ALAN. M. ARAKAWA
Mayor

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

FILE COPY

NOV 08 2016

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

RECEIVED
'16 OCT 26 P2:56
OFC. OF ENVIRONMENTAL QUALITY CONTROL

October 6, 2016

Mr. Scott Glenn, Director
Office of Environmental Quality Control
Department of Health, State of Hawaii
235 S. Beretania Street, Room 702
Honolulu, Hawaii 96813

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
FOR THE POOKELA WELL "B" EXPLORATORY/BACKUP PROJECT
MAKAWAO, MAUI, HAWAII

Dear Mr. Glenn:

With this letter, the County of Maui, Department of Water Supply hereby transmits the draft environmental assessment and anticipated finding of no significant impact (DEA-AFONSI) for the Pookela Well "B" Exploratory/Backup project situated at 2-4-012:028, in the Makawao District on the island of Maui for publication in the next available edition of the Environmental Notice.

Enclosed is a completed OEQC Publication Form, two copies of the DEA-AFONSI, 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 Jordan Molina of our Engineering Division at (808) 270-7835.

Sincerely,

DAVID TAYLOR, P.E.
Director

JM/jm
Enclosures

"By Water All Things Find Life"

17-196

Printed on recycled paper

FILE COPY
NOV 08 2016

AGENCY PUBLICATION FORM

Project Name:	Pookela Well "B" Exploratory/Backup
Project Short Name:	Pookela Well "B"
HRS §343-5 Trigger(s):	Use of County lands and funds
Island(s):	Maui
Judicial District(s):	Makawao
TMK(s):	(2) 2-4-012:028
Permit(s)/Approval(s):	Well Construction Permit, Pump Installation Permit, NPDES Permit, Community Noise Permit, as applicable; Construction Permits; Department of Heath Approval
Proposing/Determining Agency:	County of Maui, Department of Water Supply
Contact Name, Email, Telephone, Address	Mr. Jordan Molina, Jordan.Molina@co.maui.hi.us (808) 270-7835x7681, 200 South High Street Kalana O Maui Building, 5th Floor, Wailuku, HI 96793
Accepting Authority:	(for EIS submittals only)
Contact Name, Email, Telephone, Address	
Consultant:	Fukunaga & Associates, Inc.
Contact Name, Email, Telephone, Address	Andrew Amuro, aamuro@fukunagaengineers.com (808) 944-1821, 1357 Kapiolani Boulevard, Suite 1530, Honolulu, Hawaii 96814

Status (select one)	**Submittal Requirements**
__X__ DEA-AFNSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEA, and 4) a searchable PDF of the DEA; a 30-day comment period follows from the date of publication in the Notice.
____ FEA-FONSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; no comment period follows from publication in the Notice.
____ FEA-EISPN	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; a 30-day comment period follows from the date of publication in the Notice.
____ Act 172-12 EISPN ("Direct to EIS")	Submit 1) the proposing agency notice of determination letter on agency letterhead and 2) this completed OEQC publication form as a Word file; no EA is required and a 30-day comment period follows from the date of publication in the Notice.
____ DEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEIS, 4) a searchable PDF of the DEIS, and 5) a searchable PDF of the distribution list; a 45-day comment period follows from the date of publication in the Notice.
____ FEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEIS, 4) a searchable PDF of the FEIS, and 5) a searchable PDF of the distribution list; no comment period follows from publication in the Notice.
____ FEIS Acceptance Determination	The accepting authority simultaneously transmits to both the OEQC and the proposing agency a letter of its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS; no comment period ensues upon publication in the Notice.
FEIS Statutory Acceptance	Timely statutory acceptance of the FEIS under Section 343-5(c), HRS, is not applicable to agency actions.
____ Supplemental EIS 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 or is not required; no EA is required and no comment period ensues upon publication in the Notice.

____ Withdrawal Identify the specific document(s) to withdraw and explain in the project summary section.

____ Other Contact the OEQC if your action is not one of the above items.

Project Summary
Provide a description of the proposed action and purpose and need in 200 words or less.

Kamole Weir Water Treatment Facility (WTF) is the primary source of water for nearly all of Upcountry Maui customers. The existing Po'okela Well (State Well No. 5118-02), which is owned and operated by County of Maui, Department of Water Supply, was developed in 2006 to serve customers primarily in Makawao to help soften the impact of the Upcounty Maui drought and to serve as a backup for the Kamole Weir WTF if it is not able to produce enough water for Upcountry customers or if it is experiencing mechanical issues. Po'okela Well "B" is proposed as a backup to the existing Po'okela Well and to be utilized to serve customers whenever the existing well requires maintenance. No additional water will be pumped from the aquifer by this well. Having a backup well will decrease water-related emergencies when the existing well cannot be used.

DRAFT
ENVIRONMENTAL ASSESSMENT

PO‘OKELA WELL “B” EXPLORATORY/BACKUP

Prepared for:

County of Maui
Department of Water Supply

October 2016

Fukunaga & Associates, Inc.
Consulting Engineers
1357 Kapiolani Boulevard, Suite 1530
Honolulu, Hawaii 96814
(808) 944-1821

TABLE OF CONTENTS

LIST OF FIGURES iv
LIST OF ACRONYMS v
EXECUTIVE SUMMARY vi

1 PROJECT DESCRIPTION 1

1.1 Purpose of the Project 1
1.2 Project Location 1
1.3 Existing Water Systems Serving Upcountry Maui 4
1.4 Proposed Project 4
1.5 Project Costs and Implementation 5

2 COMPLIANCE WITH PLANNING DOCUMENTS AND POLICIES 7

2.1 Hawai'i State Plan 7
2.2 Maui Island Plan, General Plan 2030 8
2.3 Makawao-Pukalani-Kula Community Plan - Update 10
2.4 Maui County Water Use and Development Plan 10
2.5 Coastal Zone Management Objectives and Policies 11

3 DESCRIPTION OF THE ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES 21

3.1 Land Classifications and Zoning 21
3.2 Physical Features 21
3.2.1 Topography and Soils Characteristics 21
3.2.2 Agriculture 25
3.2.3 Wetlands 26
3.2.4 Climate 26
3.2.5 Hydrology 26
3.2.6 Air Quality 31
3.2.7 Noise 31
3.2.8 Flora and Fauna 35
3.2.9 Land Use 35
3.2.10 Coastal and Marine Resources 36
3.3 Social and Cultural Environment 36
3.3.1 Population 36
3.3.2 Community 37
3.3.3 Economy 37
3.3.4 Cultural Resources 38
3.3.5 Historic-Archaeological Environment 38
3.3.6 Public Works Projects 38

3.4 Sensitive Areas 39
3.4.1 Flood Plains 39
3.4.2 Tsunami Zones 39
3.5 Water Quality 39
3.5.1 Chemical 39
3.5.2 Biological 40
3.6 Cumulative and Secondary Impacts 44

4 ALTERNATIVES TO THE PROPOSED PROJECT 45

4.1 No Action Alternative 45
4.2 Desalination and Wastewater Reuse 45
4.3 Site Alternatives 45
4.4 Water Conservation 45
4.5 Awalau and Opana Stream Intakes 46

5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES 47

6 HAWAII DRINKING WATER STATE REVOLVING FUND PROGRAM 48

6.1 Archaeological and Historic Preservation Act of 1974 (16 USC 469-1) 48
6.2 Clean Air Act (42 USC 7401) 48
6.3 Coastal Zone Management Act (16 USC 1451) 48
6.4 Endangered Species Act (16 USC 1531) 49
6.5 Environmental Justice (Executive Order 12898) 49
6.6 Farmland Protection Policy Act (7 USC 4201) 49
6.7 Fish and Wildlife Coordination Act (16 USC 661) 49
6.8 Floodplain Management (Executive Order 11988, as amended by Executive Order 12148) 49
6.9 National Historic Preservation Act (16 USC 470) 49
6.10 Protection of Wetlands (Executive Order 11990, as amended by Executive Order 12608) 50
6.11 Safe Drinking Water Act (42 USC 300f) 50
6.12 Wild and Scenic Rivers Act (16 USC 1271) 50
6.13 Essential Fish Habitat Consultation Process Under The Magnuson-Stevens Fishery Conservation and Management Act (16 USC 1801) 50

7 PERMITS AND APPROVALS REQUIRED 51

7.1 Approvals 51
7.2 Reviews 51
7.3 Permits 51

8 AGENCIES AND ORGANIZATIONS CONSULTED 52

8.1 Federal Government 52
8.2 State Government 52
8.3 County Government 52
8.4 Other Individuals/Organizations 53

9 FINDINGS AND DETERMINATION 54

9.1 Findings 54
9.2 Determination 56

10 REFERENCES 57

APPENDICIES

A. ARCHAEOLOGICAL FIELD INVESTIGATION REPORT

B. HYDRO-GEOLOGICAL REPORT

C. PRE-CONSULTATION CORRESPONDENCE

LIST OF FIGURES

1. Location Map 2
2. Portion Tax Map Key (2) 2-4-012:028 3
3. Proposed Well Section 6
4. Maui Island Plan Map 9
5. Maui Community Plan Map 12
6. Special Management Area Map 13
7. FEMA Flood Insurance Rate Map 18
8. State Land Use – Maui 22
9. Preliminary Layout 23
10. USDA/SCS Soil Map 24
11. Agricultural Land Use Classification 27
12. Aquifer Units and Rainfall Contours - Maui 28
13. Hydrologic Units – Sustainable Yield/Aquifer Code 29
14. Generalized Water Table & Altitude of Selected Springs, Northeast Maui 32
15. Variably Saturated Ground-Water System West of Keanae Valley, Northeast Maui 33
16. Streams, Rivers, and Diversions Map 34
17. Contaminated Well Map 2003 – Maui 42
18. Nearby Septic Tanks & Cesspools (1,000 ft. Radius) 43

LIST OF ACRONYMS

ALISH	Agricultural Lands of Importance to the State of Hawai‘i
BMP	Best Management Practice
CWRM	State of Hawaii, Department of Land and Natural Resources, Commission on Water Resource Management
CZM	Coastal Zone Management
CZO	Comprehensive Zoning Ordinance
DA	Department of the Army
dB	Decibels
DBEDT	State of Hawai‘i, Department of Business, Economic Development and Tourism
DEA	Draft Environmental Assessment
DOH	State of Hawai‘i, Department of Health
DWS	Department of Water Supply
DWSRF	Drinking Water State Revolving Fund
EDB	Ethylene Dibromide
FIRM	Flood Insurance Rate Map
H:V	Horizontal to Vertical
HRS	Hawaii Revised Statutes
HPC	Heterotrophic Plate Count
LID	Low Impact Development
MCL	Maximum Contaminant Level
MfB	Makawao Silty Clay, 3 to 7 percent slopes
MG	Million Gallon
mgd	Million Gallons per Day
mg/L	Milligrams per Liter
MIP	Maui Island Plan
MSL	Mean Sea Level
NPDES	National Pollutant Discharge Elimination System
OEQC	Office of Environmental Quality Control
SCS	Scientific Consulting Services, Inc.
SHPD	State of Hawai‘i, Department of Land and Natural Resources, State Historic Preservation Division
TMK	Tax Map Key
USC	United States Code
USDA-SCS	United States Department of Agriculture Soil Conservation Service
WTF	Water Treatment Facility
WUDP	Water Use and Development Plan

EXECUTIVE SUMMARY

Project:	Po‘okela Well “B” Exploratory/Backup
Proposing Agency:	County of Maui Department of Water Supply 200 South High Street, 5th Floor Wailuku, Hawai‘i 96793
Approving Agency:	County of Maui Department of Water Supply 200 South High Street, 5th Floor Wailuku, Hawai‘i 96793
Proposed Action:	Department of Water Supply plans to drill, test, and develop a well, called Po‘okela Well “B”, as a backup to the existing Po‘okela Well (State Well No. 5118-02) to continue to serve customers while the existing well is under maintenance.
Consultant:	Fukunaga & Associates, Inc. 1357 Kapiolani Boulevard, Suite 1530 Honolulu, Hawaii 96814
Location:	Makawao, Maui Island
Tax Map Key:	(2) 2-4-012:028
Anticipated Determination:	Finding of No Significant Impact
Property Owner:	County of Maui
State Land Use District:	Agriculture
General Plan Designation:	Agriculture
County Zoning:	Agriculture
HRS §343-5 Trigger(s):	Proposed use of County Lands and Funds

1 PROJECT DESCRIPTION

1.1 Purpose of the Project

Upcountry Maui encompasses the communities of Haʻikū, Kaupakulua, Makawao, Pukalani, and Kula on the northern slopes of Haleakalā; and is characterized by a rural and agricultural setting, which the communities strive to preserve. Accordingly, water demands of the area are basically agricultural and domestic. Upcountry Maui is primarily served by surface water sources, which are supplied by rainfall (surface runoff) and are highly susceptible to drought conditions.

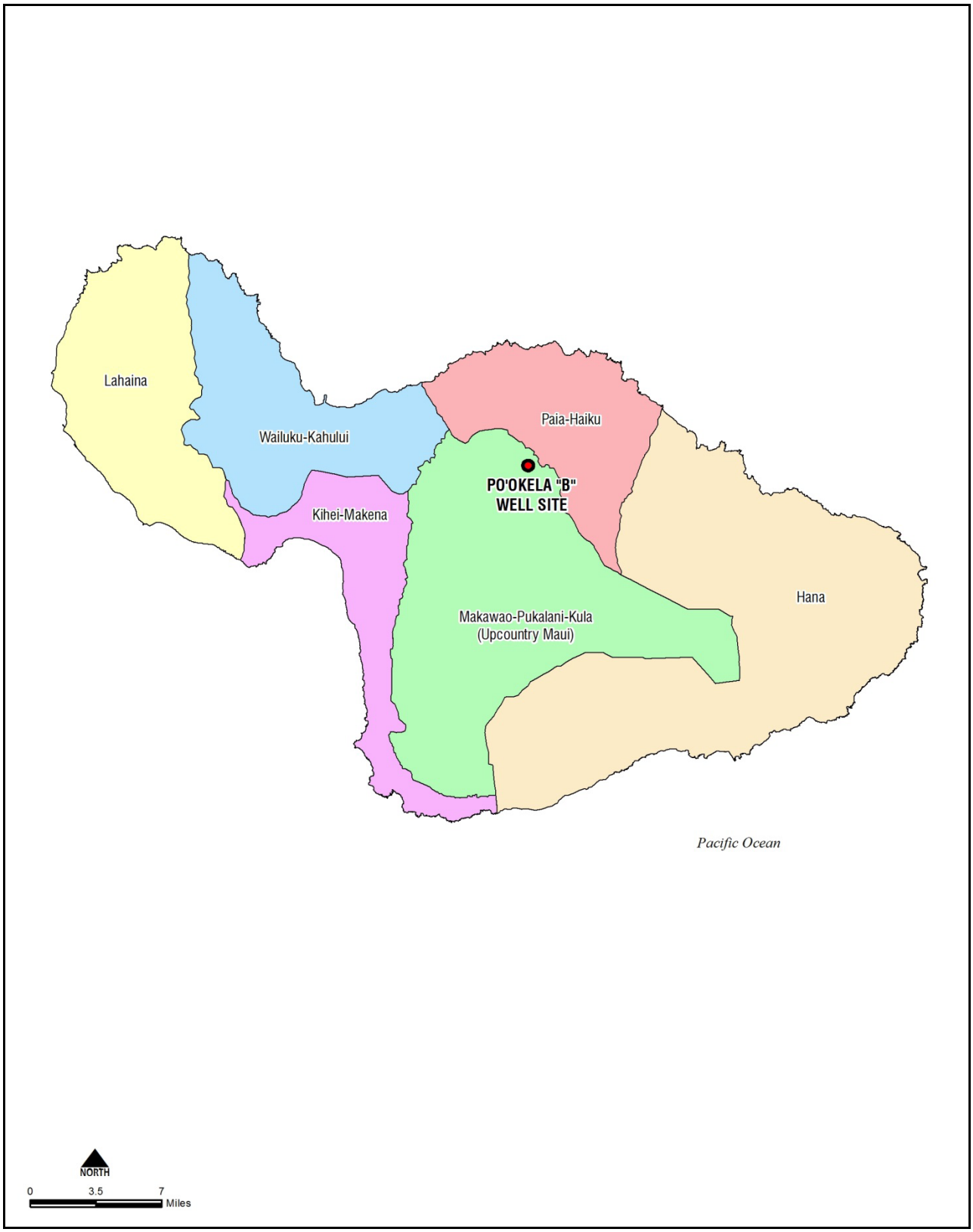
Kamole Weir Water Treatment Facility (WTF) is the primary source of water for nearly all of Upcountry customers and is the largest surface water treatment facility on Maui. The existing Poʻokela Well (State Well No. 5118-02) was developed in 2006 to serve customers primarily in Makawao to help soften the impact of the Upcountry Maui drought and to serve as a backup for the Kamole WTF if it is not able to produce enough water for Upcountry customers or if it is experiencing mechanical issues. Poʻokela Well "B" is proposed as a backup to the existing Poʻokela Well and to be utilized to serve customers whenever the existing well requires maintenance. Having a backup well will decrease water-related emergencies when the existing well cannot be used. Poʻokela Well "B" is proposed to be outfitted by adding a pump for production so it can serve as a backup.

Poʻokela Well "B" would serve as a backup to the existing Poʻokela Well within the Makawao Aquifer and no additional water will be pumped from the aquifer by this well. Limitations on electrical utility service and the proximity to the existing Poʻokela Well does not allow for simultaneous pumping of the proposed and the existing wells. Poʻokela Well "B" will be connected to the existing Department of Water Supply (DWS) system. See **Figure 1** for the well location.

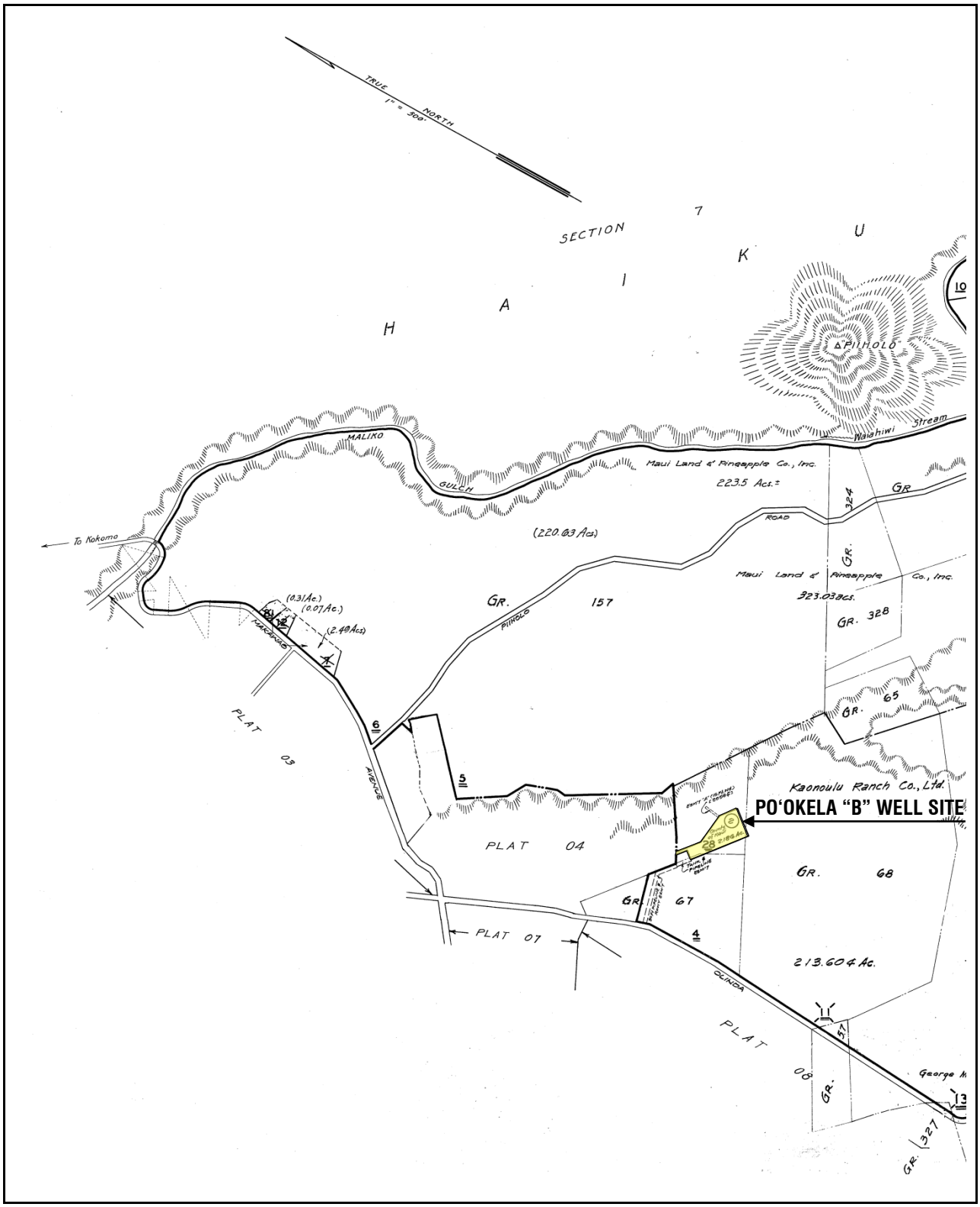
The drilling, testing, and pump installation of this well will be subject to the provisions of Chapter 174C Part VII "Wells," Hawaii Revised Statutes (HRS).

1.2 Project Location

Poʻokela Well "B" will be located approximately 62 feet from the existing Poʻokela Well site that is owned by the County of Maui, identified as Tax Map Key (TMK) (2) 2-4-012:028. See Figure 2 for the project location. The 2.186 acre site is located off Olinda Road and is less than half a mile mauka of Makawao Town. The well site is surrounded by lands owned by Kaonoulu Ranch Co., Ltd.



Location Map **Figure 1**



Portion Tax Map Key (2) 2-4-012:028 **Figure 2**

1.3 Existing Water Systems Serving Upcountry Maui

The Ha‘ikū, Makawao, and Kula Water Systems serve Upcountry Maui and are equipped with booster pump systems to move water up from the Makawao Water System and through the Kula Water System. In 2015, surface water sources serving the area produced approximately 5.5 million gallons per day (mgd) of potable water, and 0.9 mgd was from groundwater sources.

The Ha‘ikū Water System is supplied primarily by groundwater from Ha‘ikū Well (0.3 mgd) and Kaupakulua Well (0.6 mgd). The major source for the Makawao Water System is flow from Wailoa Ditch, which is treated at Kamole WTF, located at approximately the 1000-foot contour elevation. Kamole WTF is the largest surface water treatment facility on the island. The current average daily production is 3.6 mgd.

The Kula Water System is divided into the Upper Kula Water System, which is at approximately the 4000-foot contour elevation, and the Lower Kula Water System, at approximately the 3000-foot contour elevation. The major water sources for the Upper Kula Water System are the Haipua‘ena, Puohokamoa and Waikamoi Streams. Runoff from these streams are collected, transported, and treated at the Olinda WTF, which currently produces about 1.6 million gallons (MG) of potable water a day. Runoff from the same streams in addition to Honomanu Stream is treated at the Pi‘iholo WTF, and supplies the Lower Kula Water System with about 2.5 mgd.

1.4 Proposed Project

The Maui DWS is proposing the drilling, testing, and pump installation of an exploratory/backup well in the parcel (2) 2-4-012:028 owned by the State. The proposed project will be completed in two phases: 1) drilling and testing of Po‘okela Well “B” and 2) development of the well. The proposed well will not represent a new water source as limitations on electrical utility service and the proximity to the existing Po‘okela Well does not allow for simultaneous pumping.

Phase 1 of the proposed project, interim site improvements for the proposed well, will include grading around the well site to create a finished ground elevation of 1812 feet mean sea level (MSL). The existing embankment to the northwest of the well location will be graded to a 1.5:1 (H:V) slope and to a 2:1 slope southwest and southeast of the well. The well will be approximately 1950 feet deep. The well will be reamed to a diameter of approximately 27 inches and will have an upper section cased with a solid steel casing to a depth of about -38 feet MSL. The bottom section of the well will be cased with perforated casing from -38 feet MSL to -138 feet MSL. The top 1,000 ± foot section will be fully grouted to prevent contamination of the groundwater. The static water level is estimated at elevation +12 MSL. A hydro-geological report was prepared in June 2016, see Appendix B. A schematic of the well section is presented in **Figure 3**.

The drilling process will involve obtaining a NPDES permit. Testing the well will be in accordance with HRS Chapter 174C Part VIII “Wells” and Commission on Water Resource Management (CWRM) requirements. A temporary pump will be installed for step testing and constant-rate testing to determine well capacity and aquifer drawdown. The testing process will also include taking water samples, performing water quality tests, and removing the test pump.

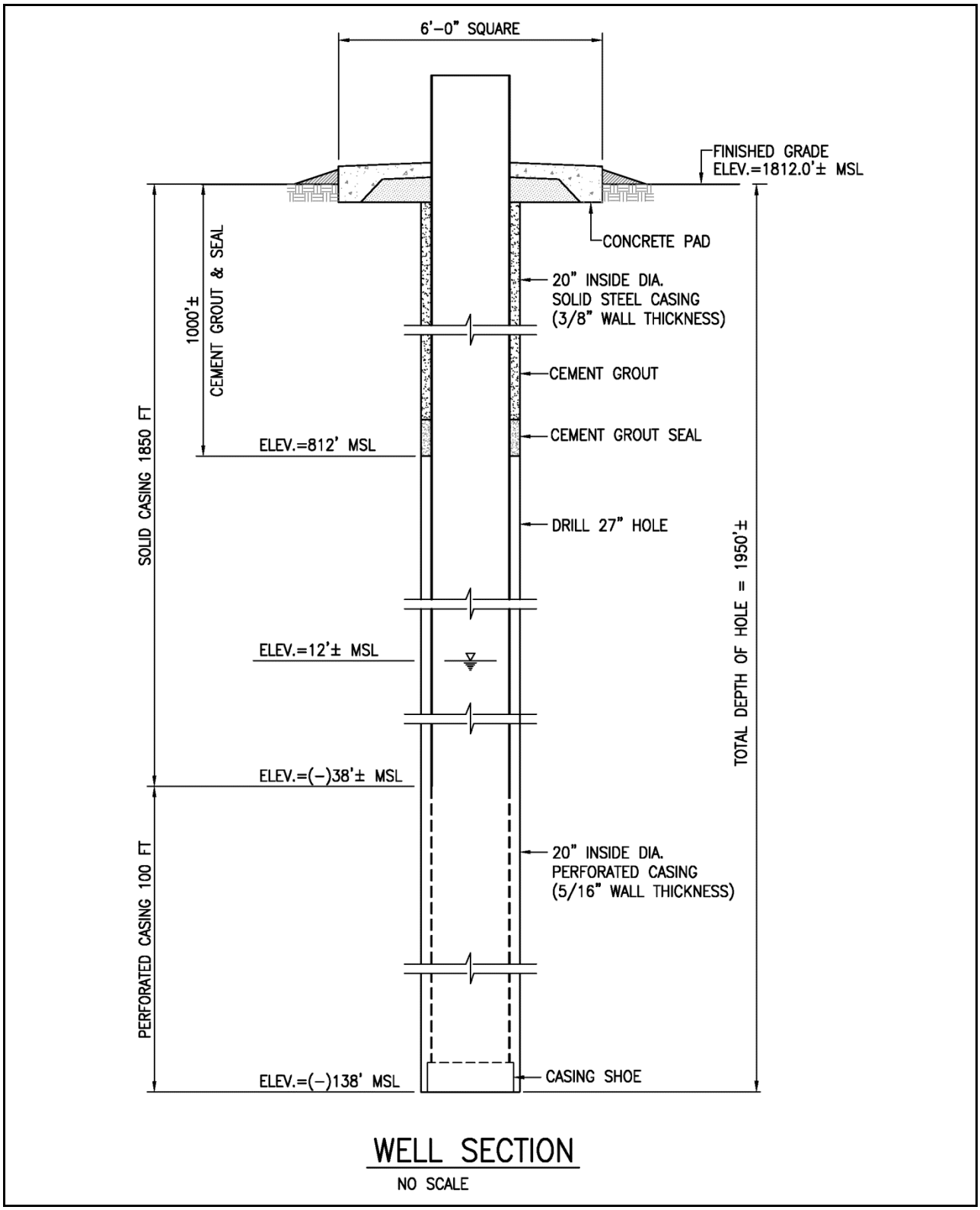
The test pump has a proposed pump capacity of 1,400 gallons per minute (gpm) or approximately two million gallons per day (mgd) for a continuous testing period of 6 days. The actual pump size will be similar to the existing Po‘okela pump of 900 gpm. Due to electrical limitations, a generator will need to be used during the testing of the well, which will involve obtaining a community noise permit from DOH. The existing 18-inch waterline running through the proposed well location will be temporarily relocated during construction and permanently relocated after construction.

