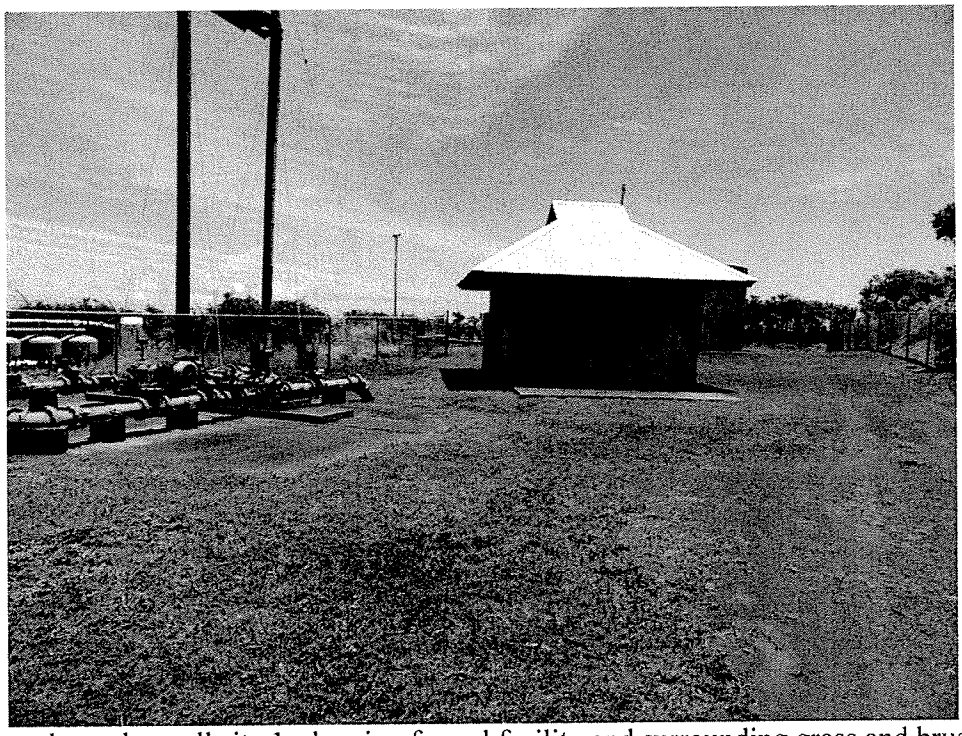
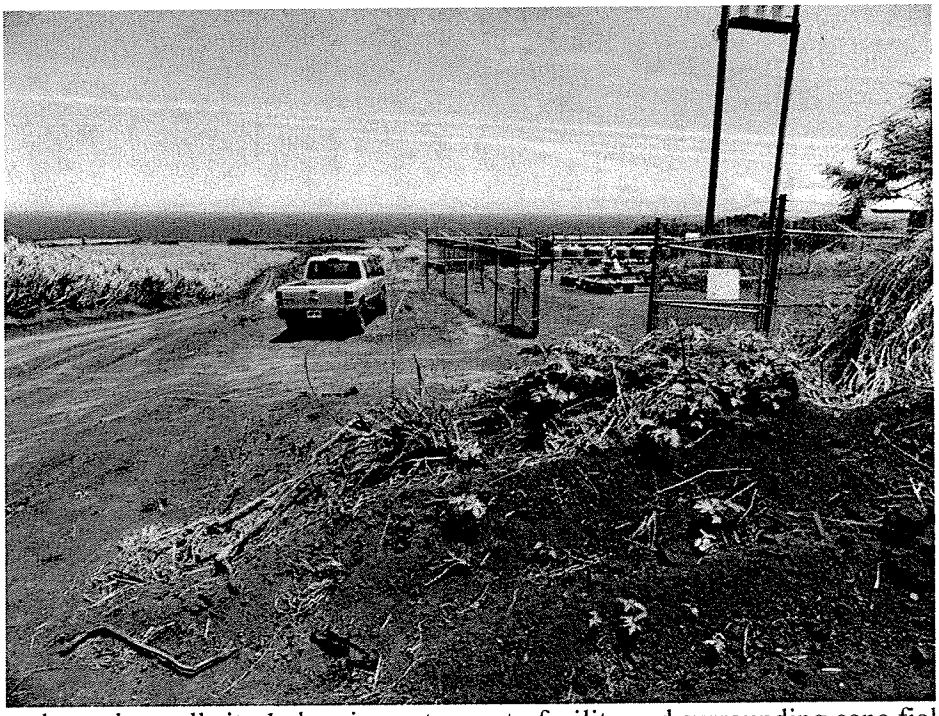


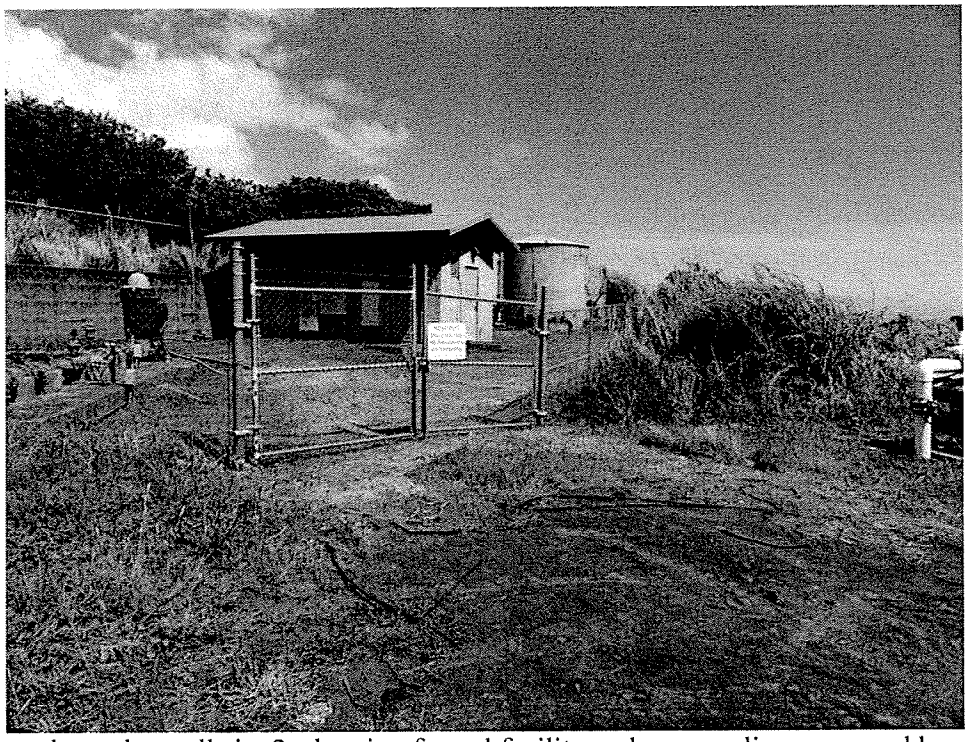
Figure 2 Project areas Hamakuapoko well sites 1 & 2



Hamakuapoko well site 1 showing fenced facility and surrounding grass and brush.

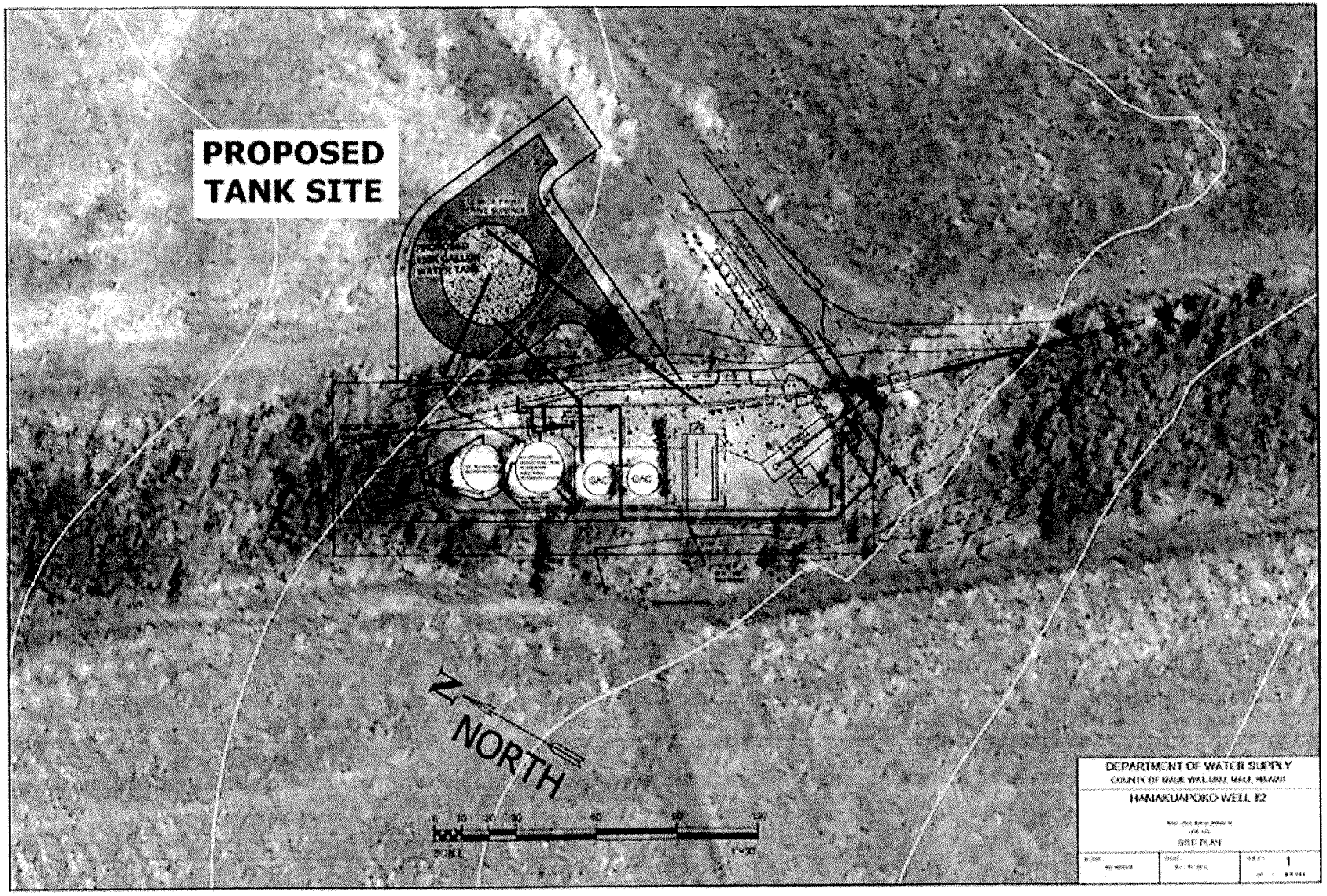


Hamakuapoko well site 1 showing entrance to facility and surrounding cane fields.



Hamakuapoko well site 2 showing fenced facility and surrounding grass and brush.

Hamakuapoko well site 2 showing adjacent proposed tank site in sugar cane field


PROPOSED
TANK SITE
PROPOSED
100K GALLON
WATER TANK
GAC
GAC
NORTH
DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
HAMAKUAPOKO WELL #2
SITE PLAN

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APPENDIX H.

Archaeological Field Inspection

SCIENTIFIC CONSULTANT SERVICES, Inc.
711 Kapiolani Blvd., Suite 975 Honolulu, Hawai'i 96813

Ms. Jenny Pickett
SHPD-Maui
130 Mahalani Street
Wailuku, HI 96793

October 4, 2012

Re: Field Inspection of Proposed Wells, Hamakuapoko Ahupua`a, Makawao District, Island of Maui [TMK: (2) 2-5-04:039 (por.)]

Dear Ms. Pickett:

At the request of Munekiyo & Hiraga, Inc., Scientific Consultant Services, Inc (SCS) has completed a Field Inspection of approximately 2 acres in Hamakuapoko Ahupua`a, District of Makawao, Maui Island, TMK: (2) 2-5-04:039 (por.). Two existing well sites (Hamakuapoko Well Nos. 1 and 2) were subject to a Field Inspection as well as potential sites for a proposed new water tank. The purpose of the Field Inspection was to determine the presence or absence of architecture, midden deposits, and/or artifact deposits on the surface of the project area, as well as assess the potential for the presence of subsurface cultural deposits. Maps and photographs depicting the project area follow this letter.

Natural Setting

The project areas are situated at an elevation of 713 feet A.M.S.L. (Well #1) and 790 feet A.M.S.L (Well #2) and are situated 4.0 km and 4.67 km from the coastline respectively. Historic and recent agricultural activities have altered the natural topography for the production of sugar cane and water pumping activities. Well #1 is located in an active sugar cane field and is bounded by a cane haul road to the west and agricultural fields on the north, south and east. Well #2 is bounded by agricultural fields to the east and west and a slope to the north and south. The slope is covered in *koa haole* (*Leucaena leucocephala*), Christmas berry (*Schinus terebinthifolius*) and guava (*Psidium guajava*).

Surface soil around both well sites consists of recently tilled silt loam that has abundant broken cobbles and boulders. Modern trash, such as concrete fragments and PVC piping, is scattered throughout the project area.

Methods

The Field Inspection was conducted on May 30, 2012 by SCS Inc. archaeologist David Perzinski under the supervision of Michael Dega, Ph.D. (Principle Investigator). A 100% pedestrian survey was conducted of the proposed well site areas. The study area for the Well No. 1 well and tank site consists of 33,756 square feet. The survey area for the Well No. 2 site (totaling 1.5 acres) also included three potential locations for a proposed new water storage tank. Since completion of the survey, the County has selected tank option No. 4 (see Figure Referenced as "Well No.2 Location Options"). Numerous photographs were taken to document the current condition of the parcels. No subsurface testing was conducted during the Field Inspection.

Results

A 100% pedestrian survey of the existing well sites and potential water tanks sites did not lead to the identification of historic sites, features, midden scatters, or artifacts. The parcels and surrounding areas are currently used for agriculture, water pumping, and water storage. The ground surface and subsurface soils of the well sites have been heavily modified through time, given intensive industrial sugar cane plantation cultivation in the area, as well as recent construction of the existing wells and related improvement. The survey was negative for both surface materials and areas thought to potentially contain subsurface cultural materials.

Conclusions

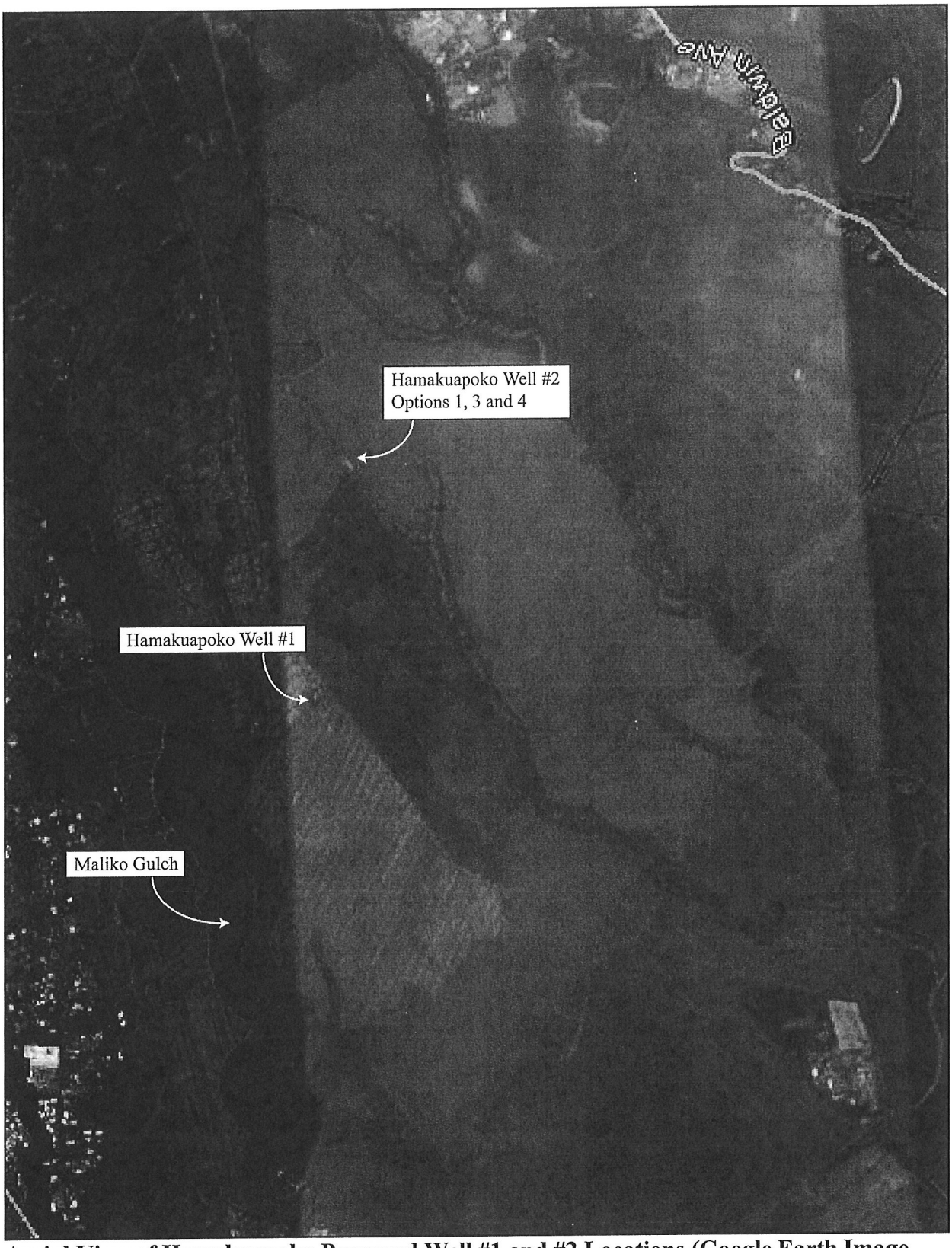
No surface cultural remains were identified during the Field Inspection. A full inspection of the existing well site areas and potential water storage tank locations failed to lead to the identification of historic surface features or architecture. Repeated instances of modern era clearing, grubbing and agricultural activities in the parcel have extensively disturbed the area, further making the likelihood of encountering any remaining surface features almost non-existent.

It is our estimation, based on this Field Inspection, that development of improvements at the Hamakuapoko Well Nos. 1 and 2 including the development of a new water storage tank (adjacent to the Hamakuapoko Well No. 2 site) would not have an adverse impact on any significant historic properties. No further work is recommended for the well site and the storage tank areas. However, should the inadvertent discovery of significant cultural materials and/or burials occur during

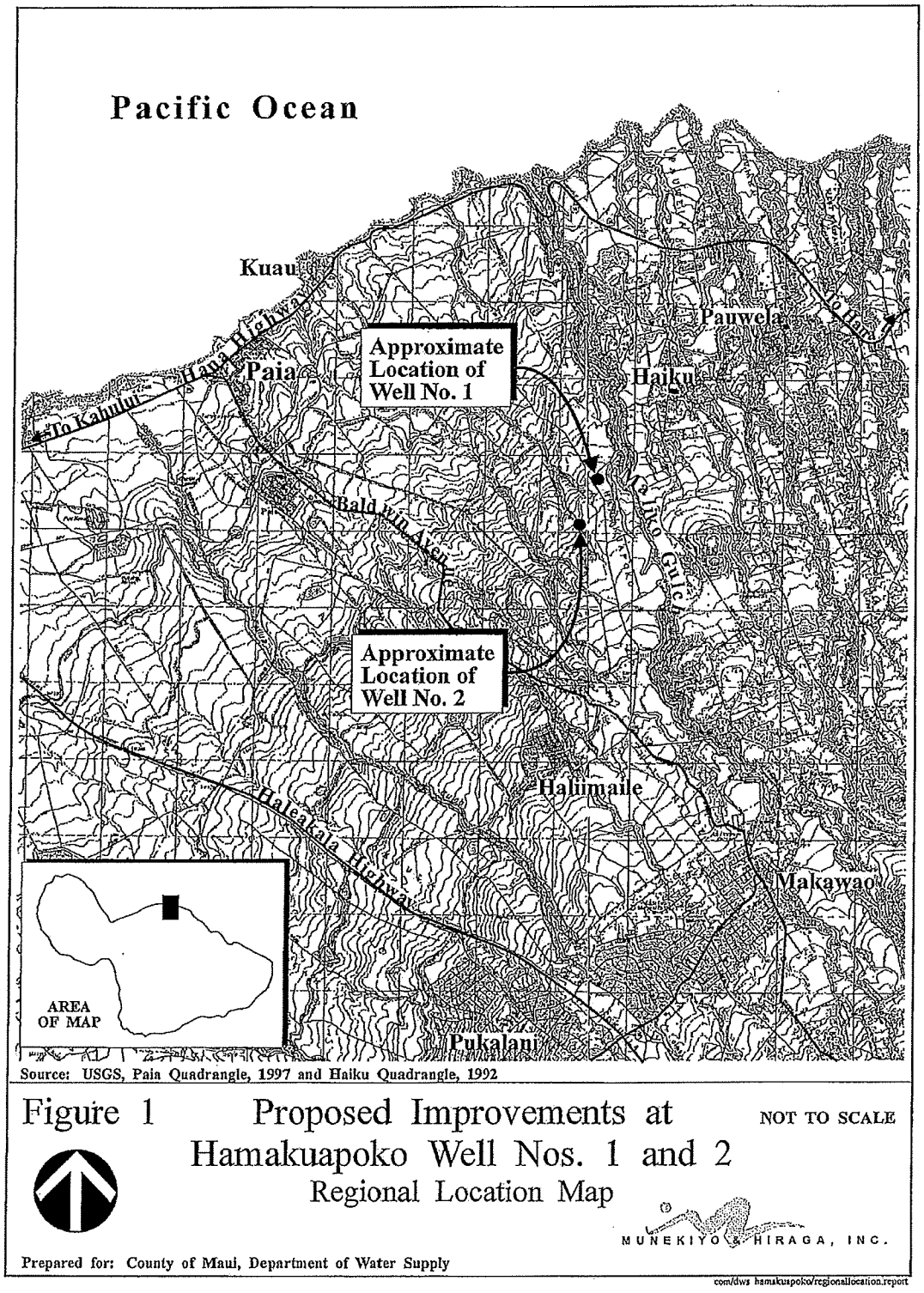
construction, all work in the immediate area of the find must cease and the SHPD be notified to discuss mitigation, if necessary.