The completed backup well will consist of a 6-foot square concrete pad with a 20-inch inside diameter carbon steel casing that extends two (2) feet above the ground with a casing cap lock. In Phase 2, the development of Po‘okela Well “B” will involve the following work items:

1. Installation of a submersible pump, pump rating up to 900 gpm at about 1900 feet total dynamic head
2. Pump discharge piping and appurtenances
3. Pump control building
4. Pump controls
5. Chlorination facilities
6. Radio telemetry link to the existing 2 MG Po‘okela Tank and Central Baseyard, may involve modification of the existing telemetry or add a new antenna
7. Electrical work
8. Grading

1.5 Project Costs and Implementation

The cost of the proposed project is estimated to be $6,500,000, with $2,500,000 of the budget for the exploratory phase of the project and $4,000,000 of the budget for the development of the well. Construction, testing, and development of the well are anticipated to take three to five years to complete.



Proposed Well Section **Figure 3**

2 COMPLIANCE WITH PLANNING DOCUMENTS AND POLICIES

2.1 Hawai‘i State Plan

HRS Chapter 226, also known as the Hawai‘i State Plan, is a long-range comprehensive plan that identifies an overall theme, goals, objectives, policies, priority guidelines, and implementation mechanisms. The proposed project is in line with the following goals, objectives, policies, and priority guidelines of the Hawai‘i State Plan. The goals, objectives, policies, and priority guidelines not listed are not applicable to the project.

Section 226-4: State Goals.
In order to guarantee, for present and future generations, those elements of choice and mobility that insure that individuals and groups may approach their desired levels of self-reliance and self-determination, it shall be the goal of the State to achieve:
(1) 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.

Discussion: Water is a precious resource and is a continuous need throughout Hawai‘i, especially in times of drought. The development of Po‘okela Well “B” will help fulfill the water needs of customers should the existing well require maintenance or repair.

Section 226-14: Objective and Policies for Facility Systems – In General.
(B) To achieve the general facility systems objective, it shall be the policy of this State to:
(1) Accommodate the needs of Hawaii’s people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.

Discussion: The drilling, testing, and development of Po‘okela Well “B” is in agreement with the Maui General Plan 2030, Makawao-Pukalani-Kula Community Plan – Update, and is consistent with the reliability objectives of the Maui Island Water Use and Development Plan, which is under development.

Section 226-16 Objective and Policies for Facility Systems – Water.
(A) Planning for the State’s facility system with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities.
(B) To achieve the facility systems water objective, it shall be the policy of this state to:
(4) Assist in improving water quality, efficiency, service, and storage capabilities of the water systems for domestic and agricultural use.
(5) Support water supply services to areas experiencing critical water problems.

Discussion: Po‘okela Well “B” is intended to allow customers to continue to be served while the existing well is under maintenance or repairs. With a backup well available, customers won’t lose the ability to be served if the existing well is offline.

Hawai'i State Plan – HRS Chapter 226 – Part III. Priority Guidelines

226-101 Purpose.
The purpose of this part is to establish overall priority guidelines to statewide concern.

226-102 Overall Direction.
The State shall strive to improve the quality of life for Hawaii's present and future population throughout the pursuit of desirable courses of action in seven major areas of statewide concern which merit priority attention: economic development, population growth and land resource management, affordable housing, crime and criminal justice, quality education, principles of sustainability, and climate change adaptation.

Section 226-103 Economic Priority Guidelines.
(E) Priority guidelines for water use and development:
(4) Explore alternative funding sources and approaches to support future water development programs and water system improvements.

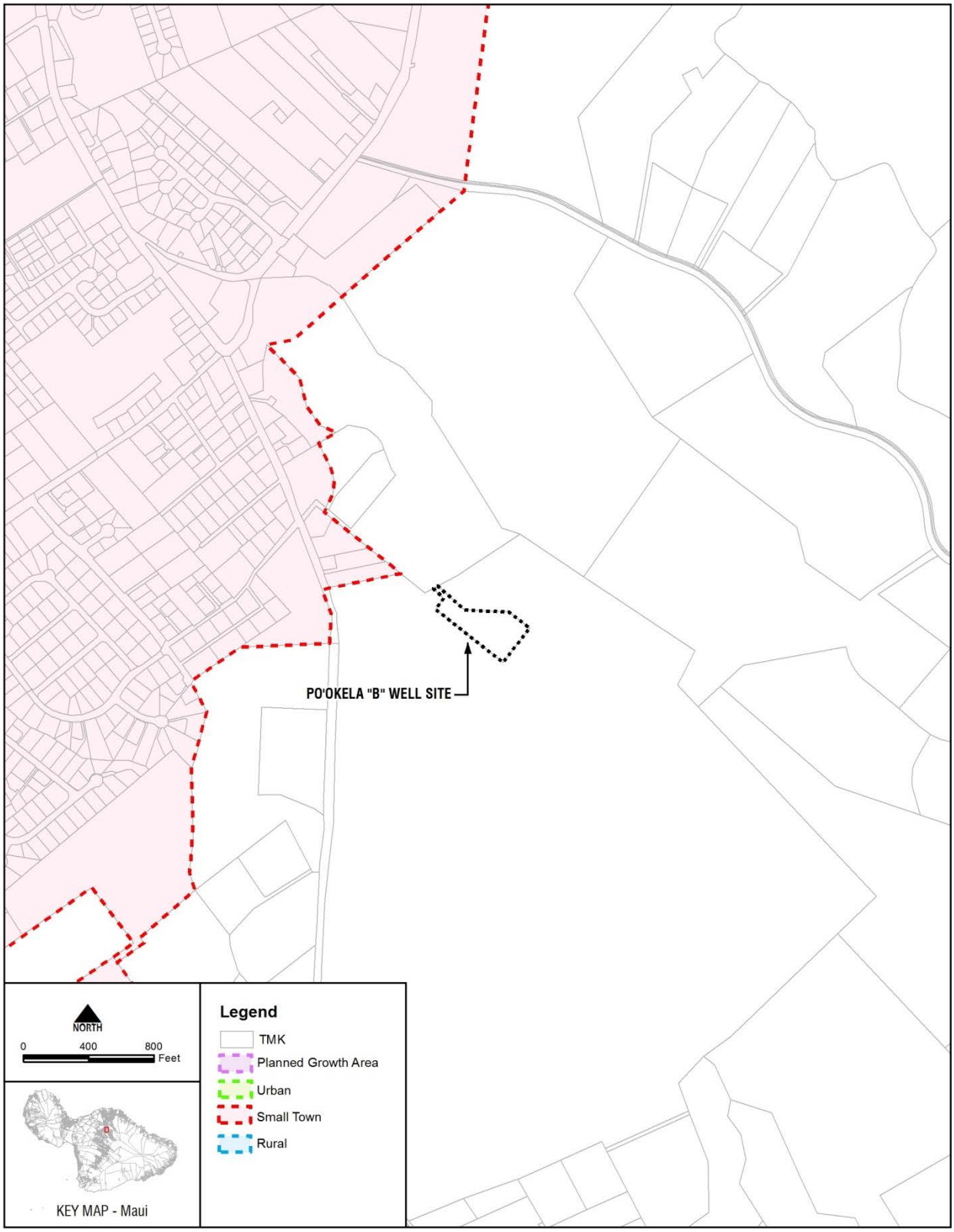
Discussion: The proposed project will be funded by the Hawai'i Drinking Water State Revolving Fund.

2.2 Maui Island Plan, General Plan 2030

The Charter of the County of Maui establishes the structure and organization of the government, and defines the responsibilities of the County. The Charter requires the development of the General Plan and Community Plans.

The Maui Island Plan (MIP), General Plan 2030, addresses development patterns, problems, and needs unique to the communities; explains social, economic and environmental impacts of potential developments, and sets the desired sequence, patterns and characteristics of future developments. The plan includes a Directed Growth Plan that identifies designated growth boundaries, which separates a growth area from a non-growth area. Areas within a growth boundary are categorized into Urban, Small Town and Rural. Po'okela Well "B" is outside of the growth boundaries, see **Figure 4**. The General Plan also identifies objectives, priorities, policies and implementing actions with respect to various development matters, including water systems.

The proposed project is consistent with the General objectives for water, and specifically moves towards achieving Goal 6.3 – "Maui will have an environmentally sustainable, reliable, safe, and efficient water system" and 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." Po'okela Well "B" addresses the following specific policies:



Maui Island Plan Map

Figure 4

a. *Ensure that cultural, historic, and archaeological resources are protected for the benefit of present and future generations.*

b. *Work with appropriate State and County agencies to achieve a balance in resolving the needs of water users in keeping with the water allocation priorities of the MIP.*

In order to ensure that cultural, historic, and archaeological resources will be protected during and after construction of the proposed well, an archaeological field inspection was performed by Scientific Consultant Services, Inc. (SCS). See Appendix A for field investigation report. It was concluded that the proposed well will not have an adverse impact on any historic properties and no surface archaeological remains were observed.

Po‘okela Well “B” is intended to allow customers to continue to be served while the existing well is under maintenance or repairs. With a backup well available, customers won’t lose the ability to be served if the existing well is offline.

2.3 Makawao-Pukalani-Kula Community Plan - Update

Maui County is divided into nine community plan regions, each governed by its own community plan. The project is located in Makawao, which is governed by the Makawao-Pukalani-Kula Community Plan. The Charter deems the Community Plan as part of the General Plan. The Makawao-Pukalani-Kula Community Plan was last updated in July 1996. Per Maui County Code 2.80B, the Community Plans are to be updated every 10 years. The process to update the Community Plans began in 2010, starting with Moloka‘i and Lana‘i. This plan “provides specific recommendations to address the goals, objectives and policies contained in the General Plan, while recognizing the values and unique attributes of Makawao-Pukalani-Kula, in order to enhance the region’s overall living environment.”

The existing land use designation for the project site is shown on the Makawao-Pukalani-Kula Community Plan Land Use Map. The land use designation for Po‘okela Well “B” is “P” for “Public/Quasi Public,” see **Figure 5**. The Makawao-Pukalani-Kula Community Plan identifies the limited development of water resources as a primary concern. Groundwater is the most viable alternative to the surface water sources.

2.4 Maui County Water Use and Development Plan

The most recent Maui County Water Use and Development Plan (WUDP) was adopted by CWRM in 1990. The water restrictions in Upcountry Maui resulting from drought conditions and low water levels in ditches and reservoirs were not addressed in the assessment of the Makawao Water System in the WUDP. The 1990 WUDP states, “the capacity of the Kamole Weir is no more than sufficient to meet projected demands to the year 2010.”

Maui DWS is in the process of updating the WUDP and the draft WUDP will be available for review in 2016. The updated WUDP will address drought conditions affecting upcountry Maui as stated in the following Frequently Asked Question and Answer:

Q: "Will the Water Use and Development Plan solve the upcountry water problems?"

A: "The WUDP will not directly solve the Upcountry water problems or eliminate the waiting list. However, the WUDP can evaluate various scenarios, identify a preferred solution, and set forth implementing actions to resolve problems. The county is concurrently working on some solutions."

The State Water Code, HRS Chapter 174C-31, Hawaii Water Plan, mandates that the WUDP "be prepared by each separate county and adopted by ordinance, setting forth the allocation of water to land use in that county." The Statewide Framework for Updating the Hawaii Water Plan dated February 2000 details the required and recommended elements for the WUDP. Updating the WUDP is an involved process of coordinating and integrating all water use and development planning for the County of Maui. Objectives developed may address issues such as water supply reliability, costs and/or rates, environmental impacts, water quality, appurtenant and correlative water rights, traditional and customary rights, and Department of Hawaiian Home Lands water needs. Po'okela Well "B" will be included in the Maui County WUDP.

2.5 Coastal Zone Management Objectives and Policies

Pursuant to HRS Chapter 205A, projects should be evaluated with respect to Coastal Zone Management (CZM) objectives and policies. The project site is located approximately 6.5 miles inland away from the coast at an approximate (finished) ground surface elevation of 1812 feet and is not located within the County of Maui's Special Management Area (SMA), see **Figure 6**. No impacts on the CZM resources and areas are anticipated; therefore the project will be consistent with the CZM program.

1. <u>Recreational Resources</u>

Objective: *Provide coastal recreational opportunities accessible to the public.*

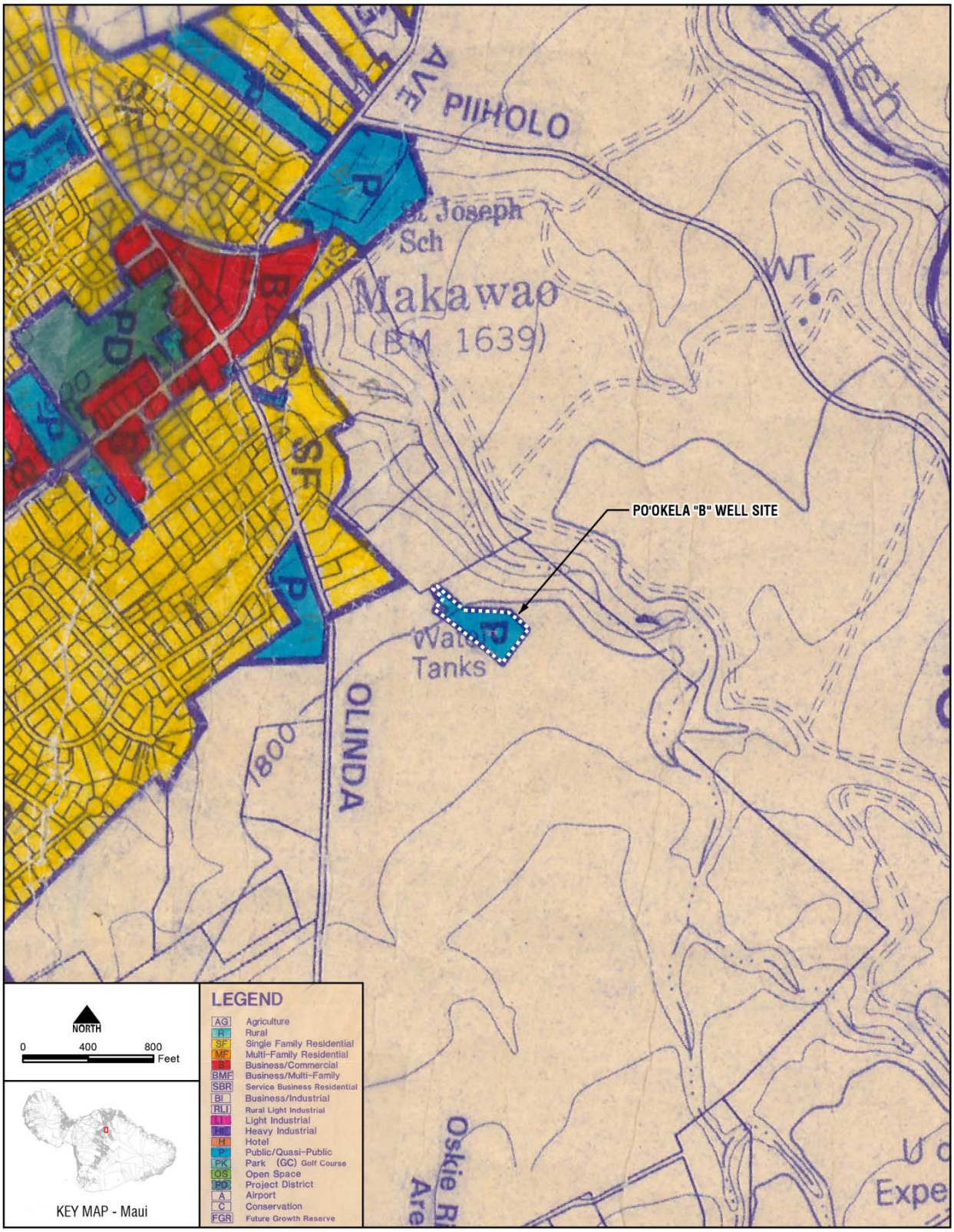
Policies:

a. Improve the coordination and funding of coastal recreational planning and management

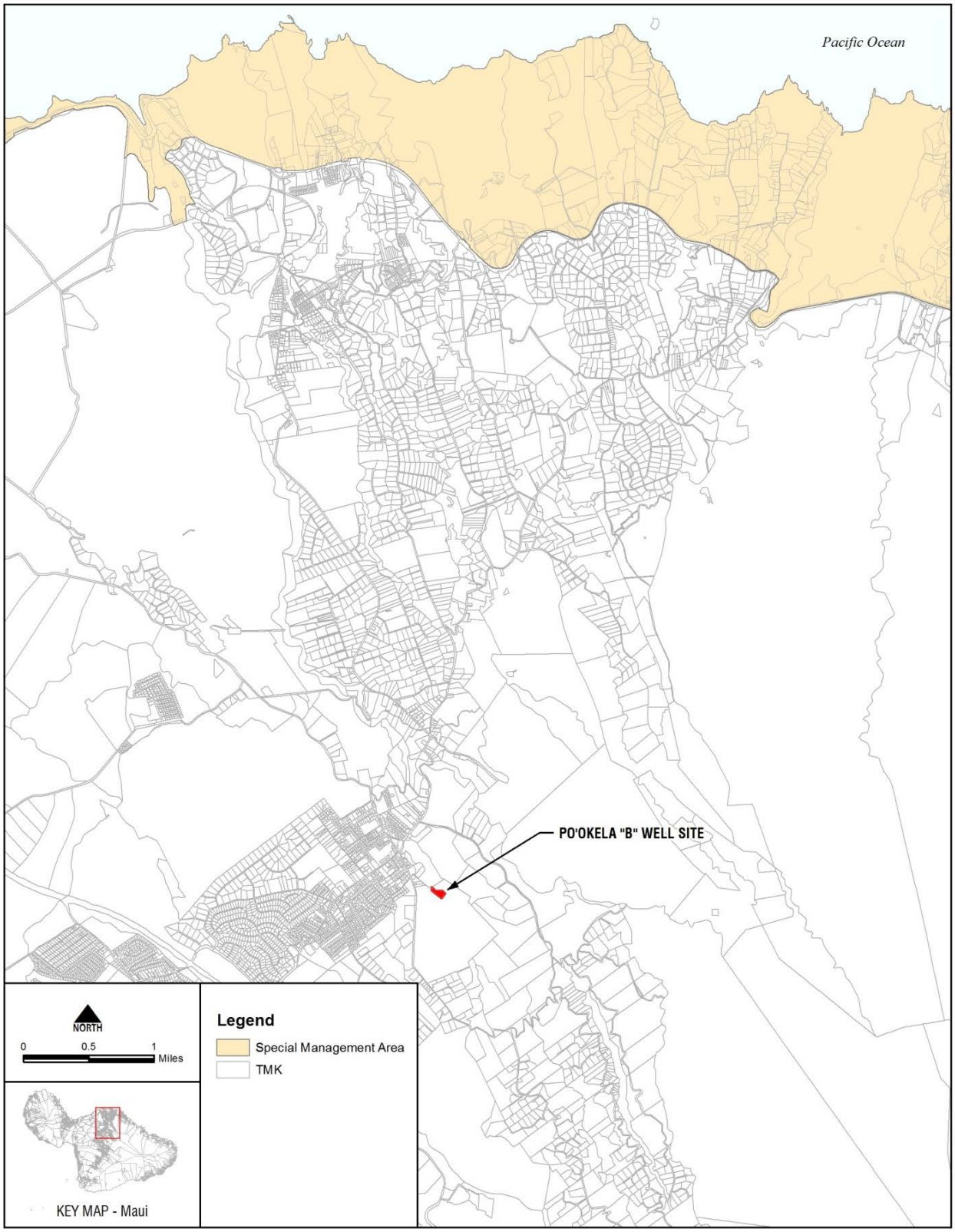
b. Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

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;



Community Plan Land Use Map **Figure 5**



Special Management Area Map

Figure 6

iii. *Providing and managing adequate public access, consistent with conservation of natural resources, to and along 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 nonpoint 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, HRS.*

Response: The project site is located inland, approximately 6.5 miles inland away from the coastline. Based on the location of the project, no impacts are anticipated on recreational opportunities or on public access to the shoreline.

2. <u>Historic Resources</u>

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 archaeological 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 project site is highly disturbed. If construction work uncovers any archaeological remains, work will stop immediately and the State Historic Preservation Division (SHPD) and the Maui Island Burial Council will be contacted.

SHPD was contacted and due to the large amount of grading that is proposed and insufficient data, further study into the project site was recommended.

SCS conducted an archaeological field inspection to further investigate the project site. A full pedestrian survey was performed in which no historic properties were identified. No archaeological remains were observed in the 20,000 square foot footprint or adjacent environs. SCS concluded that the proposed Po'okela Well "B" will not have an adverse impact on any historic properties. No formal archaeological work is recommended for the project site.

3. <u>Scenic and Open Space Resources</u>

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 developments to locate in inland areas.*

Response: The proposed project does not lie on a coastal scenic corridor or on the shoreline. The proposed site improvements include the construction of a one-story control building. Ranch lands surround the project site, and the closest public road (Olinda Road) is approximately 1000 feet from the site. With the existing topography and control building location, the existing vegetation will conceal the structure. Therefore, the visual impact of the proposed project is not expected to be significant.

4. <u>Coastal Ecosystems</u>

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: As previously stated, the project site is located inland, approximately 6.5 miles inland away from the coastline. Therefore, there are no anticipated impacts on the coastal ecosystem as a result of the proposed project.

5. <u>Economic Uses</u>

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 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: This project will not be developed along the coast; is located inland, 6.5 miles away from the coastline.

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 source 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 Federal Emergency Management Agency Flood Insurance Rate Map (FIRM) panel 1500030440E, dated September 25, 2009, designates the well site within Zone X. Zone X is the flood insurance rate zone that corresponds to areas of determined to be outside the 0.2% annual chance floodplain. See **Figure 7** for the Flood Hazard Assessment Report. Best Management Practices (BMPs) will be implemented during the construction phase to mitigate erosion and excess water discharge as a result of well testing. Disposal of excess water shall comply with all applicable National Pollutant Discharge Elimination system (NPDES) requirements. The Contractor will be required to obtain an NPDES general permit if his construction methods discharge into state waters, including the tributary of Maliko Gulch. After construction, all open flat areas will be covered with compacted gravel, the 2:1 sloped areas will be grassed, and the 1.5:1 sloped area will be covered with a geoweb system.

6. Managing Development

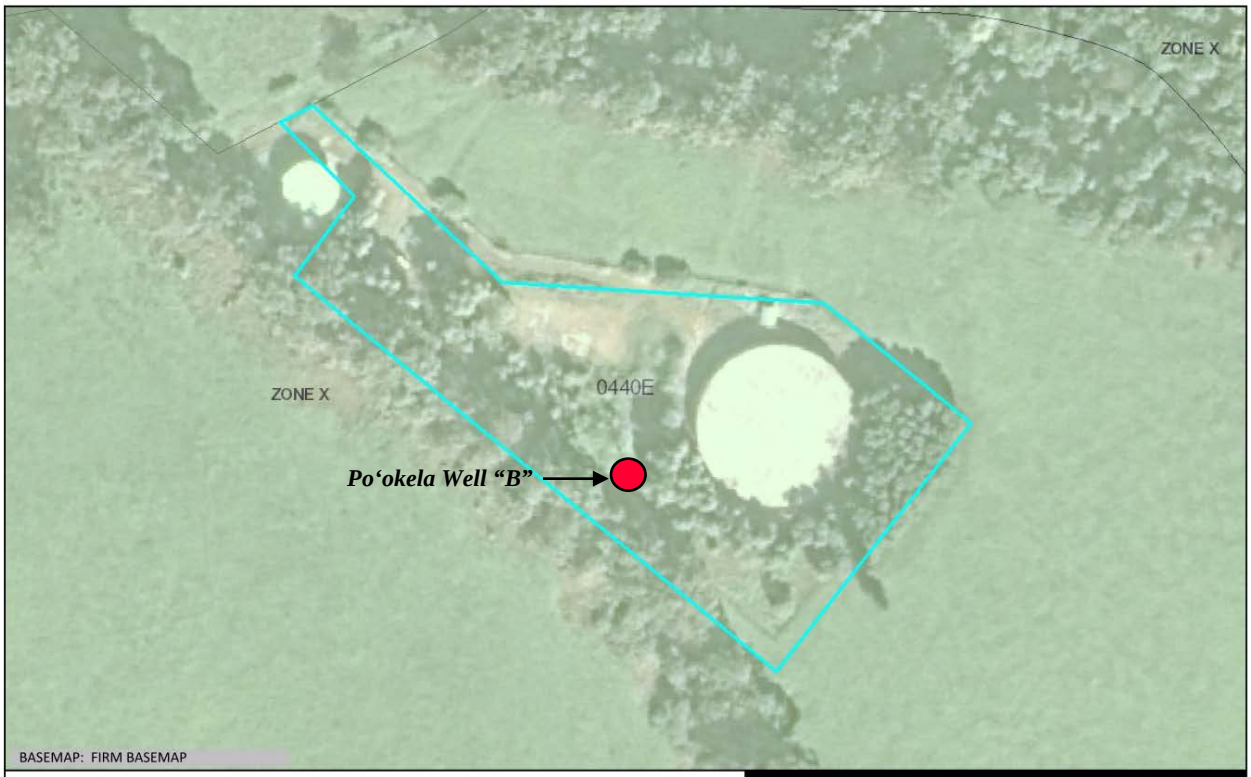
Objective: *Improve the development review process, communication, and public participation in the management of coastal resources and hazards.*

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 or conflicting permit requirement; and*

c. *Communicate the potential short and long-term impacts of the 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.*



Flood Hazard Assessment Report

www.hawaiinfip.org

Property Information

COUNTY:	MAUI
TMK NO:	(2) 2-4-012:028
WATERSHED:	MALIKO
PARCEL ADDRESS:	OLINDA RD MAKAWAO, HI 96768

Notes:

Flood Hazard Information

FIRM INDEX DATE:	NOVEMBER 04, 2015
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL:	1500030440E
PANEL EFFECTIVE DATE:	SEPTEMBER 25, 2009

THIS PROPERTY IS WITHIN A TSUNAMI EVACUTION ZONE: NO
FOR MORE INFO, VISIT: http://www.scd.hawaii.gov/

THIS PROPERTY IS WITHIN A DAM EVACUATION ZONE: NO
FOR MORE INFO, VISIT: http://dlnreng.hawaii.gov/dam/

0 100 200 ft

Disclaimer: The Hawaii Department of Land and Natural Resources (DLNR) assumes no responsibility arising from the use, accuracy, completeness, and timeliness of any information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the DLNR, its officers, and employees from any liability which may arise from its use of its data or information.

If this map has been identified as 'PRELIMINARY', please note that it is being provided for informational purposes and is not to be used for flood insurance rating. Contact your county floodplain manager for flood zone determinations to be used for compliance with local floodplain management regulations.

FLOOD HAZARD ASSESSMENT TOOL LAYER LEGEND
(Note: legend does not correspond with NFHL)

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD - The 1% annual chance flood (100-year), also know as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. SFHAs include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

- **Zone A**: No BFE determined.
- **Zone AE**: BFE determined.
- **Zone AH**: Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- **Zone AO**: Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- **Zone V**: Coastal flood zone with velocity hazard (wave action); no BFE determined.
- **Zone VE**: Coastal flood zone with velocity hazard (wave action); BFE determined.
- **Zone AEF**: Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA - An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- **Zone XS (X shaded)**: Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- **Zone X**: Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

- **Zone D**: Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase apply, but coverage is available in participating communities.

Source: National Flood Insurance Program, Flood Hazard Assessment Tool <http://gis.hawaiianfip.org>

FEMA Flood Insurance Rate Map **Figure 7**

Response: The public will be able to review the Draft Environmental Assessment (DEA) per HRS Chapter 343-3, "Public Records and Notice." The Office of Environmental Quality Control (OEQC) shall

> *"Inform the public of notices filed by agencies of the availability of environmental assessments for review and comments, of determination that statements are required or not required, of the availability of statements for review and comments, and of the acceptance or nonacceptance of statements."*

7. <u>Public Participation</u>

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: The public will be able to review the DEA per HRS Chapter 343-3, "Public Records and Notice." The Office of Environmental Quality Control shall

> *"Inform the public of notices filed by agencies of the availability of environmental assessments for review and comments, of determination that statements are required or not required, of the availability of statements for review and comments, and of the acceptance or nonacceptance of statements."*

8. <u>Beach protection</u>

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 project site is located inland, approximately 6.5 miles inland away from the shoreline. Therefore, there are no anticipated impacts on beach resources.

9. 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 site is located inland, approximately 6.5 miles inland away from the coastline. Therefore, there are no anticipated impacts are anticipated on marine resources.

3 DESCRIPTION OF THE ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

3.1 Land Classifications and Zoning

State and County laws and regulations govern Land use policies. The State Land Use Commission classifies all State lands as Urban, Rural, Agricultural, or Conservation with the intent to accommodate growth and development and to retain the natural resources of the area. More detailed land use zoning for the State designated land classifications is regulated by the Comprehensive Zoning Ordinance (CZO) for the County of Maui. County zoning designations include:

- Residential Districts
- Multiple-Family Districts
- Hotel Districts
- Business Districts
- Airport District
- Agricultural District
- Off-Street Parking and Loading
- Planned Development
- Civic Improvement District
- Park Districts
- Rural Districts

Lands designated for Agriculture by the State Land Use Commission and County Zoning and designated as Public/Quasi Public by the Makawao-Pukalani-Kula Community Plan surround the project site. See **Figure 8** for the State Land Use map. According to the Maui County Code, Title 19 Zoning, Chapter 19.30A Agricultural District, minor utility facilities is a permitted land use. Minor utility facilities are defined in Section 19.04.040 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…vaults, waterwells, tanks and distribution equipment…and other similar type uses." Therefore, this project is in compliance with the various Land use policies.

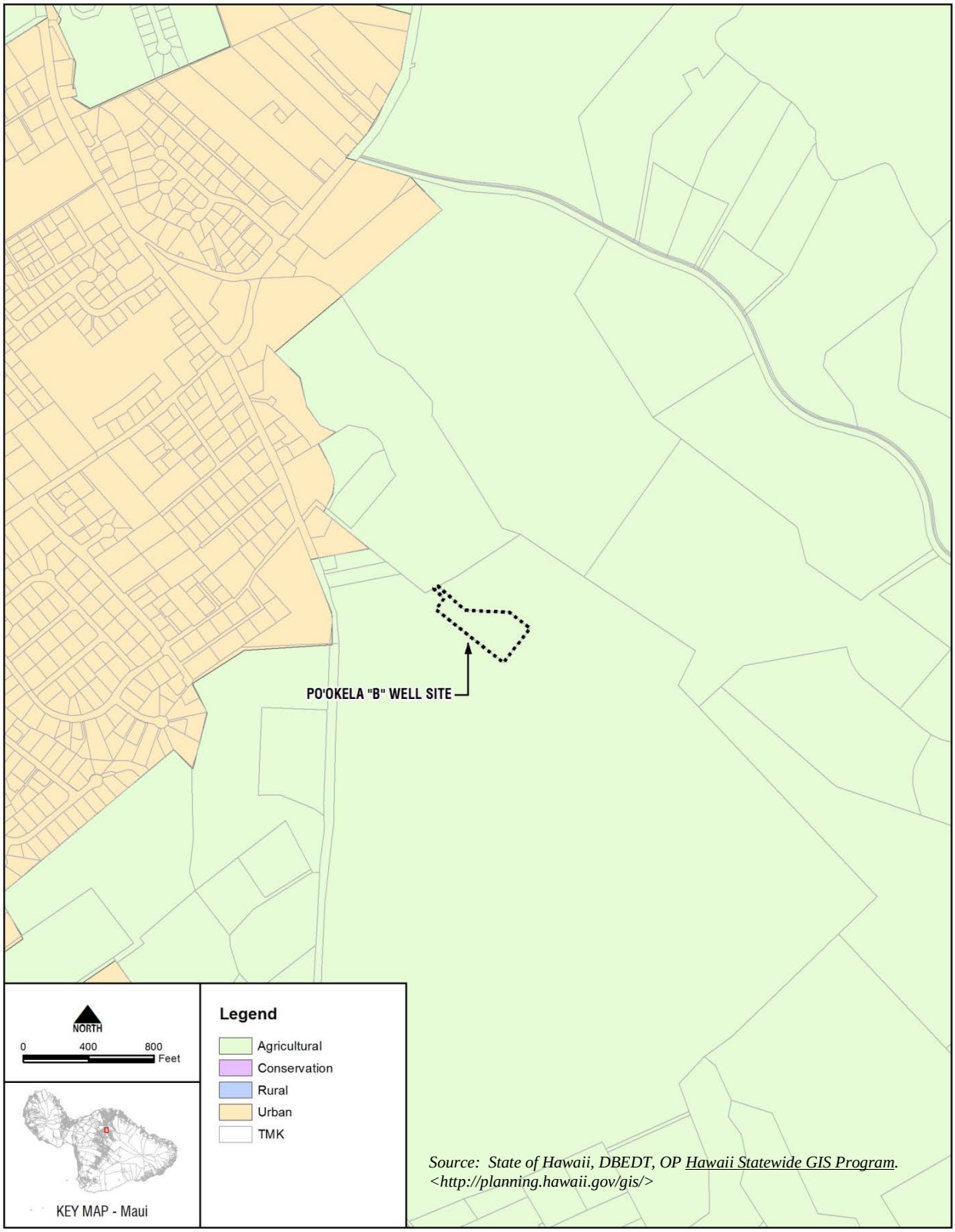
3.2 Physical Features

3.2.1 Topography and Soils Characteristics

Existing Conditions

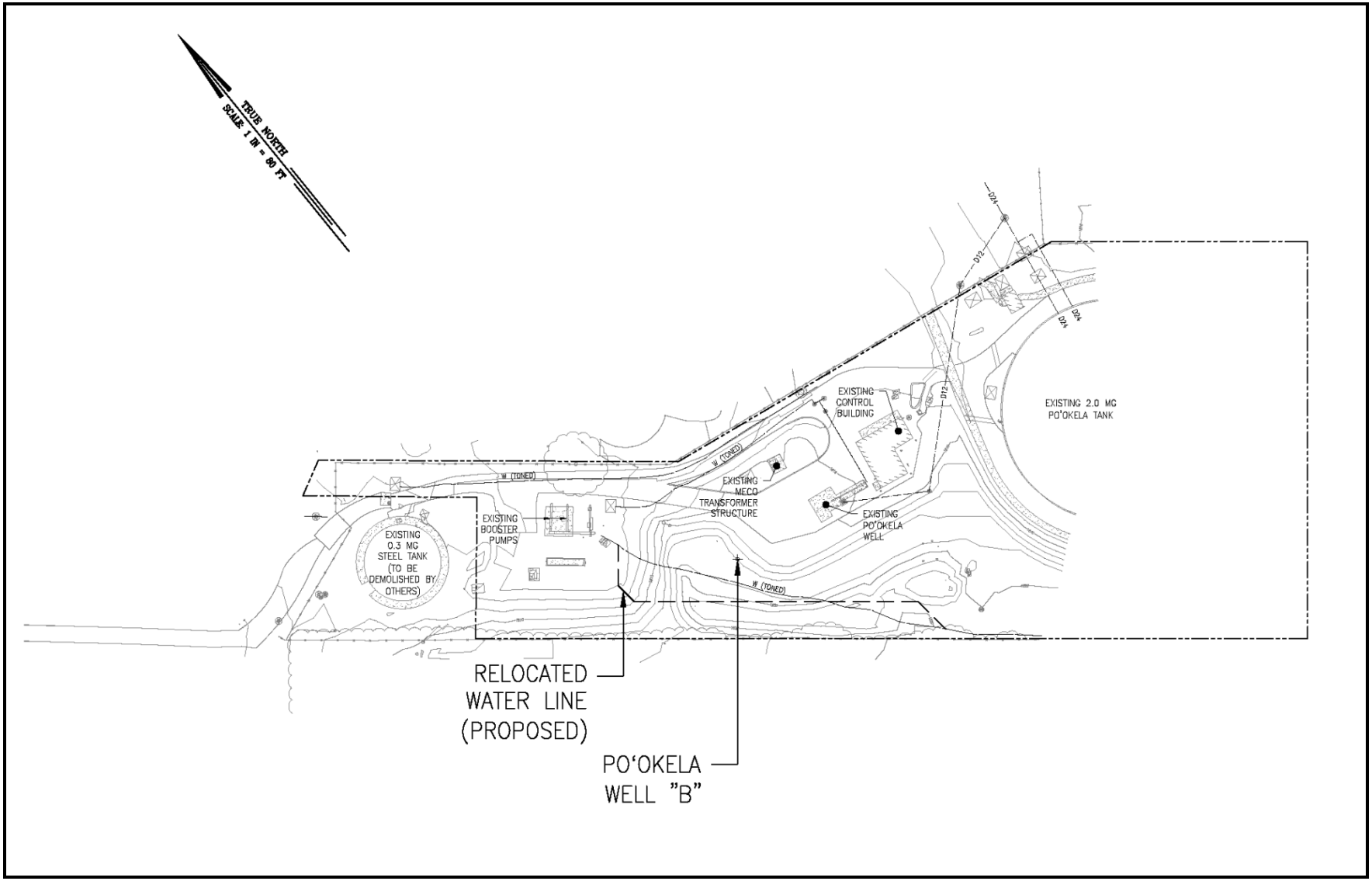
The topography of the lands surrounding the project site are steep, as Po'okela Well "B" is proposed to be developed between two embankments, both with slopes of 2:1, see **Figure 9** for a preliminary layout.

According to the Soil Survey issued in 1972 by the U.S. Department of Agriculture Soil Conservation Service (USDA-SCS), the soil in the area surrounding the backup well site is characterized by Makawao silty clay, 3 to 7 percent slopes (MfB). The soil is strongly acid to medium acid in the surface layer and slightly acid in the subsoil. Permeability is moderately rapid, runoff is slow, and the erosion hazard is slight. See **Figure 10**.



State Land Use – Maui

Figure 8



Preliminary Layout **Figure 9**

LEGEND

HgC	Haliimaile silty clay loam, 7-15% slopes	MfB	Makawao silty clay, 3-7% slopes
HhB	Haliimaile silty clay, 3-7% slopes	MfC	Makawao silty clay, 7-15% slopes
HkC2	Haliimaile gravelly silty clay, 7-15% slopes, eroded	rRK	Rock land

USDA/SCS Soil Map **Figure 10**

Potential Impacts and Mitigation Measures

The project site will be graded such that the finished elevation of the well is level at 1812 feet MSL and the existing embankment to the southwest and southeast of the well site will be re-graded to maintain a slope of 2:1. The embankment to the northeast of the site will be re-graded to maintain a slope of 1.5:1.

Approximately 0.41 acres will be graded to accommodate the drilling, testing, and development of Po‘okela Well “B.” The flat disturbed open area, approximately 9,730 square feet, will be covered in compacted gravel and the 6,900 square feet of 2:1 sloped areas will be grassed. The 1,230 square feet of 1.5:1 sloped area will be covered with a geoweb system. The 36 square foot well pad will be paved. The Contractor will be required to implement erosion and sediment control measures during construction. Grading and soil disturbance will be minimized, and areas that are disturbed will be properly graded and revegetated to prevent erosion. The Contractor will be instructed to minimize the time of construction, retain ground cover until the latest practicable date to complete construction, and construct drainage control features early in the construction time schedule.

3.2.2 Agriculture

Existing Conditions

The University of Hawai‘i, Land Study Bureau, developed the Overall Productivity Rating that rated all non-urban lands into five categories based on soil properties and capabilities for agricultural productivity, which is based on its performance for selected alternative crops. The categories were assigned letters “A” through “E”, representing the highest productivity to the lowest productivity, respectively. The project site is classified by the Land Study Bureau as “C”, 55 to 69 percent overall land productivity, see **Figure 11**.

In 1977, The Department of Agriculture developed a classification system to identify Agricultural Lands of Importance to the State of Hawai‘i (ALISH) primarily based on soil characteristics. The three classes of ALISH lands are Prime Agricultural Land, Unique Agricultural Land, and Other Important Agricultural Land. These classifications identify the long term implications for production of food, feed, forage, and fiber crops in Hawai‘i. However, the classifications do not designate areas for specific land use. Unclassified Lands that aren’t considered for classification as ALISH are 1) Developed urban land over 10 acres, 2) Natural or artificial enclosed bodies or water over 10 acres, 3) Forest reserves, 4) Public use lands, 5) Lands with slopes in excess of 35%, and 6) Military installations, except undeveloped areas over 10 acres. Po‘okela Well “B” is located within ALISH Prime Agricultural Lands, see **Figure 11**.

Potential Impacts and Mitigation Measures

The project site is home to the existing well and the land use will not change with the drilling and development of Po‘okela Well “B”. In addition, the drilling and development of Po‘okela Well “B” will be limited to the TMK boundaries; no additional land will be utilized. Therefore no adverse impact to agriculture is anticipated.

3.2.3 Wetlands

Existing Conditions

According to the U.S. Fish and Wildlife Service’s National Wetlands Inventory Wetlands Mapper, there are no wetlands within the vicinity of the well site. The wetlands are further east where the rainfall is significantly higher. The nearest wetland is a lake located in Makawao Forest Reserve, which is approximately 2.4 miles southeast of the project site.

Potential Impacts and Mitigation Measures

Given that there are no wetlands within the vicinity of the well site, there are no anticipated impacts.

3.2.4 Climate

Existing Conditions

Annual rainfall within the majority of the Makawao Aquifer System averages 38 inches a year and ranges between 20 and 50 inches per year. See **Figure 12**. The annual rainfall within the vicinity of Po‘okela Well “B”, which is on the windward edge of the Makawao aquifer, is wetter, with an average rainfall of about 75 inches per year. The temperature ranges from an average high of 78°F to an average low of 58°F. The northeasterly trade winds, which prevail throughout the year, result in winds with velocities averaging 20 miles per hour.

Potential Impacts and Mitigation Measures

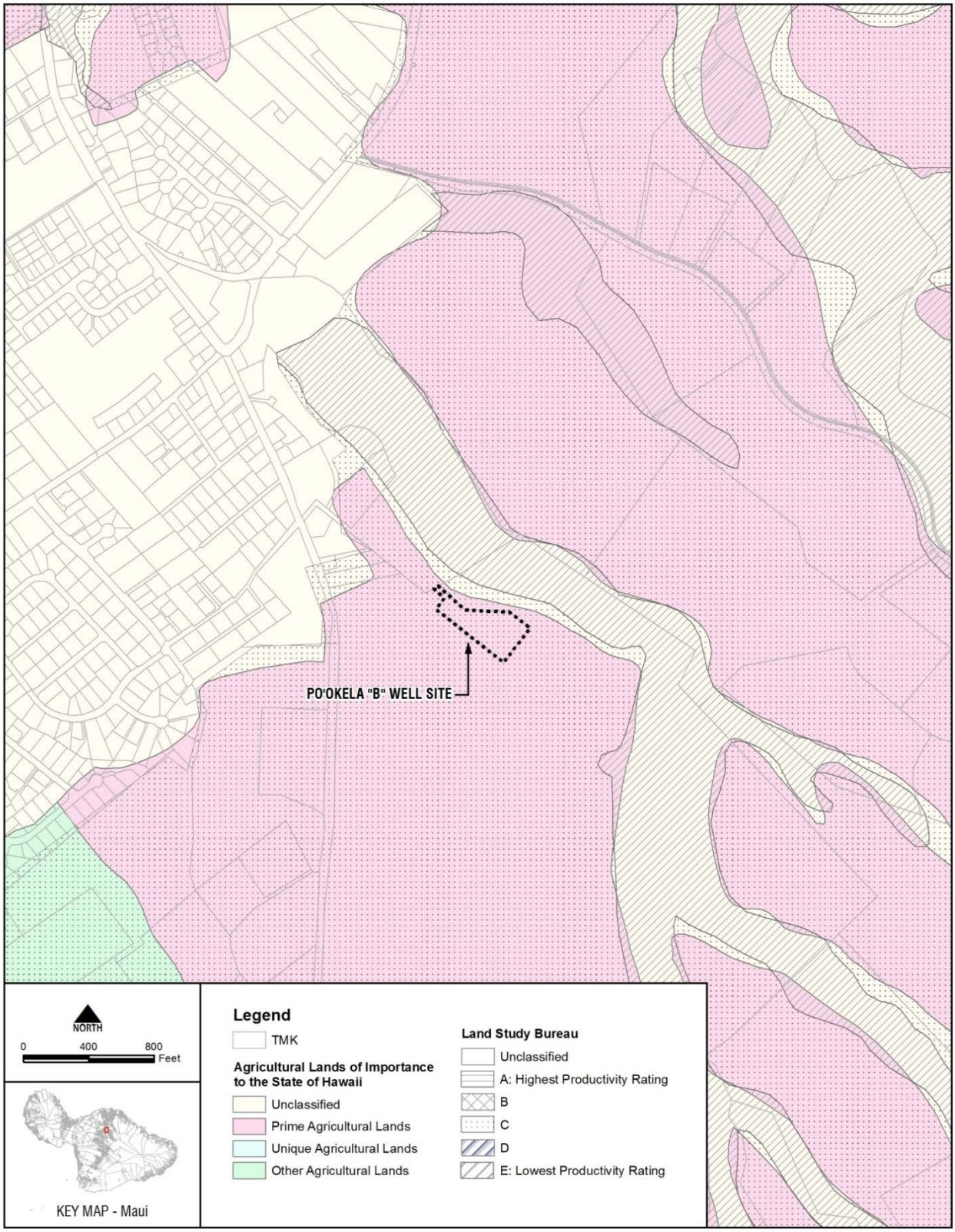
The proposed project is limited to drilling and testing of an exploratory well and construction of a pump control building, pump discharge piping and appurtenances and chlorination facilities. Significant adverse impact to the climate is not anticipated as a result of the proposed project.

3.2.5 Hydrology

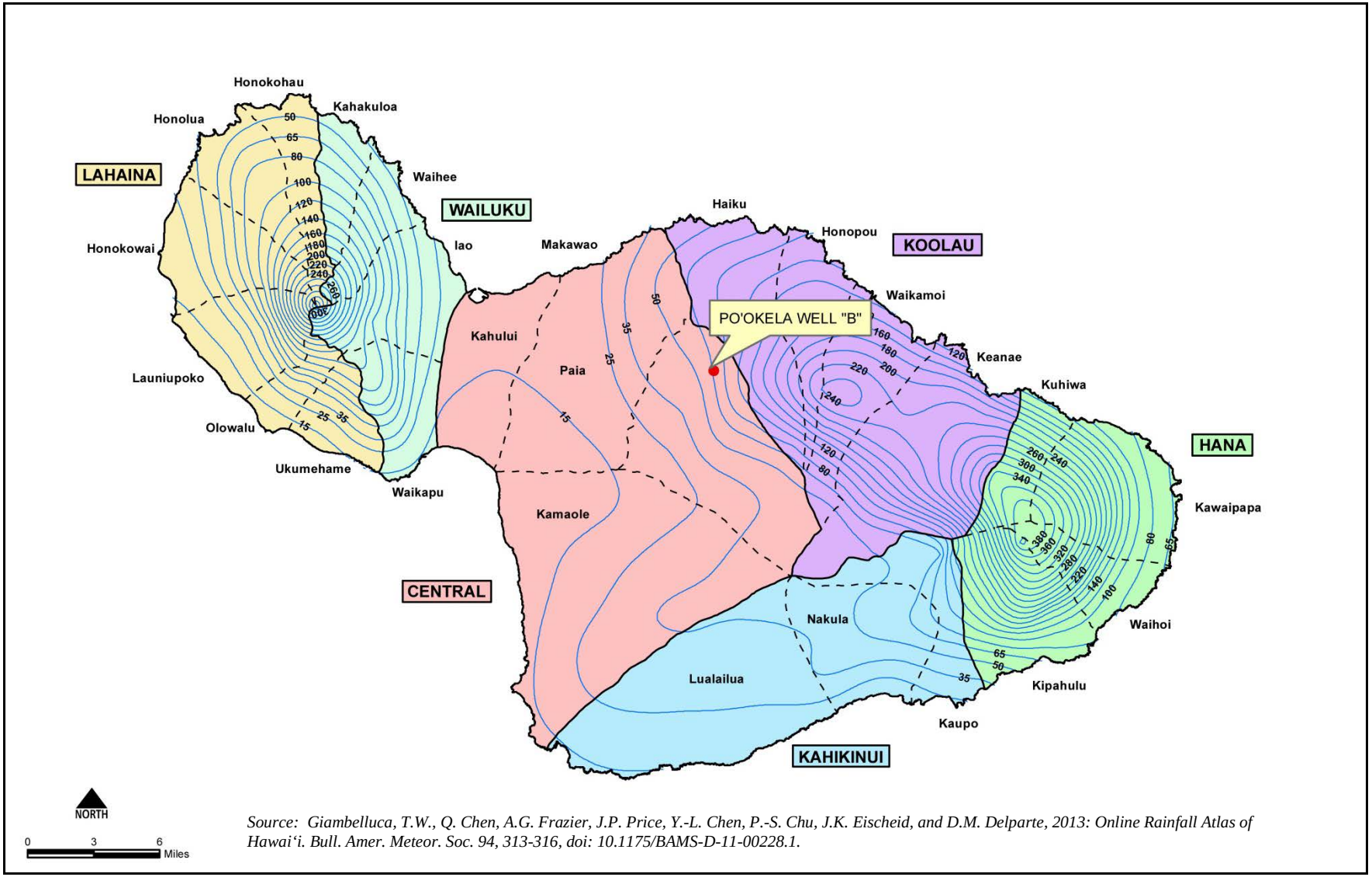
Existing Conditions

The State Commission on Water Resource Management (CWRM) has developed an aquifer classification system, which divides each island into Sectors and each Sector into Systems. The Aquifer Sectors “reflect broad hydrogeological similarities while maintaining hydrographic, topographic, and historical boundaries where possible” and the Aquifer Systems are “delineated based on hydraulic continuity and related characteristics.” See **Figure 13** for Maui’s aquifer systems and sectors.

Po‘okela Well “B” is located within the Makawao Aquifer System, which has a sustainable yield of 7 mgd. The Makawao Aquifer System is in the Central Aquifer Sector, which also includes the Kahului, Pā‘ia, and Kamaole Aquifer Systems, and has a total sustainable yield of 26 mgd.