Best Regards,

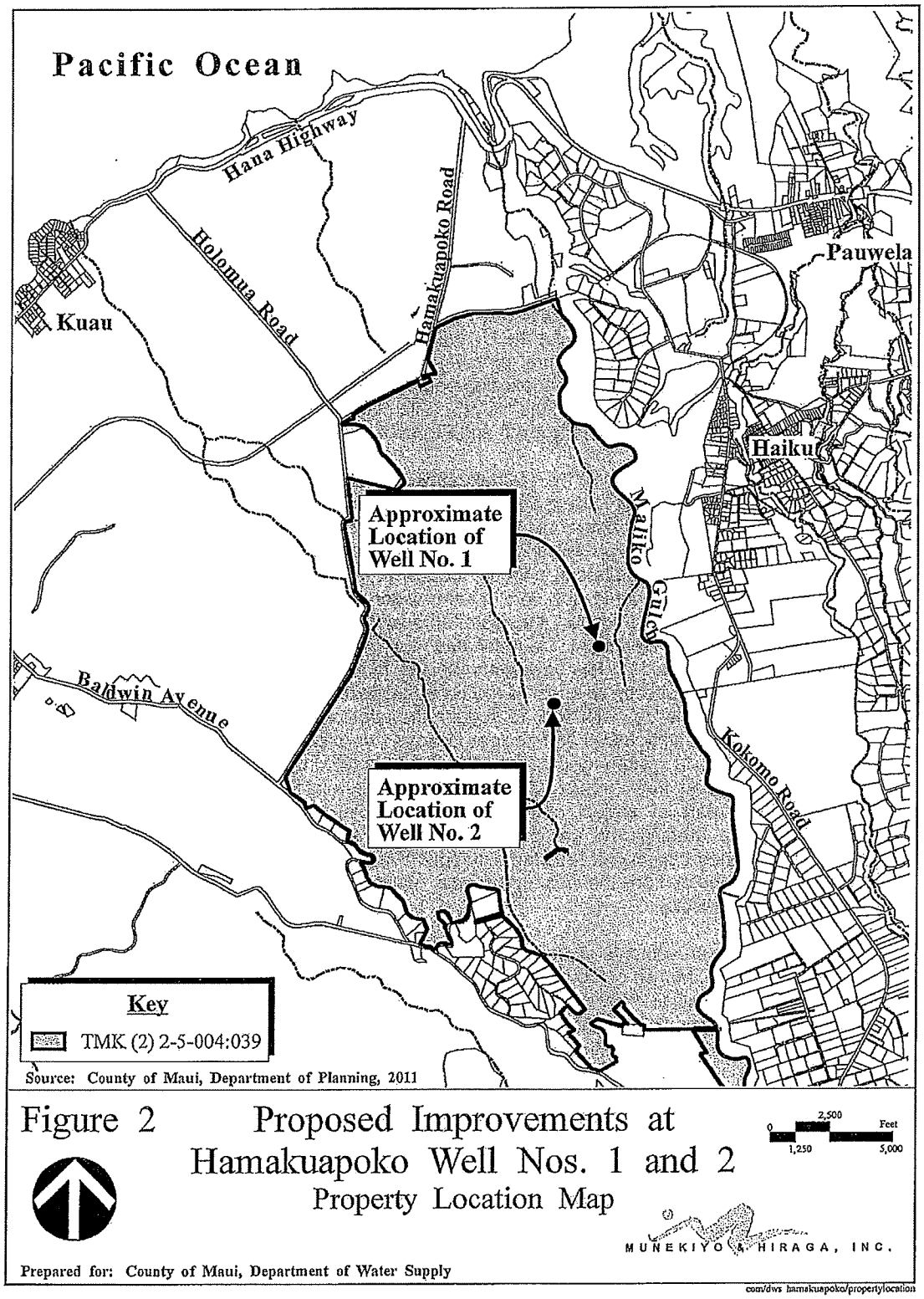
David Perzinski B.A.,
Michael Dega, Ph.D.
Scientific Consultant Services, Inc.



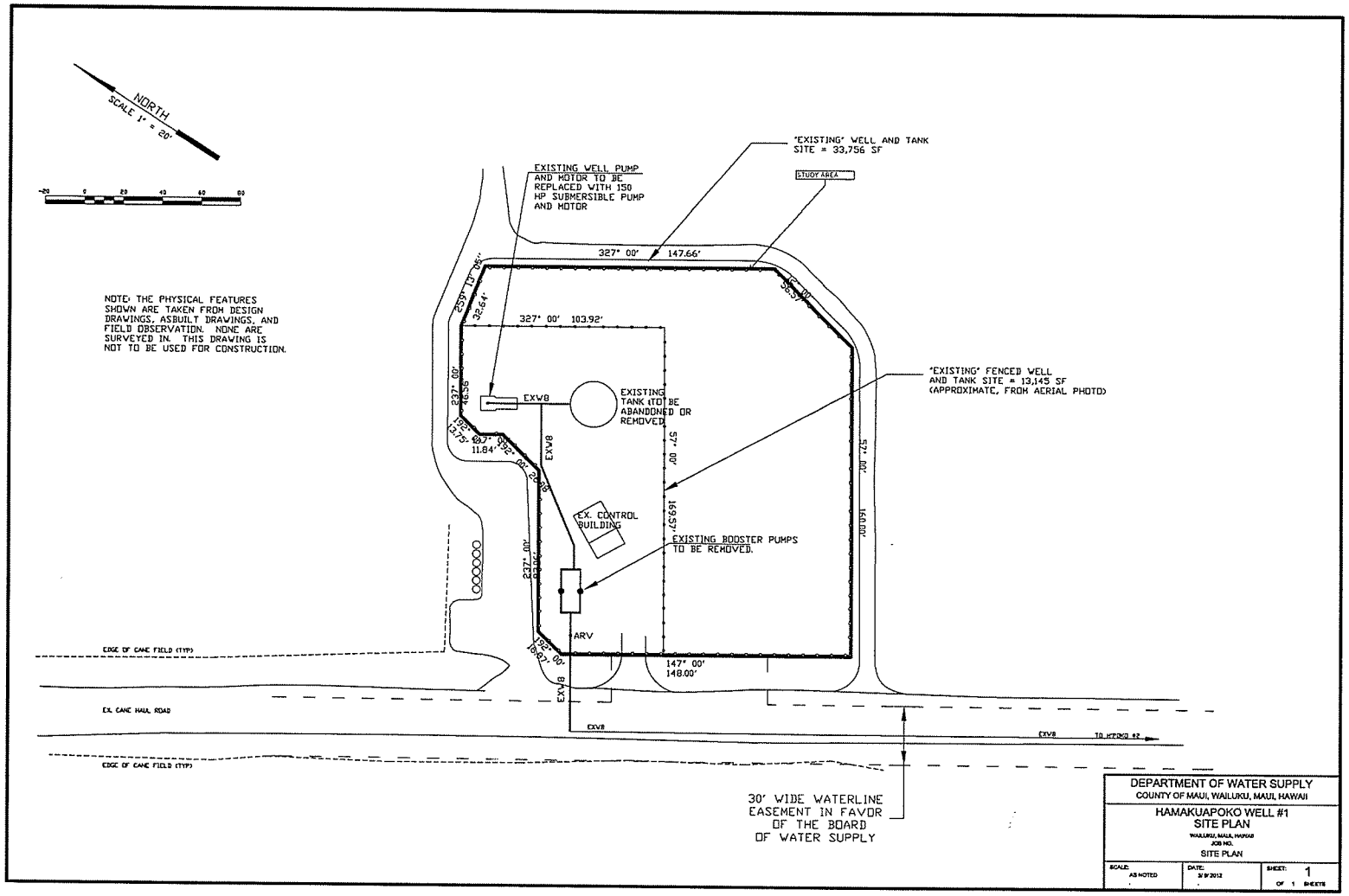
Aerial View of Hamakuapoko Proposed Well #1 and #2 Locations (Google Earth Image 2012).



General Location of Well Nos. 1 and 2 (from DWS and Munekiyo & Hiraga, Inc.)



Location of Well Nos. 1 and 2 (from DWS and Munekiyo & Hiraga, Inc.)



Well #1 Plan View Map (from DWS and Munekiyo & Hiraga, Inc.)

APPENDIX I.

Cultural Impact Assessment

SCS Project Number 1310-CIA-1

A CULTURAL IMPACT ASSESSMENT FOR THE HAMAKUAPOKO WELLS NO. 1 AND NO. 2 HĀMĀKUA POKO AHUPUA`A, MAKAWAO DISTRICT ISLAND OF MAUI [TMK: (2) 2-5-004:039 (POR.)]

Prepared by:
Cathleen A. Dagher, B.A.
and
Robert L. Spear, Ph.D.

October 2012

Prepared for:
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

SCIENTIFIC CONSULTANT SERVICES Inc.

HAWAII

711 Kapiolani Blvd. Suite 975 Honolulu, Hawai`i 96813

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INTRODUCTION

At the request of Munekiyo & Hiraga, Inc., Scientific Consultant Services, Inc. (SCS), has prepared a Cultural Impact Assessment (CIA) for proposed improvements at two existing wells, Hamakuapoko Wells No. 1 and No. 2, located in Hāmākua Poko Ahupua`a, Makawao District, Island of Maui, [TMK: (2) 2-5-04:039 (por.)] (Figures 1 through 3). Each well site is located on approximately 0.25 acres of land. Well site 2 also includes a proposed adjacent new water tank.

The Constitution of the State of Hawai`i clearly states the duty of the State and its agencies is to preserve, protect, and prevent interference with the traditional and customary rights of Native Hawaiians. Article XII, Section 7 (2000) requires the State to "protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by *ahupua`a* tenants who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778." In spite of the establishment of the foreign concept of private ownership and western-style government, Kamehameha III (Kauikeaouli) preserved the peoples traditional right to subsistence. As a result in 1850, the Hawaiian Government confirmed the traditional access rights to Native Hawaiian *ahupua`a* tenants to gather specific natural resources for customary uses from undeveloped private property and waterways under the Hawaiian Revised Statutes (HRS) 7-1. In 1992, the State of Hawai`i Supreme Court, reaffirmed HRS 7-1 and expanded it to include, "native Hawaiian rights...may extend beyond the *ahupua`a* in which a Native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner" (Pele Defense Fund v. Paty, 73 Haw.578, 1992).

Act 50, enacted by the Legislature of the State of Hawai`i (2000) with House Bill (HB) 2895, relating to Environmental Impact Statements, proposes that:

> ...there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawaii's culture, and traditional and customary rights... [H.B. NO. 2895].

Articles IX and XII of the state constitution, other state laws, and the courts of the State impose on government agencies a duty to promote and protect cultural beliefs and practices, and resources of Native Hawaiians as well as other ethnic groups. Act 50 also requires state agencies and other developers to assess the effects of proposed land use or shore line developments on the

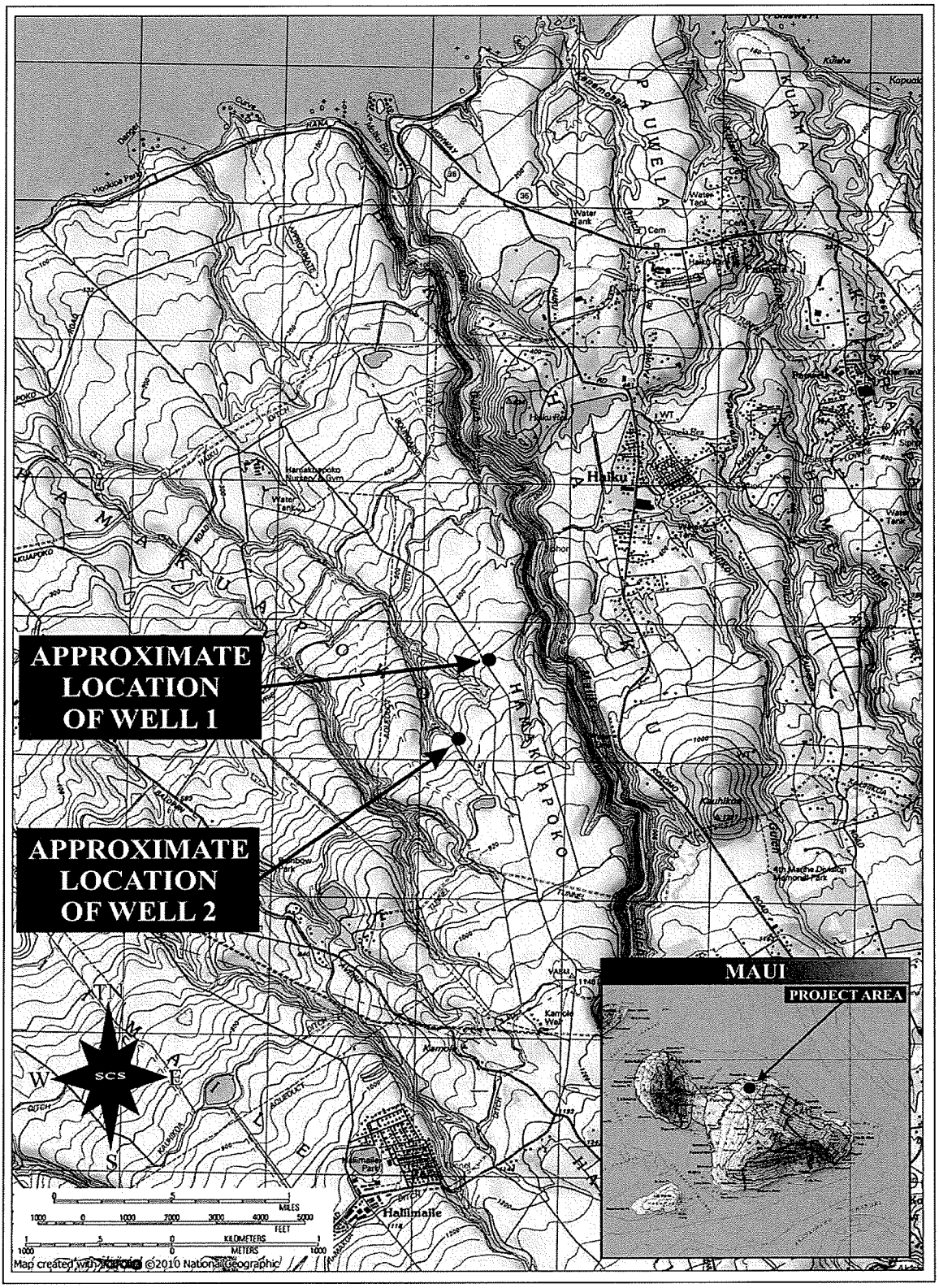

Figure 1: USGS Quadrangle (Haiku 1992) Map Showing Project Area Locations.

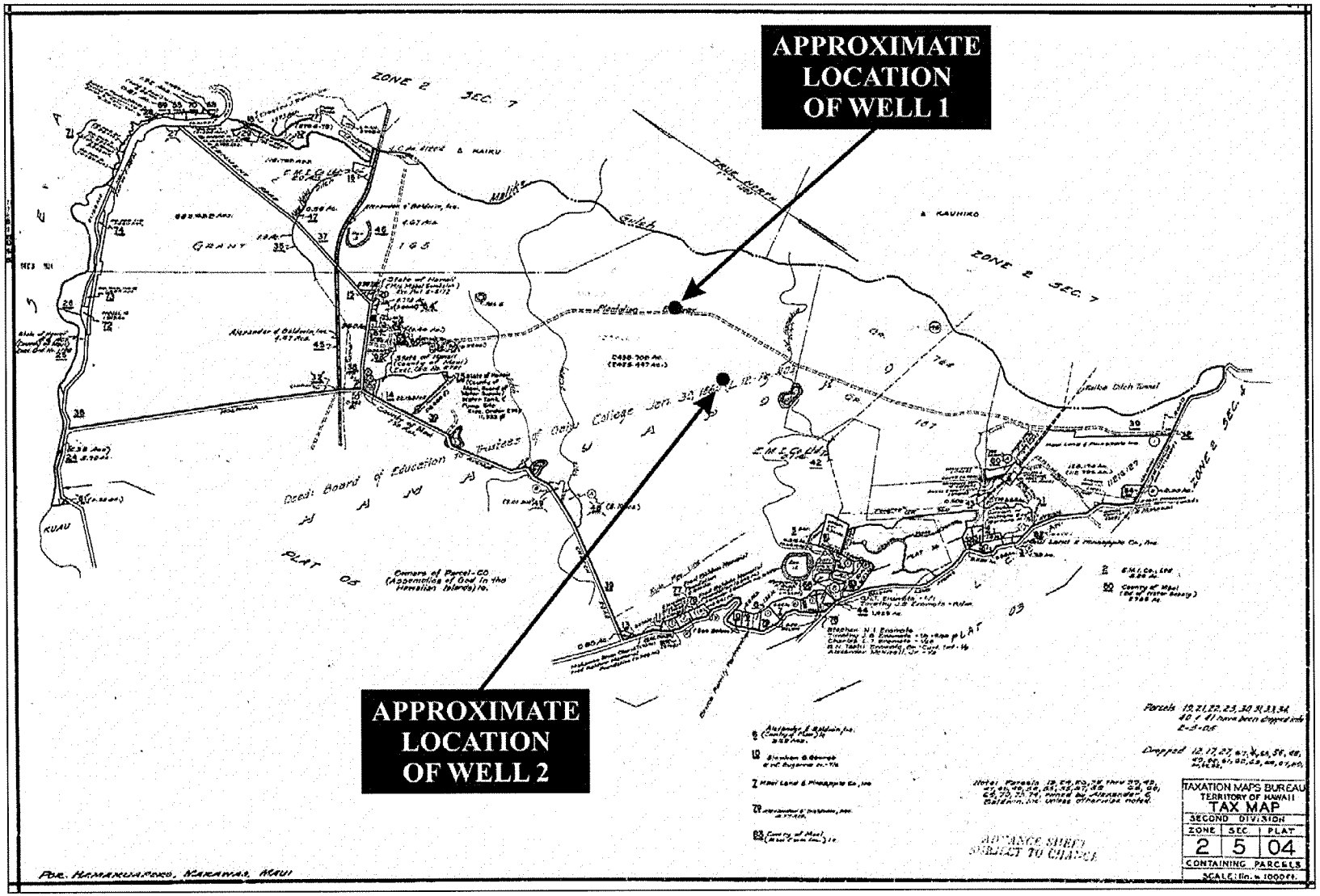

Figure 2: Tax Map Key [TMK: (2) 2-5-004] Showing Project Area Locations.

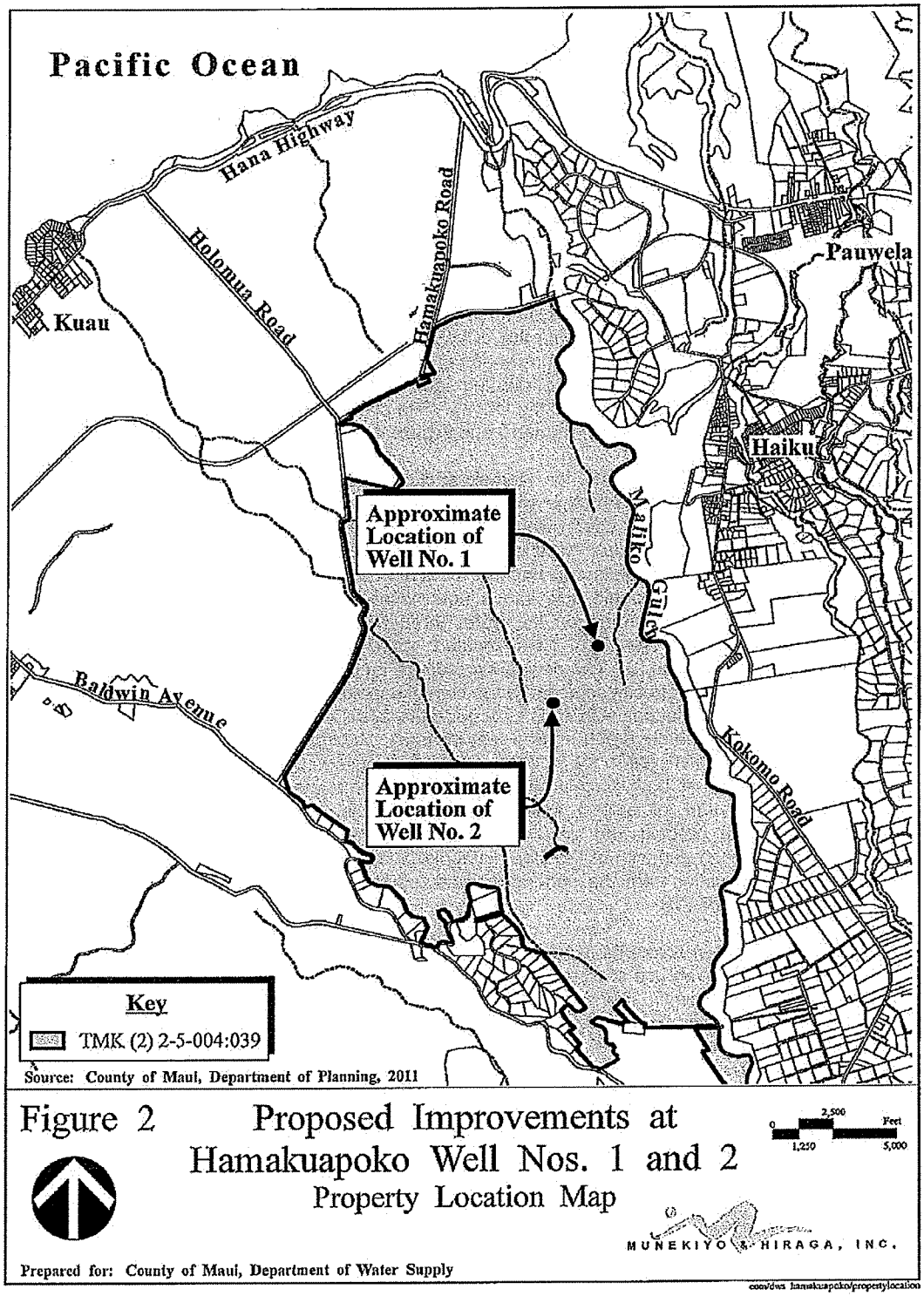

Figure 3: General Location of Well Nos. 1 and 2 (Munekiyo & Hiraga, Inc.).