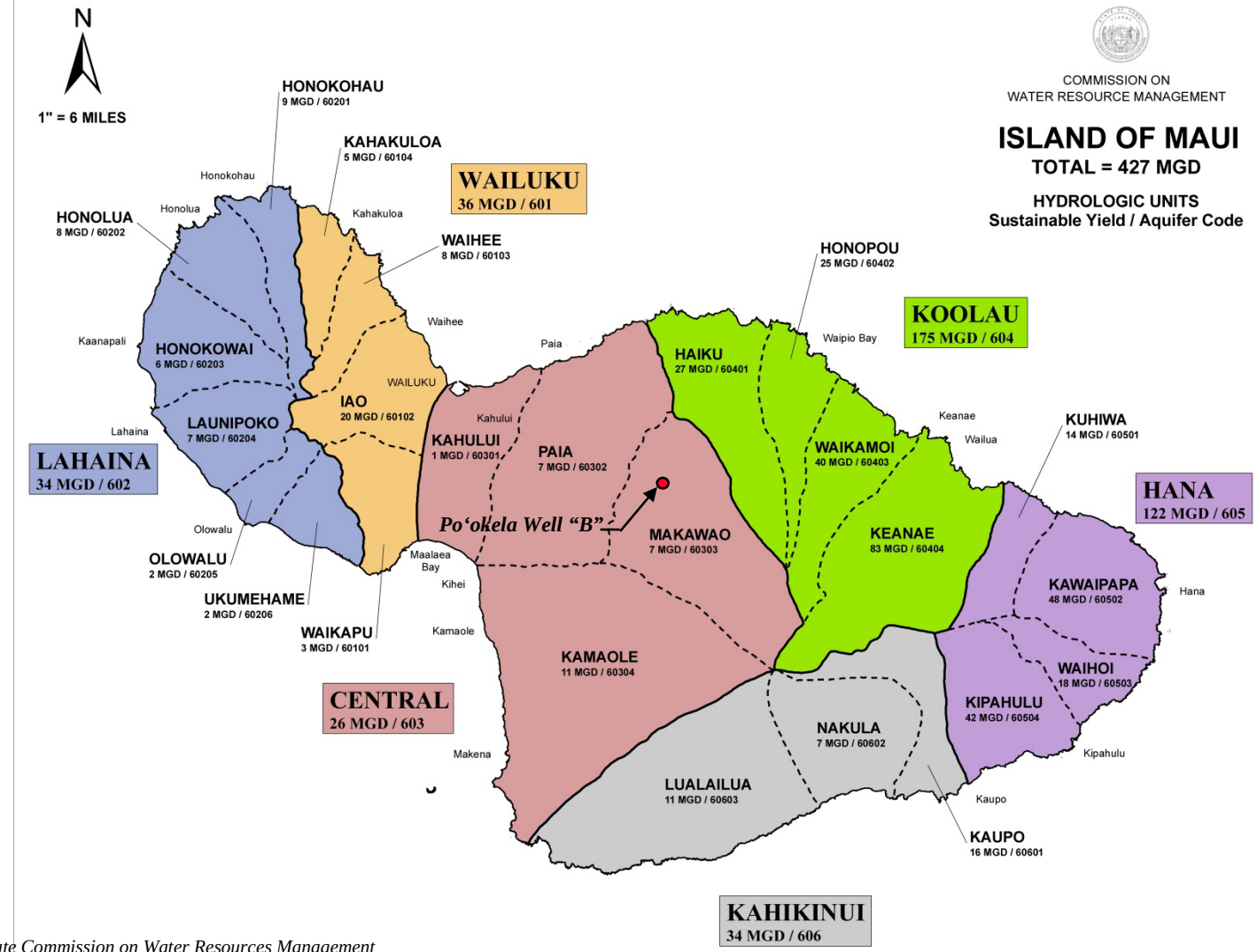
Agricultural Land Use Classification Figure 11



Source: Giambelluca, T.W., Q. Chen, A.G. Frazier, J.P. Price, Y.-L. Chen, P.-S. Chu, J.K. Eischeid, and D.M. Delparte, 2013: Online Rainfall Atlas of Hawai'i. Bull. Amer. Meteor. Soc. 94, 313-316, doi: 10.1175/BAMS-D-11-00228.1.

Aquifer Units and Rainfall Contours - Maui

Figure 12



Source: Hawai'i State Commission on Water Resources Management

Hydrologic Units – Sustainable Yield/Aquifer Code

Figure 13

The U.S. Geological Survey published the Water Resources Investigations Report 99-4090, Ground-Water Occurrence and Contribution to Streamflow, Northeast Maui, Hawaii. This report interprets the regional hydrology of the study area, which includes the drainage basins of Maliko Gulch and Makapipi Stream to the east, as shown on **Figure 14**. According to the report and as illustrated in **Figure 15**, "fresh ground water in northeast Maui occurs under two general conditions: (1) as a high-elevation saturated zone in relatively low-permeability rocks above an unsaturated zone [perched], and (2) as a freshwater-lens system underlain by denser saltwater [basal]."

The State of Hawaiʻi Office of Planning global information system (GIS) data indicate that Maliko gulch is approximately 450 feet northeast of the project site, see **Figure 16** for the approximate location with respect to the project site. Maliko gulch has a bottom elevation of approximately 1720 feet MSL. As shown in **Figure 15**, based on the hydrogeology, streamflow in the area results from rainfall and discharge springs.

Poʻokela Well "B" will have a ground elevation of 1812 feet MSL and a measured static water level of 12 feet MSL. Therefore, Poʻokela Well "B" taps the basal aquifer (indicated as the "freshwater lens" in **Figure 15**).

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

a. Surface Water

Water as a result of drilling the well will be contained in a sump, spreading the water to be percolate, and then disposed of in Maliko Gulch. If the water is not clear enough, it will be collected in a tanker truck and hauled offsite. The project contractor will discharge the pump testing water in an appropriate manner. Disposal of water generated from the testing of Poʻokela Well "B" will be via a nearby drainage inlet, which flows to Maliko Gulch, which is typically dry. The Department of the Army (DA) has determined that "the proposed activity does not affect the course, capacity, condition, or location of a Navigable Water of the U.S. as defined by Section 10 and would not result in the discharge of dredged or fill material into waters of the U.S. as defined by Section 404. Therefore, a DA permit will not be required."

Poʻokela Well "B" will tap the basal aquifer at approximately 12 feet MSL, and data show no evidence of perched water in the area. Several hundred feet of unsaturated zone (Kula lavas, which are poorly permeable) separate the perched water that may exist from the basal water. The layers are hydrologically disconnected; therefore Poʻokela Well "B" will not impact potential streamflow. In addition, the well is designed with a 1000-foot deep sanitary seal, the bottom of which is 812 feet MSL, 908 feet below the gulch bottom. The well will be sealed through the entire formation of Kula lavas. Therefore, the hydrogeology, sanitary seal, and horizontal and vertical separation from the gulch will protect the well water quality from potential flows into the gulch.

The operation of the deep well pump requires the discharge of air and flushing water before the well water can be conveyed to the tank. The flushing water would be discharged to the existing drainline from the 2 million gallon (MG) tank. The quality of

the flushing water generally would be potable. The existing drain outlet is in an area that has large trees adjacent to it, and it is well protected by the heavy root growth from these trees. The amount of flushing water discharged at the outlet should be less than drainage flows experienced at the outlet in the past; therefore the impacts from flushing water should be negligible.

b. Ground Water and Existing Wells

Pump testing during the exploratory phase may result in a temporary drop in the water table level. However, the water table level is expected to return to its initial level after testing.

Po‘okela Well “B” is intended as a backup well with equal or similar components as the existing Po‘okela Well, and will not be run simultaneously with the existing well. No additional water will be pumped from the aquifer to this well and it will not change the current withdrawal from the Makawao Aquifer. The estimated sustainable potable water yield of the Makawao Aquifer System is 7 mgd. The total potable water withdrawal from all of the wells in the Makawao Aquifer System is 2.54 mgd, or 36 percent of the sustainable yield.

3.2.6 Air Quality

Existing Conditions

The project site, in general, does not experience adverse air quality conditions. Tailpipe emissions from the cars traveling along Olinda Road are the only source of air pollution within the vicinity of the project.

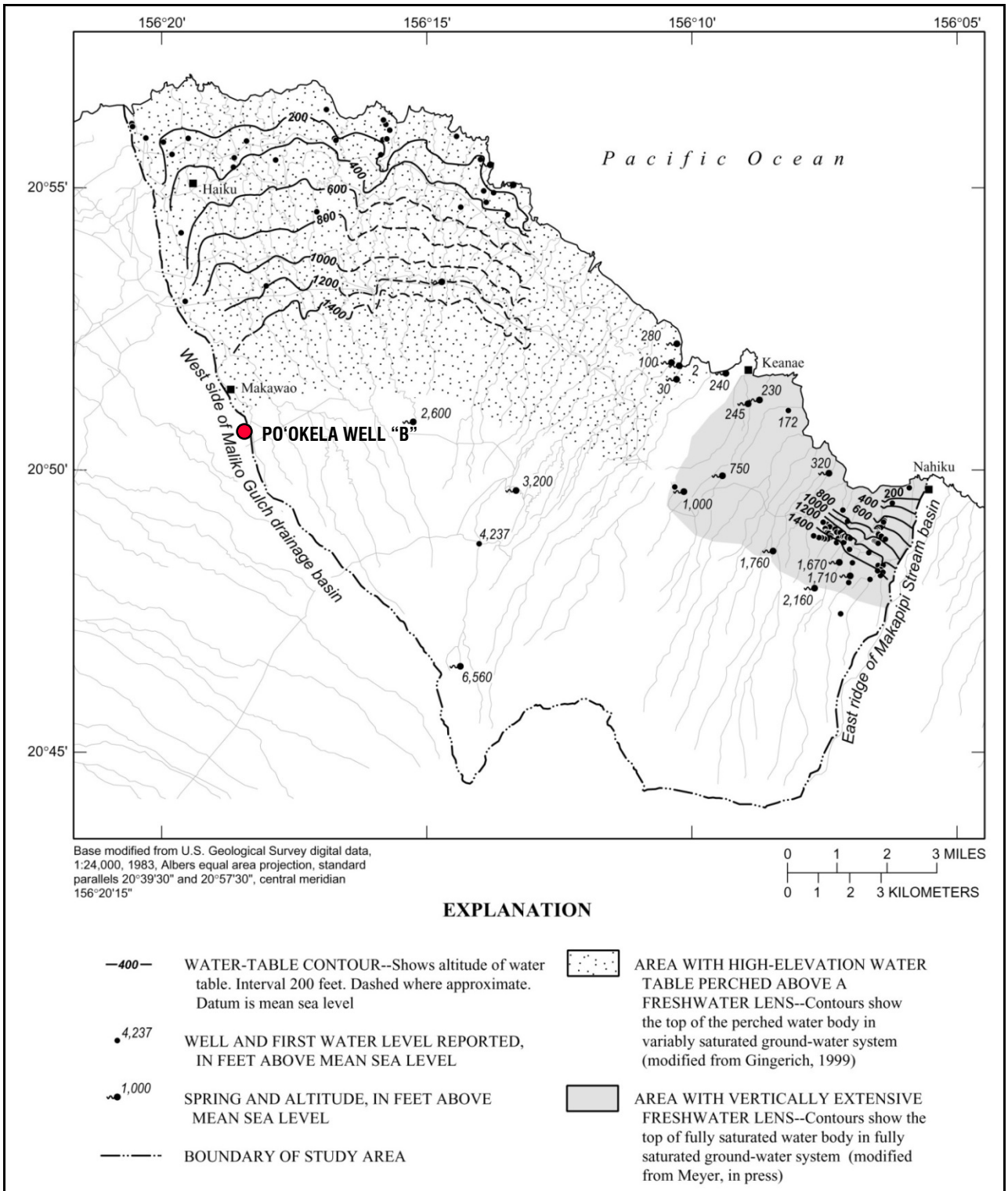
Potential Impacts and Mitigation Measures

During the continuous testing of Po‘okela Well “B”, a generator will be utilized due to electrical limitations. The use of a generator will result in a short term impact of air pollution. The Contractor will be required to comply with Hawaii Administrative Rules (HAR), Chapter 11-60.1: “Air Pollution Control.” and Section 11-60.1-33, “Fugitive Dust.” There will be an increase in dust and vehicular exhaust emissions in the vicinity of the project area during construction. Dust control measures such as periodic sprinkling with water will be used to reduce dust when needed. Tailpipe emission should not have any significant effect on the area because prevailing winds should disperse any exhaust gas concentration. Long-term, adverse impacts to air quality are not anticipated.

3.2.7 Noise

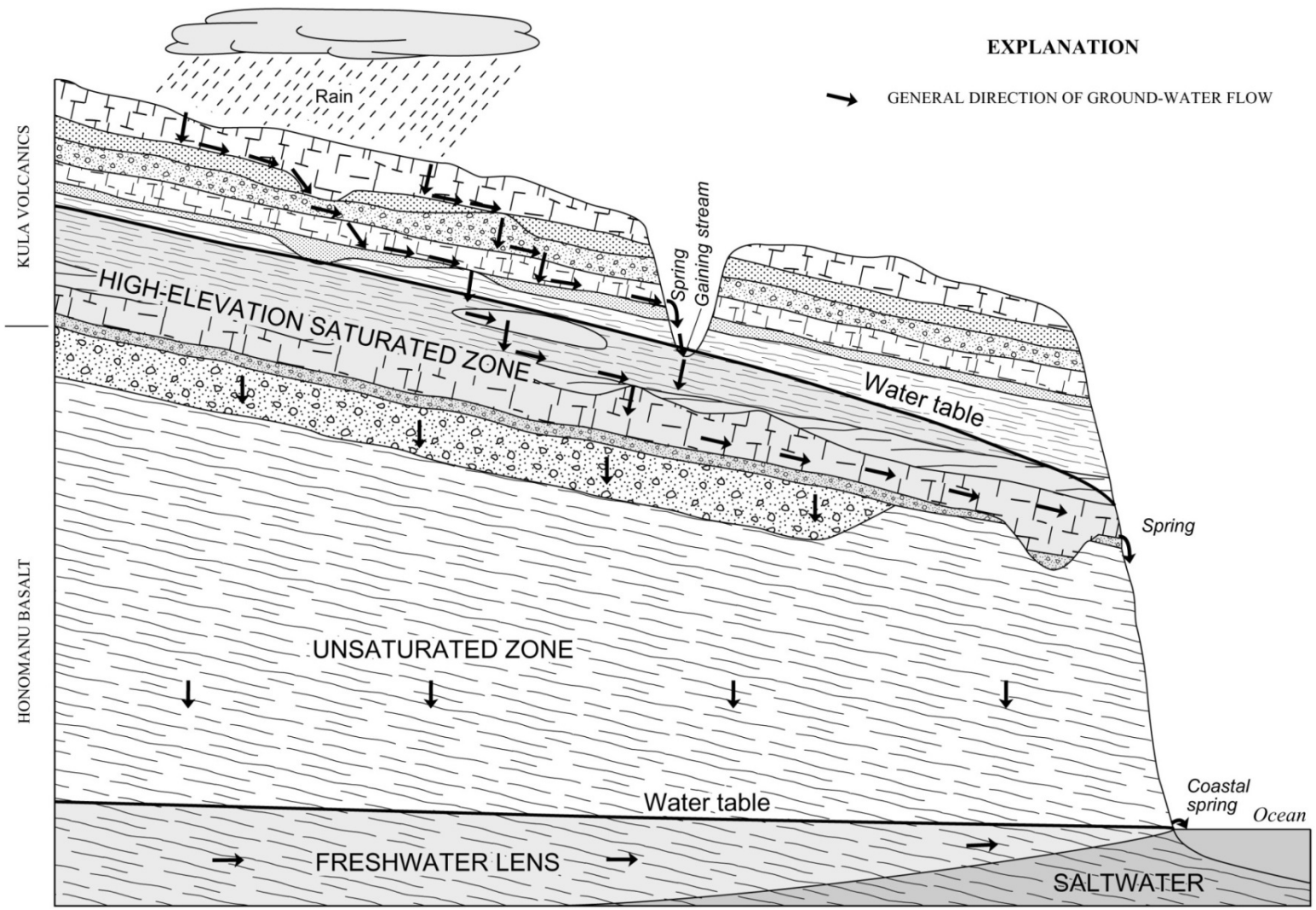
Existing Conditions

The predominant source of noise in the vicinity of the project site stems from traffic traveling along Olinda Road. Another source of noise stems from regular community activities, such as church services. Lands adjacent to the project site are residential and agricultural, neither of which are major noise-generators.



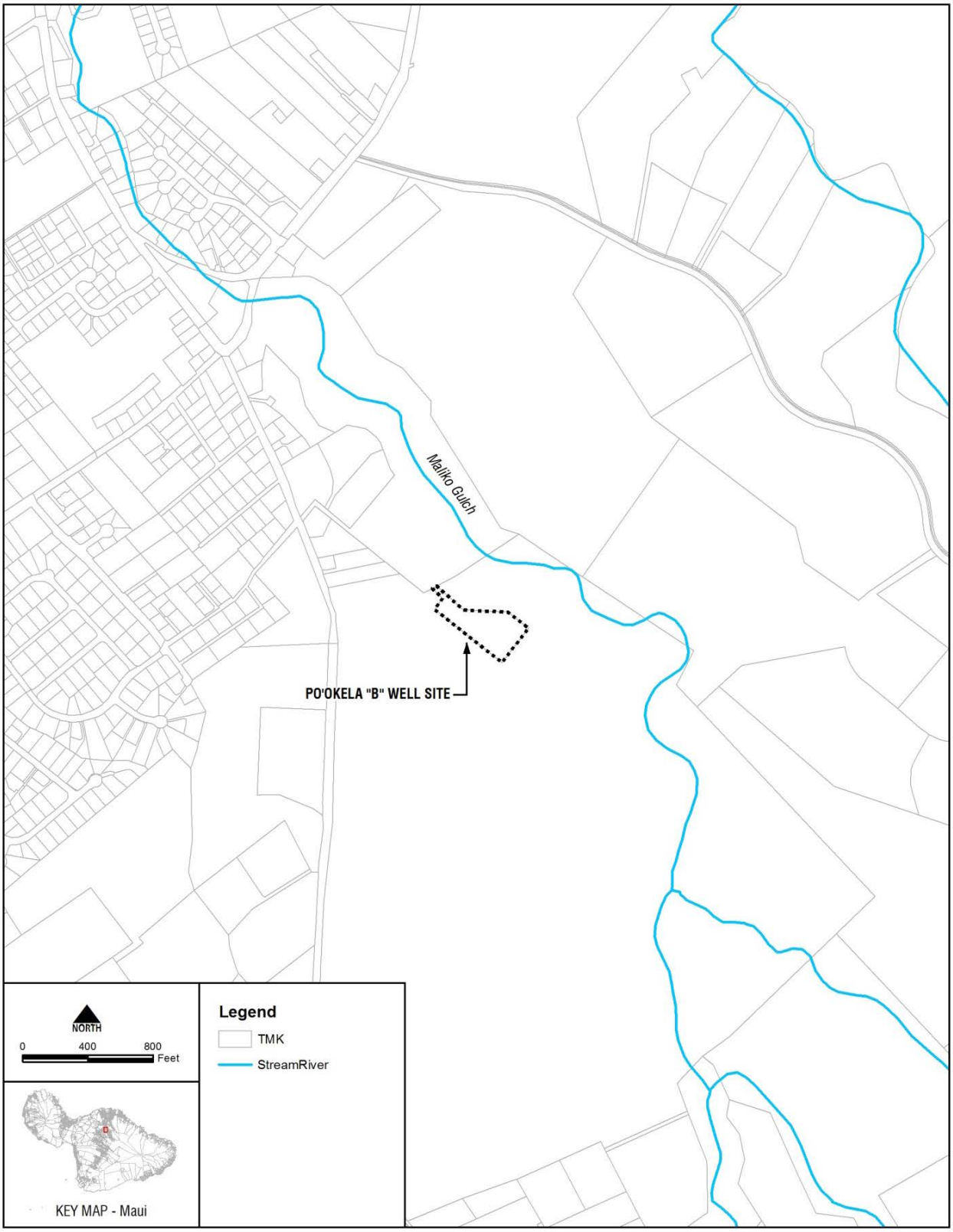
Source: Ground-Water Occurrence and Contribution to Streamflow, Northeast Maui, Hawaii. U.S. Geological Survey, Water-Resources Investigations Report 99-4090.

Generalized Water Table & Altitude of Selected Springs
Northeast Maui **Figure 14**



Source: Ground-Water Occurrence and Contribution to Streamflow, Northeast Maui, Hawaii. U.S. Geological Survey, Water-Resources Investigations Report 99-4090.

Variably Saturated Ground-Water System West of Kaenae Valley
Northeast Maui **Figure 15**



Streams, Rivers, and Diversions Map **Figure 16**

Potential Impacts and Mitigation Measures

During the testing of Po'okela Well "B", a diesel engine generator will be utilized due to electrical limitations. A Community Noise Permit from the Department of Health will be obtained, and noise will be limited to 70 decibels (dB), as specified by Rules of the Department of Health, at Title 11, Chapter 46 HAR. The maximum permissible sound level is determined by zoning district and applies to excessive noise emanating at any point within the property to beyond the property line deemed appropriate by the Director. Po'okela Well "B" is located in an agricultural zoning district, where daytime and nighttime maximum permissible noise levels are both 70 dB. Noise from the generator will be mitigated by the use of sound barriers.

There will also be an increase in noise from the construction activity. All noise generated by the construction activity shall conform to the noise regulations established by the State Department of Health, and will be limited to normal working hours. In the long term, a submersible pump and motor will be used; therefore no long term adverse noise impacts are anticipated.

3.2.8 Flora and Fauna

Existing Conditions

The project will affect approximately 0.41 acres of the highly disturbed project site, which was previously used for grazing. The existing vegetation is primarily kikuyu and rat tail grass.

Mammals common to the island of Maui include the bat, deer, dog, feral cat, goat, mongoose, and pig. Birds which are associated with the prevalent vegetation type in the area include the cardinal, barred dove, spotted dove, mockingbird, myna, golden plover, pueo, ricebird, house sparrow, and white eye. The pueo is a native Hawaiian bird. The golden plover is an indigenous Hawaiian bird. Gray and Black Francolin and Ring-Necked Pheasant are also known to be in the area. The project area is highly disturbed, and there are no indications of endangered fauna on the site.

Potential Impacts and Mitigation Measures

The project area is highly disturbed, as it was previously used for grazing. There are no indications of rare or endangered flora or fauna in the project area.

3.2.9 Land Use

Existing Conditions

The well site is designated as Public/Quasi-Public per the Makawao-Pukalani-Kula Community Plan (see **Figure 5**), and as Agricultural per State Land Use (see **Figure 8**) and County Zoning. The Makawao-Pukalani-Kula Community Plan defines Public/Quasi-Public land use as "schools, libraries, fire/police stations, government buildings, public utilities, hospitals, churches, cemeteries, and community centers."

Potential Impacts and Mitigation Measures

Po‘okela Well “B” is located on the existing Po‘okela Well and Po‘okela Tank site. There is adequate area for the well development facilities, and the fenced site will not be expanded. There will be no adverse impact on the land as the land use will not change.

3.2.10 Coastal and Marine Resources

Existing Conditions

The project site is located inland, approximately 6.5 miles inland away from the coastline. Disposal of water generated from the testing of Po‘okela Well “B” will be via a nearby drainage inlet, which flows to Maliko Gulch, which is typically dry. Water from Maliko Gulch drains to Maliko Bay, which is identified as Class A marine water quality classification by DOH.

Potential Impacts and Mitigation Measures

The soil in the area surrounding the backup well site is characterized as Makawao silty clay, 3-7% slopes, as previously mentioned. Permeability of the soil is moderately rapid, runoff is slow, and the erosion hazard is slight. After construction, 36 square feet of the project area will become a non-permeable, hardened surface (well pad) and the remaining 17,800 square feet of open space will utilize Low-Impact Development methodology (LID) by covering the remaining open areas with either grass, compacted gravel, or a with a geoweb system. This results in 0.20 percent of non-permeable surface for the proposed project. There are no flood prone areas within the project site. During heavy storm events, water can be absorbed by the grassy area surrounding the well site, helping to reduce runoff and pollutants from entering the drainage system.

The sustainable yield for Makawao Aquifer is 7 mgd. The State Water Code defines sustainable yield as “the maximum rate at which water may be withdrawn from a water source without impairing the utility or quality of the water sources as determined by the commission.” Because no additional water will be pumped from the Makawao Aquifer, the water quality of the aquifer will not be affected. Therefore, no adverse impacts to coastal or marine are anticipated as a result of the project.

3.3 Social and Cultural Environment

3.3.1 Population

Existing Conditions

Population projections from the Maui General Plan 2030 are based on projections developed by the State of Hawai‘i Department of Business, Economic Development and Tourism (DBEDT). For the island of Maui, the population is expected to grow from 144,444 people in 2010 to 194,630 people in 2030, an increase of 35 percent. The Makawao-Pukalani-Kula region is expected to grow from 25,198 people in 2010 to 29,635 people in 2030, an increase of 18

percent. Although this region has seen significant growth in the 1980s, population growth has declined since then due to a lack of new development because of water supply problems.

Potential Impacts and Mitigation Measures

The proposed project is not considered to directly increase or decrease the population on the island of Maui or in the Upcountry Maui region. Therefore, significant impacts to population are not anticipated as a result of this project.

3.3.2 Community

Existing Conditions

The proposed project is located in Upcountry Maui, which is located on the western slopes of Haleakalā, a reflection of how Upcountry Maui got its name. Upcountry Maui is one of the most diverse regions in Maui in terms of physical environment, history, and culture and is famous for the quality of vegetables and flowers exported to Hawaiian and international markets. Po‘okela Well “B” is located in Makawao, traditionally known as the last paniolo town. The major semi-urban center of Makawao is located in Makawao Town, near the Baldwin Avenue and Makawao Avenue intersection.

Potential Impacts and Mitigation Measures

When the existing Po‘okela Well requires maintenance, Po‘okela Well “B” can be utilized to serve existing water customers in its place. The ability to serve customers while the existing Po‘okela Well is down for maintenance will help decrease water emergencies and increase the reliability of the Po‘okela water source. Therefore, no negative impacts to the community are anticipated as a result of this project.

3.3.3 Economy

Existing Conditions

Maui County relies heavily on tourism, accounting for 39 percent of Maui County’s Gross County Product, versus 19 to 29 percent for the other counties (Maui County General Plan 2030, 2012). However, the past rate of growth in resident population, housing, and jobs is higher than the rate of visitor growth, indicating that Maui’s economy is diversifying and is less driven by tourism than in the past. With only 1 job located in the Makawao-Pukalani-Kula area for every 2.5 households, majority of the community commutes outside the area to work.

Potential Impacts and Mitigation Measures

In the short term, the proposed project will provide construction-related revenue and employment. Tourism is not anticipated to be impacted by the proposed project.

3.3.4 Cultural Resources

Existing Conditions

There are no trails, streams, caves, native plants, or other cultural resources on the site, which indicate traditional practices or customary usage. The closest stream is Maliko Gulch, which is 450 feet away. Additionally, impacts to streamflow, which might be used for cultural uses, are not anticipated.

Potential Impacts and Mitigation Measures

No cultural impacts resulting from this project are anticipated. There is no indication of traditional practices or customary usage on the site, which has been closed to access for several years. In addition, impacts to streamflow, which might be used for cultural purposes, are not anticipated. An archaeological field inspection was performed in July of 2016 by SCS. It was concluded that the proposed Po'okela Well "B" will not have an adverse impact on any historic properties. No formal archaeological work is recommended for the project site.

3.3.5 Historic-Archaeological Environment

Existing Conditions

The project site is highly disturbed. If construction work uncovers any archaeological remains, work will stop immediately and SHPD and the Maui Island Burial Council will be contacted. The SHPD was contacted and due to the large amount of grading that is proposed and insufficient data, SHPD recommended further study into the project site. SCS was then contacted to conduct an archaeological field inspection to investigate the project site.

Potential Impacts and Mitigation Measures

No long term negative impacts on historical and archaeological sites are anticipated. The project site is highly disturbed and SCS concluded that the proposed Po'okela Well "B" will not have an adverse impact on any historic properties. No formal archaeological work is recommended for the project site.

3.3.6 Public Works Projects

Existing Conditions

Although there are no public works projects within the immediate vicinity of the project location, there are a series of DWS projects intended to increase water capacity reliability.

Projected Impacts and Mitigation Measures

No public works projects are in the immediate vicinity of the project location. Therefore, no adverse impacts are anticipated.

3.4 Sensitive Areas

3.4.1 Flood Plains

Existing Conditions

The Federal Emergency Management Agency Flood Insurance Rate Map (FIRM) panel 1500030440E, dated September 25, 2009, designates the well site within Zone X. Zone X is the flood insurance rate zone that corresponds to areas of determined to be outside the 0.2% annual chance floodplain. See **Figure 7**, previously presented in Section 2.5: Coastal Zone Management Objectives and Policies.

Potential Impacts and Mitigation Measures

Given the location of the project site to be with Flood Zone X, impact of the project on the flood zone is not expected.

3.4.2 Tsunami Zones

Existing Conditions

Po‘okela Well “B” is approximately 6 miles inland and at an elevation of 1812 feet MSL.

Potential Impacts and Mitigation Measures

Given the location of the project site with relation to the ocean, no tsunami impacts are expected.

3.5 Water Quality

3.5.1 Chemical

Existing Conditions

The chemical test results from 2002-2003 for the existing Po‘okela Well are as follows:

Report		**#104183**	**#104249 & #105040***	**#104250**
Sample Date		12/17/02	12/17/02	12/18/02
Contaminant	**MCL**	**Po‘okela Well Result**		
Arsenic (mg/L)	0.010	ND	0.0011	ND
Chromium (mg/L)	0.1	0.0039	0.0041	ND
Copper (mg/L)	1.3	0.014	0.008	0.006
Fluoride (mg/L)	4.0	0.08	0.08	0.08
Lead (mg/L)	0.015	0.054	0.0014	0.0013
Nitrate-N (mg/L)	10.0	0.49	0.50	0.51

MCL: Maximum Contaminant Levels
ND: Not Detected
* Report #105040: Resampled in 1/23/03 and analyzed for Diquat and Regulated Volatile Organic Carbons due to laboratory errors. No contaminants were detected.

With the exception of lead in Report #104183, the contaminants detected were well below the MCLs and met the chemical safe drinking standards. It is likely that the lead in Report #104183 resulted from a sampling or laboratory error. In addition, the measured chloride content was only 5 mg/L. Chapter 11-54 of the Hawaii Administrative Rules defies “brackish waters” as waters with dissolved inorganic ion concentrations greater than 0.5 parts per thousand [500 mg/L] but less than thirty-two parts per thousand [32,000 mg/L].

According to DOH, Safe Drinking Water Branch records, there are no contaminated groundwater wells in the Makawao Aquifer System. The majority of the contaminated wells of record are located in the Pā‘ia Aquifer System, which is down gradient of the Makawao Aquifer System, see **Figure 17**. The groundwater flows from the higher elevation (Makawao Aquifer) to the lower elevation (Pā‘ia Aquifer).

The contaminants found in the Pā‘ia Aquifer System include EDB (ethylene dibromide), atrazine, and desethyl atrazine (a breakdown product of atrazine). The potential contamination sources for atrazine and desethyl atrazine is herbicide and are gas additive, soil fumigant, or solvents for EDB. These chemicals were not detected in the existing Po‘okela Well and are not anticipated to be detected in Po‘okela Well “B.” However, in the unlikely event that they are detected in the future, the well water can be effectively treated with granular activated carbon filtration.

Potential Impacts and Mitigation Measures

The chemical test results from the existing Po‘okela Well are anticipated to be nearly identical to that of Po‘okela Well “B” with the exception of the lead result error. A Well Completion Report will be prepared for the well drilling of the exploratory phase of the project and submitted to CWRM for approval.

3.5.2 Biological

Existing Conditions

The biological test results for the existing Po‘okela Well are as follows:

Total Coliform Bacteria	Too numerous to count
Fecal Coliform	Negative
Heterotrophic Plate Count	22 Colony forming units per mm

Coliform bacteria are naturally present in the environment. Coliforms are not a health threat in itself, but are used to indicate whether other potentially harmful bacteria may be present, such as fecal coliform. A positive Total Coliform test requires a Fecal Coliform test. The Heterotrophic Plate Count (HPC) measures bacteria that are also naturally present in the environment, and have no health effect. However, a lower HPC indicates a better-maintained water system.

Upcountry Maui does not have a central sewer system and landowners are responsible for their individual wastewater systems (septic tank or cesspool). According to CWRM Hawaii Well Construction & Pump Installation Standards, the recommended minimum horizontal distance

between a potable water well and a cesspool or septic tank is 1000 feet. However, the chairperson may change this on a case-by-case basis based on local geologic or hydrologic conditions. According to correspondence with Maui DOH, Wastewater Branch, there are two septic tanks, ID 3689 and ID 5489, that are located approximately 920 and 700 feet away from the proposed well site, respectively. Other cesspools were identified through research for the 2004 Po‘okela Well Environmental Assessment for the existing well. See **Figure 18** for a map of their locations with respect to the project site.

Although the 1000 feet guideline is not met, Po‘okela Well “B” seems adequately protected. Po‘okela Well “B” will tap the basal aquifer at approximately 12 feet MSL, and data show no evidence of perched water in the area. Several hundred feet of unsaturated zone (Kula lavas, which are poorly permeable) separate the perched water that may exist from the basal aquifer. Refer to **Figure 15**. The layers are hydrologically disconnected. In addition to the considerable horizontal separation, there is a significant vertical separation of over 1800 feet to the water table.

Potential Impacts and Mitigation Measures

The biological test results from the existing Po‘okela Well are anticipated to be nearly identical to that of Po‘okela Well “B”.

The following BMP’s will be followed:

1. Inspect exposed parts of the well periodically for problems such as: cracked or corroded well casing, broken or missing well cap, damage to protective casing, settling and cracking of surface seals.

2. Slope the area around the well so that the surface runoff drains away from the well.

3. Provide a well cap or sanitary seal to prevent unauthorized use of or entry into the well.

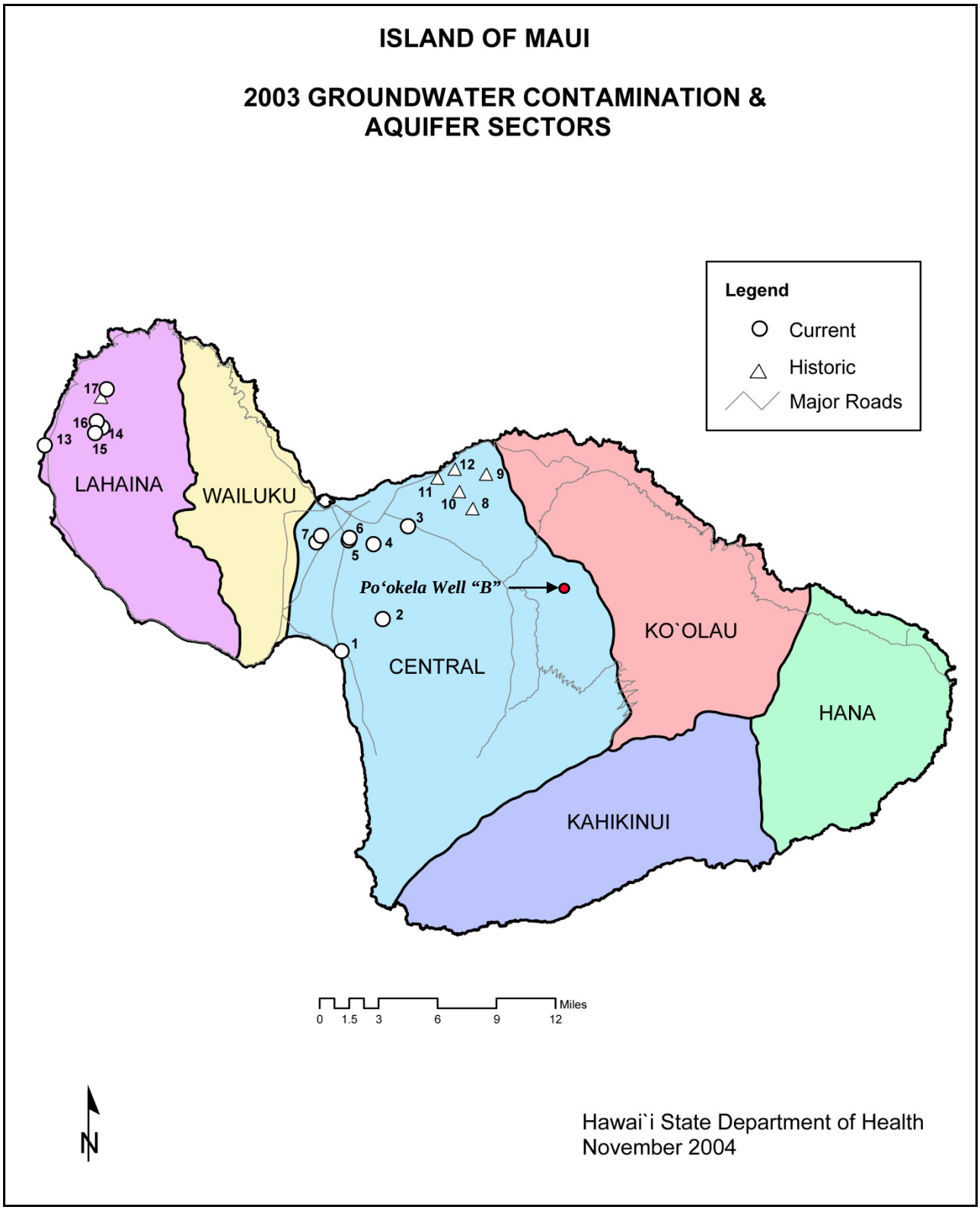
4. Provide for sediment removal or well cleaning as necessary.

5. Have the well tested once a year for fecal coliform or other constituents that may be of concern.

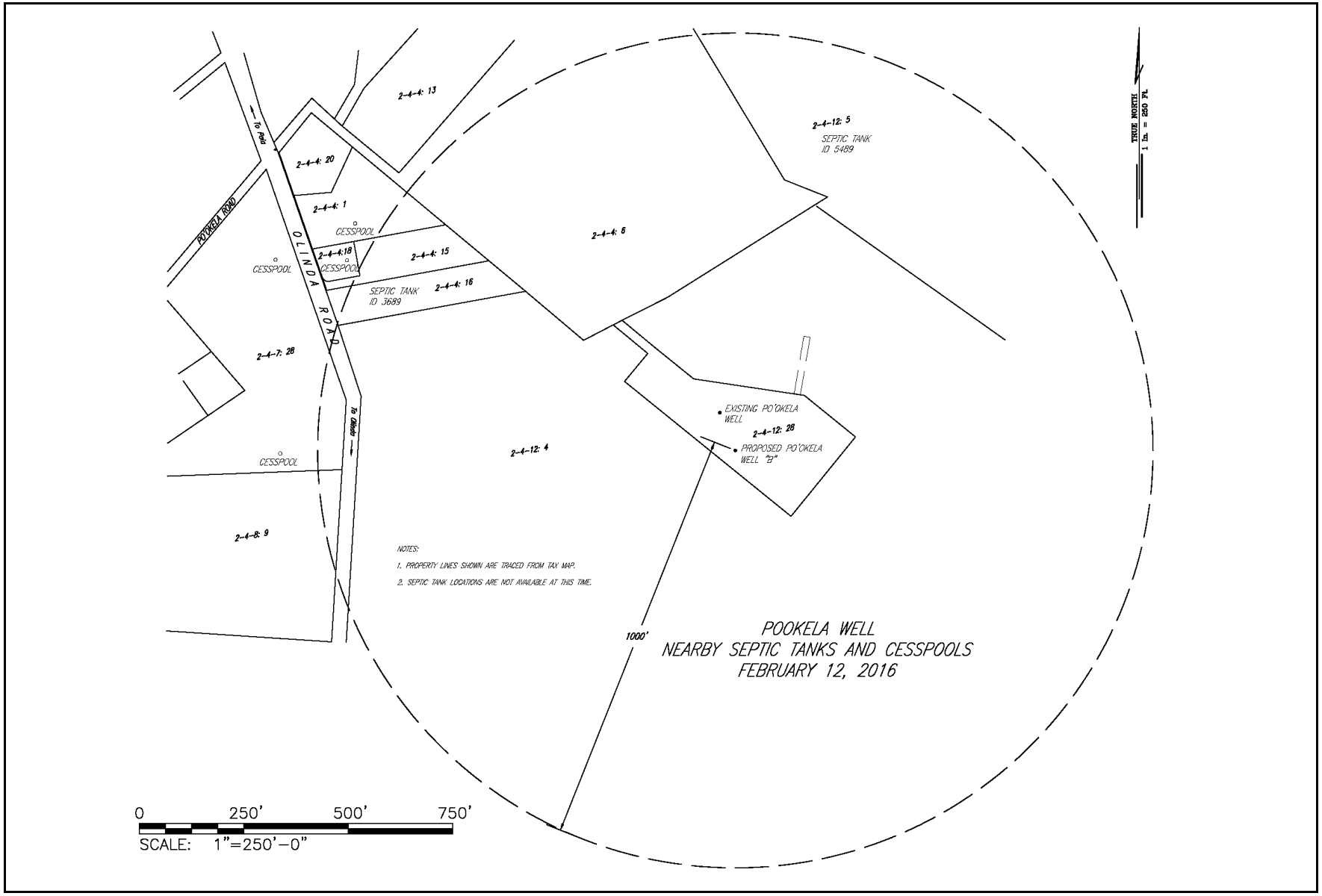
6. Keep accurate records of any well maintenance, such as disinfection or sediment removal, that might require use of chemicals in the well.

7. Avoid mixing or using pesticides, fertilizers, herbicides, degreasers, fuels, or other pollutants near the well.

8. Do not locate any type of potentially polluting activity within 1000 feet of the well for wellhead protection.



Contaminated Well Map 2003 - Maui **Figure 17**



Nearby Septic Tanks & Cesspools (1,000 ft. Radius) **Figure 18**

3.6 Cumulative and Secondary Impacts

Cumulative and secondary impacts are defined by Title 11, Chapter 200, HAR, Environmental Impact Statement Rules. Cumulative impacts are:

> *“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 other actions. Cumulative impacts can result from individual minor but collectively significant actions taking place over a period of time.”*

Secondary impacts, also known as indirect impacts, are:

> *“The sum of effects on the quality of the environment, including actions that irrevocably commit a natural resource, curtail the range of beneficial uses of the environment, are contrary to the state’s environmental policies or long-term environmental goods and guidelines as established by the law, or adversely affect the economic or social welfare, or are otherwise set forth in section 11-200-12 of this chapter.”*

With the addition of Po‘okela Well “B”, the project location will be home to the existing Po‘okela Tank, Well and the proposed Po‘okela Well “B”. No additional projects are foreseen to be designed or constructed in the immediate vicinity in the foreseeable future. Due to electrical limitations and proximity to the existing well, Po‘okela Well “B” will serve strictly as a backup to the existing Po‘okela Well and no additional water will be pumped from the aquifer by this well. The addition of Po‘okela Well “B” will allow for customers to continue to be served while the existing well is down for maintenance or repair. The ability to serve customers while the existing well is offline will help decrease water emergencies and increase the reliability of the Po‘okela water source.

The proposed project is not anticipated to have a cumulative impact on coastal resources from land-based polluted runoff and sediment loss for several reasons: 1) the soil in the area is characterized as moderately rapid permeability, slow runoff, and a slight erosion hazard, 2) the proposed well site will be graded to have two down-sloping embankments, and 3) of the 0.41 acre area being disturbed, 36 square feet will be paved, accounting for the well pad surrounding the proposed well site. The remaining 17,800 square feet of disturbed area will either be grassed, allowing for water to be absorbed into the soil, covered with compacted gravel, or covered with a geoweb system. This will help to reduce runoff and pollutants from entering the drainage system. The amount of non-permeable surface accounts for 0.20 percent of the total disturbed area. Therefore, no cumulative impact on coastal resources from land-based polluted runoff and sediment loss is anticipated.

All adverse impacts as a result of drilling, testing, construction, or development of Po‘okela Well “B” are either non-existent or are capable of mitigation through proper BMPs or enforcement of permit conditions. Therefore, the proposed project is not anticipated to result in significant cumulative or secondary impacts on the environment.

4 ALTERNATIVES TO THE PROPOSED PROJECT

4.1 No Action Alternative

Should the existing well require maintenance or repair, Upcountry customers may be without water service. Depending on the severity of the mechanical failure or repair and the ability of DWS to repair the well in a timely manner, customers may be without water service for days or even weeks, which is unacceptable. Therefore the No Action Alternative is unacceptable.

4.2 Desalination and Wastewater Reuse

Alternative water sources such as desalination and wastewater reuse were considered, but rejected. Desalination would not only require bringing the water from the shoreline, which is 6 miles away and at an 1800 feet elevation difference, but also would require extensive treatment. This alternative would be more costly than the proposed project. Wastewater reuse is not a viable option because there is no wastewater treatment plant in the vicinity.

4.3 Site Alternatives

The backup well should be in close proximity to the existing storage tank so that it can serve the same locations as the existing well. A separate tank for the backup well is not desirable because the water within the tank would become stagnant when the well was not in use. The lands in the immediate vicinity of the existing County site are privately owned and would require acquisition of a suitable parcel. This would require more time and cost for the additional land purchase. The time and cost needed to obtain a suitable plot of land can possibly be reduced by constructing the well on government lands; however, the closest government lands are over a half mile away, which would make the project much more costly due to the piping needed to get the water to the existing tank. Alternative sites within Makawao, outside of the existing well site are not as practical and economical as the well site identified in the proposed project.

4.4 Water Conservation

The County of Maui has established a water conservation program and maintains a website, which informs consumers of how they can cooperate in conserving the precious resource. The County also provides shower heads, faucet aerators for the kitchen and bathroom, and leak detection dye tablets (to check toilets for leaks) free to the public upon receipt of the application form.

Water conservation is an environmentally beneficial practice regardless of the water supply situation. Although it is a practice that should be observed by all consumers, this project is proposed to address and increase reliability of the Po‘okela water source by providing a backup for maintenance purposes. Therefore, water conservation is deemed an insufficient alternative.

4.5 Awalau and Opana Stream Intakes

The County of Maui has rights to water from the Awalau and Opana Stream Intakes, which are located at about 2,300 feet elevation in the Makawao Forest Reserve. In the future, the Department of Water Supply may either construct a new WTF to treat water from the intakes and transmit it to the existing Maluhia Tank, or construct a new booster pump station and pump the raw water for treatment at the existing Pi‘iholo WTF. This alternative is a surface water source requiring treatment and monitoring, and is subject to drought conditions. In light of this and the time frame required to develop this alternative, the Awalau and Opana Stream Intakes are not a viable alternative to the subject project.

5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

There are several irreversible commitments of resources including land and financial resources to construct capital improvements, and to operate and maintain the well and various controls. Land commitment for the backup well is minimal, and financial commitment for capital improvements and operations and maintenance are necessary.

The long-term responsibility of the Department of Water Supply to provide adequate water supplies to Upcountry Maui supports the implementation of the proposed project; therefore, the commitment of land, labor, materials, energy, equipment and financial resources that are practically irreversible and irretrievable are warranted.

6 HAWAII DRINKING WATER STATE REVOLVING FUND PROGRAM

The proposed project will be funded by Federal Funds through the State of Hawaii's Drinking Water State Revolving Fund (DWSRF) program, which constitutes a federal action, and will require the project to meet all Hawaii DWSRF program requirements. The loan program requires compliance with the "Cross-Cutter" Regulations, which are the list of Federal regulations which have been determined as applying to the DWSRF loan program.

6.1 Archaeological and Historic Preservation Act of 1974 (16 USC 469-1)

No long term negative impacts on historical and archaeological sites are anticipated. If construction work uncovers any archaeological remains, work will stop immediately and SHPD and the Maui Island Burial Council will be contacted. The SHPD was contacted and due to the large amount of proposed grading and insufficient data, SHPD recommended further study into the project site.

SCS conducted an archaeological field inspection to further study the project site. A full pedestrian survey was performed in which no historic properties were identified. No archaeological remains were observed in the 20,000 square foot footprint or adjacent environs. SCS concluded that the proposed Po'okela Well "B" will not have an adverse impact on any historic properties. No formal archaeological work is recommended for the project site.

6.2 Clean Air Act (42 USC 7401)

Anticipated short-term impacts are associated with construction activity. There will be an increase in dust and vehicular exhaust emissions in the vicinity of the project area during construction. Dust control measures such as periodic sprinkling with water will be used to reduce dust when needed. Exhaust emission should not have any significant effect on the area because prevailing winds should disperse any exhaust gas concentration. No long-term impacts on air quality are anticipated.

6.3 Coastal Zone Management Act (16 USC 1451)

Hawaii's Coastal Zone Management Program purpose is to "provide for the effective management, beneficial use, protection, and development of the coastal zone." The project site is located approximately 6.5 miles inland away from the coast at an approximate (finished) ground surface elevation of 1812 feet. No impacts on the CZM resources and areas are anticipated; therefore the project will be consistent with the CZM program.

6.4 Endangered Species Act (16 USC 1531)

The project site is highly disturbed. The lands were used for grazing in the 1970s until it was developed for the tank site; and there are no indications of rare or endangered flora or fauna on the project site.

6.5 Environmental Justice (Executive Order 12898)

This project will not have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. The drilling, testing, and development of Po‘okela Well “B” will have no significant impact on the environment and will decrease the chances of water emergencies by allowing customers to continue to be served should the existing well require maintenance or repair.

6.6 Farmland Protection Policy Act (7 USC 4201)

This project is located on the existing Po‘okela Well and tank site owned and developed by the County of Maui. Although the State and County zoning is for Agriculture, use for the well drilling, testing, and development is permitted by code. Therefore, this project will not affect agricultural lands.

6.7 Fish and Wildlife Coordination Act (16 USC 661)

The project is located on the existing fenced Po‘okela Well and tank site. There are no fish or wildlife on the site, except wildlife that can access the site despite the fence, such as birds. Therefore impact on wildlife is anticipated to be minimal.

6.8 Floodplain Management (Executive Order 11988, as amended by Executive Order 12148)

The Federal Emergency Management Agency Flood Insurance Rate Map FIRM panel 1500030440E, dated September 25, 2009, designates the well site within Zone X, which corresponds to areas of determined to be outside the 0.2% annual chance floodplain. Therefore, impact of the project on the flood zone is not expected.

6.9 National Historic Preservation Act (16 USC 470)

No long term negative impacts on historical and archaeological sites are anticipated. If construction work uncovers any archaeological remains, work will stop immediately and SHPD and the Maui Island Burial Council will be contacted. The project site is highly disturbed, and SHPD was contacted and due to the large amount of grading that is proposed and insufficient data, further study into the project site was recommended.

SCS conducted an archaeological field inspection of the project site and concluded that the proposed Po‘okela Well “B” will not have an adverse impact on any historic properties.

6.10 Protection of Wetlands (Executive Order 11990, as amended by Executive Order 12608)

There are no wetlands within the vicinity of the well site. The wetlands are further east where the rainfall is significantly higher. Therefore, this project is not anticipated to affect wetlands.

6.11 Safe Drinking Water Act (42 USC 300f)

The Department of Water Supply is committed to providing a safe water supply to the County of Maui and strives to meet all requirements of the Safe Drinking Water Act. Additionally, there are no sole source aquifers on the island of Maui; therefore, the project will not affect a sole source aquifer.

6.12 Wild and Scenic Rivers Act (16 USC 1271)

There are no designated wild and scenic rivers in the state of Hawai‘i. However, there are several rivers and streams, primarily located on the east side of Haleakalā, which are listed with potential classification within the wild and scenic river system or with “Outstandingly Remarkable Values.” However, they are more than 15 miles away and are not anticipated to be affected by the drilling and development of Po‘okela Well “B”. The closest stream to the project site is Maliko Gulch, which is 450 feet away. The contractor will be required to obtain an NPDES general permit if his construction methods discharge into state waters, including the tributary of Maliko Gulch.

6.13 Essential Fish Habitat Consultation Process Under The Magnuson-Stevens Fishery Conservation and Management Act (16 USC 1801)

The project site is located approximately 6.5 miles inland away from the ocean and the coast. The proposed project is not anticipated to have any adverse effect on the fishery resources in Maui.

7 PERMITS AND APPROVALS REQUIRED

7.1 Approvals

1. State Department of Health

2. State Office of Environment Quality Control
   Environmental Assessment for Po‘okela Well “B” Drilling, Testing, and Development

3. County of Maui Department of Water Supply
   Environmental Assessment for Po‘okela Well “B” Drilling, Testing, and Development

7.2 Reviews

1. State Commission on Persons with Disabilities
   Plans and Specifications conformance with American Disabilities Act

7.3 Permits

1. Well Construction Permit, State Commission on Water Resource Management

2. Pump Installation Permit, State Commission on Water Resource Management

3. Grading, Building, and Electrical Permit, County of Maui Department of Public Works

4. National Pollutant Discharge Elimination System Permit, State of Hawaii, Department of Health

5. Community Noise Permit, State of Hawaii, Department of Health

8 AGENCIES AND ORGANIZATIONS CONSULTED

An Early Consultation Letter was sent to various agencies and interested parties for the opportunity to provide preliminary comments prior to completing this Draft Environmental Assessment. The agencies and interested parties are listed below. Comments received and responses provided are incorporated in Appendix B.

8.1 Federal Government

U.S. Department of Agriculture, Natural Resources Conservation Service
U.S. Army Corps of Engineers, Honolulu District, Regulatory Branch
U.S. Department of the Interior, Fish and Wildlife Service
U.S. Department of the Interior, USGS Pacific Islands Water Science Center

8.2 State Government

Department of Agriculture
Department of Business, Economic Development and Tourism, Hawaii Housing Finance and Development Corporation
Department of Hawaiian Home Lands
Department of Health, Clean Water Branch
Department of Health, Environmental Planning Office
Department of Health, Environmental Management Division
Department of Health, Safe Drinking Water Branch
Department of Health, Maui District Health Office
Department of Land and Natural Resources, Commission on Water Resource Management
Department of Land and Natural Resources, State Historic Preservation Division
Department of Transportation, Director
Office of Hawaiian Affairs
Office of Planning
University of Hawaii, Environmental Center
University of Hawaii, Water Resource Research Center

8.3 County Government

Council of the County of Maui
Department of Environmental Management
Department of Fire and Public Safety
Department of Housing and Human Concerns
Department of Parks and Recreation
Department of Planning
Department of Public Works
Department of Water Supply
Office of Economic Development
Police Department

8.4 Other Individuals/Organizations

Haiku Community Association
Hawaiian Telcom
Hoku Nui Maui LLC
Kaonoulu Ranch Company Ltd.
Kula Community Association
Makawao Community Association
Makawao Main Street Association
Maui Electric Company, Ltd.
Mr. Gary A. Perreira
Ms. Priscilla Marie Perreira
Upcountry Family Limited Partnership
Mr. Gary A. Vares

9 FINDINGS AND DETERMINATION

9.1 Findings

Based upon the guidelines and provisions of Title 11, Chapter 200, Environmental Impact Statement Rules and Chapter 343, HRS, the findings of this Environmental Assessment are:

1. Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;

   The proposed project will not cause any loss or destruction of a natural or cultural resource. As described in this assessment, the proposed project site has been researched with no findings of significant impacts. Any discovery of archaeologically significant resources uncovered during the construction will be handled in compliance with the requirements of the State of Hawai‘i, Department of Land and Natural Resources.