"cultural practices of the community and State" as part of the HRS Chapter 343 (2001) environmental review process.

It also re-defined the definition of "significant effect" to include "the sum of effects on the quality of the environment including actions impact a natural resource, limit the range of beneficial uses of the environment, that are contrary to the State's environmental policies . . . or adversely affect the economic welfare, social welfare or cultural practices of the community and State" (H.B. 2895, Act 50, 2000). Cultural resources can include a broad range of often overlapping categories, including places, behaviors, values, beliefs, objects, records, stories, etc. (H.B. 2895, Act 50, 2000).

Thus, Act 50 requires that an assessment of cultural practices and the possible impacts of a proposed action be included in Environmental Assessments and Environmental Impact Statements, and to be taken into consideration during the planning process. As defined by the Hawaii State Office of Environmental Quality Control (OEQC), the concept of geographical expansion is recognized by using, as an example, "the broad geographical area, e.g. district or *ahupua`a*" (OEQC 1997). It was decided that the process should identify 'anthropological' cultural practices, rather than 'social' cultural practices. For example, *limu* (edible seaweed) gathering would be considered an anthropological cultural practice, while a modern-day marathon would be considered a social cultural practice.

Therefore, the purpose of a Cultural Impact Assessment is to identify the possibility of on-going cultural activities and resources within a project area, or its vicinity, and then assessing the potential for impacts on these cultural resources. The CIA is not intended to be a document of in depth archival-historical land research, or a record of oral family histories, unless these records contain information about specific cultural resources that might be impacted by a proposed project.

According to the Guidelines for Assessing Cultural Impacts established by the Hawaii State Office of Environmental Quality Control (OEQC 1997):

> The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religions and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both manmade and natural, which support such cultural beliefs.

The meaning of "traditional" was explained in *National Register Bulletin*:

> Traditional" in this context refers to those beliefs, customs, and practices of a living community of people that have been passed down through the generations', usually orally or through practice. The traditional cultural significance of a historic property then is significance derived from the role the property plays in a community's historically rooted beliefs, customs, and practices. . . . [Parker and King 1990:1]

METHODOLOGY

This Cultural Impact Assessment was prepared as much as possible in accordance with the suggested methodology and content protocol in the Guidelines for Assessing Cultural Impacts (OEQC 1997). In outlining the "Cultural Impact Assessment Methodology", the OEQC states that:

> "...information may be obtained through scoping, community meetings, ethnographic interviews and oral histories..."

This report contains archival and documentary research, as well as communication with organizations having knowledge of the project area, its cultural resources, and its practices and beliefs. An example letter of inquiry is presented below in Appendix A; copies of posted legal notices are presented in Appendix B; an example the follow-up letters of inquiry is presented below in Appendix C ; and Land Grants awarded in the proposed project area are presented in Appendix D. This Cultural Impact Assessment was prepared in accordance with the suggested methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997), whenever possible. The assessment concerning cultural impacts may include, but not be limited to, the following matters:

(1) if consultation is available, a discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints of limitations which might have affected the quality of the information obtained;

(2) a description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken;

(3) if conducted, interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained;

(4) biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or being interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area;

(5) a discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken, as well as the particular perspective of the authors, if appropriate, any opposing views, and any other relevant constraints, limitations or biases;

(6) a discussion concerning the cultural resources, practices and beliefs identified, and for the resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site;

(7) a discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project;

(8) an explanation of confidential information that has been withheld from public disclosure in the assessment;

(9) a discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs;

(10) an analysis of the potential effect of any proposed physical alteration on cultural resources, practices, or beliefs; the potential of the proposed action to isolate cultural resources, practices, or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place, and;

(11) the inclusion of bibliography of references, and attached records of interviews which were allowed to be disclosed.

If on-going cultural activities and/or resources are identified within the project area, assessments of the potential effects on the cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

ARCHIVAL RESEARCH

Archival research focused on a historical documentary study involving both published and unpublished sources. These included legendary accounts of native and early foreign writers; early historical journals and narratives; historic maps, land records, such as Land Commission Awards, Royal Patent Grants, and Boundary Commission records; historic accounts, and previous archaeological reports.

INTERVIEW METHODOLOGY

Interviews are conducted in accordance with Federal and State laws, and guidelines, when knowledgeable individuals are able to identify cultural practices in, or in close proximity to, the project area. If they have knowledge of traditional stories, practices and beliefs associated with a project area or if they know of historical properties within the project area, they are sought out for additional consultation and interviews. Individuals who have particular knowledge of traditions passed down from preceding generations and a personal familiarity with the project area are invited to share their relevant information concerning particular cultural resources. Often people are recommended for their expertise, and indeed, organizations, such as Hawaiian Civic Clubs, the Island Branch of Office of Hawaiian Affairs (OHA), historical societies, Island Trail clubs, and Planning Commissions are depended upon for their recommendations of suitable informants. These groups are invited to contribute their input, and suggest further avenues of inquiry, as well as specific individuals to interview. It should be stressed again that this process does not include formal or in-depth ethnographic interviews or oral histories as described in the OEQC's *Guidelines for Assessing Cultural Impacts* (1997). The assessments are intended to identify potential impacts to on-going cultural practices, or resources, within a project area or in its close vicinity.

If knowledgeable individuals are identified, personal interviews are sometimes taped and then transcribed. These draft transcripts are returned to each of the participants for their review and comments. After corrections are made, each individual signs a release form, making the interview available for this study. When telephone interviews occur, a summary of the information is usually sent for correction and approval, or dictated by the informant and then incorporated into the document. If no cultural resource information is forthcoming and no knowledgeable informants are suggested for further inquiry, interviews are not conducted.

ENVIRONMENTAL SETTING

The Hamakuapoko Well sites are located on the north side of East Maui. This area is located to the west of the north/northwestern rift of the Kula volcanic flow. The project area lies on the northwestern flank of Haleakalā. In the distant past, lava poured from this rift down the slopes of Haleakalā.

PROJECT AREA AND VICINITY

The Hamakuapoko Well No. 1 well site is situated at an elevation of 713 feet amsl (above mean sea level) and approximately 4.0 km from the coast. The Hamakuapoko Well No. 2 site is located at 790 feet amsl and 4.67 km from the coastline. Historic and recent agricultural activities have altered the natural topography for the production of sugar cane and water pumping activities. Well #1 is located in an active sugar cane field and is bounded by a cane haul road to the west and agricultural fields on the north, south and east. Well #2 is bounded by agricultural fields to the east and west and a slope to the north and south. The slope is covered in *koa haole* (*Leucaena leucocephala*), Christmas berry (*Schinus terebinthifolius*) and guava (*Psidium guajava*).

The terrain within the project area is relatively flat throughout the project area, The parcel exhibits much evidence for previous intensive mechanical ground disturbance from grading and grubbing land (Figures 4 through 6). Surface soil around both well sites consists of recently tilled silt loam that has abundant broken cobbles and boulders. Modern trash, such as concrete fragments and PVC piping, is scattered throughout the entire project area.

RAINFALL

As stated elsewhere in this document, the Hamakuapoko Well Nos. 1 and 2 sites are located in the upland reaches of the island of Maui. According to Giambelluca *et al.* (1986:19) and Armstrong (1983: 62) annual rainfall in the project area ranges from approximately 254 to 300 mm (10 to 12 in.) to 510 to 650 mm (20 to 26 in.) isohyets.

SOILS

According to Foote *et al.* (1972: Map Sheet 104) soils within the project areas is comprised of the Hamakuapoko Series, specifically Hamakua silty clay (HIB). These well-drained soils are derived from decomposing volcanic rock. The Hamakuapoko Soil Series typically occurs in the upland regions of Maui at elevations extending between 500 and 1,200 feet amsl in areas receiving 40 to 60 inches of annual rainfall (*ibid*: 36). The Hamakua silty clay soils occur on 3 to 7 percent slopes. The HIB soils are known to exhibit moderately rapid

Figure 4: Photographic View of Hamakuapoko Well Site No.1, South Side. View to East.

Figure 5: Photographic View of Hamakuapoko Well Site No.1, East Side. View to Northwest.

Figure 6: Photographic View of Hamakuapoko Well Site No.2. View to Northwest.

permeability, slow runoff, and a limited erosion hazard. These soils are frequently utilized for the commercial cultivation of pineapple.

CULTURAL HISTORICAL CONTEXT

Of the Hawaiian Islands, the Island of Maui is second in size, with the island of Hawai`i being the largest (Handy and Handy 1972:485). Pu`u Kukui, forming the west end of the island (1,215m above mean sea level), is composed of large, heavily eroded amphitheater valleys that contain well-developed permanent stream systems that watered fertile agricultural lands extending to the coast. The deep valleys of West Maui and their associated coastal regions have been witness to many battles in ancient times and were coveted productive landscapes.

PAST POLITICAL BOUNDARIES

Approximately 600 years ago, the Hawaiian population had expanded throughout the Hawaiian Islands to a point where large, political districts could be formed (Lyons 1903;

Kamakau 1991; Moffat and Fitzpatrick 1995). At that time, Maui consisted of four districts, or *moku*: Lāhainā, Wailuku, Makawao, and Hāna. The division of Maui's lands into districts (*moku*) and sub-districts was performed by a *kahuna* (priest, expert) named Kalaiha`ōhia, during the time of the *ali`i* Kaka`alaneo (Beckwith 1985:383; Fornander places Kaka`alaneo at the end of the 15th century or the beginning of the 16th century [Fornander 1919-20, Vol. 6:248]). Land was considered the property of the king or *ali`i `ai moku* (the *ali`i* who eats the island/district), which he held in trust for the gods. The title of *ali`i `ai moku* ensured rights and responsibilities pertaining to the land, but did not confer absolute ownership. The king kept the parcels he wanted, his higher chiefs received large parcels from him and, in turn, distributed smaller parcels to lesser chiefs. The *maka`āinana* (commoners) worked the individual plots of land.

In general, several terms, such as *moku, ahupua`a, `ili or `ili`āina* were used to delineate various land sections. A district (*moku*) contained smaller land divisions (*ahupua`a*) that customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the *ahupua`a* were, therefore, able to harvest from both the land and the sea. Ideally, this situation allowed each *ahupua`a* to be self-sufficient by supplying the needed resources from different environmental zones (Lyons 1875:111). The *`ili* or *`ili `āina* were smaller land divisions next in importance to the *ahupua`a* and were administered by the chief who controlled the *ahupua`a* in which it was located (Lyons 1875:33; Lucas 1995:40). The *mo`o`āina* were narrow strips of land within an *`ili*. The land holding of a tenant or *hoa `āina* residing in an *ahupua`a* was called a *kuleana* (Lucas 1995:61).

TRADITIONAL SETTLEMENT PATTERN

The Hawaiian economy was based on agricultural production and marine exploitation, as well as raising livestock and collecting wild plants and birds. Extended household groups settled in various *ahupua`a*. During pre-Contact times, there were primarily two types of agriculture, wetland and dry land, both of which were dependent upon geography and physiography. River valleys provided ideal conditions for wetland *kalo* (*Colocasia esculenta*) agriculture that incorporated pond fields and irrigation canals. Other cultigens, such as *kō* (sugar cane, *Saccharum officinaruma*) and *mai`a* (banana, *Musa* sp.), were also grown and, where appropriate, such crops as *`uala* (sweet potato, *Ipomoea batatas*) were cultivated. This was the typical agricultural pattern seen during traditional times on all the Hawaiian Islands (Kirch and Sahlins 1992, Vol. 1:5, 119; Kirch 1985). Agricultural development on Maui was likely to have begun early in what is referred to as the Expansion Period (A.D. 1200-1400, Kirch 1985).

Pā`ia is located on the north side of Haleakalā in a region of sloping *kula* lands that are intersected by small stream gulches. According to Handy and Handy (1972:498):

> The number of very narrow *ahupua`a* thus utilized along the whole of the Hamakua coast indicates that there must have been a very considerable population...It was probably a favorable region for breadfruit, banana, sugar cane, arrowroot; and for yams and *`awa* in the interior. The slopes between gulches were covered with good soil, excellent for sweet-potato planting. The low coast is indented by a number of small bays offering good opportunity for fishing.

Pā`ia Ahupua`a, in the Makawao District, is located on the windward slope of Haleakalā. Rainfall averages range from 500 mm on the leeward side of East Maui, to 750 mm in Makawao, to less than 400 mm in the leeward coastal section. The combined arid conditions and lack of reliable water sources, with the exception of Maliko Stream, resulted in the importance of the expansive upland dry land field systems. Pā`ia consisted of sloped plains with "finger" ridges and *a`a* outcrops. Handy (1940) described this area of Maui as suitable for dry land taro and surmised that it had been well populated and cultivated because of the abundance of *kula* land.

A small *ahupua`a*, there is little direct information about Pā`ia. Traditionally there were trails that extended along the coast and from the coast to the mountains, linking the two for both economic and social reasons. It can be confidently assumed there was one near by, perhaps from Pā`ia Town. The *Alaloa*, or around-the-island road built by Kiha-a-pi`ilani, (16th century based on Fornander) extended along the coastal region from Wai`ehu, passing Pā`ia and extending on, crossing streams where the gulches emerged along the shore.

As Thrum (1909) surveyed religious sites throughout the islands, he recorded the tradition concerning Wa`a who was a chief and the divider of lands in Makawao. He established *heiau* or *pu`uhonua* (places of refuge), two of which were located in Makawao.

WAHI PANI (LEGENDARY PLACES)

Oral histories also indicate that both frequent and intermittent battles between polities of Maui and Hawai`i Island (1700s) occurred in the coastal sands of Wailuku and in upland valleys. In the sand dunes between Wailuku and Pu`unene, Kalaniopu`u's most prized Alapa guard was slaughtered by Kahekili's warriors (Sterling 1998:88). Kamakau (1961:85-89) states:

...They slew the Alapa on the sandhills at the southeast of Kalua (sic). There the dead lay

> in heaps strewn like kukui branches; the corpses lay heaped in death; they were slain like fish enclosed in a net....
>
> On the day of Kalaniopu`u's departure from Maui, it was said that his war canoes covered the sands from Kahului to Pā`ia (`I`i 1983:11).

Due to the frequent wars and battles occurring in and around the northern coast of Maui, it is conceivable that the coastal sand dunes acted as a final resting place of fallen warriors. A description of such pertaining to the area near present day Spreckelsville reads:

> In returning from Makawao to Wailuku...you will ride over fine white sand-hills, as pure and crinkled as a drift of new fallen snow...One sand-hill in that vicinity has been an old burying-ground or battle-place, now laid bare by the winds. Skulls, having jaws in perfect preservation, with thirty four teeth sound ...and all the bones of the human body, some of them of gigantic size, lie bleaching all around (Cheever 1851 in Sterling 1998:97).

Apart from the above references to battles and the archaeological evidence of burials in the sand dunes in the region of Pā`ia, this area of Maui does not appear to have had significant population centers.

HISTORIC PERIOD (1778-EARLY 1900S)

Descriptions of the north coast of Maui were first recorded in November of 1778 by Captain Cook and his men (Beaglehole 1967: Part I, Vol. III). Returning from several months in Alaska, they sailed down a portion of the northeast side of the island. David Samwell, a surgeon on the Discovery, reported "...the ships lay to all day about 3 miles off shore, trading with the Natives who came off in their canoes in great number..." (Samwell in Beaglehole 1967:1151).

It had been a time of war between Kalaniopu`u, ruler of Hawai`i Island, and Kahekili, chief of Maui and Moloka`i. During this season of the year (*Makahiki*), however, the fighting was temporarily suspended and the great chief of Maui, Kahekili, was free to visit the foreign ships. Samwell recorded his impressions of the King and the windward slopes of the northern coast of Maui. He stated that Kahekili was "a middle aged man ... rather of a mean appearance..." and the land was "...mountainous, the sides of the hills are covered with trees...large open plains on which stand their houses & where they have their plantations of sweet potatoes, taro & c. ..." (*ibid.*).

THE MĀHELE

In the 1840s, traditional land tenure shifted drastically with the introduction of private land ownership based on Western law. While it is a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kauikeaouli (Kamehameha III) was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kuykendall 1938, Vol. I: 145; Daws 1968:111; Kelly 1983:45, 1998:4; Kame`eleihiwa 1992:169–70, 176). The Māhele of 1848 divided Hawaiian lands between the king, the chiefs, the government, and began the process of private ownership of lands. The subsequently awarded parcels were called Land Commission Awards (LCAs). Once lands were made available and private ownership was instituted, the *maka`āinana* were able to claim the plots on which they had been cultivating and living, if they had been made aware of the procedures. These claims did not include any previously cultivated but presently fallow land, *`okipū* (on O`ahu), stream fisheries, or many other resources necessary for traditional survival (Kelly 1983; Kame`eleihiwa 1992:295; Kirch and Sahlins 1992). If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed LCA and issued a Royal Patent after which they could take possession of the property (Chinen 1961:16).

According to the Waihona `Aina Database (2012), there were 39 claims made Hāmākua Poko District during the Māhele, none of which were within the current project area. However, a search of the Waihona `Aina Database (2012) indicated that Hamakuapoko Well No. 1 is located within Land Grant 764. Land Grant 764, comprised of 150 acres, was purchased by Robert W. Wood for $1,500, "...for school land as per Patent No. 764", on January 27, 1852 (R. Armstrong, Minister of Public Instruction, in Waihona `Aina Database 2012). In addition, the Waihona `Aina Database (2012) indicated Hamakuapoko Well No. 2 is located in Land Grant 187. Land Grant 187, comprised of 24.61 acres, was purchased from by John Richardson for $75.15 on December 21, 1849. The Land Grant documents area presented in Appendix D. In addition, the Tax Map Key indicates the area containing Hamakuapko Wells No. 1 and No. 2 was deeded to the Board of Directors Trustees of Oahu College in 1860 (see Figure 2).

During the Mahele of 1848, the eastern half of the Hāmākua Poko *Ahupua`a* became government land while the western half was awarded to W.P. Leileiohoku, brother of Kalakaua and Lili`uokalani. Leileiohoku promptly surrendered these lands in lieu of commutation for his other lands, effectively making the entire *ahupua`a* a government parcel. Handy and Handy (1972:498) recorded that gulches in the *ahupua`a* contained soils amenable to cultivation, and were indeed probably used for sweet potato *(`uala*). Sweet potatoes were grown in the *kula* (*upcountry*) region of Hāmākua Poko, as well.

Kamakau (1961: 23-24) recounts the story of Chief Kiha-a`pi`i-lani who was living in Kula (*upcountry*) while hiding from his brother, Lono-a-Pi`i-lani, who was jealous and trying to kill him. During this time, there was a famine in Kula and Makawao and the people living on weeds. One night Kiha-a`pi`i-lani cleared a large area of land "...that would naturally require the labor of eighty men to clear..." in order to plant sweet potatoes. In the morning the people noticed the large clearing and began asking "[w]here he will find enough sweet-potato slips to cover the patch?" So, the following day, Kiha-a`pi`i-lani went to Hāmākua Poko and Hali`imaile seeking the potato slips. The natives where extremely generous and wherever he went he was given entire patches of *`uala*. Eventually, Kiha-a`pi`i-lani had accumulated enough bundles of sweet potato tied with morning glory vines to return and with more than enough slips to cover every mound in the entire field.

The lands along the north coast of Maui were described in 1860 as:

> ... a complete desert, a great, barren stretch of sand and dust spread from Wailuku to Pā`ia, except for a little cattle grazing land around the present location of Spreckelsville. (Burns 1991:72).

In spite of this, sugar cane became a major industry in the 1800s. The Hawaiian Commercial Company, formed by Claus Spreckels, developed the area around and to the west of Spreckelsville. Concurrently, the S.T. Alexander and H.P. Baldwin Company developed the area east of Spreckelsville up to, and including, Pā`ia. In 1880, Claus Spreckels managed to acquire fee simple title to the Wailuku *Ahupua`a* (approximately 440,000 acres, Grant 3343), including the Wailuku Commons that had been Crown Lands owned by Ruth Ke`elikolani. In 1926, Alexander and Baldwin acquired Spreckels' Hawaiian Commercial Company interests in Maui.

The growth of the sugar industry was augmented by imported labor from foreign lands. The various ethnic groups that provided needed labor to fuel a large plantation economy is reflected in the names of the various labor camps surrounding the Pā`ia area: Hawaiian Camp, Russian Camp, Spanish Camp, Portuguese Camp, Chinese Camp, and Japanese Camp. A total of thirteen camp communities were formed and situated throughout the sugar lands and towns appeared at Pu`unene and Spreckelsville (USGS 1922a, b Pā`ia and Kihei Quads).

Railroads constructed by the sugar companies facilitated communication between the camps and provided transportation for hauling sugar cane. Remnants of the railroad bed are still evident at the western end of Puna Road in Pā`ia. Labor camps were consolidated and relocated

over time, with some having developed into modern urban centers such as Kahului and Wailuku.

Remnants of these former camps remain in the form of small, scattered cemeteries that occur along the coastline near Pā`ia and Kū`au. Historic period artifacts, including ceramics, bottle glass, metal objects, square nails, marbles, and other objects relating to daily activities in the sugar camps, have been documented in nearby sugar cane fields (Clark and Toenjes 1987:10).

With the outbreak of World War II, 3,800 acres of sugar land at Pu`unene and Kahului were annexed by the military for use as the Kahului Naval Air Station. Several marshy areas were filled utilizing sand from nearby beach areas, during the construction of runways (Welch 1991). Support facilities, in addition to training structures, were built along the coast from Kahului northward up the coastline.

In addition to historic land modifications occurring in the general area of the present project area, recent activities have also altered the natural landscape and likely contributed to the loss of pre-Contact cultural history. Modern construction activities have impacted, through grading and sand removal, large portions of dune lands to the north of the project area. More specifically, residential development, automobile access roads, everyday pedestrian use, and refuse dumping activities have all impacted the northern portion of East Maui significantly.

ARCHAEOLOGY

Early archaeological studies conducted on Maui primarily included recording *heiau* sites along the coastline in Thrum (1909) and Stokes (1918), and an island-wide site survey in 1928 conducted by Winslow Walker (1931). Walker identified only one site, Kailua Heiau, in the vicinity of the current project area. Kailua Heiau was located near Kailua Gulch approximately 0.50 mile west of Pā`ia Road. The site was recorded as a platform measuring 50 by 80 feet and was probably destroyed during sugar cane cultivation (Walker 1933 in Sterling 1998:97).

Many archaeological sites are present in the general vicinity of the project area. Some of these sites, including Kanahā and Mau`oni Fishponds, located on the east end of Kahului, have been preserved. These fishponds have been classified as *loko wai* or fresh water ponds by Kikuchi (1973). This type of pond was originally a natural lake or marsh area that was fortified through human intervention. Kikuchi (1973) states that a stone wall that separates the two ponds was constructed in the early part of the 16th Century by the Maui chief Kiha-a pi`ilani.

Bishop Museum conducted Archaeological Monitoring during sewer line construction from Spreckelsville to Kū`au, along the northern Maui shoreline. During the Archaeological Monitoring program State Sites 50-50-05-1064 and State Sites 50-50-05-177 through 50-05-05-1782, which consisted of six subsurface cultural features were identified (Clark and Toenjes 1987). The sites were functionally interpreted as traditional Hawaiian fishing and habitation sites. Charcoal samples submitted for dating from this study yielded dates of A.D. 1420 to 1810 for coastal occupation. Traditional-type pre-Contact burials were also identified during the study (*ibid.*).

The Baldwin Beach Burial Site (State Site 50-50-05-1171) is a house and grave site located at the first point northeast of Pā`ia Bay (Clark and Toenjes 1987). This site consists of two features: a rectangular foundation composed of basalt boulders and an earth-filled, rectangular pit containing fragments of coral. The site was assessed as a habitation complex (Hommon 1974) and assigned State Site 50-50-05-1258 (*ibid.*)

State Site 50-50-05-1063, the Kū`au Petroglyphs, are located southwest of Kū`au peninsula somewhat northeast of the current area of study. The petroglyphs have been cut into a boulder located on a coral sand beach near an intermittent drainage. The boulder itself is 2.2 m in diameter by 0.7 m high and is inscribed with five linear human figures (Clark and Toenjes 1987:12). Associated with the Kū`au Petroglyphs, a modified boulder 16 m to the south of the petroglyphs and measuring 2.4 m long by 1.4 m wide exhibits a shallow linear groove 0.36 m long that has been carved across the central portion of the boulder's surface. The groove is surrounded by at least ten shallow, smooth depressions ranging from 0.18 m to 0.33 m in diameter. The modifications to the boulder have been interpreted to represent adze sharpening grooves. The depressions are undoubtedly the result of grinding and polishing adzes in the later stages of adze manufacture (*ibid.*).

North of lower Pā`ia, near Kū`au Bay, State Site 50-50-05-1064, known as the Kalahau Burials, has been the focus of much archaeological attention. Human remains have been eroding from within this beach area for a number of years. Excavations conducted by Bowen (1968) revealed two separate cultural layers, providing evidence for both traditional habitation and human burials. These endeavors exhibited two distinctive periods of Hawaiian occupation; however, no radiocarbon dates have been obtained. Another study at this site, conducted by Cultural Surveys of Hawaii, Inc. revealed a pre-Contact cultural layer. Samples collected from a cultural stratum in the dune resulted in a radiocarbon date of c. A.D. 1100 (Borthwick 1990). To

date, over 40 burials have been removed from the area.

In 1991 Cultural Surveys of Hawaii, Inc. conducted subsurface testing on either side of Spreckelsville Beach Road which led to the identification of several cultural deposits (State Site 50-50-04-2849) (Toenjes *et al.* 1991). Radiocarbon dates from documented cultural layers yielded occupation ranges of A.D. 1230 to 1765. One radiocarbon sample from the shoreline yielded a very early date of A.D. 410 to 615 (*ibid.*).

Cultural Surveys of Hawaii, Inc. excavated of nine trenches during subsurface testing of the Kū`au Beach Lots Subdivision. The testing identified dune deposits located *makai* or north of the existing beach road. However, no archaeological sites or features were identified within the project area (Hammett 1997).

In 2001, Scientific Consultant Services, Inc. conducted an Inventory Survey of 0.25 acres in the Pā`ia Youth and Cultural Center, located on a coastal parcel on Pā`ia Bay (Morawski and Spear 2001). Based on the presence of several large native Hawaiian coastal cemeteries within the Hāmākua Poko Ahupua`a, it seemed likely that this area was once the location of pre-Contact habitation and possible burials. During the survey an historic trash deposit containing bottle glass, metal objects, and a ceramic sherd (State Site 50-50-05-5124) was identified. The trash deposit was interpreted as associated with nearby railroad and military structures.

In 2004, Scientific Consultant Services, Inc. performed an Archaeological Inventory Survey of the Pā`ia Town Center Project (Chaffee and Dega 2005). Two archaeological sites were newly identified: State Site 50-50-05-6736, five historic buildings, and State Site 50-50-05-5519, an Historic-era refuse pit containing Historic Period glass bottles and ceramic shards.

Subsequently, Scientific Consultant Services, Inc. conducted Archaeological Monitoring of the Pā`ia Town Center Project (Dagher and Dega 2011). During the Archaeological Monitoring program, four subsurface pit features were newly identified. Based on the findings of the Archaeological Monitoring, State Site 50-50-05-5519 was re-interpreted as associated with the Plantation Era/Historic Period.

CONSULTATION

Consultation was conducted via telephone, e-mail, and the U.S. Postal Service. Consultation was sought from the Central Maui Hawaiian Civic Club; Raymond Hutaff, County of Maui Cultural Resources Commission; Perry Artates, County of Maui Cultural Resources Commission; Thelma Shimaoka, Office of Hawaiian Affairs, Maui; Kamana`opono M. Crabbe, Chief Executive Officer, Office of Hawaiian Affairs; Vincent Hinano Rodrigues, State Historic Preservation Division, Maui; Jan Dapitan, community member; Walter Ouye, community member; Patsy Shishido, community member; Leona (Lona) Wilson, community member; Lucienne de Naie, community member; Paul Ueoka, community member; Brian McAfferty; community member; Aimoku Pali, community member; and Kepa Maly, historian; and Mike Suda, community member. In addition, SCS archaeologist Cathleen Dagher attended the September 6, 2012 County of Maui Cultural Resource Commission monthly meeting in an attempt to consult with the Commissioners and local residents. Following the County of Maui Cultural Resources Commission September 2012 meeting, a letter of inquiry and the associated maps were electronically transmitted to Kepa Maly, Historian.

A Cultural Impact Assessment Notice was published on July 25, 26, and 29, 2012, in *The Honolulu Star-Advertise*r and in *The Maui News*, which published on the same dates on Maui, and the August 2012 issue of the OHA newspaper, *Ka Wai Ola* (see Appendix C). These notices requested information of cultural resources or activities in the area of the proposed project, stated the Tax Map Key (TMK) number, and where to respond with pertinent information.

Based on the responses of the individuals consulted, an assessment of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

CULTURAL IMPACT ASSESSMENT INQUIRY RESPONSES

Analysis of the potential effect of the project on cultural resources, practices or beliefs, the potential to isolate cultural resources, maintain practices or beliefs in their original setting, and the potential of the project to introduce elements that may alter the setting in which cultural practices take place is a requirement of the OEQC (No. 10, 1997). As stated earlier, this includes the cultural resources of the different groups comprising the multi-ethnic community of Hawai`i.

As stated above, consultation was sought from local community organizations; County of Maui and State of Hawai`i agencies, and knowledgeable community Commissioners and local

residents. In addition, legal notices were placed in *The Honolulu Star-Advertiser*, *The Maui News*, and the OHA newspaper, *Ka Wai Ola* Follow-up letters of inquiry were mailed to be the above-mentioned individuals, as necessary (see Appendix C). In addition, please note that no written responses, to letters of inquiry, were received. None of the individuals interviewed indicated in their responses that any traditional cultural practices would be affected by the proposed well improvements.

As part of the consultation process, SCS archaeologist Cathleen Dagher attended the September 6, 2012 County of Maui Cultural Resource Commission (CRC) monthly meeting in an attempt to consult with the Commissioners and local residents. The CRC recommended consulting Kepa Maly, Historian; Jan Dapitan, community member; Barbara Long, community member and president of Friends of Old Maui High School. Following the County of Maui Cultural Resources Commission September 2012 meeting, a letter of inquiry and the associated maps were electronically transmitted to and Kepa Maly, historian.

Oral interviews were conducted with community members Jan Dapitan, Patsy Shishido, and Leona Wilson. Informal conversations, via telephone or e-mail, were conducted with Paul Ueoka, Kepa Maly, and Brian McAfferty.

Jan Dapitan provided a list of names and contact information for community members she believed were knowledgeable about the Hāmākua Poko area. These individuals were: Brian McAfferty, Roz Lightfoot, Aimoku Pali, Mike Suda, Gaylord Kubota, Lucienne de Naie, Lesley Bruce, Leslie Kuloloio, Margaret Enomoto, and Michael Howden. Aimoku Pali declined to be interviewed, but suggested contacting community member Leslie Kuloloio. Ms. Dapitan did not indicate that any traditional cultural practices would be affected by the proposed well improvements.

Paul Ueoka is a graduate of the "old" Maui High School at Hāmākua Poko, Class of 1967, and is active with the Friends of Old Maui High School ("FOMHS"), a Hawaii non-profit, tax-exempt corporation that is trying to restore the school. Paul's recently deceased father, Noriyuki Ueoka, was a former Agriculture Teacher and Vice Principal at Old Maui High School. As an "active" Agriculture Teacher, the senior Mr. Ueoka taught the agricultural students how to raise farm animals such as pigs and chickens for meat and eggs, and how to cultivate plants and other farm produce, including corn, citrus trees, mango trees, and flowers, such as orchids and anthuriums. Paul provided a brief overview Plantation Era life and a list of names and contact information of community members he believed were knowledgeable about the Hāmākua Poko

area: Barbara Long, former President of FOMHS; Walter Ouye, former teacher and principal at Old Maui High School; and Ruth Mukai, Old MHS graduate and active member of FOMHS. Unfortunately, many of the people who actually grew up in Hamakuapoko and the surrounding areas are deceased. Old Maui High School relocated to Kahului in 1971. By then, the Hamakuapoko camp or village had already been demolished and converted to sugar cane fields. Mr. Ueoka did not indicate that any traditional cultural practices would be affected by the proposed well improvements.

Mrs. Patsy Shishido and Mrs. Leona Wilson are sisters whose paternal and maternal grandparents emigrated to Hawai`i in the late 1800s and early 1900s, respectively, from the Azores Archipelago, Portugal, in order to work for the sugarcane plantation and provide their families with a better life. As the plantation camps were organized according to nationality, Mrs. Shishido and Mrs. Wilson grew up in a Portuguese Camp in Hāmākua Poko. As children they swam at Ho`okipa Park and as teenagers attended Old Maui High School. Both ladies provided extensive details about Plantation-Era life. According to Mrs. Shishido and Mrs. Wilson, cultural practices occurring within the plantation camps included the plantation providing the plantation workers with medical care, schools for their children's education, and churches. Both Mrs. Shishido and Mrs. Wilson stressed that the plantation promoted the education of the children, and encouraged the various cultures to educate their children by providing free education to the children and placing the schools in easily accessible locations. The plantation provided kindergarten, for children aged 3 to 6, and elementary school, from grades 1 to 8, and high school, grades 8 through 12. After eighth grade many of the children quit school and went to work in the fields. Mrs. Shishido stated that the Japanese culture, for example, placed importance on education and encouraged their children to attend high school. Prior to the introduction of school busses, children took the train to Old Maui High School. Churches within the camps represented the religions of the various cultures. Traditional ethnic foods were prepared by the plantation workers and carried to the fields for lunch. At lunchtime the workers would gather to eat and would share their food. Mrs. Wilson attributed the practice of the fieldworkers' sharing their traditional foods at lunchtime with breaking down the cultural and language barriers that existed between the fieldworkers of the various cultures. Neither Mrs. Shishido nor Mrs. Wilson indicated that any traditional cultural practices would be affected by the proposed well improvements.

Brian McAfferty has been working with young people in the Hāmākua Poko area, of Maui, for many years instructing them in traditional methods of taro cultivation and aquaculture

while using modern materials. Mr. McAfferty did not indicate that any traditional cultural practices would be affected by the proposed well improvements.

Kepa Maly stated, via e-mail dated October 18, 2012, that "...the study "Wai o ke ola..." is available online at ulukau.org." Mr. Maly did not indicate that any traditional cultural practices would be affected by the proposed well improvements.

SUMMARY

The "level of effort undertaken" to identify potential effect by a project to cultural resources, places or beliefs (OEQC 1997) has not been officially defined and is left up to the investigator. A good faith effort can mean contacting agencies by letter, interviewing people who may be affected by the project or who know its history, research identifying sensitive areas and previous land use, holding meetings in which the public is invited to testify, notifying the community through the media, and other appropriate strategies based on the type of project being proposed and its impact potential. Sending inquiring letters to organizations concerning development of a piece of property that has already been totally impacted by previous activity and is located in an area previously impacted by commercial agriculture may be a "good faith effort". However, when many factors need to be considered, such as in coastal or mountain development, a good faith effort might mean an entirely different level of research activity.

Historical and cultural source materials were extensively used and can be found listed in the References Cited portion of the report. Such scholars as Samuel Kamakau, Martha Beckwith, Jon J. Chinen, Lilikalā Kame`eleihiwa, R. S. Kuykendall, Marion Kelly, E. S. C. Handy and E.G. Handy, Elspeth P. Sterling, and Mary Kawena Puku`i and Samuel H. Elbert and continue to contribute to our knowledge and understanding of Hawai`i, past and present. The works of these and other authors were consulted and incorporated in the report where appropriate. Land use document research was supplied by the Waihona `Aina 2012 Database.

In the case of the current undertaking, letters of inquiry were sent to individuals and organizations that may have knowledge or information pertaining to the collection of cultural resources and/or practices currently, or previously conducted in close proximity to the Hamakuapoko Wells Nos. 1 and 2. As stated elsewhere in this document, consultation was sought from the Central Maui Hawaiian Civic Club; the County of Maui Cultural Resources Commission via letters of inquiry and in-person; Office of Hawaiian Affairs, Maui; Office of

Hawaiian Affairs, O`ahu; State Historic Preservation Division, Maui, and individuals recognized by the community as being knowledgeable about the Hāmākua Poko area. In addition, SCS archaeologist Cathleen Dagher attended the September 6, 2012 County of Maui Cultural Resource Commission monthly meeting in an attempt to consult with the Commissioners and local residents. In addition, a Cultural Impact Assessment Legal Notices were published in *The Honolulu Star-Advertiser*, *The Maui News*, and the OHA newspaper, *Ka Wai Ola* (see Appendix C).

While the individuals who were interviewed graciously provided detailed testimony in regards to the Plantation Era history of they area, as well as the names and contact information for other potential informants, only the informant who wished to remain anonymous provided information pertaining to traditional cultural practices currently conducted in the vicinity of the Hamakuapoko Wells No. 1 and No. 2 sites. None of the persons consulted indicated the proposed improvements to the wells would impact traditional cultural practices.

CULTURAL ASSESSMENT AND RECOMMENDATIONS

Analysis of the potential effect of the project on cultural resources, practices or beliefs, its potential to isolate cultural resources, practices or beliefs from their setting, and the potential of the project to introduce elements which may alter the setting in which cultural practices take place is also a suggested guideline of the OEQC (No. 10, 1997). To our knowledge, the project area has not been used for traditional cultural purposes within recent times.

Based on the above research, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities will not be affected by development activities around and on the approximately 2-acres of land of land containing the existing Hamakuapoko Wells No. 1 and No. 2 and the proposed adjacent new water tank, located in Hāmākua Poko Ahupua`a, Makawao District, Island of Maui, [TMK: (2) 2-5-04:039 (por.)].

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APPENDIX A: LETTERS OF INQUIRY

Walter Ouye
3030 Alameo Place
Wailuku, Hawai`i 96793

September 17, 2012

Dear Mr. Ouye:

Thank you so much for agreeing to be interviewed for the Cultural Impact Assessment for the proposed improvements to the existing Hamakuapoko Wells Nos. 1 and 2. I have attached the formal letter of inquiry and associated maps, as we discussed today. Please let me know what would be a convenient time and date for us to meet and to conduct the interview.

Aloha,

Cathleen Dagher
Senior Archaeologist
Scientific Consultant Services, Inc.
711 Kapi`olani Blvd., Suite 975
Honolulu, Hi. 96813
808 597-1182 (office)
808 597-1193 (fax)

Walter Ouye
3030 Alameo Place
Wailuku, Hawai`i 96793

September 17, 2012

Dear Mr. Ouye:

In compliance with the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to proposed improvements at two existing well sites (Hamakuapoko Well Nos. 1 and 2). Each well site is located on approximately 0.25 acres of land in Hāmākuapoko Ahupua`a, District of Makawao, Maui Island [TMK: (2) 2-5-04:039 (por.)] (Figures 1 through 3). Well site 2 also includes a proposed adjacent new water tank.

Scientific Consultant Services has conducted an Archaeological Field Inspection of the two well sites (Letter Report from SCS archaeologist David Perzinski, B.A., to Jenny Pickett, State Historic Preservation Division Assistant Maui Archaeologist, dated June 12, 2012) in order to determine the presence of archaeological cultural materials. No cultural materials were encountered during the Field Inspection.

According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

> The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs...The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural which support such cultural beliefs...

We are asking you for any information that you or other individuals have which might contribute to the knowledge of traditional cultural activities that were, or are currently, conducted in the vicinity of the two well sites. We are also asking for any information pertaining to traditional cultural activities or traditional rights which may be impacted by the proposed improvements at

the two existing well sites. The results of the cultural impact assessment are dependent on the response and contributions made by individuals and organizations such as the State Historic Preservation Division.

Enclosed are maps showing the proposed project areas. Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Regards,

Cathleen Dagher
Senior Archaeologist
Enclosures (3)
Cc: Central Maui Hawaiian Civic Club; Raymond Hutaff, County of Maui Cultural Resources Commission; Perry Artates, County of Maui Cultural Resources Commission; Thelma Shimaoka, Maui Office of Hawaiian Affairs; Kamana`opono M. Crabbe, Chief Executive Officer, Office of Hawaiian Affairs; Hinano Rodrigues, State Historic Preservation Division, Maui; Jan Dapitan, community member; Patsy Shishido, community member

Brian McAfferty
brian.teensoncall@gmail.com

October 11, 2012

Dear Mr. McAfferty:

In compliance with the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to proposed improvements at two existing well sites (Hamakuapoko Well Nos. 1 and 2). Each well site is located on approximately 0.25 acres of land in Hāmākuapoko Ahupua`a, District of Makawao, Maui Island [TMK: (2) 2-5-04:039 (por.)] (Figures 1 through 3). Well site 2 also includes a proposed adjacent new water tank.

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We are asking you for any information that you or other individuals have which might contribute to the knowledge of traditional cultural activities that were, or are currently, conducted in the vicinity of the two well sites. We are also asking for any information pertaining to traditional cultural activities or traditional rights which may be impacted by the proposed improvements at the two existing well sites. The results of the cultural impact assessment are dependent on the response and contributions made by individuals and organizations such as yourself.

Enclosed are maps showing the proposed project areas. Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Regards,

Cathleen Dagher
Senior Archaeologist
Enclosures (3)
Cc: Central Maui Hawaiian Civic Club; Raymond Hutaff, County of Maui Cultural Resources Commission; Perry Artates, County of Maui Cultural Resources Commission; Thelma Shimaoka, Maui Office of Hawaiian Affairs; Kamana`opono M. Crabbe, Chief Executive Officer, Office of Hawaiian Affairs; Vincent Hinano Rodrigues, State Historic Preservation Division

Central Maui Hawaiian Civic Club
P.O. Box 1493
Wailuku, Hawai`i 96793

July 26, 2012

Dear Sir or Madam:

In compliance with the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to proposed improvements at two existing well sites (Hamakuapoko Well Nos. 1 and 2). Each well site is located on approximately 0.25 acres of land in Hāmākuapoko Ahupua`a, District of Makawao, Maui Island [TMK: (2) 2-5-04:039 (por.)] (Figures 1 through 3). Well site 2 also includes a proposed adjacent new water tank.

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We are asking you for any information that you or other individuals have which might contribute to the knowledge of traditional cultural activities that were, or are currently, conducted in the vicinity of the two well sites. We are also asking for any information pertaining to traditional cultural activities or traditional rights which may be impacted by the proposed improvements at the two existing well sites. The results of the cultural impact assessment are dependent on the response and contributions made by individuals and organizations such as the Central Maui Hawaiian Civic Club.

Enclosed are maps showing the proposed project areas. Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely,

Cathleen Dagher
Senior Archaeologist
Enclosures (3)

Cc: Hinano Rodrigues, State Historic Preservation Division, Maui; Raymond Hutaff, County of Maui Cultural Resources Commission; Perry Artates, County of Maui Cultural Resources Commission; Thelma Shimaoka, Maui Office of Hawaiian Affairs; Kamana`opono M. Crabbe, Chief Executive Officer, Office of Hawaiian Affairs

Raymond Hutaff
C/O County of Maui Cultural Resources Commission
250 South High Street
Wailuku, Hawai`i 96793

July 26, 2012

Dear M. Hutaff:

In compliance with the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to proposed improvements at two existing well sites (Hamakuapoko Well Nos. 1 and 2). Each well site is located on approximately 0.25 acres of land in Hāmākuapoko Ahupua`a, District of Makawao, Maui Island [TMK: (2) 2-5-04:039 (por.)] (Figures 1 through 3). Well site 2 also includes a proposed adjacent new water tank.