2. Curtails the range of beneficial uses of the environment;

   The project is enhancing the beneficial use of the environment, as it draws upon the naturally occurring groundwater supply in the area to better and more reliably serve the existing drinking water demands of the community, especially during times of drought.

3. Conflicts with the state’s long-term environmental policies or goals and guidelines as expressed in Chapter 344, Hawaii Revised Statues, and any revisions thereof and amendments thereto, court decisions, or executive orders;

   The proposed project is in accordance with the guidelines set forth in the State Environmental Policy Chapter 344, Hawai‘i Revised Statues.

4. Substantially affects the economic welfare, social welfare, and cultural practices of the community or State;

   When the existing Po‘okela Well requires maintenance, Po‘okela Well “B” can be utilized to serve existing water customers in its place. The ability to serve customers while the existing Po‘okela Well is down for maintenance will help decrease water emergencies and increase the reliability of the Po‘okela water source. Therefore, no negative impacts to the community are anticipated as a result of this project.

5. Substantially affects public health;

   The proposed project will not affect public health in any way.

6. Involves substantial secondary impacts, such as population changes or effects on public facilities;

   The proposed project will connect to the existing water distribution system; therefore, public facility improvements will be limited to on the site. Po‘okela Well “B” is a

backup well for maintenance purposes only and will not be an additional water source. The population in Upcountry Maui is not anticipated to increase as a result of the backup water source.

7. Involves a substantial degradation of environmental quality;

   The proposed project will not involve any substantial degradation of environmental quality. As described in this assessment, the impacts on the environment are minimal.

8. Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

   As described in this assessment, the proposed project does not have any significant impacts or effects upon the environment or involve any commitment for larger actions.

9. Substantially affects a rare, threatened, or endangered species, or its habitat;

   There are no known endangered species of flora or fauna in the project site that would be disturbed.

10. Detrimentally affects air or water quality or ambient noise levels;

    The proposed project will provide potable groundwater for human use and consumption. The project will not detrimentally affect air or water quality, or ambient noise levels.

11. Affects or is likely to suffer damage by being located in an environmentally sensitive area such a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;

    As discussed in detail in this assessment, the proposed project does not detrimentally affect any environmentally sensitive areas, nor is it likely to suffer damage.

12. Substantially affects scenic vistas and view planes identified in county or state plans or studies; or,

    The proposed project does not affect any scenic vistas or view planes identified in county or state plans or studies.

13. Requires substantial energy consumption.

    Limitations on electrical utility service and the proximity to the existing Po‘okela Well does not allow for simultaneous pumping of the proposed and the existing wells. The proposed project will require energy to pump water from Po‘okela Well “B” (when in service) to the existing concrete reservoir. Operating Po‘okela Well “B” is expensive because the water must be pumped vertically over 1800 feet but the subject project will not increase energy consumption as both wells cannot be pumped simultaneously.

9.2 Determination

Based on the above data and analyses, the proposed project is not anticipated to have significant adverse impacts on the coastal waters, local ecology, hydrology, and atmosphere. Mitigative measures will be implemented as deemed necessary and as required by the governmental agencies. A Finding of No Significant Impact (FONSI) determination is anticipated, and therefore an Environmental Impact Statement document is not warranted.

10 REFERENCES

1. County of Maui, Department of Water Supply, Frequently Asked Questions Maui Island Water Use and Development Plan.

2. County of Maui, Department of Water Supply. Monthly Water Production. 21 March 2016. <http://co.maui.hi.us/index.aspx?NID=572>.

3. County of Maui, Document Center. 25 March 2016. <http://www.mauicounty.gov/DocumentCenter/Index/132>.

4. County of Maui, Department of Water Supply, Results of Drilling and Testing – Pookela Exploratory Well, Makawao, East Maui, March 2003. Prepared by Water Resources Associates.

5. Giambelluca, T.W., Q. Chen, A.G. Frazier, J.P. Price, Y.-L. Chen, P.-S. Chu, J.K. Eischeid, and D.M. Delparte, 2013: Online Rainfall Atlas of Hawai‘i. Bull. Amer. Meteor. Soc. 94, 313-316, doi: 10.1175/BAMS-D-11-00228.1.

6. Gingerich, Steven B., Ground-Water Occurrence and Contribution to Streamflow, Northeast Maui, Hawaii: U.S. Geological Survey Water-Resources Investigations Report 99-4090, 1999.

7. Maui County Administrative Rule, Title 16, Chapter 106: Water Meter Issuance Rule for the Upcountry Water System, October 2002.

8. Maui County Council, Community Plan Update: Makawao-Pukalani-Kula Community Plan, July 1996.

9. Maui County General Plan 2030.

10. National Flood Insurance Program, Flood Hazard Assessment Tool. 22 March 2016. <http://gis.hawaiianfip.org>.

11. State of Hawaii, Commission on Water Resource Management, Department of Land and Natural Resources, Maui County Water Use and Development Plan, March 1990.

12. State of Hawaii, Department of Business, Economic Development and Tourism, Office of Planning. 9 March 2016. Hawaii Statewide GIS Program. <http://planning.hawaii.gov/gis/>.

13. State of Hawaii, Department of Health, Safe Drinking Water Branch. Groundwater Contamination Maps. 2003. <http://health.hawaii.gov/sdwb/groundwater-contamination-viewer/>.

14. State of Hawaii, Commission on Water Resource Management, Department of Land and Natural Resources, Statewide Framework for Updating the Hawaii Water Plan, February 2000.

15. State of Hawaii, Department of Health, Clean Water Branch. Hawaii Administrative Rules Chapter 11-54: Water Quality Standards.

16. State of Hawaii, Department of Health, Clean Water Branch. Water Quality Standards Map of the Island of Maui. 29 March 2016 <http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/water-quality-standards/>.

17. State of Hawaii, Department of Land and Natural Resources, Commission on Water Resource Management. Hydrologic Units. 21 March 2016. <http://dlnr.hawaii.gov/cwrm/groundwater/hydrounits/>.

18. State of Hawaii, Department of Land and Natural Resources, Historic Preservation Division. Nominated and Listed Properties on the Hawaii and National Registers of Historic Places 11-27-2015. November 2015.

19. State of Hawaii, Department of Land and Natural Resources, Office of Planning, Hawaii Revised Statutes, Chapter 205A: Coastal Zone Management.

20. U.S. Department of Agriculture, Soil Conservation Service, Soil Survey, Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, August 1972.

21. U.S. Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey. 22 March 2016. < http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.

22. U.S. Department of Interior, Fish and Wildlife Service. National Wetlands Inventory Wetlands Mapper. 25 March 2016. <http://www.fws.gov/wetlands/Data/Mapper.html>.

APPENDIX A

Archaeological Field Inspection Report

SCIENTIFIC CONSULTANT SERVICES, Inc.
1347 Kapiolani Blvd., Suite 408 Honolulu, Hawai`i 96814

July 30, 2016

Andrew Amuro
Project Manager
Fukunaga and Associates, Inc.
1357 Kapiolani Blvd., Suite 1530
Honolulu, HI 96814

Re: Field Inspection of the Proposed Pookela Well "B" Exploratory in Makawao, Haiku Ahupua`a, Hamakualoa District, Maui Island, Hawaii [TMK: 2-4-12:028]. Department of Water Supply, County of Maui Job No. 15-08.

Background Information

At the request of Fukunaga and Associates, Inc, Scientific Consultant Services, Inc. (SCS) conducted an archaeological Field Inspection of a County of Maui property located in Makawao, Haiku Ahupua`a, Hamakualoa District, Island of Maui, Hawai`i [TMK:2-4-12:028]. The project area totals 2.186 acres and is owned by the County of Maui. An existing easement connects the present water tanks and associated infrastructure with Olinda Road to the west. The easement contains an existing underground pipeline. As illustrated in the photographs at the end of this letter, the project area represents a built environment of water tanks, paved access roads and pads, and other infrastructure associated with functioning of the current water system.

The current project will utilize approximately 20,000 sq. ft. of the current 2.186-acre parcel. An area of c. 17,000 sq. ft. is proposed for grading to make a flat area for stationing well drilling equipment. It is estimated that approximately 2,180 cubic yards of soil will be moved during the grading work. An existing 18" water line will also be relocated, due to these grading activities. Drilling the well is expected to reach approximately 1,950 ft. below the surface.

The project area represents 2.186-acres of mostly built environment, relating to its current function as a water station for Maui County. The parcel is enclosed by chain-link fence and bounded on the north, east, and south by undeveloped lands (some being owned by Kaonoulu Ranch Co., Ltd.) and on the west by Olinda Road. Access to the project area is restricted.

Field Methods

A Field Inspection of the entire 2.186 acre project area was conducted by SCS personnel Ian Bassford, B.A. on July 28, 2016. Systematic pedestrian survey was conducted and focused on the few areas that were not previously constructed. No subsurface testing was conducted during for this Field Inspection. Observations on topographical changes, disturbed areas, and any potential cultural resources were noted and photographs provide overviews of the project area.

Results

Full pedestrian survey of the project area did not lead to the identification of any historic properties. As expected, the project area was primarily a built environment and characterized by much grading and filling over time to create the water station. Much of the project area contains

concrete and asphalt surfaces, over the red silty clay soils dominant in the Makawao uplands. Most of these Makawao lands were formerly used for pineapple cultivation.

Pedestrian survey revealed that much of the landscape had been previously graded, with some topography occurring nearer the fence lines, both piled soil from previous grading and some natural topography, albeit very modest in height. As stated, the surface of the area is primarily a built-landscape, within intervening areas with natural grasses, some planted grass, and some small rock pebble areas around infrastructure. No surface archaeological remains were observed in the 20,000 sq. ft. footprint or adjacent environs.

Conclusions

No surface cultural remains were identified in the project area. Full inspection of the property failed to lead to the identification of historic surface features or architecture. Concentrated clearing, grading, and construction have extensively disturbed the entire area, making the likelihood of encountering any remaining surface features non-existent. The presence of fill and shallow silty clays over bedrock near the surface also somewhat precludes expectations for finding significant deposits in subsurface contexts. There appears to be no areas readily amenable to acquiring subsurface cultural deposits, but rather, trenching may simply expose sterile, shallow sediments and those fill layers associated with aforementioned infrastructure.

It is our estimation, based on this Field Inspection, that the proposed Pookela Well "B" undertaking will not have an adverse impact on any historic properties. No formal archaeological work (Inventory Survey, Monitoring) is recommended for this project area.

Please contact SCS if you have any questions or concerns about the Field Inspection or this letter.

Sincerely,

Michael Dega, Ph.D.
Senior Archaeologist
Scientific Consultant Services, Inc. (SCS)
1347 Kapiolani Blvd., Suite 408
Honolulu, HI 96814
(808) 597-1182 tel
(808) 597-1193 fax
mike@scshawaii.com

PROJECT AREA PHOTOGRAPHS

Figure 1: Northwest Flank of Project Area. View to Northeast.

Figure 2: North-Central Portion of Project Area. View to Northwest.

Figure 3: Graded/Piled Mounds, Western Flank of Project Area. View to West.

Figure 4: Central Portion of Project Area. View to East.

Figure 5: Central Portion of Project Area. View to Northeast.

APPENDIX B

Hydro-Geological Report

Hydro-Geologic Assessment and Recommendations for Proposed Pookela Well B

Prepared for:

Fukunaga & Associates, Inc.
1357 Kapiolani Boulevard – Suite 1530
Honolulu, Hawaii 96814

Prepared by:

Tom Nance Water Resource Engineering
560 N. Nimitz Hwy. - Suite 213
Honolulu, Hawaii 96817

June 2016

Table of Contents

	Page
Introduction	1
Well Location on TMK 2-4-12:28	1
Well Design	1
Groundwater Conditions and Expected Well Performance	4
Summary of Pump Test Results for Pookela Well A	4
Sustainable Yield and Groundwater Use in the Makawao Aquifer	4
Summary Conclusions and Recommendations	10

List of Figures

No.	Title	Page
1	Proposed Location for Pookela Well B	2
2	Comparison of the Pookela A and Pookela B Well Sections	3
3	Pumping Rate and Water Level Response During the Step Test of Pookela Well A	6
4	Hydraulic Performance of Pookela Well A Based on its Step-Drawdown Test on December 13, 2002	7
5	Pumping Rate and Water Level Response During the 6-Day Constant Rate Pump Test of Pookela Well A	8
6	Specific Conductance of the Pumped Water During the 6-day Constant Rate Pump Test of Pookela Well A	9
7	Monthly and Moving 12-Month Average Pumpage of All Wells in the Makawao Aquifer, January 2010 through May 2016	11
8	Monthly and Moving 12-Month Average Pumpage of DWS' Pookela Well A, January 2010 through May 2016	12
9	Comparison of Pookela Well A Pumpage to All Other Wells in the Makawao Aquifer, January 2010 through May 2016	13
10	MDWS Data of the Chlorides of Pookela Well A, March 2010 through May 2016	14
11	Available MDWS Data of the Conductivity of Water Pumped by Pookela Well A, March 2013 through May 2016	15

List of Tables

No.	Title	Page
1	Summary of Information Available on Wells in the Makawao Aquifer	5

INTRODUCTION

The Maui County Department of Water Supply (MDWS) proposes to develop a second well at the site of its existing 2MG storage tank and first well on TMK 2-4-12:28 off Olinda Road and above Makawao Town. The first well, identified as State Well No. 5118-02 and referred to herein as Pookela Well A, was originally drilled and pump tested in 2002. The installed capacity of its pump is 900 GPM. It is driven by a 600 HP submersible motor.

The second well, to be known as Pookela Well B, is intended to provide full (900 GPM) redundant capacity, enabling either well to provide backup capacity for the other. It is not intended for both wells to ever be run concurrently, so that the modest spacing between the two wells, which is unavoidable on the same parcel, is not an issue. In fact, power currently available from Maui Electric is not sufficient for both 600 horsepower well pump motors to be run at the same time.

WELL LOCATION ON TMK 2-4-12:28

Figure 1 is a site plan showing the proposed location of Pookela Well B, its approximately 65-foot distance from Pookela Well A, and the substantial site grading that will be required for a large drilling rig to set up to drill the well. Given the space needed for the drill rig and ancillary equipment, this is the only feasible location within TMK 2-4-12:28. It should be noted that the prepared ground elevation will be 1811 feet, essentially the same as the elevation at Pookela Well A.

WELL DESIGN

Figure 2 depicts two well cross sections. One is the as-built section of Pookela Well A and the other is the proposed cross section for Pookela Well B. Significant similarities and differences between the two wells are as follows:

- Well depths are identical at 1950 feet, putting both well bottoms about 140 feet below sea level.
- A gravel pack was installed in the annular space of Pookela Well A, with its upper 500 feet of annulus filled with cement grout. 1000 feet of grouted annulus is envisioned for Pookela Well B, held in place during placement of the cement by double cement baskets. There will be no gravel pack below the cement baskets. The borehole will be drilled into an igneous rock formation (successive lava flows). Gravel packs are used to filter particulates which may be drawn into the well from a sedimentary formation. In this case, a gravel pack would be an unnecessary expense and, depending on its placement, could have an adverse impact on the well's hydraulic performance.

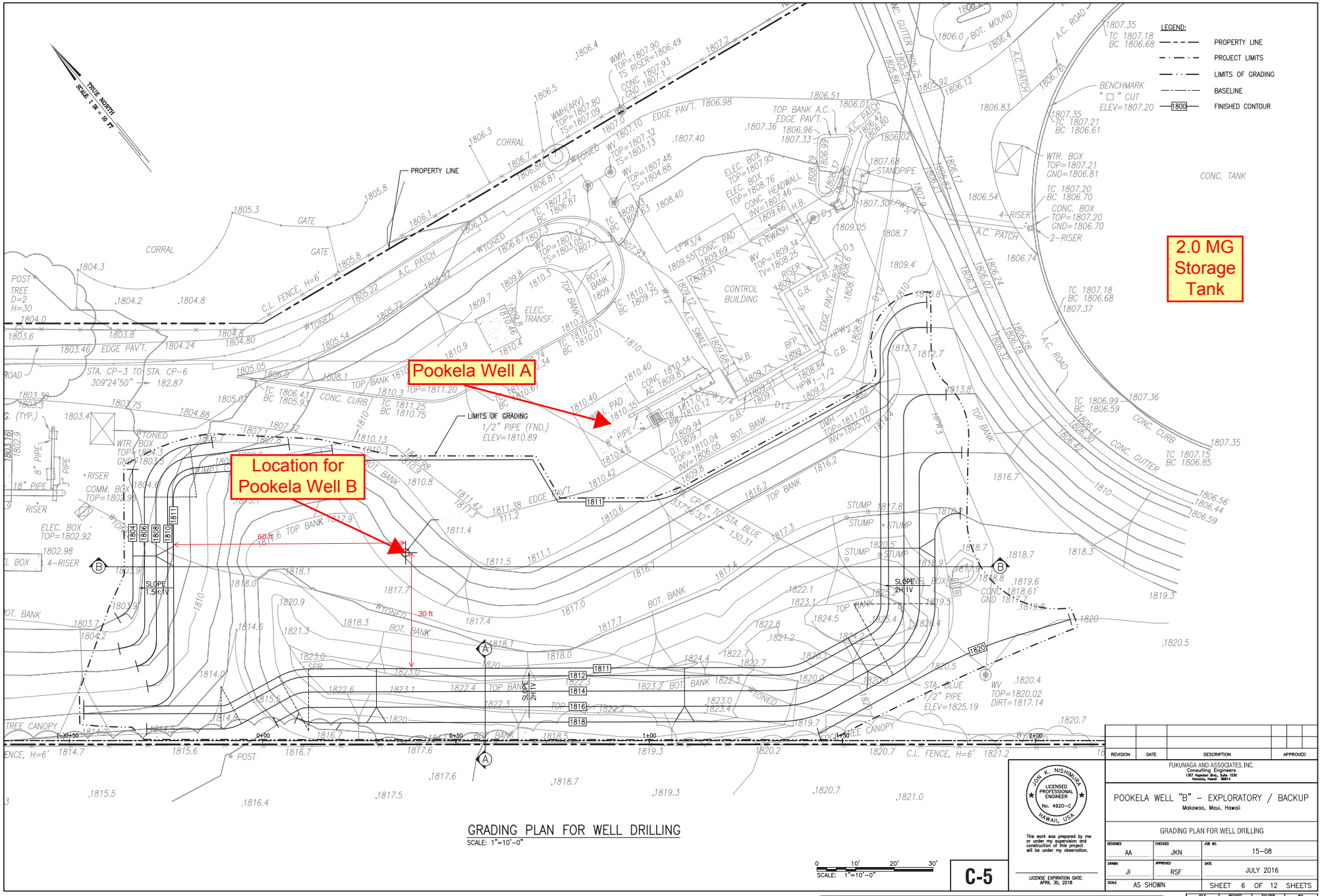


Figure 1
Proposed Location for Pookela Well B

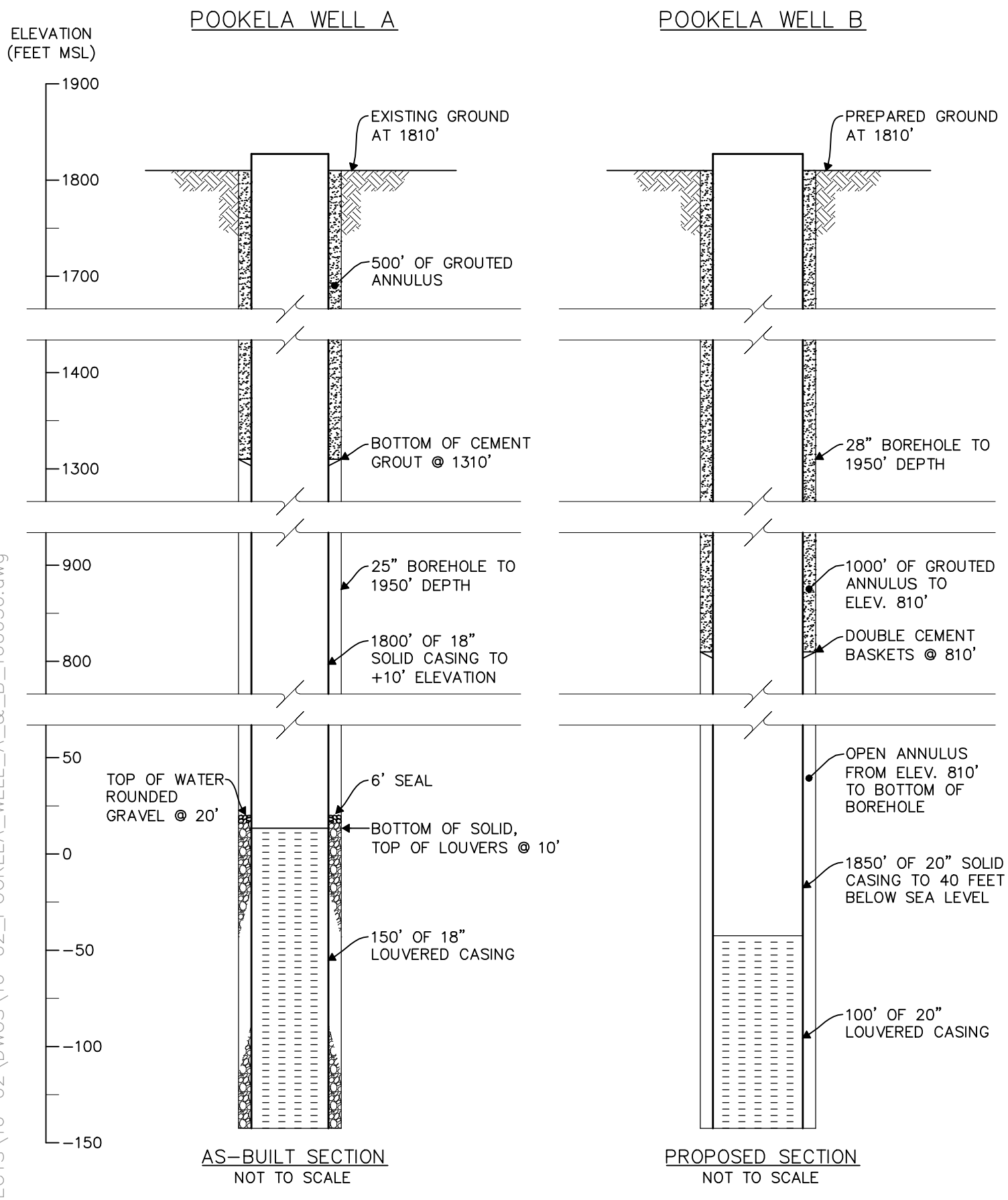


FIGURE 2
COMPARISON OF THE POOKELA A AND POOKELA B WELL SECTIONS

O:\PROJECTS\16-02\DWGS\16-02_POOKELA_WELL_A_&_B_160630.dwg

6/30/16

- Pookela Well B will have 20-inch inside diameter (ID) casing whereas Pookela Well A has 18-inch (ID) casing. The larger diameter provides greater flexibility in the selection of pump and motor. The 17-inch nominal diameter of a 600 horsepower, 4-pole motor needed to pump 900 GPM drives the selection of the 20-inch diameter for Pookela Well B.
- Unlike Pookela Well A, the solid casing of Pookela Well B will be extended about 50 feet into groundwater. This will enable the solid casing to act as a shroud, forcing all pumped water past the submersible motor to get to the pump intake. This will ensure adequate cooling of the motor. This configuration is preferable to mounting a shroud on the pump.

GROUNDWATER CONDITIONS AND EXPECTED WELL PERFORMANCE

The Pookela wells are situated in the northern corner of the Makawao Aquifer, a geographic designation set up by the Commission on Water Resource Management (CWRM) for regulatory purposes. A total of 14 wells have been developed in the aquifer (Table 1 is a complete listing of these). With the exception of the two horizontal tunnels located at very high elevation (State Well Nos. 4817-01 and -02), the 12 other wells are vertically drilled and all encountered basal groundwater standing at water levels between five (5) and 12 feet above sea level.

Summary of Pump Test Results for Pookela Well A. Given the wells' close proximity and similar penetration into groundwater, the original pump test results for Pookela Well A provide the best indication of the likely performance of Pookela Well B. The original pump testing of Pookela Well A was completed over the December 13 to 20, 2002 period. It consisted of an initial step-drawdown test followed by a six-day constant rate test. The step test was run at four increasing rates from 780 to 1530 GPM, with each step run for 45 minutes (Figure 3). The well's hydraulic capacity, depicted using a curve fitting technique to the step test data Figure 4, suggests that the expectable drawdown in Pookela Well B at the intended 900 GPM pumping rate will probably be two feet or less.

The subsequent constant rate test was run for 6-days continuously at an average of 1396 GPM. During that period, the drawdown was essentially constant and the recovery was rapid, both indicative of basal groundwater in a permeable rock formation (Figure 5). The pumped water salinity was also essentially constant (on site measurements of conductivity depicted on Figure 6 and reported chlorides by the drilling contractor of less than 10 MG/L). Similar results are expected for Pookela Well B.

Sustainable Yield and Groundwater Use in the Makawao Aquifer. As delineated by the CWRM, the Makawao Aquifer encompasses a 53-square mile area. The CWRM has set its sustainable yield at seven (7) MGD, although various estimates put its likely range between seven (7) and 20 MGD (Table 3-

Table 1. Summary of Information Available on Wells in the Makawao Aquifer

Well		Year Drilled	Casing Diam. (Inches)	Ground Elev. (Feet MSL)	Total Depth (Feet)	Elev. @ Bott. (Ft MSL)	Water Level (Ft. MSL)	Hydraulic Performance (Feet @ GPM)	Installed Pump (GPM)	Operating Status
State No.	Name									
4719-01	Pulehu Farms	2007	14	2127	2180	-53	5.6	2.8 @ 320	320	Unused
4720-01	Siele	2007	8	1596	1645	-49	5.0	2.55 @ 90	85	Unused
4817-01	Waihou Tunnel	Not Known	Tunnel	3350	- -	- -	- -	- -	None	Unused
4817-02	Waihou Tunnel	Not Known	Tunnel	3350	- -	- -	- -	- -	None	Unused
4818-01	Kulakoa	2009	8	2393	2460	-67	No Data	1.0 @ 215	220	Active
4821-01	Omaopio-Esty	2000	6	1140	1200	-60	2.5	0.4 @ 82	65	Active
4822-01	Kula Meadows	2000	6	1075	1135	-60	3.1	1.3 @ 70	85	Unused
4920-01	Anuhea Place	2008	8	1744	1800	-56	No Data	No Data	109	Active
5018-01	Maluhia	2007	8	No Data	1880	No Data	No Data	No Data	48	Active
5021-01	Pukalani G. C.	1972	16	1078	1130	-52	8.0	3.0 @ 800	1000	Active
5118-02	Pookela A	2003	18	1811	1950	-139	11.9	4.2 @ 1400	900	Active
5118-03	Piiholo	2008	20	1800	1960	-160	11.4	19.2 @ 877	None	Unused
5118-04	Piiholo South	2008	14	1694	1820	-126	13.2	1.9 @ 1250	1170	Unused
5220-01	Haliimaile	2000	16	1101	1150	-49	4.5	1.7 @ 725	700	Unused

Notes: 1. Information from the files of the Commission on Water Resource Management (CWRM)
2. The six wells reporting pumpage to the CWRM are noted as having "Active" operating status. The eight other wells are deemed to be currently inactive.