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Enclosed are maps showing the proposed project areas. Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely,

Cathleen Dagher
Senior Archaeologist
Enclosures (3)
Cc: Central Maui Hawaiian Civic Club; Perry Artates, County of Maui Cultural Resources Commission; Kamana`opono M. Crabbe, Chief Executive Officer, Office of Hawaiian Affairs; Hinano Rodrigues, State Historic Preservation Division, Maui; Thelma Shimaoka, Maui Office of Hawaiian Affairs

Perry Artates
C/O County of Maui Cultural Resources Commission
250 South High Street
Wailuku, Hawai`i 96793

July 26, 2012

Dear Mr. Artates:

In compliance with the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to proposed improvements at two existing well sites (Hamakuapoko Well Nos. 1 and 2). Each well site is located on approximately 0.25 acres of land in Hāmākuapoko Ahupua`a, District of Makawao, Maui Island [TMK: (2) 2-5-04:039 (por.)] (Figures 1 through 3). Well site 2 also includes a proposed adjacent new water tank.

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Jan Dapitan
P.O. Box 2610
Wailuku, Hawai`i 96793

September 17, 2012

Dear Mrs. Dapitan:

Thank you so much for agreeing to be interviewed for the Cultural Impact Assessment for the proposed improvements to the existing Hamakuapoko Wells Nos. 1 and 2. I have attached the formal letter of inquiry and associated maps, as we discussed today. Please let me know what would be a convenient time and date for us to meet and to conduct the interview.

Aloha,

Cathleen Dagher
Senior Archaeologist
Scientific Consultant Services, Inc.
711 Kapi`olani Blvd., Suite 975
Honolulu, Hi. 96813
808 597-1182 (office)
808 597-1193 (fax)

Jan Dapitan
P.O. Box 2610
Wailuku, Hawai`i 96793

September 17, 2012

Dear Mrs. Dapitan:

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Regards,

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Cc: Central Maui Hawaiian Civic Club; Raymond Hutaff, County of Maui Cultural Resources Commission; Perry Artates, County of Maui Cultural Resources Commission; Thelma Shimaoka, Maui Office of Hawaiian Affairs; Kamana`opono M. Crabbe, Chief Executive Officer, Office of Hawaiian Affairs; Hinano Rodrigues, State Historic Preservation Division, Maui; Walter Ouye, community member; Patsy Shishido, community member

Kepa Maly
Kumu Pono Associates LLC
kepa@kumupono.com

September 12, 2012

Dear Mr. Maly:

In compliance with the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to proposed improvements at two existing well sites (Hamakuapoko Well Nos. 1 and 2). Each well site is located on approximately 0.25 acres of land in Hāmākuapoko Ahupua`a, District of Makawao, Maui Island [TMK: (2) 2-5-04:039 (por.)] (Figures 1 through 3). Well site 2 also includes a proposed adjacent new water tank.

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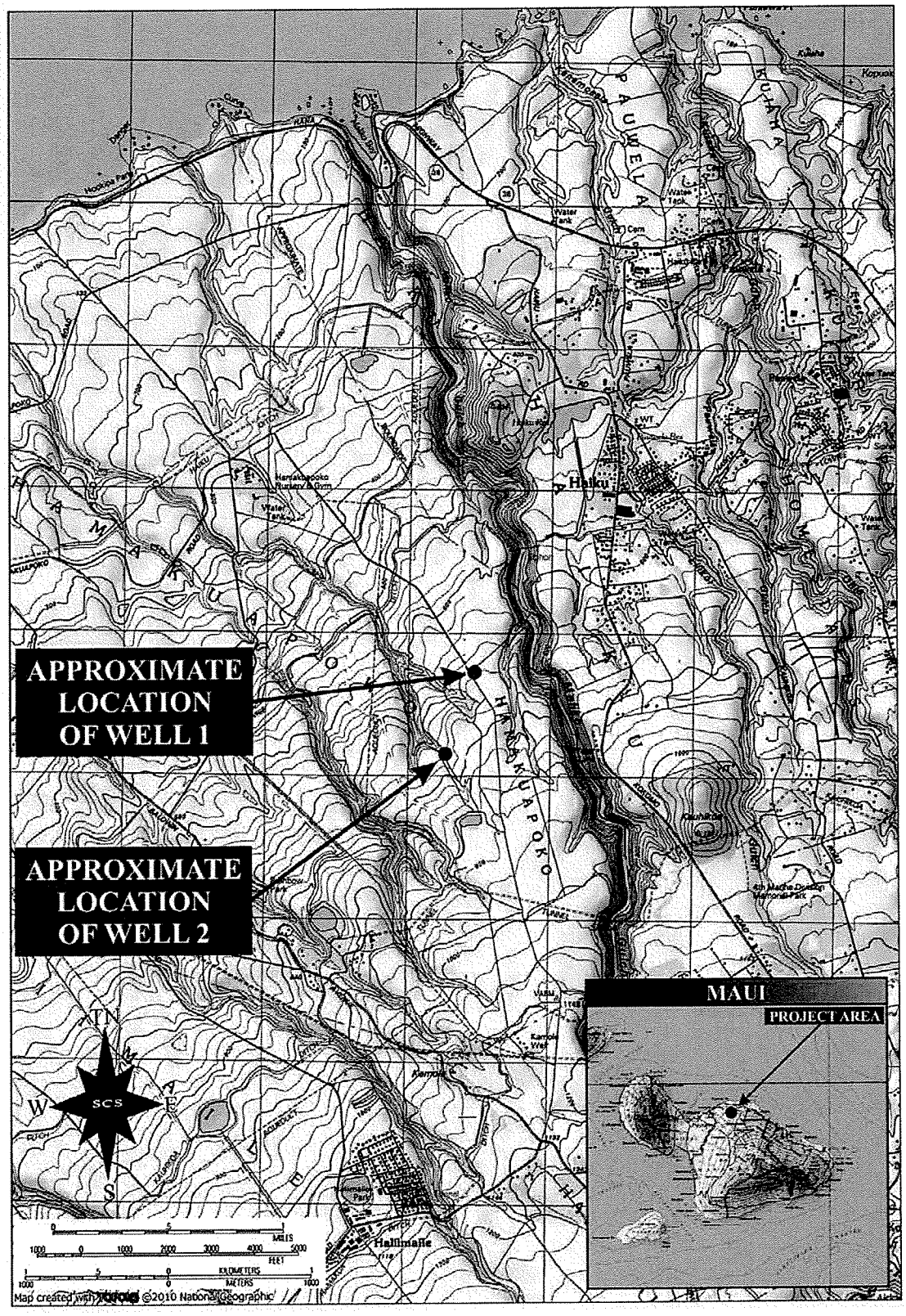
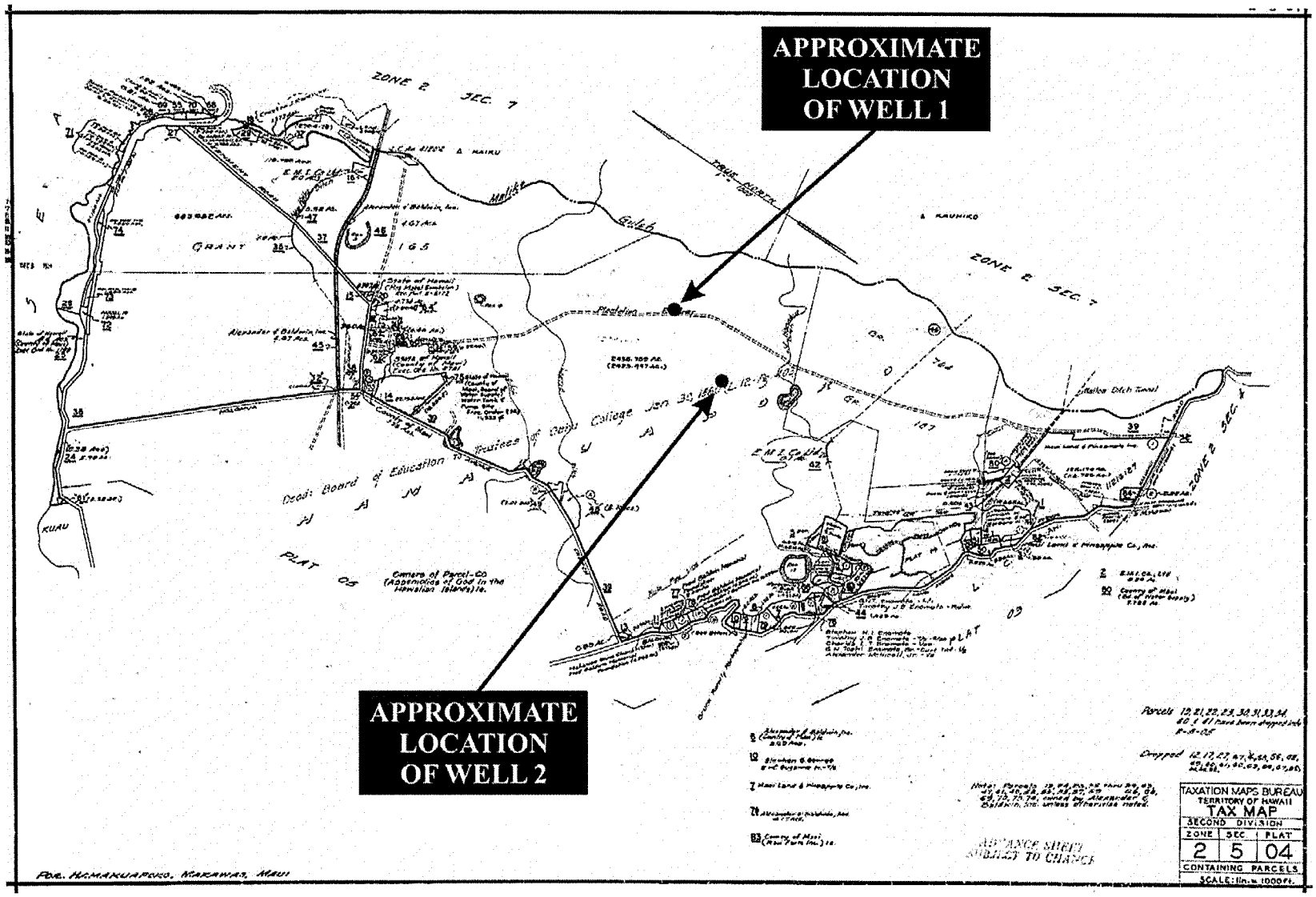
Regards,

Cathleen Dagher
Senior Archaeologist
Enclosures (3)
Cc: Central Maui Hawaiian Civic Club; Raymond Hutaff, County of Maui Cultural Resources Commission; Perry Artates, County of Maui Cultural Resources Commission; Thelma Shimaoka, Maui Office of Hawaiian Affairs; Kamana`opono M. Crabbe, Chief Executive Officer, Office of Hawaiian Affairs; Vincent Hinano Rodrigues, State Historic Preservation Division


APPROXIMATE LOCATION OF WELL 1
APPROXIMATE LOCATION OF WELL 2
MAUI
PROJECT AREA
Haiku
Hallimaile
SCS
TN
W
E
S
MILES
FEET
KILOMETERS
METERS
Map created with TOPO! ©2010 National Geographic


APPROXIMATE LOCATION OF WELL 1
APPROXIMATE LOCATION OF WELL 2
ZONE 2 SEC. 7
ZONE 2 SEC. 7
ZONE 2 SEC. 4
TRUE NORTH
Malike Gulch
Pleasant River
Trustees of Oahu College Jan. 30, 1865
Deed: Board of Education
PLAT 05
PLAT 03
KUAU
TAXATION MAPS BUREAU
TERRITORY OF HAWAII
TAX MAP
SECOND DIVISION
ZONE 2
SEC. 5
PLAT 04
CONTAINING PARCELS
SCALE: 1in. = 1000 ft.
ADVANCE SHEET SUBJECT TO CHANGE
POR. HAMAKUAPOKO, MAKAWAO, MAUI

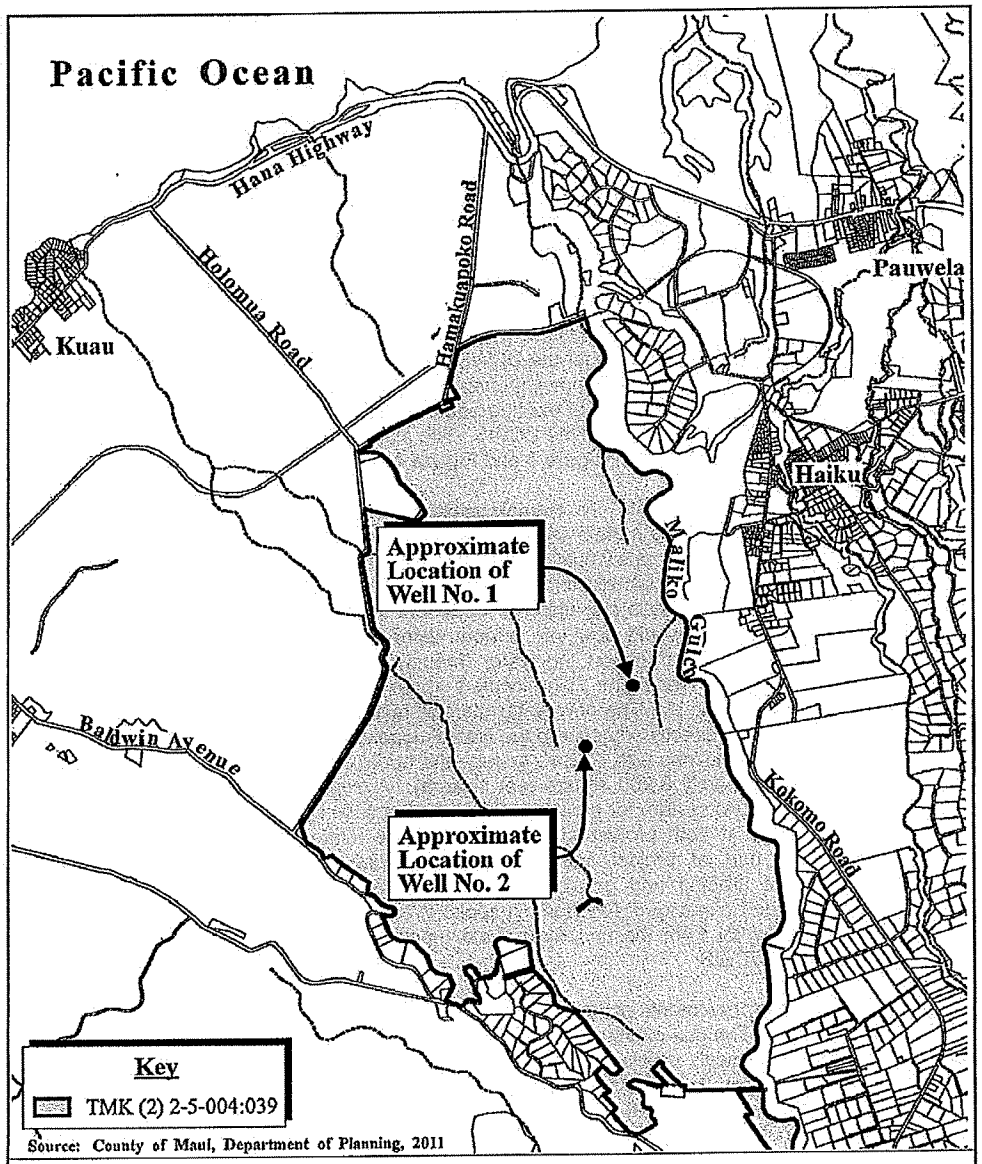


Figure 2 Proposed Improvements at Hamakuapoko Well Nos. 1 and 2
Property Location Map

0 1,250 2,500 5,000 Feet

MUNEKIYO & HIRAGA, INC.

Prepared for: County of Maui, Department of Water Supply

Lucienne Denae
laluz@maui.net

September 28, 2012

Dear Ms. Denae

In compliance with the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to proposed improvements at two existing well sites (Hamakuapoko Well Nos. 1 and 2). Each well site is located on approximately 0.25 acres of land in Hāmākuapoka Ahupua`a, District of Makawao, Maui Island [TMK: (2) 2-5-04:039 (por.)] (Figures 1 through 3). Well site 2 also includes a proposed adjacent new water tank.

Scientific Consultant Services has conducted an Archaeological Field Inspection of the two well sites (Letter Report from SCS archaeologist David Perzinski, B.A., to Jenny Pickett, State Historic Preservation Division Assistant Maui Archaeologist, dated June 12, 2012) in order to determine the presence of archaeological cultural materials. No cultural materials were encountered during the Field Inspection.

According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

> The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs...The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural which support such cultural beliefs...

We are asking you for any information that you or other individuals have which might contribute to the knowledge of traditional cultural activities that were, or are currently, conducted in the vicinity of the two well sites. We are also asking for any information pertaining to traditional cultural activities or traditional rights which may be impacted by the proposed improvements at the two existing well sites. The results of the cultural impact assessment are dependent on the response and contributions made by individuals and organizations such as the State Historic Preservation Division.

Enclosed are maps showing the proposed project areas. Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Regards,

Cathleen Dagher
Senior Archaeologist
Enclosures (3)
Cc: Central Maui Hawaiian Civic Club; Raymond Hutaff, County of Maui Cultural Resources Commission; Perry Artates, County of Maui Cultural Resources Commission; Thelma Shimaoka, Maui Office of Hawaiian Affairs; Kamana`opono M. Crabbe, Chief Executive Officer, Office of Hawaiian Affairs; Hinano Rodrigues, State Historic Preservation Division, Maui; Jan Dapitan, community member; Patsy Shishido, community member; Lona Wilson, community Walter Ouye, community member, Paul Ueoka

Mr. Paul Ueoka and Mr. Noriyuki Ueoka
via e-mail (pmu@carlsmith.com)

September 4, 2012

Dear Mr. Ueoka and Mr. Ueoka:

In compliance with the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to proposed improvements at two existing well sites (Hamakuapoko Well Nos. 1 and 2). Each well site is located on approximately 0.25 acres of land in Hāmākuapoko Ahupua`a, District of Makawao, Maui Island [TMK: (2) 2-5-04:039 (por.)] (Figures 1 through 3). Well site 2 also includes a proposed adjacent new water tank.

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Enclosed are maps showing the proposed project areas. Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Regards,

Cathleen Dagher
Senior Archaeologist
Enclosures (3)

August 14, 2012

Office of Hawaiian Affairs
33 Lono Ave. Suite 480
Kahului, Hawai`i 96732-1636

Dear Madam or Sir:

In compliance with the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to proposed improvements at two existing well sites (Hamakuapoko Well Nos. 1 and 2). Each well site is located on approximately 0.25 acres of land in Hāmākuapoko Ahupua`a, District of Makawao, Maui Island [TMK: (2) 2-5-04:039 (por.)] (Figures 1 through 3). Well site 2 also includes a proposed adjacent new water tank.

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Enclosed are maps showing the proposed project areas. Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely,

Cathleen Dagher
Senior Archaeologist
Enclosures (3)
Cc: Central Maui Hawaiian Civic Club; Raymond Hutaff, County of Maui Cultural Resources Commission; Perry Artates, County of Maui Cultural Resources Commission; Kamana`opono M. Crabbe, Chief Executive Officer, Office of Hawaiian Affairs; Hinano Rodrigues, State Historic Preservation Division, Maui

Kamana`opono M. Crabbe, Chief Executive Officer
Office of Hawaiian Affairs
711 Kapi`olani Blvd, Suite 500
Honolulu, Hawai`i 96813

July 26, 2012

Dear Mr. Crabbe:

In compliance with the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to proposed improvements at two existing well sites (Hamakuapoko Well Nos. 1 and 2). Each well site is located on approximately 0.25 acres of land in Hāmākuapoko Ahupua`a, District of Makawao, Maui Island [TMK: (2) 2-5-04:039 (por.)] (Figures 1 through 3). Well site 2 also includes a proposed adjacent new water tank.

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Enclosed are maps showing the proposed project areas. Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely,

Cathleen Dagher
Senior Archaeologist
Enclosures (3)
Cc: Central Maui Hawaiian Civic Club; Raymond Hutaff, County of Maui Cultural Resources Commission; Perry Artates, County of Maui Cultural Resources Commission; Thelma Shimaoka, Maui Office of Hawaiian Affairs; Hinano Rodrigues, State Historic Preservation Division, Maui

Patsy Shishido
231 Holua Drive
Kahului, Hawai`i 96732

September 17, 2012

Dear Mrs. Shishido:

Thank you so much for agreeing to be interviewed for the Cultural Impact Assessment for the proposed improvements to the existing Hamakuapoko Wells Nos. 1 and 2. I have attached the formal letter of inquiry and associated maps, as we discussed today. Please let me know what would be a convenient time and date for us to meet and to conduct the interview.

Aloha,

Cathleen Dagher
Senior Archaeologist
Scientific Consultant Services, Inc.
711 Kapi`olani Blvd., Suite 975
Honolulu, Hi. 96813
808 597-1182 (office)
808 597-1193 (fax)

Patsy Shishido
231 Holua Drive
Kahului, Hawai`i 96732

September 17, 2012

Dear Mrs. Shishido:

In compliance with the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to proposed improvements at two existing well sites (Hamakuapoko Well Nos. 1 and 2). Each well site is located on approximately 0.25 acres of land in Hāmākuapoko Ahupua`a, District of Makawao, Maui Island [TMK: (2) 2-5-04:039 (por.)] (Figures 1 through 3). Well site 2 also includes a proposed adjacent new water tank.

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Regards,

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Cc: Central Maui Hawaiian Civic Club; Raymond Hutaff, County of Maui Cultural Resources Commission; Perry Artates, County of Maui Cultural Resources Commission; Thelma Shimaoka, Maui Office of Hawaiian Affairs; Kamana`opono M. Crabbe, Chief Executive Officer, Office of Hawaiian Affairs; Hinano Rodrigues, State Historic Preservation Division, Maui; Walter Ouye, community member; Jan Dapitan, community member

Vincent Hinano Rodrigues
State Historic Preservation Division
Department of Land and Natural Resources Maui Office Annex,
130 Mahalani Street
Wailuku, Hawai`i 96793

July 26, 2012

Dear Mr. Rodrigues:

In compliance with the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to proposed improvements at two existing well sites (Hamakuapoko Well Nos. 1 and 2). Each well site is located on approximately 0.25 acres of land in Hāmākuapoko Ahupua`a, District of Makawao, Maui Island [TMK: (2) 2-5-04:039 (por.)] (Figures 1 through 3). Well site 2 also includes a proposed adjacent new water tank.

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Regards,

Cathleen Dagher
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Cc: Central Maui Hawaiian Civic Club; Raymond Hutaff, County of Maui Cultural Resources Commission; Perry Artates, County of Maui Cultural Resources Commission; Thelma Shimaoka, Maui Office of Hawaiian Affairs; Kamana`opono M. Crabbe, Chief Executive Officer, Office of Hawaiian Affairs

APPENDIX B: LEGAL NOTICES

CULTURAL IMPACT ASSESSMENT NOTICE POSTED IN THE OFFICE OF HAWAIIAN AFFAIRS NEWSLETTER (KA Wai OLA NEWSPAPER), MAUI NEWS, AND IN THE STAR-ADVERTISER NEWSPAPER

Information requested by Scientific Consultant Services, Inc. (SCS) on cultural resources or on-going cultural activities on or near the proposed Hamakua Well Sites 1 & 2, Hāmākuapoko Ahupua`a, Makawao District Maui Island, Hawai`i [TMK: (2) 2-5-004: 039, por.]. Please respond within 30 days to Cathleen Dagher at (808) 597-1182

1310

AFFIDAVIT OF PUBLICATION

STATE OF HAWAII, }
County of Maui. } ss.

Rhonda M. Kurohara being duly sworn deposes and says, that he is in Advertising Sales of the Maui Publishing Co., Ltd., publishers of THE MAUI NEWS, a newspaper published in Wailuku, County of Maui, State of Hawaii; that the ordered publication as to

Information on cultural resources or
on-going cultural activities

of which the annexed is a true and correct printed notice, was published 3 times in THE MAUI NEWS, aforesaid, commencing on the 25th day of July, 2012, and ending on the 29th day of July, 2012, (both days inclusive), to-wit: on

July 25, 26, 29, 2012

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

This 1 page Information on cultural resources, dated July 25, 26, 29, 2012, was subscribed and sworn to before me this 30th day of July, 2012, in the Second Circuit of the State of Hawaii, by Rhonda M. Kurohara

Notary Public, Second Judicial Circuit, State of Hawaii
BETTY E. UEHARA
My Commission expires 09-22-13

NOTARY PUBLIC No. 83-344 STATE OF HAWAII

Information requested by Scientific Consultant Services, Inc., (SCS), on cultural resources on on-going cultural activities on, or near the proposed Hanakua Well Sites 1 & 2, Hanakua Ahupua'a, Makawao District, Maui Island, Hawai'i. TMK: (2) 2-5-004: 039 [illegible]
Please respond within 30 days to Cathleen Dagher at (808) 597-1182.
(MN-July 25, 26, 29, 2012)

TO: Sharra Baker
FAX#/EMAIL: 597-1193
CONTACT #: 597-1182
DATE: 7/20/12
ACCOUNT #: 59454
FROM: Star-Advertiser/MidWeek-Legal Advertising Dept.

FAX: 808-529-4829

	Lisa Kaukani (808-529-4344) Email: lkaukani@staradvertiser.com
X	Rose Rosales (808-529-4825) Email: rrosales@staradvertiser.com

CULTURAL IMPACT ASSESSMENT NOTICE

Information requested by Scientific Consultant Services, Inc. (SCS) on cultural resources or on-going cultural activities on or near the proposed Hamakua Well Sites 1 & 2, Hamakua Ahupua'a, Makawao District Maui Island, Hawai'i [TMK: (2) 2-5-004: 039, por.]. Please respond within 30 days to Cathleen Dagher at (808) 597-1182
(SA436863 7/25, 7/26, 7/29/12)

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*Signature: Sharra Baker

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Oahu Publications, Inc. will not be responsible for any errors, typographical or otherwise, once the proof has been approved and signed by the customer.

\$rec 7/20

Received Time Jul.20. 3:25PM

APPENDIX C: FOLLOW-UP LETTERS

Vincent Hinano Rodrigues
State Historic Preservation Division
Department of Land and Natural Resources Maui Office Annex
130 Mahalani Street
Wailuku, Hawai`i 96793

August 16, 2012

Dear Mr. Rodrigues:

This is our follow-up letter to our July 26, 2012 letter which was in compliance with the statutory requirements of the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i, on November 19, 1997.

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We are asking you for any information that might contribute to the knowledge of traditional activities, or traditional rights that might be impacted by the construction of the proposed improvements in the area of the two wells. The assessment results are dependent on the response and contributions made by organizations such as the State Historic Preservation Division.

Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely,

Cathleen Dagher

Senior Archaeologist

Cc: Central Maui Hawaiian Civic Club; Raymond Hutaff, County of Maui Cultural Resources Commission; Perry Artates, County of Maui Cultural Resources Commission; Thelma Shimaoka, Maui Office of Hawaiian Affairs; Kamana`opono M. Crabbe, Chief Executive Officer, Office of Hawaiian Affairs

Central Maui Hawaiian Civic Club
P.O. Box 1493
Wailuku, Hawai`i 96793

August 16, 2012

Dear Sir or Madam:

This is our follow-up letter to our July 26, 2012 letter which was in compliance with the statutory requirements of the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i, on November 19, 1997.

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Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely,

Cathleen Dagher
Senior Archaeologist

Cc: Hinano Rodrigues, State Historic Preservation Division, Maui; Raymond Hutaff, County of Maui Cultural Resources Commission; Perry Artates, County of Maui Cultural Resources Commission; Thelma Shimaoka, Maui Office of Hawaiian Affairs; Kamana`opono M. Crabbe, Chief Executive Officer, Office of Hawaiian Affairs

Raymond Hutaff
C/O County of Maui Cultural Resources Commission
250 South High Street
Wailuku, Hawai`i 96793

August 16, 2012

Dear M. Hutaff:

This is our follow-up letter to our July 26, 2012 letter which was in compliance with the statutory requirements of the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i, on November 19, 1997.

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Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely,

Cathleen Dagher
Senior Archaeologist

Cc: Central Maui Hawaiian Civic Club; Perry Artates, County of Maui Cultural Resources Commission; Kamana`opono M. Crabbe, Chief Executive Officer, Office of Hawaiian Affairs; Hinano Rodrigues, State Historic Preservation Division, Maui; Thelma Shimaoka, Maui Office of Hawaiian Affairs

Perry Artates
C/O County of Maui Cultural Resources Commission
250 South High Street
Wailuku, Hawai`i 96793

August 16, 2012

Dear Mr. Artates:

This is our follow-up letter to our July 26, 2012 letter which was in compliance with the statutory requirements of the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i, on November 19, 1997.

Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to proposed improvements at two existing well sites (Hamakuapoko Well Nos. 1 and 2). Each well site is located on approximately 0.25 acres of land in Hāmākuapoko Ahupua`a, District of Makawao, Maui Island[TMK: (2) 2-5-04:039 (por.)]. Well site 2 also includes a proposed adjacent new water tank.

Scientific Consultant Services has conducted an Archaeological Field Inspection of the two well sites (Letter Report from SCS archaeologist David Perzinski, B.A., to Jenny Pickett, State Historic Preservation Division Assistant Maui Archaeologist, dated June 12, 2012) in order to determine the presence of archaeological cultural materials. No cultural materials were encountered during the Field Inspection.

We are asking you for any information that might contribute to the knowledge of traditional activities, or traditional rights that might be impacted by the construction of the proposed improvements in the area of the two wells. The assessment results are dependent on the response and contributions made by organizations such as the County of Maui Cultural Resources Commission.

Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely,

Cathleen Dagher

Senior Archaeologist

Cc: Central Maui Hawaiian Civic Club; Raymond Hutaff, County of Maui Cultural Resources Commission; Kamana`opono M. Crabbe, Chief Executive Officer, Office of Hawaiian Affairs; Hinano Rodrigues, State Historic Preservation Division, Maui; Thelma Shimaoka, Maui Office of Hawaiian Affairs

Mr. Kepa Maly
Kupuna@hoakaleifoundation.org

October 16, 2012

Dear Mr. Maly:

This is our follow-up letter to our September 12, 2012 letter which was in compliance with the statutory requirements of the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i, on November 19, 1997.

Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to proposed improvements at two existing well sites (Hamakuapoko Well Nos. 1 and 2). Each well site is located on approximately 0.25 acres of land in Hāmākuapoko Ahupua`a, District of Makawao, Maui Island [TMK: (2) 2-5-04:039 (por.)]. Well site 2 also includes a proposed adjacent new water tank.

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We are asking you for any information that might contribute to the knowledge of traditional activities, or traditional rights that might be impacted by the construction of the proposed improvements in the area of the two wells. The assessment results are dependent on the response and contributions made by organizations such as the State Historic Preservation Division.

Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely,

Cathleen Dagher
Senior Archaeologist

Cc: Central Maui Hawaiian Civic Club; Raymond Hutaff, County of Maui Cultural Resources Commission; Perry Artates, County of Maui Cultural Resources Commission; Thelma Shimaoka, Maui Office of Hawaiian Affairs; Kamana`opono M. Crabbe, Chief Executive Officer, Office of Hawaiian Affairs; Vincent Hinano Rodrigues, State Historic Preservation Division; Patsy Shishido, community member; Leona Wilson, community member; Paul Ueoka, community member; Lucienne de Naie, community member; Aimoku Pali, community member; Brian McAfferty, community member

Thelma Shimaoka
Office of Hawaiian Affairs
33 Lono Ave. Suite 480
Kahului, Hawai`i 96732-1636

August 16, 2012

Dear Ms. Shimaoka:

This is our follow-up letter to our July 26, 2012 letter which was in compliance with the statutory requirements of the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i, on November 19, 1997.

Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to proposed improvements at two existing well sites (Hamakuapoko Well Nos. 1 and 2). Each well site is located on approximately 0.25 acres of land in Hāmākuapoko Ahupua`a, District of Makawao, Maui Island[TMK: (2) 2-5-04:039 (por.)]. Well site 2 also includes a proposed adjacent new water tank.

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We are asking you for any information that might contribute to the knowledge of traditional activities, or traditional rights that might be impacted by the construction of the proposed improvements in the area of the two wells. The assessment results are dependent on the response and contributions made by organizations such as the Office of Hawaiian Affairs.

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Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely,

Cathleen Dagher
Senior Archaeologist

Cc: Central Maui Hawaiian Civic Club; Raymond Hutaff, County of Maui Cultural Resources Commission; Perry Artates, County of Maui Cultural Resources Commission; Kamana`opono M. Crabbe, Chief Executive Officer, Office of Hawaiian Affairs; Hinano Rodrigues, State Historic Preservation Division, Maui

Kamana`opono M. Crabbe, Chief Executive Officer
Office of Hawaiian Affairs
711 Kapi`olani Blvd, Suite 500
Honolulu, Hawai`i 96813

August 16, 2012

Dear Mr. Crabbe:

This is our follow-up letter to our July 26, 2012 letter which was in compliance with the statutory requirements of the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i, on November 19, 1997.

Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to proposed improvements at two existing well sites (Hamakuapoko Well Nos. 1 and 2). Each well site is located on approximately 0.25 acres of land in Hāmākuapoko Ahupua`a, District of Makawao, Maui Island[TMK: (2) 2-5-04:039 (por.)]. Well site 2 also includes a proposed adjacent new water tank.

Scientific Consultant Services has conducted an Archaeological Field Inspection of the two well sites (Letter Report from SCS archaeologist David Perzinski, B.A., to Jenny Pickett, State Historic Preservation Division Assistant Maui Archaeologist, dated June 12, 2012) in order to determine the presence of archaeological cultural materials. No cultural materials were encountered during the Field Inspection.

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Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely,

Cathleen Dagher

Senior Archaeologist

Cc: Central Maui Hawaiian Civic Club; Raymond Hutaff, County of Maui Cultural Resources Commission; Perry Artates, County of Maui Cultural Resources Commission; Thelma Shimaoka, Maui Office of Hawaiian Affairs; Hinano Rodrigues, State Historic Preservation Division, Maui

APPENDIX D: LAND GRANTS

Print

Subject: **Grant 764 revised - Vicki**
From: **Vicki Creed <WaihonaA001@hawaii.rr.com>**
Sent: **Saturday, September 15, 2012 5:00:46 PM**
To: **cathy@scshawaii.com**

Waihona `Aina

Land Grants Documents

vicki | log out

Date Last Modified:9/15/2012 4:59:18 PM EST

Basic

Island	Maui	LG	00764
Grantee	Wood, Robert	District	Hamakuapoko, Makawa
Ahupua`a	Hamakuapoko	Source Book	5
Acreage	24.61	Acres/Feet	Acs
Cancelled:(checkl)	☐	Report Year	1852
TMK	2-2-5-04	Miscellaneous	

Document Text Body

No. 764, Wood, Robert W., Hamakuapoko Ahupuaa, District of Hamakuapoko, Island of Maui, Vol. 4, pps. 361-364 [LG Reel 2, 00452-00456.tif]

Helu 764
Palapala Sila Nui

Ma keia palapala Sila Nui ke hoike aku nei o Kamehameha III, ke Alii nui a ke Akua i kona lokomaikai i hoonoho ai maluna o ko Hawaii Pae Aina, i na kanaka a pau, i keia la, nona iho, a no kona mau hope Alii, ua haawi lilo loa aku oia ma ke ano alodio ia Robert W. Wood, he Kanaka no Amerika Huipuia i kela apana aina a pau e waiho la ma Hamakuapoko ma ka Mokupuni o Maui, a penei hoi ka waiho ana o na Mokuna:

E hoomaka ma ke kihi Hikina Hema, mawaena konu o ke awawa o Maliko, a e holo
Hema 59° Komohana 43.50 Kaulahao ma ka palena makai o ko J. Richardson aina mamua a i ke kumu o ka awawa o Ekahanui alaila holo ikai ma kae pali o ia awawa penei;
Akau 20° Komohana 9.83 Kaulahao
Akau 73 1/4° Komohana 14.95 Kaulahao
Akau 16 1/2° Komohana 9.42 Kaulahao a
Akau 49 1/2° Komohana 3.30 Kaulahao a i ke kihi Komohana o keia alaila
Akau 59° Hikina 51.60 Kaulahao a hiki iwaena konu o Maliko
Hema 23 3/4° Hikina 7.45 Kaulahao
Hema 1° Hikina 9.50 Kaulahao
Hema 14° Komohana 6 Kaulahao a

Hema 50 1/2° Hikina 14.35 Kaulahao a hiki i kahi i hoomaka'i.

[page 362]

a maloko o ia Apana 150 eka a oi iki aku, emi iki mai paha.
Eia ke kumu o ka lilo ana; ua haawi mai oia iloko o ka waihona waiwai o ke Aupuni i ($1500.00). Aka, ua koe i ke Aupuni na mine minerala a me na mine metala a pau.

No Robert W. Wood, ua aina la i haawiia, nona mau loa aku no, ma ke ano alodio, a no kona mau hooilina, a me kona waihona, ua pili nae ka auhau a ka Poe Ahaolelo e kau like ai ma na aina alodio a pau i kela manawa i keia manawa: Eia nae keia, ua haawiia keia aina mamuli o keia kumu paa loa, ina i puka mai ka hihia no keia aina mahope, no ke kuleana o kekahi a me kekahi paha iloko o keia aina, e haawi o ua Robert W. Wood a o kona hooilina, hooko kaucha, hooponopono waiwai paha, na ke Aupuni Hawaii e hooponopono kela hihia iloko o kona mau Ahahookolokolo, a ua paa na mea i holo iloko olaila; aole loa e hoopii i ka Aupuni e a i na Luna o ke Aupuni e paha, nana e hooponopono; a ina hoole oia, a o lakou paha, aole e hana pela, alaila, o kona kuleana, a o lakou kuleana paha a pau loa iloko o ua aina nei, ua pau ia, pau loa, aole ona kuleana i hoe, a e hoihoiia ua aina la i ke Aupuni Hawaii

A i mea e ikea'i, ua kau wau i ko'u inoa, a me ka Sila Nui o ko Hawaii Pae Aina ma Honolulu i keia la 26 o Ianuari, 1852.

(Inoa) Kamehameha
(Inoa) Keoni Ana

[page 363]

No. 764
Royal Patent

Kamehameha III, By the grace of God, King of the Hawaiian Islands, by this his Royal Patent, makes known unto all men, that he has for himself and his successors in office, this day granted and given, absolutely, in Fee Simple unto Robert W. Wood, a citizen of the United States of America for the consideration of One Thousand Five Hundred Dollars, ($1,500) paid into the Royal Exchequer, all that certain piece of land, situated at Hamakuapoko in the Island of Maui, and described as follows:

Commencing at the bottom of Maliko Gulch at the South East corner of this land, and running
South 59° West 43.50 chains along makai boundary of land formerly owned by J. Richardson to head of Ekahanui Gulch. Thence seaward along brink of said gulch
North 20° West 9.83 chains and
North 73 1/4° West 14.95 chains, and
North 16 1/2° West 9.42 chains, and
North 49 1/2° West 3.30 chains to West corner of this lot, and makai boundary. Thence
North 59° East 57.60 chains to bottom of Maliko Gulch, forming the makai boundary of this land. Thence mauka along bottom of Maliko Gulch
South 23 3/4° East 7.45 chains and
South 1° East 9.50 chains, and
South 14° West 6 chains, and
South 50 1/2° East 14.35 chains to point of commencement.

Reserving the Rights of Native Tenants.

[Insert]

Treasury Office, 27th of January 1852
Received of R. W. Wood the sum of Fifteen hundred dollars for school land as per Patent No. 764 ~~and four dollars, the fees of patenting~~.
R. Armstrong, ~~For Minister of Finance~~ Minister of Public Instruction

[End of Insert]

[Page 364]

Containing 150 Acres, more or less: excepting and reserving to the Hawaiian Government, all mineral or metallic Mines of every description.

To have and to hold the above granted Land in Fee Simple, unto the said Robert W. Wood, his Heirs and Assigns forever, subject to the taxes to be from time to time imposed by the Legislative Council equally upon all landed Property

held in Fee Simple: Provided always, and this grant is made upon the express condition, that the said Robert W. Wood his Heirs, Executors or Administrators shall, in all cases of dispute in relation to his or their rights, title or interest in the land hereby granted or any part or parcel thereof, submit the same to the judicial tribunals of the Hawaiian Kingdom, and abide by the final decisions of those tribunals, without seeking the intervention of any Foreign Nation or Representative; and in case he or they shall refuse so to do, his and their estate therein and all of his and their rights, title and interest therein, shall cease and determine, and the same shall be immediately forfeited and escheat to the Hawaiian Government.

In witness whereof, I have hereunto set my Hand, and caused the Great Seal of the Hawaiian Islands to be affixed, at Honolulu, this 26 day of January, 1852.

(Signed) Kamehameha
(Signed) Keoni Ana

[Land Patent Grant No. 764, Wood, Robert W., Hamakuapoko Ahupuaa, District of Hamakuapoko, Island of Maui, 150 Acres, 1852]

--

Vicki Creed
Waihona Aina
Kailua, Hawaii
Phone: (808) 261-8822
Fax: (808) 363-4950
E-Mail: WaihonaA001@hawaii.rr.com

DOCUMENT DELIVERY

Land Grants Documents

Grant Number(LG)	**187**	Source Book:	**1**
Grantee:	**Richardson, John**	Acreage::	**150.3** Acs
Ahupua`a	**Pauwela**	Year	**1849**
District:	**Hamakuapoko, Makawao**	Cancelled	**False**
Island	**Maui**	TMK	**2-2-5-04**

Miscellaneous

No. 187, Richardson, John, Hamakuapoko Ahupuaa, District of Hamakuapoko (Makawao), Island of Maui, Vol. 1, pps. 344-345 [LG Reel 1, 00398-00399.tif]

No. 187
Royal Patent

Kamehameha III, By the Grace of God, King of the Hawaiian Islands, by this Royal Patent, makes known, unto all men, that he has for himself and his successors in office, this day granted and given, absolutely, in Fee Simple unto John Richardson, his faithful and loyally disposed subject for the consideration of Seventy five 15/100 Dollars {$75.15}, paid into the Royal Exchequer, all that certain piece of Land situated at

Hamakuapoko in the Island of Maui and described as follows:

Commencing at stone at the North East corner of William Crowningburgs land on top of the West bank of big gulch, and running
South 58° 30' West 1,369 links, thence
South 51° 21' West 1,631 links to stone, thence
North 48° West 4,000 links to large Kukui tree, thence
North 59° East 6,200 links to a stone on top edge of big gulch aforesaid, thence following along edge of the bank of said gulch
South 19° 45' East 820 links
South 28° 30' West 300 links
South 30° West 700 links
South 15° 30' East 2,000 links
South 31° 10' West 675 links to first mentioned point.

The rights of native tenants reserved.

Containing 150 3/10 Acres, more or less, excepting and reserving to the Hawaiian Government, all mineral or metallic mines of every description.

To have and to hold the above granted Land in Fee Simple, unto the said John Richardson & his Hawaiian, Heirs and Assigns forever, subject to the taxes to be from time to time imposed by the Legislative Council equally, upon all landed Property held in Fee Simple.

In Witness whereof, I have hereunto set my Hand, and caused the Great Seal of the Hawaiian Islands to be affixed, at Honolulu, this 21 day of December, 1849

Received of John Richardson the sum of $75, 12 1/2 for land as above
Treasury Office, March 11, 1850
For the Minister of Finance, William Jarrett

[Page 345]

Helu 187
Palapala Sila Nui

Ma keia palapala sila nui ke hoike aku nei o Kamehameha III, ke Alii nui a ke Akua i kona lokomaikai i hoonoho ai maluna o ko Hawaii Pae Aina, i na kanaka a pau, i keia la, nona iho; a no kona mau hope alii, ua haawi lilo loa aku oia ma ko ano alodio ia Ioane Richardson i kona wahi kanaka i manao pono ia ia i kela apana aina a pau e waiho la ma Hamakuapoko, Pauwela ma ka Mokupuni o Maui, a penei hoi ka waiho ana o na Mokuna.