Figure 3. Pumping Rate and Water Level Response During the Step Test of Pookela Well A

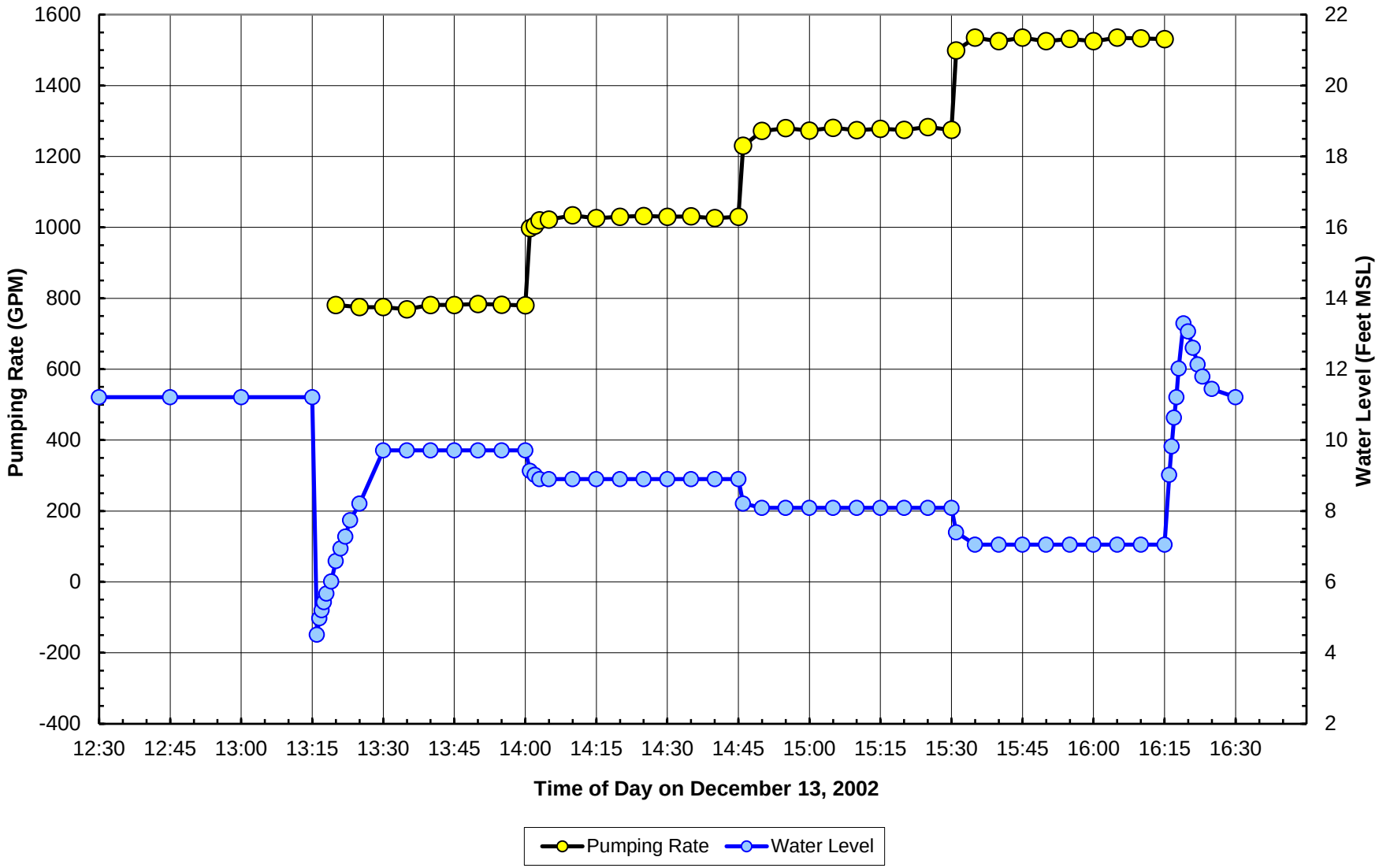


Figure 4. Hydraulic Performance of Pookela Well A
Based on its Step-Drawdown Test on December 13, 2002

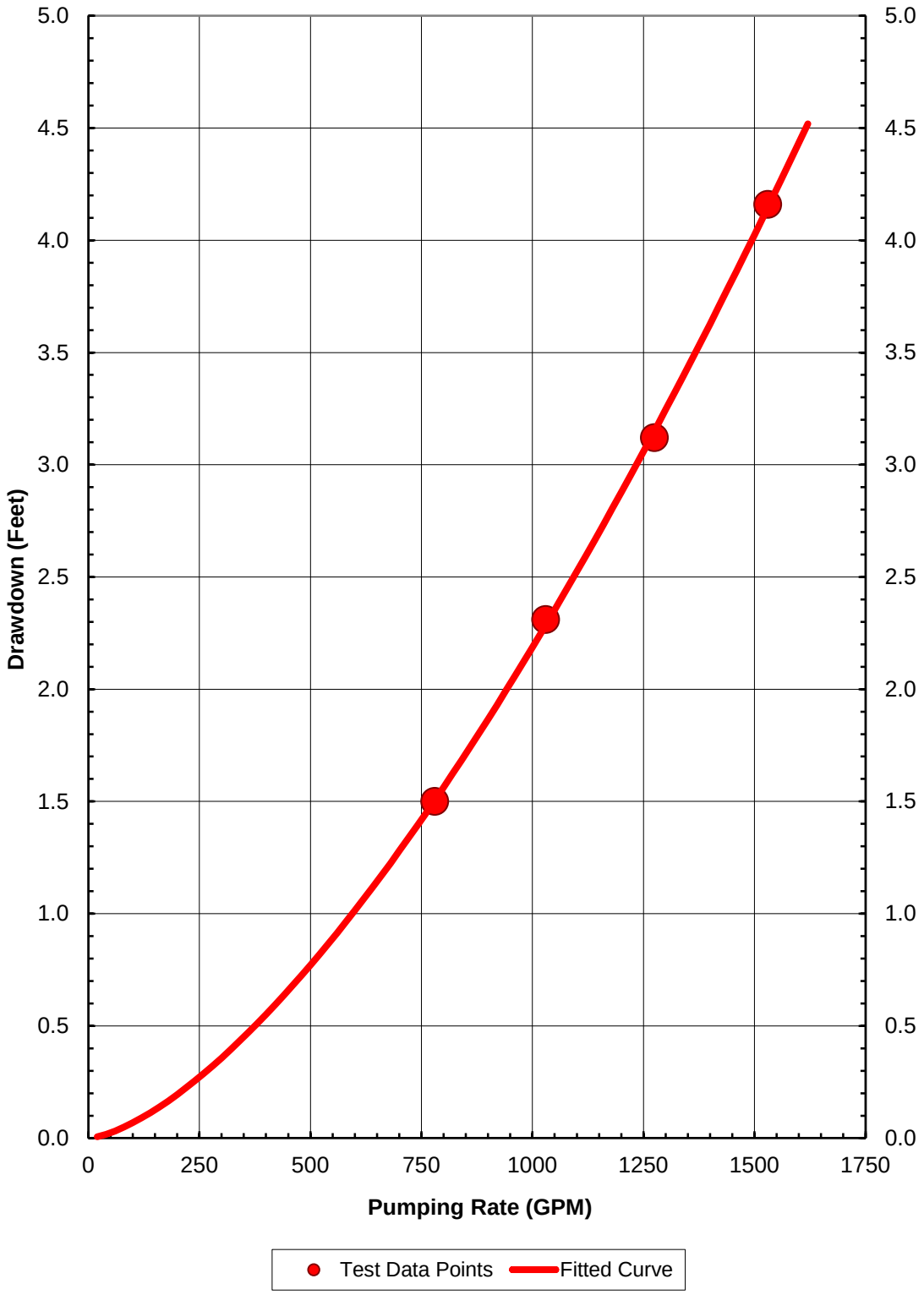


Figure 5. Pumping Rate and Water Level Response During the 6-Day Constant Rate Pump Test of Pookela Well A

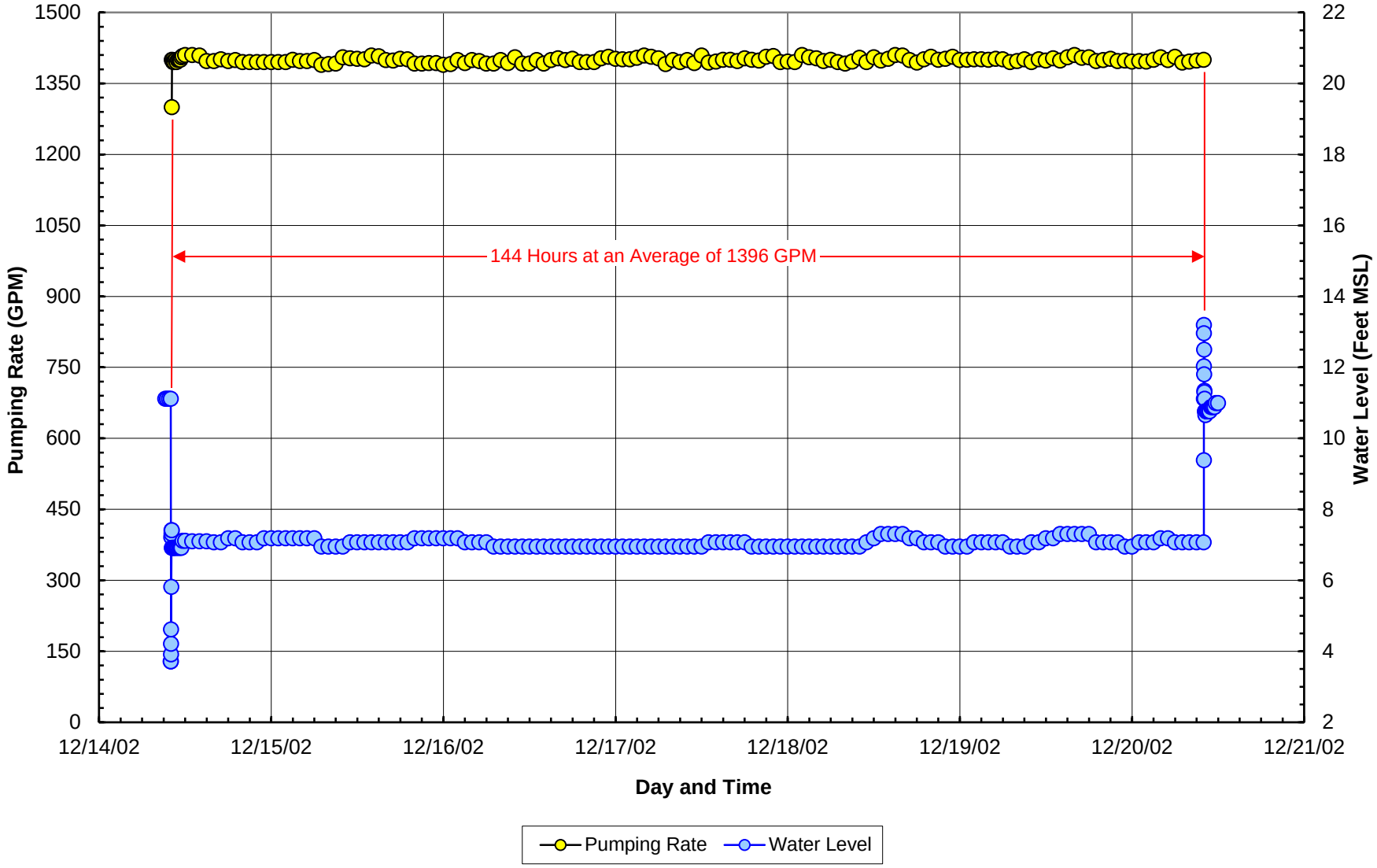
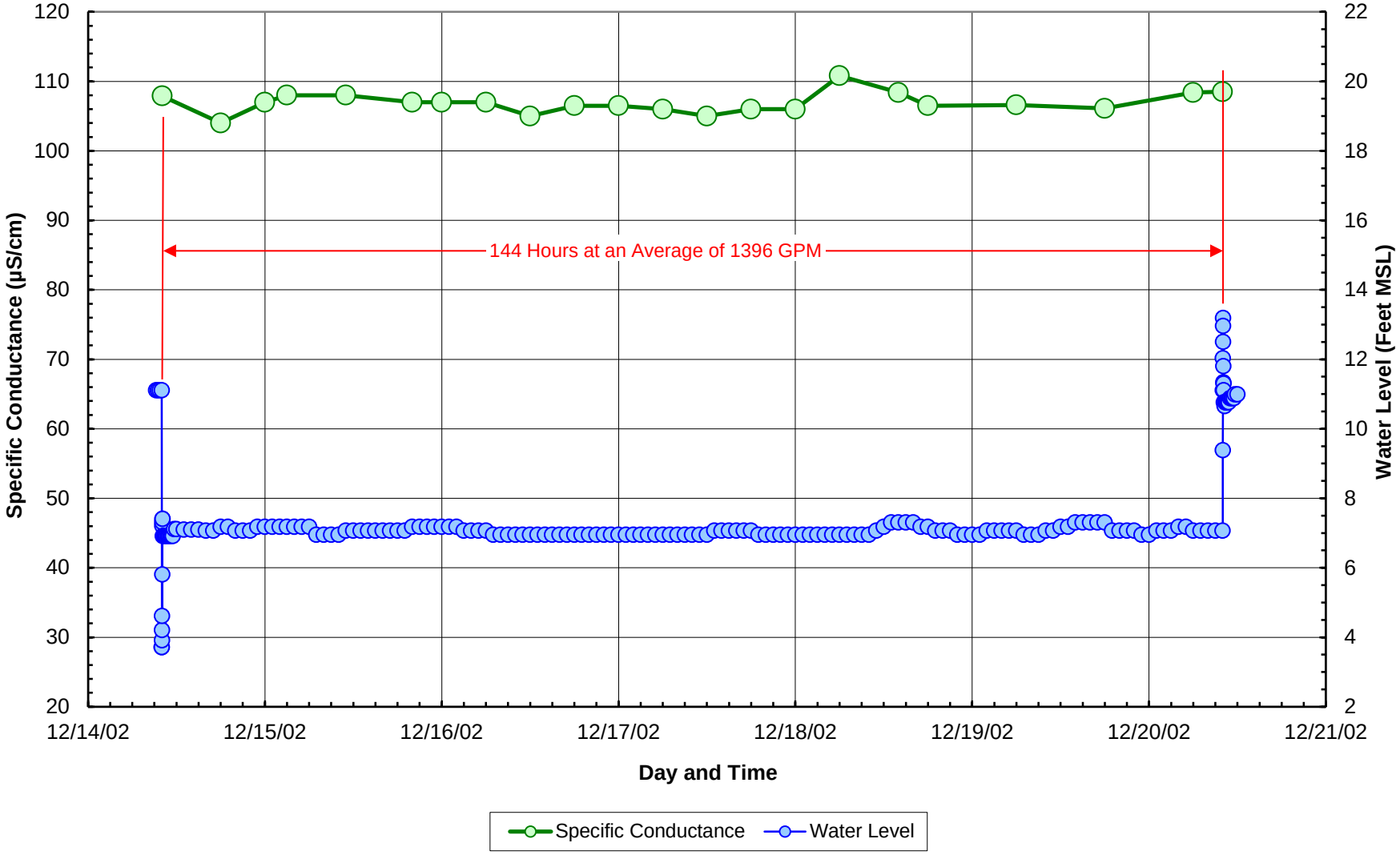


Figure 6. Specific Conductance of the Pumped Water During the 6-Day Constant Rate Pump Test of Pookela Well A



10 of the CWRM's June 2008 Water Resources Protection Plan). At present, six of the 14 wells in the aquifer are reporting monthly pumpage to the CWRM. The other eight are known or presumed to be inactive. From January 2010 through December 2015, the reported pumpage by the six wells has averaged 0.49 MGD or just seven (7) percent of the aquifer's sustainable yield (Figure 7).

Over this same January 2010 through December 2015 period, pumpage of Pookela Well A has varied considerably from month to month (Figure 8) and has amounted to about 44 percent of the total reported pumpage in the aquifer (Figure 9). Also during this period, the salinity of water pumped by the well has been exceptionally low and stable (chlorides less than 10 MG/L and conductivity less than 110 μS/cm on Figures 10 and 11). As with hydraulic performance, the pumped water quality of Pookela Well B is expected to be essentially the same as Pookela Well A.

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

1. The only feasible location for a second well on TMK 2-4-12:28 is just 65 feet from the first well on the site. However, since the wells will not be operated concurrently, their close proximity is not an issue.
2. Several key aspects of the design of Pookela Well B should be noted:
   - A 20-inch (ID) casing is recommended to provide adequate annular clearance for the required 600 HP, 4-pole submersible motor with nominal 17-inch diameter.
   - The solid casing should be extended 50 feet into groundwater so that it can function as a shroud, forcing water to move up the annular space between the solid casing and the motor to the pump intake. This will ensure proper cooling of the motor.
   - A gravel pack is not recommended as the formation to be drilled into is igneous rock.
   - Initial well development and pump testing should be with a line shaft turbine pump. A submersible pump and motor simply does not have adequate development capability.
3. The CWRM's seven (7) MGD sustainable yield for the Makawao Aquifer is a conservative choice. Present total pumpage by all wells in the aquifer is a small fraction of the aquifer's sustainable yield. The CWRM regulates aquifer pumpage using the moving 12-month annual average (12-MAV), comparing its peak in the prior four (4) years to the sustainable yield. The peak of the 12-MAV in the last four years was 0.92 MGD (in January 2014), amounting to 13 percent of the aquifer's sustainable yield.
4. The same extremely low and stable salinity of the water that has been pumped by Pookela Well A is expectable for Pookela Well B.
5. No adverse hydrologic impact are foreseeable for the development of Pookela Well B to provide full backup capacity for Pookela Well A.

Figure 7. Monthly and Moving 12-Month Average Pumpage of All Wells in the Makawao Aquifer, January 2010 through May 2016

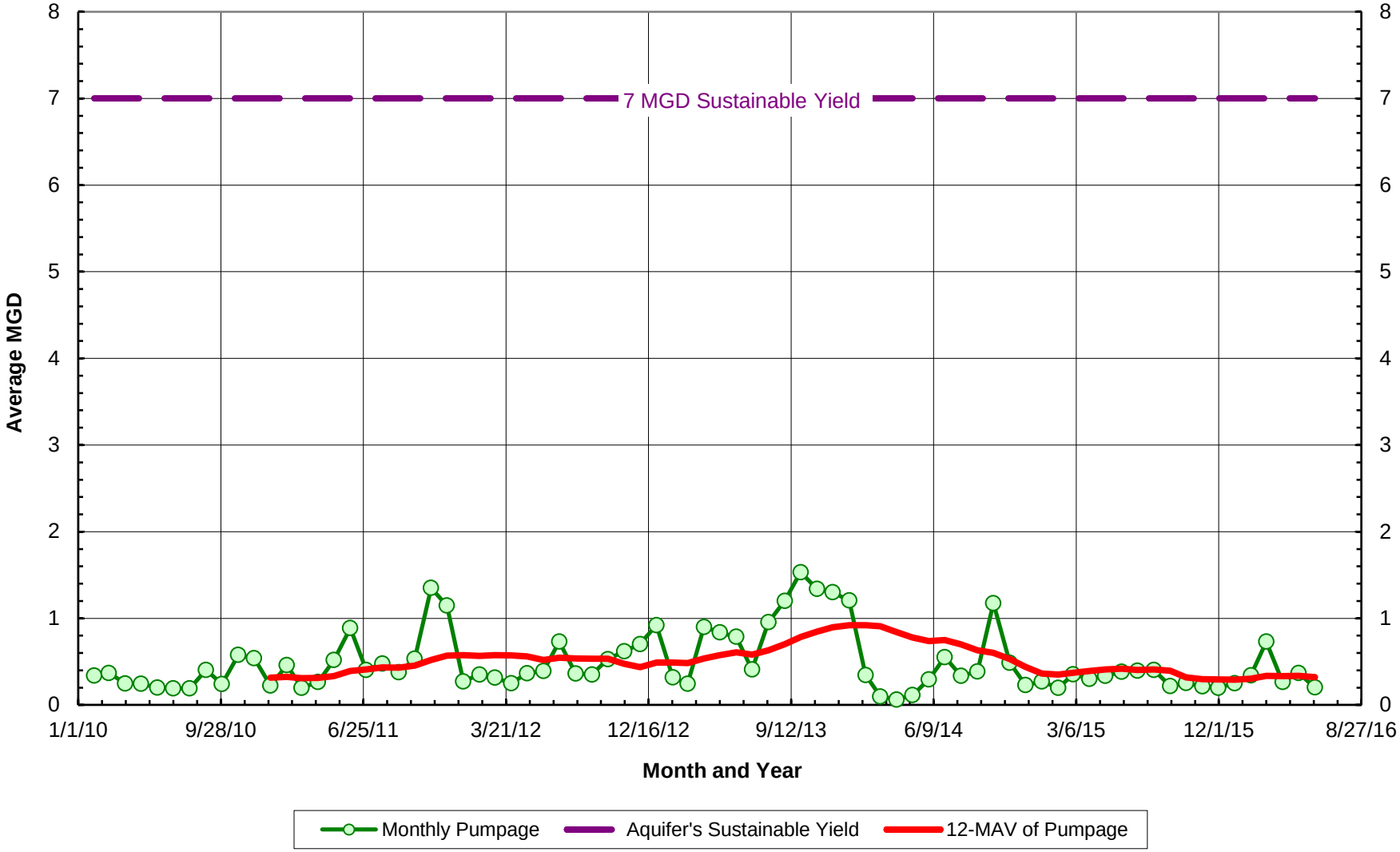


Figure 8. Monthly and Moving 12-Month Average Pumpage of DWS' Pookela Well A, January 2010 through May 2016

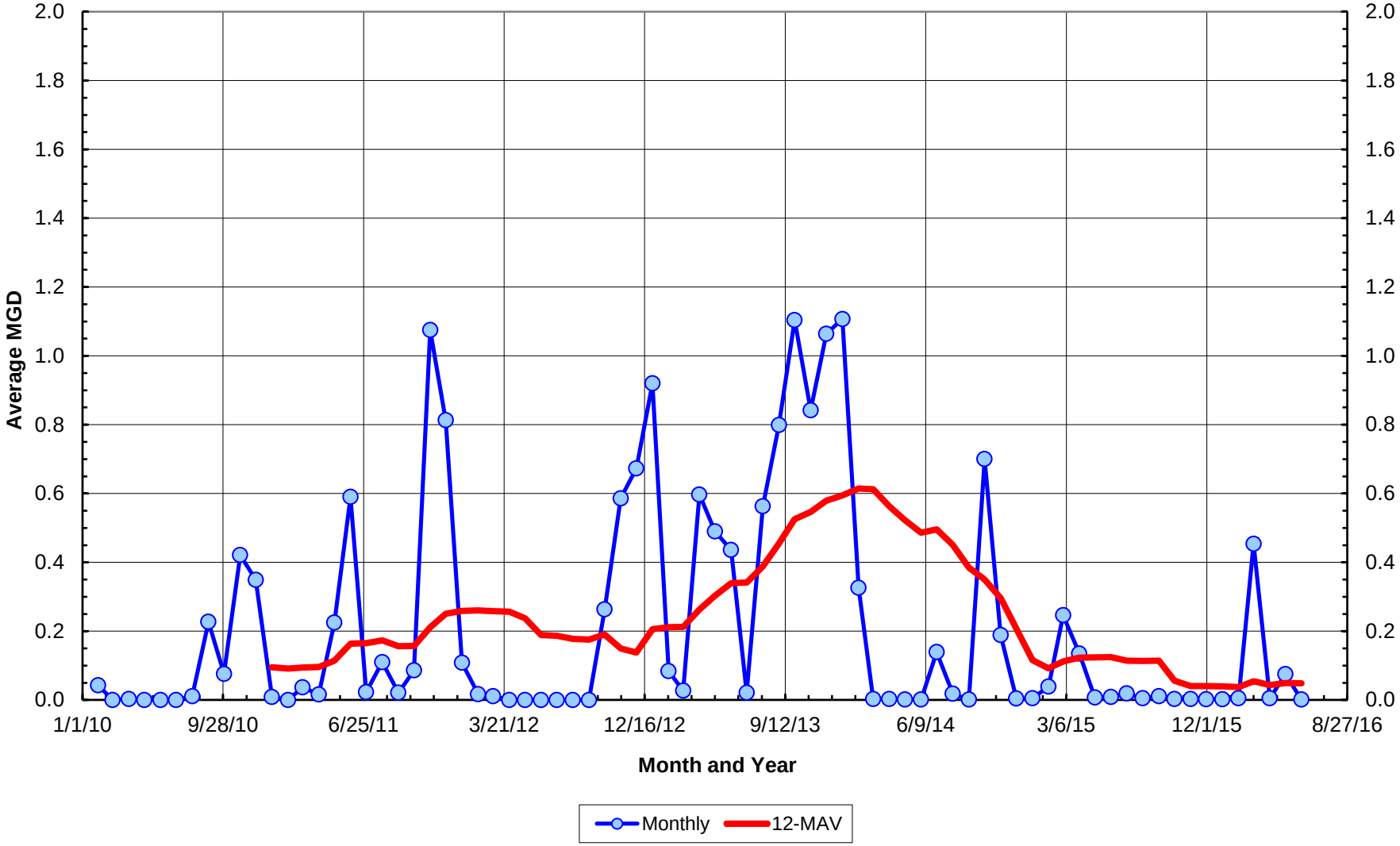


Figure 9. Comparison of Pookela Well A Pumpage to All other Wells in the Makawao Aquifer, January 2010 through May 2016