E hoomaka ma ka pohaku ma ke kihi Hikina Akau o ka aina no William Crowningburg maluna o ka lihi Komohana o ke awawa nui, a e holo ana
Hema 58° 30' Komohana 1,369 pauku, Alaila
Hema 5° 21' Komohana 1,631 pauku a hiki i ka pohaku, Alaila
Akau 48° Komohana 4,000 pauku a hiki i ka Laau kukui nui, Alaila
Akau 59° Hikina 6,200 pauku a hiki i ka pohaku maluna o ka lihi o ke awawa nui i oleloia, Alaila ma ka lihi o ke awawa i oleloia penei
Hema 19° 45' Hikina 820 pauku
Hema 28° 30' Komohana 300 pauku
Hema 30° Komohana 700 pauku
Hema 15° 30' Hikina 2,000 pauku
Hema 31° 10' Komohana 675 pauku a hiki i kahi i hoomaka'i.

Ua koe ke Kuleana o na kanaka e noho nei, aole lilo

A maloko o ia Apana 150 3/10 eka a oi iki aku, emi iki mai paha.
Eia ke kumu o ka lilo ana; ua haawi mai oia iloko o ka waihona waiwai o ke Aupuni i na Dala he Kanahikukumamalima 15/100.Aka, ua koe i ke Aupuni na mine minerala a me na mine metala a pau.

No Ioane Richardson, ua aina la i haawiia, no na mau loa aku no, ma ke ano alodio, a me ko na mau hooilina, a me ko na waihona, ua pili nae ka auhau a ka Poe Ahaolelo e kau like ai ma na aina alodio a pau i kela manawa i keia manawa.

A i mea e ikea'i ua kau wau i ko'u inoa, a me ka sila nui o ko Hawaii Pae Aina ma Honolulu i keia la 21 o

Dekemaba, 1849.

(Inoa) Kamehameha
(Inoa) Keoni ana

[Land Patent Grant No. 187, Richardson, John, Pauwela Ahupuaa, District of Hamakuapoko (Makawao), Island of Maui, 150.15 Acre, 1849]

APPENDIX J.

Water Quality Testing Results for Hamakuapoko Well Nos. 1 and 2 and GAC Treated Water

Sampling Location	DBCP	EDB	TCP	Nitrate as Nitrogen
	ug/L	ug/L	ug/L	mg/L
Hamakuapoko # 1				
01/20/99	0.03	ND	0.59	4.8
02/17/99	0.04	ND	0.75	5.4
02/24/99	0.04	ND	0.87	5.0
09/23/99	ND	ND	ND	-
02/01/00	ND	ND	ND	5.9
03/23/00	0.03	ND	0.49	4.4
03/30/00	0.03	ND	0.40	3.9
05/03/00	0.03	ND	0.50	3.3
05/22/00	0.03	ND	0.40	3.5
06/05/01	0.026	ND	0.50	4.2
07/03/01	0.25	ND	0.56	4.8
10/24/2002	0.23	ND	0.59	5.1
11/26/2002	ND	ND	ND	5.0
6/2/2003	ND	ND	0.47	3.6
10/28/2003	0.018	0.037	0.38	3.4
9/9/2004	0.029	ND	0.44	4.2
10/6/2004	ND	ND	0.34	3.5
10/25/2004	-	-	-	3.8
Hamakuapoko # 2				
01/20/99	0.26	0.12	0.45	3.9
02/17/99	0.24	0.11	0.37	5.7
02/24/99	0.22	0.1	0.34	5.5
09/23/99	ND	ND	ND	-
02/01/00	ND	ND	ND	6.78
03/23/00	0.27	0.09	0.39	5.95
03/30/00	0.30	0.10	0.40	6.61
05/03/00	0.25	0.08	0.40	5.10
05/22/00	0.26	0.09	0.40	5.69
03/02/01	0.25	0.10	0.40	5.46
06/05/01	0.23	0.07	0.37	5.42
07/03/01	0.39	0.10	0.46	6.1
10/28/2003	0.19	0.05	0.34	5.3
9/9/2004	0.18	ND	0.31	4.9
10/6/2004	0.17	ND	0.30	3.5
10/25/2004	-	-	-	5.2

Sampling Location	DBCP	EDB	TCP		DBCP	EDB	TCP
	ug/L	ug/L	ug/L		ug/L	ug/L	ug/L
GAC Contactor-50% Bed Depth				GAC Contactor-75% Bed Depth			
03/23/00	ND	ND	ND	03/23/00	ND	ND	ND
03/30/00	ND	ND	ND	03/30/00	ND	ND	ND
05/03/00	ND	ND	ND	05/03/00	ND	ND	ND
05/22/00	ND	ND	ND	05/22/00	ND	ND	ND
03/02/01	ND	ND	ND	03/02/01	ND	ND	ND
06/05/01	ND	ND	ND	06/05/01	ND	ND	ND
07/03/01	ND	ND	ND	07/03/01	ND	ND	ND
06/02/03	ND	ND	ND	06/02/03	ND	ND	ND
10/28/03	ND	ND	0.10	10/28/03	ND	ND	0.11
10/6/2004	ND	ND	ND	10/6/2004	ND	ND	ND
10/25/04	ND	ND	ND	10/25/04	ND	ND	ND

Sampling Location	DBCP	EDB	TCP		DBCP	EDB	TCP
	ug/L	ug/L	ug/L		ug/L	ug/L	ug/L
GAC Contactor #1 Effluent				GAC Contactor #2 Effluent			
10/19/1999	ND	ND	ND	10/19/1999	ND	ND	ND
11/10/1999	ND	ND	ND	11/10/1999	ND	ND	ND
1/3/2000	ND	ND	ND	1/3/2000	ND	ND	ND
3/23/2000	ND	ND	ND	3/23/2003	ND	ND	ND
3/30/2000	ND	ND	ND	3/30/2003	ND	ND	ND
5/3/2000	ND	ND	ND	5/3/2000	ND	ND	ND
5/22/2000	ND	ND	ND	5/22/2000	ND	ND	ND
3/2/2001	ND	ND	ND	3/2/2001	ND	ND	ND
6/5/2001	ND	ND	ND	6/5/2001	ND	ND	ND
7/3/2001	ND	ND	ND	7/3/2001	ND	ND	ND
6/2/2003	ND	ND	ND	6/2/2003	ND	ND	ND
10/28/2003	ND	ND	ND	10/28/2003	ND	ND	0.082
10/6/2004	ND	ND	ND	10/6/2004	ND	ND	ND
10/25/2004	ND	ND	ND	10/25/2004	ND	ND	ND

Sampling Location	DBCP	EDB	TCP	Nitrate as Nitrogen
	ug/L	ug/L	ug/L	mg/L
GAC Contactor Combined Effluent				
09/23/99	ND	ND	ND	
03/23/00	ND	ND	ND	5.45
03/30/00	ND	ND	ND	2.35
05/03/00	ND	ND	ND	4.42
05/22/00	ND	ND	ND	4.67
03/02/01	ND	ND	ND	5.35
06/05/01	ND	ND	ND	4.62
07/03/01	ND	ND	ND	5.20
06/02/03	ND	ND	ND	-
10/28/03	ND	ND	ND	4.30
9/9/2004	ND	ND	ND	4.6
10/6/2004	ND	ND	ND	4.0
Kamole Weir-Vault C				
09/23/99				
03/23/00				
03/30/00				
05/03/00				
05/22/00				
03/02/01				
06/05/01				
07/03/01				
9/9/2004	ND	ND	0.06	1.00
10/6/2004	ND	ND	ND	1.6

	MCL (ug/L)
DBCP = 1,2-Dibromo-3-Chloropropane	0.04
EDB = Ethylene Dibromide	0.04
TCP = 1,2,3-Trichloropropane	0.6

ug/L = micrograms/Liter = parts per billion
mg/L = milligrams/Liter = parts per million

APPENDIX K.

Preliminary Drainage Report Prepared by Department of Water Supply

PRELIMINARY DRAINAGE REPORT
FOR
HAMAKUAPOKO WELL SITE #2
PUMP CONTROL TANK
TMK (2) 2-5-004:039

PREPARED BY
COUNTY OF MAUI
DEPARTMENTOF WATER SUPPLY
200 SOUTH HIGH STREET
WAILUKU, HI 96768

April 2013

TABEL OF CONTENTS

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PROJECT LOCATION 3
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FLOOD HAZARD 3
EXISTING CONDITIONS 3
PROPOSED CONDITIONS 4
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HYDROLOGIC DESIGN CRITERIA. 5

INTRODUCTION

The County of Maui Department of Water Supply plans to construct a new 150,000 gallon water tank to supplement the Hamakuapoko wells number 1 and 2. The tank will be constructed adjacent to Hamakuapoko 2 well site. The tank will be a pump control tank to assist in the conveyance of water from Hamakuapoko 2 well site to the Kamole Water Treatment Plant. This report studies the change in runoff from the existing conditions (sugar cane field) to the proposed condition, water tank with paved drive way.

PROJECT LOCATION

The site is located in Hamakuapoko, Maui, Hawaii adjacent to the existing Hamakuapoko well site #2. The project is on a portion of Tax Map Key (2) 2-5-004:039. This TMK is 2,439 acres and is farmed with sugar cane.

PROJECT DESCRIPTION

The proposed 150,000 gallon water tank will be a pump control tank, approximately 36-feet in diameter, to assist with the conveyance of water from the Hamakuapoko wells to the Kamole treatment plant. Along with the tank, a paved service road, new chain link fence, and the necessary fittings to connect to the existing waterlines.

The proposed tank site is approximately 0.14 acres in size and is currently being used for sugar cane cultivation. The developed site ground cover will consist of 0.02 acre for the proposed tank, 0.06 acre for the driving surface, and the remaining 0.06 acre will be grassed.

FLOOD HAZARD

According to the Flood Insurance Rate Map, this site is located in a Zone X. Thus the site is not located in a flood hazard area.

EXISTING CONDITIONS

The existing land where the tank is to be located is currently farmed with sugar cane. When harvested, the site will be stripped bare of all vegetation. The elevation of the site is 790-feet m/l. The site slopes from south-east to north-west. The slope across the tank site is approximately 16%.

Under the existing conditions, the site generates a runoff rate of 0.18 cfs during the 10-year 1-hour storm event. Refer to page 4 for runoff calculations for existing and proposed conditions.

PROPOSED CONDITIONS

The proposed runoff rate the site will generate is 0.54 cfs during the 10-year 1-hour storm event.

The increase in runoff of 0.36 cfs from the tank site is from the construction of the tank and the paved driveway. The increased runoff from the site will be released from the site by recreating the natural sheet flow pattern of the site. This sheet flow will then flow through the sugar cane field, combining with its runoff prior to being released off site into another sugar cane field.

Storm water runoff control, including any retention/detention facilities is not required.

No additional runoff will be created from the existing well site #1 or well site #2. No impervious areas will be added to either site.

ADDITIONAL CONCERNS

Energy Consumption

The proposed booster pump and motor size will closely match the existing booster pump and motor with energy demands and costs matching the existing demands and costs.

CONCLUSION

Construction of the Hamakuapoko #2 well site pump control tank is not expected to cause any adverse effects to adjacent properties. Added storm runoff due to the construction of the new tank will be negligible when compared to the runoff from the existing parcel. Any additional runoff will follow the existing drainage patterns upon leaving the tank site.

Hydrologic Design Criteria

Hydrologic calculations for both existing and developed conditions were done using the Rational Method. Factors used in the calculations were taken from County of Maui Title MC-15, Rules for the Design of Storm Drainage Facilities in the County of Maui.

Recurrence Interval:

10 yr, 1-hour storm
I = 2.4", from Plate 4

Time of Concentration:

Length of flow across site = 90'
Slope = 16.67%

Rainfall Intensity:

From Plate 2, I = 2.4

Runoff Coefficient "C":

Concrete Areas	C=0.95
Driveway Areas	C=0.85
Grassed Areas	C=0.28 – 0.31
Unimproved Areas	C=0.20 – 0.28

For areas with multiple surface types, a weighted average "C" value is to be used.

Existing Runoff Calculations – 10 year 1 hour storm

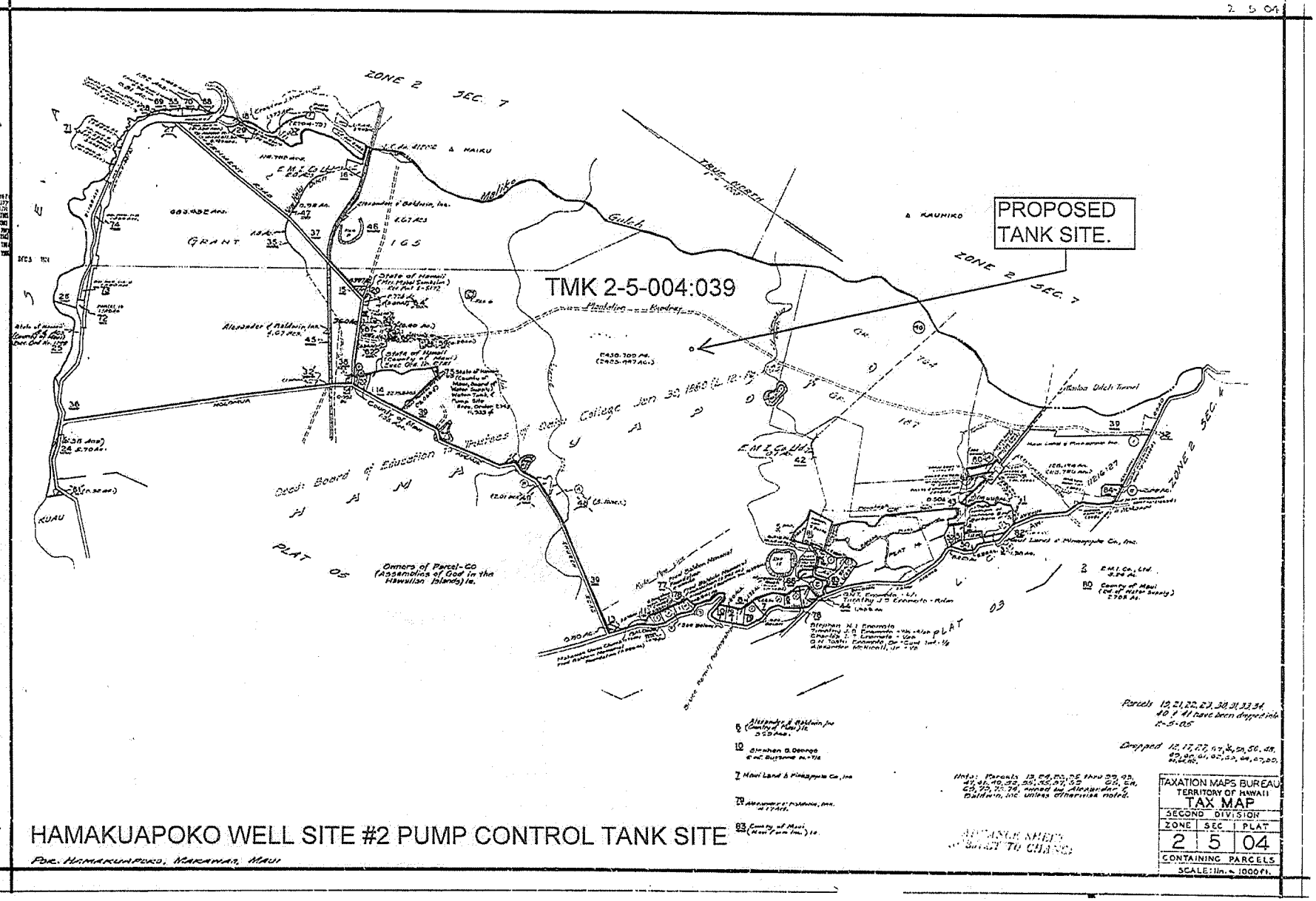
Drainage Area (proposed site area) = 0.1441 acres
Runoff Coefficient = 0.20, Unimproved area
Rain fall intensity I = 2.4 in/hr, Plate 4
Tc = 6 min. (bottom of nomograph line on plate 1
I (1 hour rain fall intensity from plate 2) = 6.2 (note: the Tc line of 8 is the lowest Tc on the plate, thus it is used to determine I.)
Existing Run Off = Q = CIA = 0.20 * 6.2 * 0.1441 = 0.18 cfs

Proposed Runoff Calculations – 10 year 1 hour storm

Drainage Area (proposed site area) = 0.1441 acres

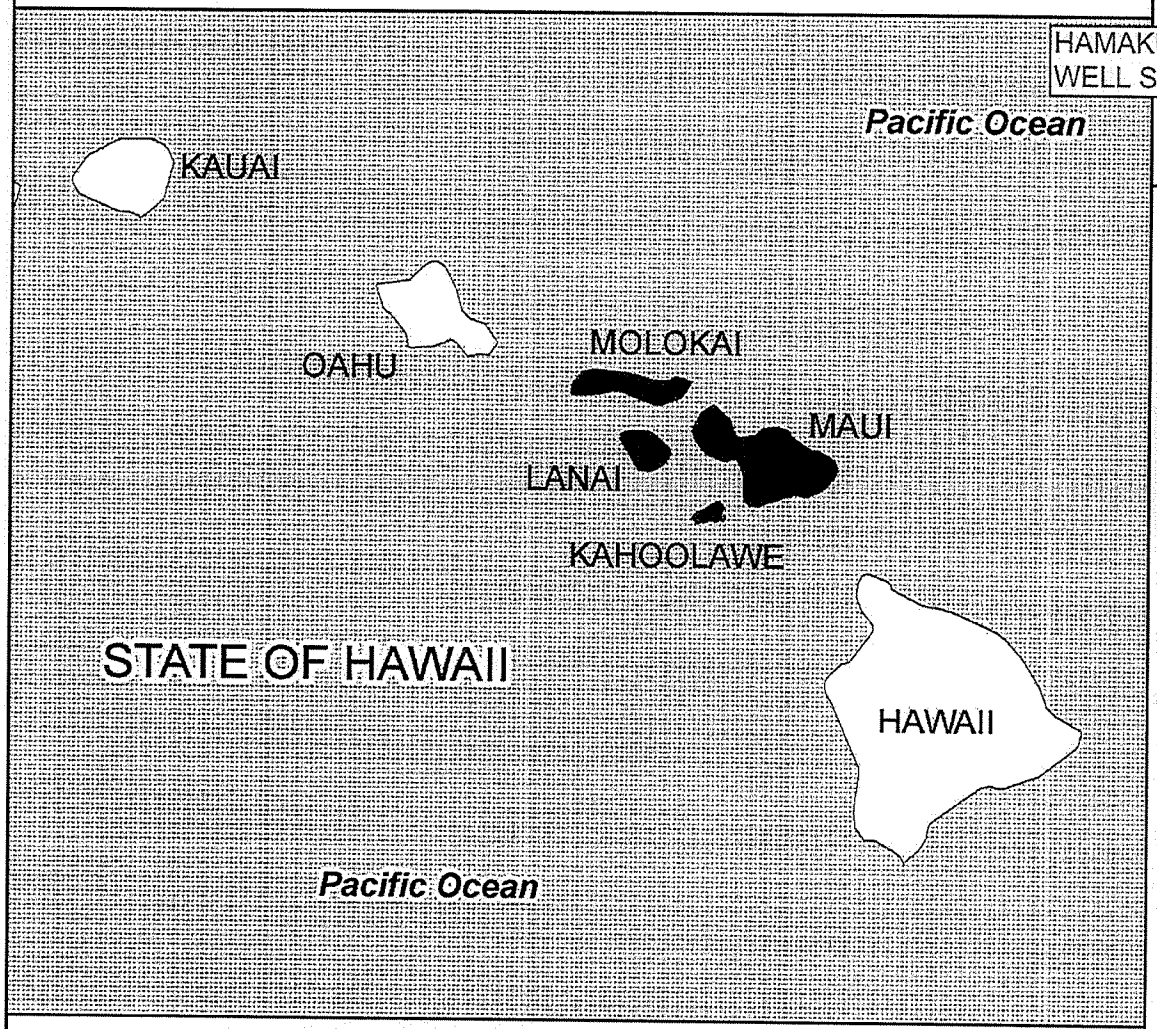
Tank area = 1018 sf = 0.02 ac	C=0.95
Driveway area = 2,630 sf = 0.06 ac	C=0.85
Grass/rock area = 2,627 sf = 0.06 ac	C=0.28

Runoff Coefficient (weighted average) = C = 0.60
Rain fall intensity I = 2.4 in/hr, Plate 4
Tc = 6 min. (bottom of nomograph line on plate 1
I (1 hour rain fall intensity from plate 2) = 6.2 (note: the Tc line of 8 is the lowest Tc on the plate, thus it is used to determine I.)
Proposed Run Off = Q = CIA = 0.60 * 6.2 * 0.1441 = 0.54 cfs.

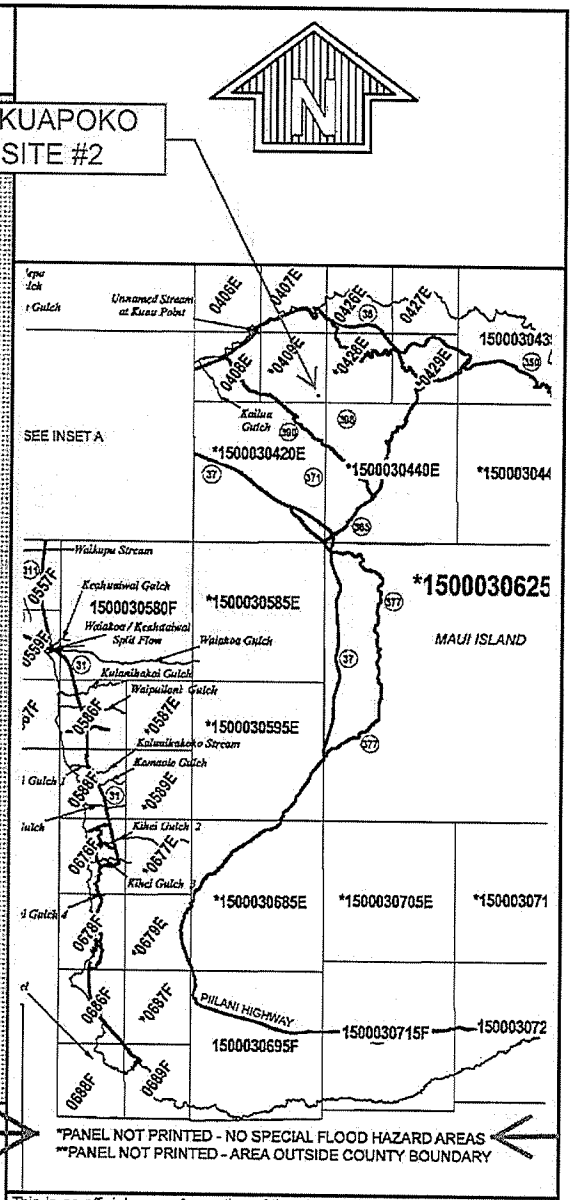


HAMAKUAPOKO WELL SITE #2 PUMP CONTROL TANK SITE

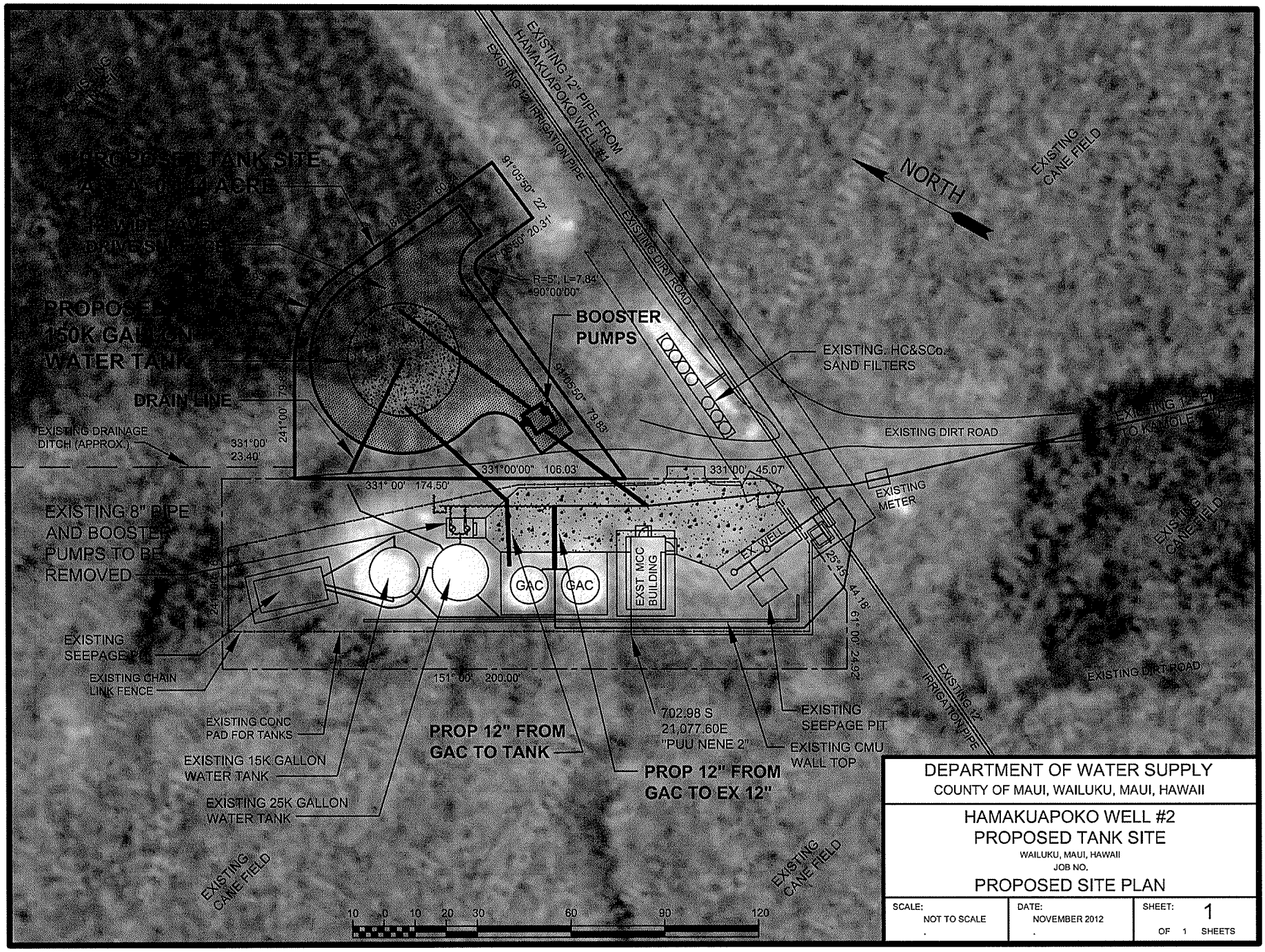
POR. HAMAKUAPOKO, MAKAWAO, MAUI



MAP LOCATOR



This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI, WAILUKU, MAUI, HAWAII

HAMAKUAPOKO WELL #2
PROPOSED TANK SITE
WAILUKU, MAUI, HAWAII
JOB NO.

PROPOSED SITE PLAN

SCALE:	DATE:	SHEET:
NOT TO SCALE	NOVEMBER 2012	1 OF 1 SHEETS

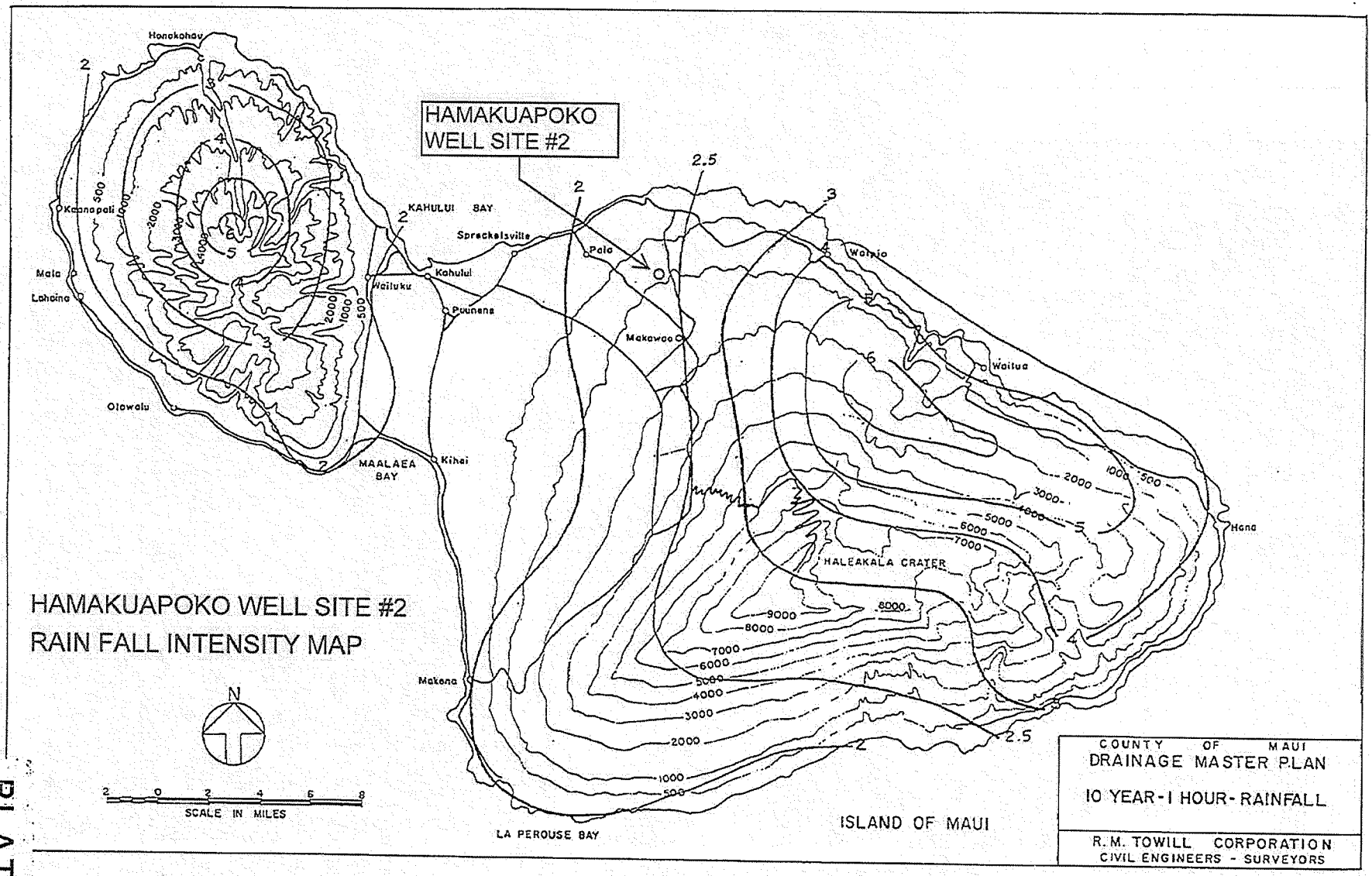

HAMAKUAPOKO WELL SITE #2
HAMAKUAPOKO WELL SITE #2
RAIN FALL INTENSITY MAP
N
SCALE IN MILES
Honokohau
Kaanapali
Maia
Lahaina
Olowalu
KAHULUI BAY
Sprecklesville
Kahului
Wailuku
Puunene
Paia
Makawao
Waipio
Waitua
Hana
MAALAEA BAY
Kihei
Makena
LA PEROUSE BAY
HALEAKALA CRATER
ISLAND OF MAUI
COUNTY OF MAUI
DRAINAGE MASTER PLAN
10 YEAR-1 HOUR-RAINFALL
R.M. TOWILL CORPORATION
CIVIL ENGINEERS - SURVEYORS

PLATE 4

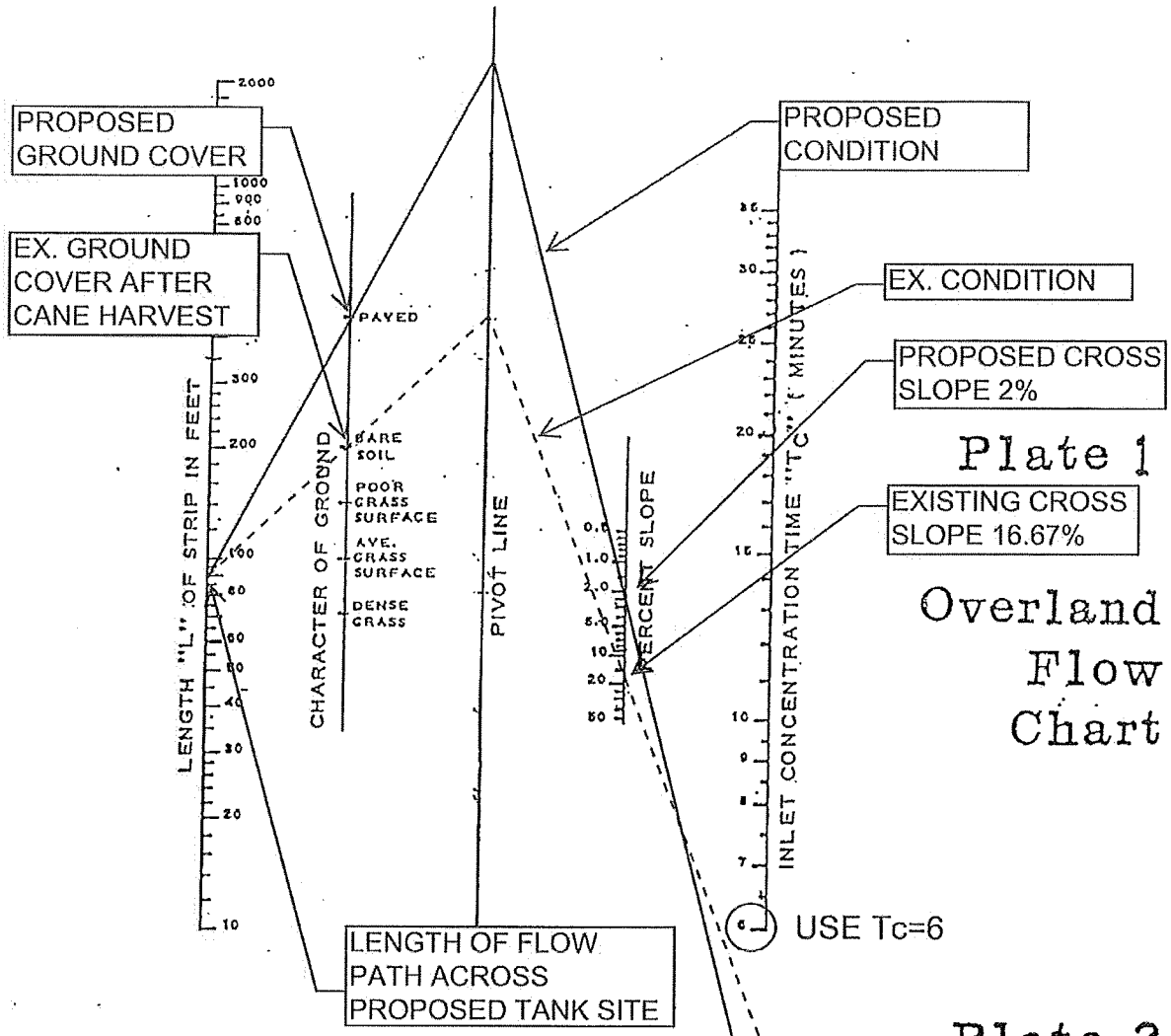
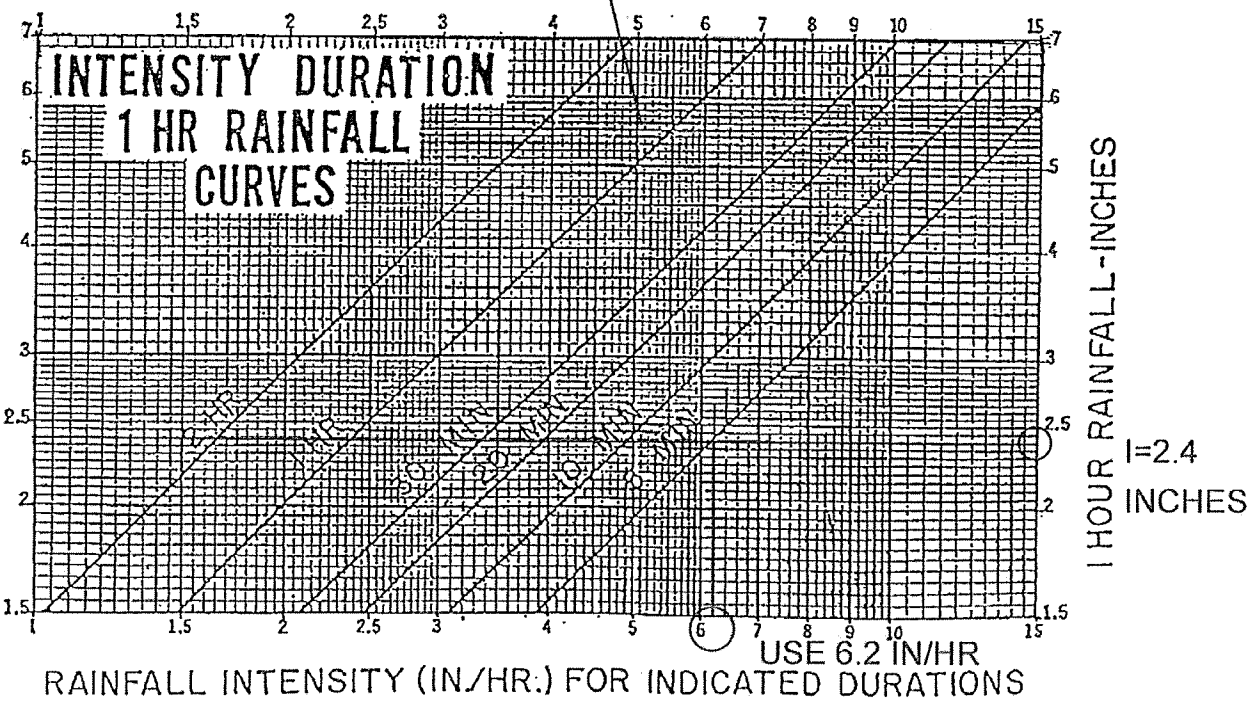


Plate 1

Overland Flow Chart

Plate 2



APPENDIX K-1.

Preliminary Engineering Report Prepared by Department of Water Supply

Preliminary Engineering Report
Hamakuapoko Well Sites
November 28, 2012

SCOPE

The purpose of this project is to improve the Hamakuapoko well site #1 and the Hamakuapoko well site #2 to adhere to the requirements of County Ordinance Number 3859, titled "A Bill for an Ordinance Amending Section 14.01.050, Maui County Code, Relating to the Use of Water From Hamakuapoko Wells." This bill requires these wells to be used for:

1. Agricultural purposes:
2. Consumers of the department's upcountry water system at defined in section 14.13.030 of this code when a drought is declared pursuant to section 14.06.010 if this code:
3. Backup to the department's existing upcountry water system facilities.

Currently, these wells are to be used only for drought purposes.

EXISTING CONDITIONS

The existing Hamakuapoko Well system consists of two well sites, both located on TMK (2)2-5-004:039 (por.). Each well has a capacity of approximately 500 gallons per minute (gpm).

Well site #1 consists of a well with a well pump and motor, a pump control tank, a control building, and two booster pumps. This system operates by pumping ground water into the pump control tank. Booster pumps pump the water from the pump control tank at well site #1 up to well site #2, through the GAC filters and into the pump control tank on well site #2.

Well site #2 consists of a well with a well pump and motor, a pair of GAC (granular activated carbon) filters, a pump control tank, a back wash water tank, and booster pumps. The well pump pumps the water through the GAC filters and into the pump control tank. The booster pumps then pump water from well site #1 and well site #2 from the pump control tank up to the Kamole Water Treatment Plant.

The water from well #1 and well #2 combine in a pipe just outside of the boundary of well site #2. This water then flows through the GAC filters to remove the contaminant DBCP from the water. From the GAC filters the water flows into the under-sized pump control tank and then is pumped up to the Kamole Water Treatment Plant by the booster pumps.

PROPOSED CONDITIONS

Well Site #1

After an analysis of the system, it was determined that the well pump and motor on site #1 has enough power to pump the well water directly to the pump control tank at well site #2, eliminating the need for the pump control tank and the booster pumps at well site #1. Therefore, the booster pumps and control tank at well site #1 are not needed. The booster pumps will be removed and the tank will be placed out of service. Some minor pipe realignment work may be needed to remove a tee and replace it with a 90-degree bend. Otherwise, there will be no grading or any other site work done at well site #1.

The piping configuration from well site #1 to well site #2 will not be changed and will still combine prior to the GAC filters treating all the water from both wells.

Well Site #2

After an analysis of the proposed system, it was determined that at well site #2 a new larger pump control tank is needed to increase the efficiency of the system to pump the water to the Kamole Water Treatment Facility. The new pump control tank will limit the on-off cycles of the booster pumps to less than two cycles per day.

Site work on existing well site #2 will consist of removing the existing booster pumps and associated piping and the installation of new piping to route the water from the GAC filters to the new pump control tank. Then from the new pump control tank, the booster pumps will pump the water up to the Kamole Water Treatment Plant through the existing line.

New Pump Control Tank

The new pump control tank will have a capacity of 150,000 gallons. It will be approximately 36-feet in diameter and 20-feet high. It will be a steel glassed lined tank. There will be a paved 12-foot wide paved service road surrounding the tank.

The proposed tank site will cover an area of approximately 6,277 square feet (sf) (0.144 acres) (ac). Of this area, the tank will cover 1,018 sf (0.023 ac), the

service road will cover 2,630 sf (0.060 ac), and the remaining 2,579 sf (0.059 ac) will be landscaped.

Earthwork

Earth work will consist of grading the site to accommodate the new tank, access road, and booster pumps. The amount of cut and fill required should be less than 500 cubic yards. No earthwork is needed to remove or install well pump, remove existing booster pumps, and only trench excavation and backfill is needed for any pipe work.

Storm Drainage

Well site #2 is located within a large sugar cane field. The acreage for the entire TMK parcel on which the well sites are located is 2,439 acres. The proposed area to be used for the tank is approximately 0.144 acres. The increased runoff from the proposed tank site is calculated to be 0.36 cfs (cubic feet per second) for the 10-year, 1 hour storm event. This is a very insignificant increase in runoff compared to the runoff of the entire parcel.

The runoff from the site will be released from the site by recreating the natural sheet flow pattern of the site. This sheet flow will then flow through the sugar cane field, combining with its runoff prior to being released off site into another sugar cane field.

Increased runoff from the proposed tank site will not affect any downstream properties.

Best Management Practices

Best Management Practices (BMPs) are effective, practical, structural, or nonstructural methods which prevent or reduce the movement of sediment, nutrients, pesticides, and other pollutants from the land to surface or ground water. BMPs for this project will only be needed for the construction of the new pump control tank. BMPs will include a diversion ditch just mauka of the construction to divert storm water around the construction site, a silt fence to capture sediment laden water from exiting the construction site, and waddles (or similar product) to prevent oils from the asphalt from entering the on site storm drain.

Utility Services Requirements

The electrical demand for the proposed condition should be the same as for the existing condition. There may be a need for new motor control units (MCCs) and other wiring, but there should not be a need to increase the electrical capacity of the sites.

CONCLUSION

The proposed pump control tank at well site #2 is a necessity for efficiently pumping the ground water from the Hamakuapoko wells to the Kamole Water Treatment Plant. The well water from both wells will be treated by the GAC filters to meet all DOH water quality standards prior to pumping up to the Kamole Water Treatment Plant clear well.

Well site #2 site is located within a sugar cane field. The negligible amount of increased runoff from the new tank and related site improvements will assimilate back into the existing runoff from the entire parcel. The minimal increase in storm runoff is considered negligible. Storm drainage from the site will not significantly affect any downstream properties.