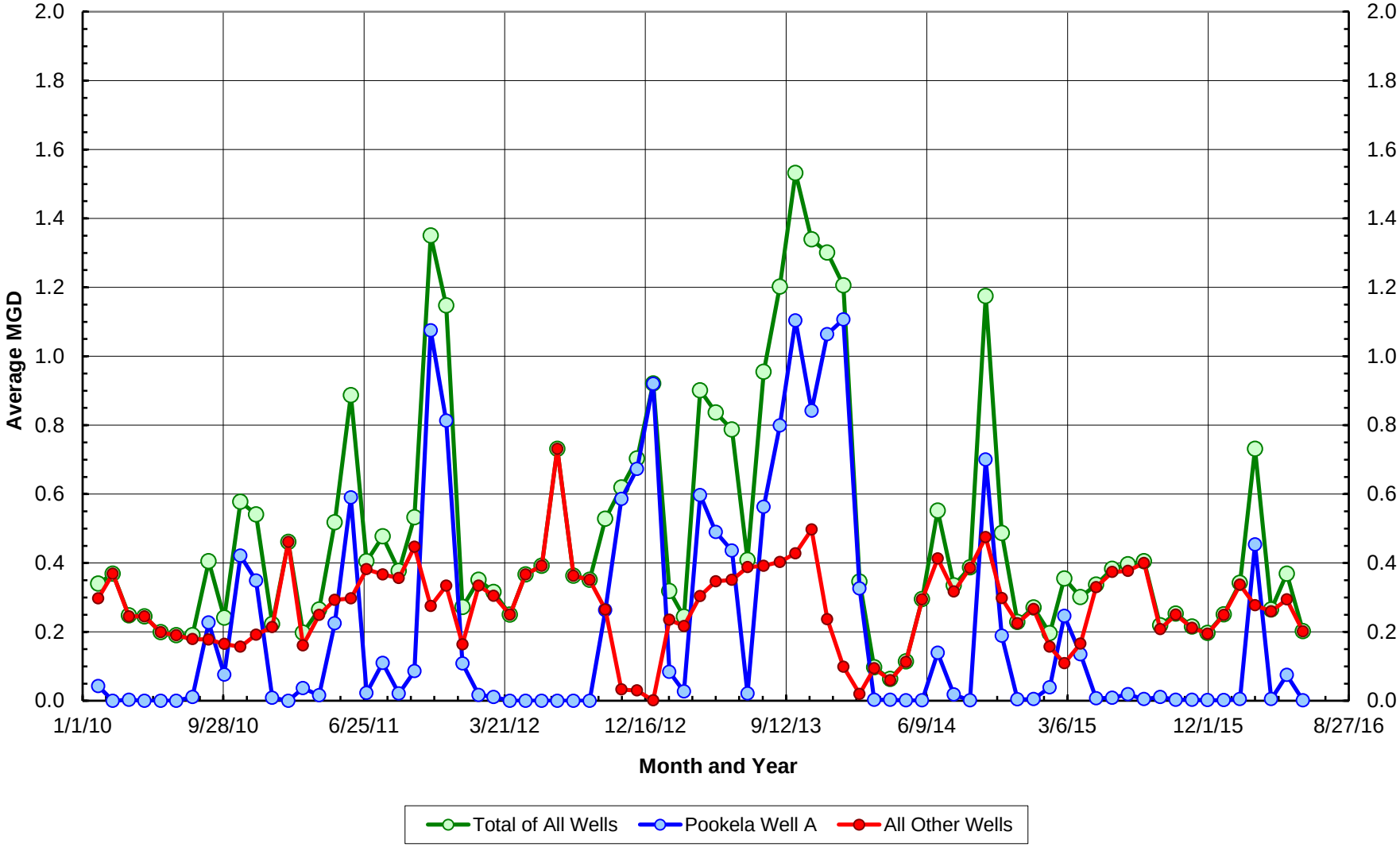


Figure 10. MDWS Data of the Chlorides of Pookela Well A, March 2010 through May 2016

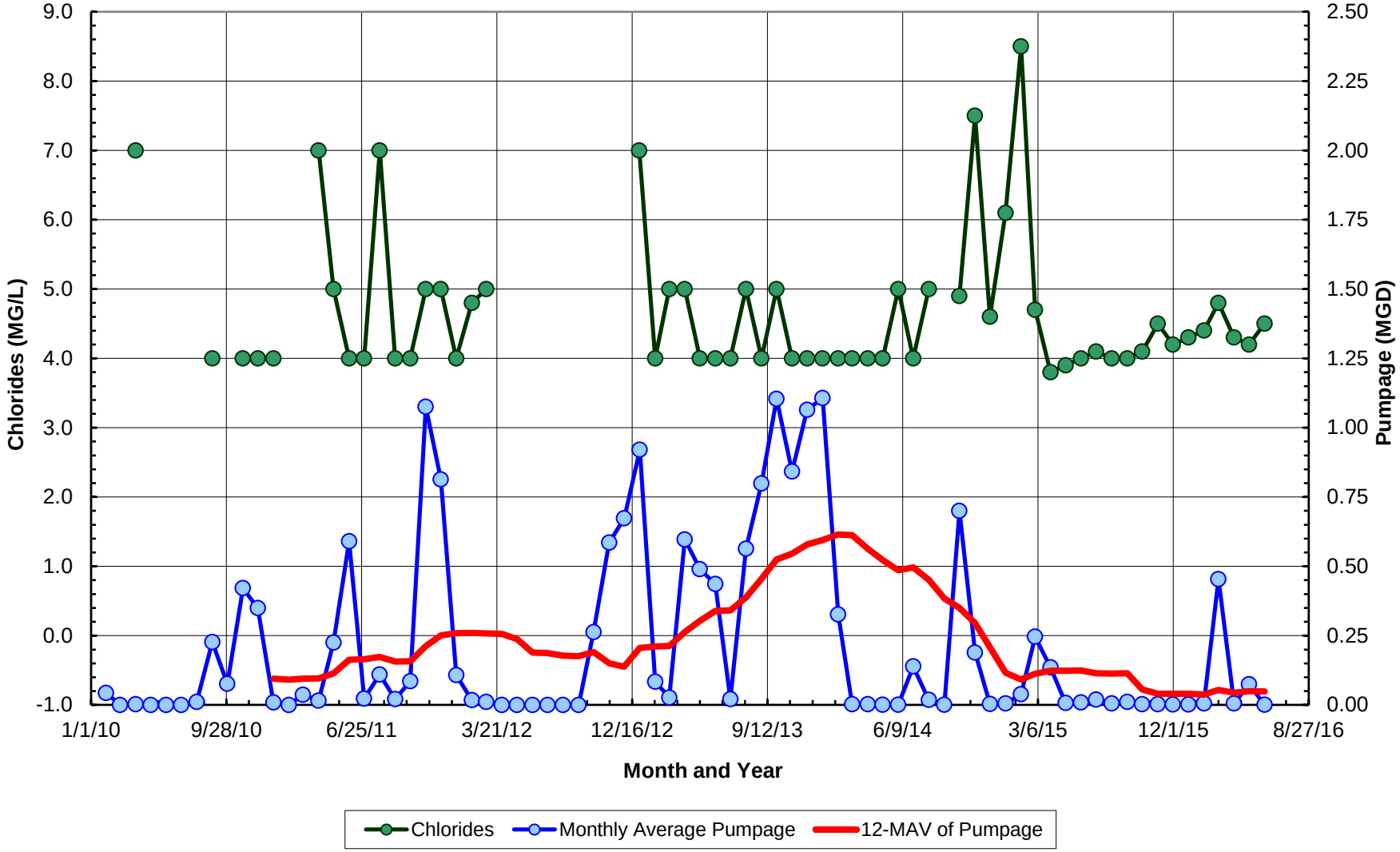
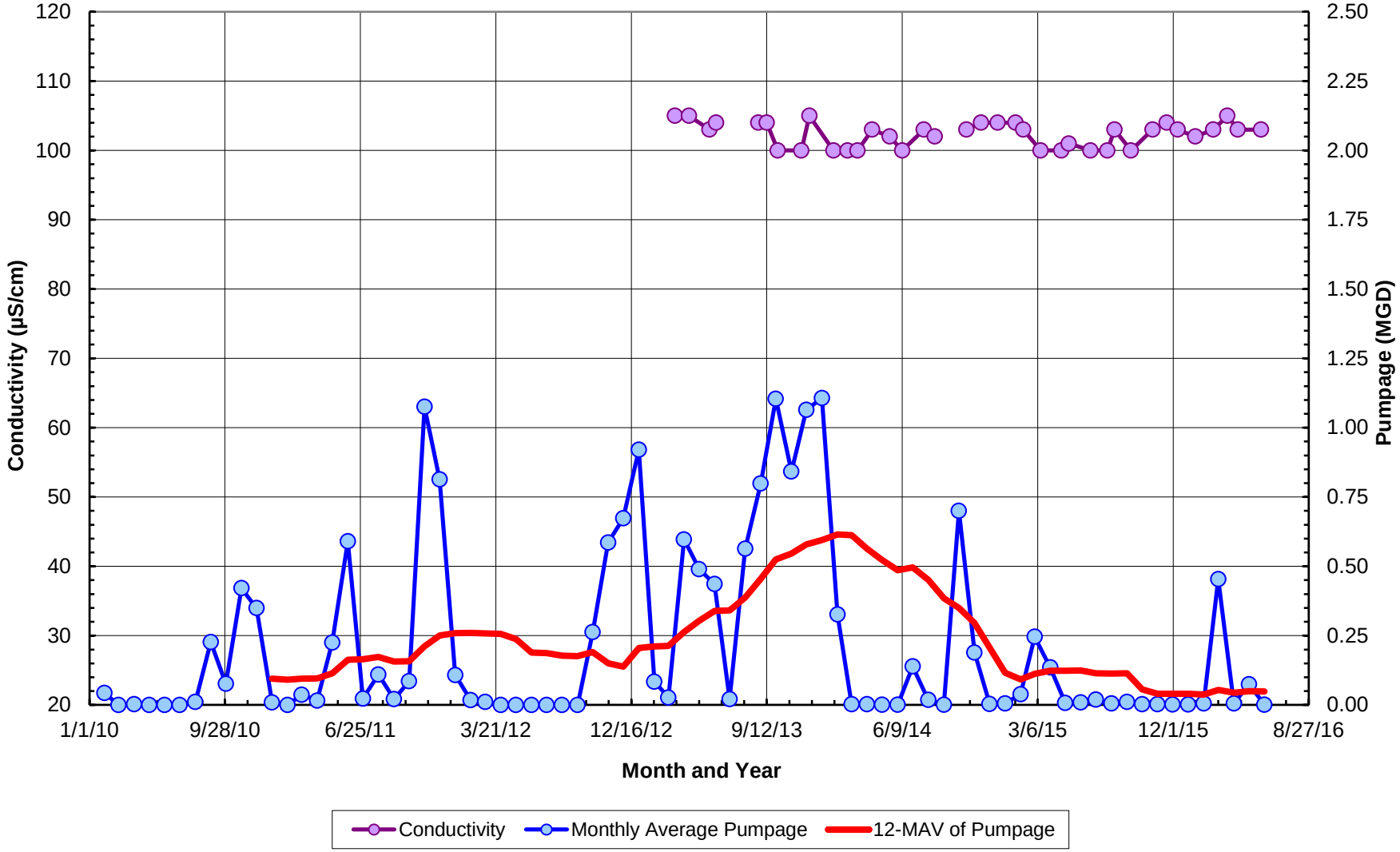


Figure 11. Available MDWS Data of the Conductivity of Water Pumped by Pookela Well A, March 2013 through May 2016



APPENDIX C

Pre-Consultation Correspondence

Water Resources Research Center

UNIVERSITY of HAWAI'I®
MĀNOA

February 22, 2016

Fukunaga & Associates, Inc.
Attn: Andrew Amuro
1357 Kapiolani Blvd., Suite 1530
Honolulu, HI 96814

Mr. Amuro:

This is to acknowledge receipt of your letter for review of an Environmental Assessment.

Unfortunately, the Water Resources Research Center does not have the capacity to review the environmental impact statement at this time due to the faculty position vacancy.

While we continue to explore filling the current vacancy, the Center will exclude itself from commentary on this specific environmental assessment study.

Sincerely,

for Darren T. Lerner, PhD
Interim Director

2540 Dole Street, Holmes Hall 283
Honolulu, Hawai'i 96822
Telephone: (808) 956-7847
Fax: (808) 956-5044
An Equal Opportunity/Affirmative Action Institution

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

Mr. Darren T. Lerner, PhD, Interim Director
University of Hawaii at Manoa
Water Resources Research Center
2540 Dole Street, Holmes Hall 283
Honolulu, Hawaii 96822

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Dear Dr. Lerner,

Thank you for your response dated February 22, 2016. As indicated in your correspondence, we acknowledge that the Center will exclude itself from commentary on this specific environmental assessment study.

Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS

Amanda Kimi

From: Andrew Amuro
Sent: Tuesday, February 23, 2016 1:53 PM
To: Amanda Kimi
Subject: FW: Pre-Assessment Consultation for Draft Environmental Assessment- Pookela Well B Drilling and Development

Amanda

First Pookela precon response. Please place copy in U drive project folder.

Thanks

Andy

From: Carey, Alain [mailto:Alain.Carey@doh.hawaii.gov]
Sent: Tuesday, February 23, 2016 11:10 AM
To: Andrew Amuro
Cc: Miyahira, Michael M
Subject: Pre-Assessment Consultation for Draft Environmental Assessment- Pookela Well B Drilling and Development

Hi, Andy,

Thank you for sending us your 2/17/16 consultation letter for this project and our comments are below.

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, Chapter 11-20 (HAR 11-20), titled "Rules Relating to Public Water Systems", which include the following major components:

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 HAR 11-20-29. This section requires that all new public water system sources be approved by the Director of Health (Director) prior to its use. Such approval is based primarily upon the submission of a satisfactory engineering report which addresses the requirements specified in HAR 11-20-29.

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.

All sources of public water system sources 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.

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.

For further information concerning the application of capacity, new source approval, operator certification, source water assessment, backflow/cross-connection prevention or other public water system programs, please contact the SDWB at 586-4258.

Underground Injection Control (UIC)

Injection wells used for the subsurface disposal of wastewater, sewage effluent, or surface runoff are subject to environmental regulation and permitting under HAR 11-23, titled "Underground Injection Control (UIC)". The Department of Health's approval must be first obtained before any injection well construction commences. A UIC permit must be issued before any injection well operation occurs.

Authorization to use an injection well is granted when a UIC permit is issued to the injection well facility. The UIC permit contains discharge and operation limitations, monitoring and reporting requirements, and other facility management and operational conditions. A complete UIC permit application form is needed to apply for a UIC permit.

A UIC permit can have a valid duration of up to five years. Permit renewal is needed to keep an expiring permit valid for another term.

For further information about the UIC permit and the Underground Injection Control Program, please contact the UIC staff of the Safe Drinking Water Branch at 586-4258.

Alain Carey

Environmental Engineer V
Safe Drinking Water Branch | Environmental Management Division | Hawaii Department of Health
919 Ala Moana Blvd., Room 308 | Honolulu, HI 96814
(808) 586-4258 Voice | (808) 586-4351 Fax

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

Mr. Alain Carey
State Department of Health
Safe Drinking Water Branch
919 Ala Moana Boulevard, Room 308
Honolulu, Hawaii 96814

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Dear Mr. Carey,

Thank you for your response dated February 23, 2016. We offer the following responses to your comments:

1. Acknowledged. A Well Completion Report will be prepared for the well drilling of the exploratory phase of the project. The Well Completion Report will be submitted to CWRM for approval.
2. Injection wells will not be utilized for the subsurface disposal of wastewater, sewage effluent, or surface runoff.

We appreciate the input provided by your office and are transmitting the Draft Environmental Assessment for the subject project for your review and comment. The 30-day comment deadline is December 8, 2016.

Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS

ALAN M. ARAKAWA
Mayor

DON MEDEIROS
Director

MARC I. TAKAMORI
Deputy Director

(808) 270-7511

DEPARTMENT OF TRANSPORTATION

COUNTY OF MAUI
2145 Kaohu Street, Suite 102
Wailuku, Hawaii, USA 96793

February 23, 2016

Mr. Andrew Amuro
Fukunaga & Associates
1357 Kapiolani Blvd.
Suite 1530
Honolulu, HI 96814

Subject: Po'okela Well B Drilling and Development

Mr. Amuro,

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

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

Sincerely,

Don Medeiros
Director

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

Mr. Don Mederios, Director
Maui Department of Transportation
2145 Kaohu Street, Suite 102
Wailuku, Hawaii 96793

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Dear Mr. Mederios,

Thank you for your response dated February 23, 2016. As a follow-up, we are transmitting the Draft Environmental Assessment for the subject project for your review and comment. The 30-day comment deadline is December 8, 2016.

Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS

DAVID Y. IGE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD, STE 555
KAPOLEI, HAWAII 96707

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

JEFFREY T. PEARSON
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

February 24, 2016

Andrew Amuro, Engineer
Fukunaga & Associates, Inc.
1357 Kapiolani Blvd., Ste 1530
Honolulu, Hawaii 96814
office@fukunagaengineers.com

Log No: 2016.00406
Doc No: 1602MD30
Archaeology

Aloha Mr. Amuro:

SUBJECT: Chapter 6E-8 Historic Preservation Review - Consultation
Early Consultation for the Pookela Well B Draft Environmental Assessment
Makawao Ahupua‘a, Makawao District, Island of Maui
TMK (2) 2-4-012:028 (por.)

Thank you for the opportunity to comment on the subject project, which we received on February 24, 2016. This proposed project would drill, test and develop the Pookela Well B as a backup to the existing Pookela Well (State Well No. 5118-02). The applicant will be engaging in a Chapter 343, HRS environmental assessment process. Your firm is facilitating this process and has requested comment by SHPD.

A search of our records indicates that we previously commented on the final EA (FEA) for the existing well. At that time, we determined that well development would have no effect on historic properties. If the proposed Pookela Well B is within the same footprint as the original FEA area, then our earlier determination remains. Should work be planned outside of this earlier area, then the County of Maui will need to identify the project’s new area of potential effect, and all historic properties within it.

Please contact me at (808) 243-4641 or Morgan.E.Davis@hawaii.gov if you have any questions or concerns regarding this letter.

Mahalo,

Morgan E. Davis
Lead Archaeologist, Maui Section

cc: County of Maui
Department of Planning
(Planning@co.maui.hi.us)

County of Maui
Department of Public Works – DSA
(Renee.Segundo@co.maui.hi.us)

County of Maui
Cultural Resources Commission
(Annalise.Kehler@co.maui.hi.us)

DLNR
Commission on Water Resource Management
Charley.F.Ice@hawaii.gov

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

Ms. Susan Lebo, PhD, Archaeology Branch Chief
DLNR, Historic Preservation Division
Kakuhihewa Building, Suite 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Dear Dr. Lebo,

Thank you for your Division Review dated February 24, 2016 (Log No. 2016.00406, Doc No. 1602MD30). As a follow-up, we are transmitting the Draft Environmental Assessment for the subject project for your review and comment. The 30-day comment deadline is December 8, 2016.

Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS

KAONOULU RANCH

P.O. Box 390 • Kula, HI 96790
Office: 808.876.0400 • Fax: 808.876.0422

February 29, 2015

Andrew Amuro
Engineer
Fukunaga & Associates, Inc.
1357 Kapiolani Boulevard, Ste. 1530
Honolulu Hawaii 96814

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment-Pooklea Well B Drilling and Development

Dear Mr. Amuro,

Thank you for your letter dated, February 17, 2015 regarding the above-referenced matter.

Kaonoulu Ranch is in agreement to your proposed project of drilling and testing of the Pookela Well B, as well as installing a pump, discharging piping and valving, controls, piping to the existing three (3) million gallon concrete reservoir on site, and a control building.

While we are in agreement to the above, we humbly ask that you keep up informed of the progression of the project, which includes the access needed, and dates.

Should you have any questions, please feel free to contact me or my assistant, Moani, at (808) 876-0400.

Sincerely,

Ken Miranda

Ken Miranda
General Manager

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

Mr. Ken Miranda, General Manager
Kaonoulu Ranch
P.O. Box 390
Kula HI, 96790

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Dear Mr. Miranda,

Thank you for your comment letter dated February 29, 2016. As a follow-up, we are transmitting the Draft Environmental Assessment for the subject project for your review and comment. The 30-day comment deadline is December 8, 2016.

Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
EMD/CWB

03001PCTM.16

March 1, 2016

Mr. Andrew Amuro
Engineer
Fukunaga and Associates, Inc.
1357 Kapiolani Boulevard, Suite 1530
Honolulu, Hawaii 96814

Dear Mr. Amuro:

SUBJECT: Comments on the Pre-Assessment Consultation for the Draft Environmental Assessment – Pookela Well B Drilling and Development Project Haleakala, Island of Maui, Hawaii

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated February 17, 2016, 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://health.hawaii.gov/epo/files/2013/05/Clean-Water-Branch-Std-Comments.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).

2. You may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55).

For NPDES general permit coverage, a Notice of Intent (NOI) form must be submitted at least 30 calendar days before the commencement of the discharge. An application for a NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. To request NPDES permit coverage, you must submit the applicable form ("CWB Individual NPDES Form" or "CWB NOI Form") through the e-Permitting Portal and the hard copy certification statement with the respective filing fee ($1,000 for an individual NPDES permit or $500 for a Notice of General Permit Coverage). Please open the e-Permitting Portal website located at: https://eha-cloud.doh.hawaii.gov/epermit/. You will be asked to do a one-time registration to obtain your login and password. After you register, click on the Application Finder tool and locate the appropriate form. Follow the instructions to complete and submit the form.

3. For Well Drilling Activities:

   Any discharge to State waters of treated process wastewater effluent associated with well drilling activities is regulated by HAR, Title 11, Chapter 55. Discharges of treated process wastewater effluent (including well drilling slurries, lubricating fluids wastewater, and well purge wastewater) to state waters requires NPDES permit coverage. NPDES permit coverage is not required for well pump testing.

4. For Well Pump Testing:

   The discharger shall take all measures necessary to prevent the discharge of pollutants from entering State waters. Such measures shall include, if necessary, containment of initial discharge until the discharge is essentially free of pollutants. If the discharge is entering a stream or river bed, best management practices shall be implemented to prevent the discharge from disturbing the clarity of the receiving water. If the discharge is entering a storm drain, the discharger must obtain written permission from the owner of the storm drain prior to discharge. Furthermore, best management practices shall be implemented to prevent the discharge from collecting sediments and other pollutants prior to entering the storm drain.

5. If your project involves work in, over, or under waters of the United States, it is highly recommended that you contact the Army Corp of Engineers, Regulatory Branch (Tel: 835-4303) 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.

6. 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.

7. It is the State's position that all projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters. Project planning should:

   a. Treat storm water as a resource to be protected by integrating it into project planning and permitting. Storm water has long been recognized as a source of irrigation that will not deplete potable water resources. What is often overlooked is that storm water recharges ground water supplies and feeds streams and estuaries; to ensure that these water cycles are not disrupted, storm water cannot be relegated as a waste product of impervious surfaces. Any project planning must recognize storm water as an asset that sustains and protects natural ecosystems and traditional beneficial uses of State waters, like community beautification, beach going, swimming, and fishing. The approaches necessary to do so, including low impact development methods or ecological bio-engineering of drainage ways must be identified in the planning stages to allow designers opportunity to include those approaches up front, prior to seeking zoning, construction, or building permits.

   b. Clearly articulate the State's position on water quality and the beneficial uses of State waters. The plan should include statements regarding the implementation of methods to conserve natural resources (e.g. minimizing potable water for irrigation, gray water re-use options, energy conservation through smart design) and improve water quality.

   c. Consider storm water Best Management Practice (BMP) approaches that minimize the use of potable water for irrigation through storm water storage and reuse, percolate storm water to recharge groundwater to revitalize natural hydrology, and treat storm water which is to be discharged.

   d. Consider the use of green building practices, such as pervious pavement and landscaping with native vegetation, to improve water quality by reducing excessive runoff and the need for excessive fertilization, respectively.

   e. Identify opportunities for retrofitting or bio-engineering existing storm water infrastructure to restore ecological function while maintaining, or even enhancing, hydraulic capacity. Particular consideration should be given to areas prone to flooding, or where the infrastructure is aged and will need to be rehabilitated.

If you have any questions, please visit our website at:http://health.hawaii.gov/cwb/, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

ALEC WONG, P.E., CHIEF
Clean Water Branch

CTM:bk

c: EPO [via e-mail only]

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

Mr. Alec Wong, P.E., Chief
State Department of Health
Clean Water Branch
P.O. Box 3378
Honolulu, Hawaii 96801-3378

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Dear Mr. Wong,

Thank you for your comment letter dated March 1, 2016. Your comments generally are addressed/incorporated in the Draft EA. We offer the following additional specific responses:

Comment #2: *You may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55).*

Less than one acre of land will be disturbed. The Contractor will be required to obtain the applicable NPDES permits for construction activities.

Comment #5: *If your project involves work in, over, or under waters of the United States, it is highly recommended that you contact the Army Corps of Engineers, Regulatory Branch (Tel: 835-4303) regarding their permitting requirements.*

The Army Corps of Engineers, Regulatory Branch was consulted, and it was determined that a DA permit is not required for this project.

We are transmitting the Draft Environmental Assessment for the subject project for your review and comment. The 30-day comment deadline is December 8, 2016.

Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS

DAVID Y. IGE
GOVERNOR

CRAIG K. HIRAI
EXECUTIVE DIRECTOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HAWAII HOUSING FINANCE AND DEVELOPMENT CORPORATION
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

IN REPLY REFER TO:
16:PEO/12

March 1, 2016

Mr. Andrew Amuro
Engineer
Fukunaga & Associates, Inc.
1357 Kapiolani Boulevard, Suite 1530
Honolulu, Hawaii 96814

Dear Mr. Amuro:

Re: Pre-Assessment Consultation for Draft Environmental Assessment for the Pookela Well B Drilling and Development

Thank you for consulting the Hawaii Housing Finance and Development Corporation on the above-referenced project. We have no housing-related comments to offer at this time.

Sincerely,

Craig K. Hirai
Executive Director

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

Mr. Craig K. Hirai, Executive Director
State Department of Business, Economic Development and Tourism
Hawaii Housing Finance and Development Corporation
677 Queen Street, Suite 300
Honolulu, Hawaii 96813

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Dear Mr. Hirai,

Thank you for your comment letter dated March 1, 2016. As a follow-up, we are transmitting the Draft Environmental Assessment for the subject project for your review and comment. The 30-day comment deadline is December 8, 2016.

Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS

PHONE (808) 594-1888

FAX (808) 594-1938

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
560 N. NIMITZ HWY., SUITE 200
HONOLULU, HAWAI'I 96817

HRD 16-7766

March 1, 2016

Andrew Amuro, Engineer
Fukunaga & Associates, Inc.
1357 Kapi'olani Boulevard, Suite 1530
Honolulu, Hawai'i 96814

Re: Pre-Assessment Consultation for Draft Environmental Assessment
Pookela Well B Drilling and Development

Aloha Mr. Amuro:

The Office of Hawaiian Affairs (OHA) received your letter dated February 17, 2016, on the above-titled project. Given the project descriptions provided, our agency has no comments at this time. Should you have any questions, please contact Everett Ohta at 594-0231 or everetto@oha.org.

'O wau iho nō me ka 'oia 'i'o,

Kamana'opono M. Crabbe, Ph.D.
Ka Pouhana, Chief Executive Officer

KC:acm

**Please address replies and similar, future correspondence to our agency:*
Dr. Kamana'opono Crabbe
Attn: OHA Compliance Enforcement
560 N. Nimitz Hwy., Ste. 200
Honolulu, Hawai'i 96817

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

Dr. Kamana'opono M. Crabbe
Office of Hawaiian Affairs
Attn: OHA Compliance Enforcement
560 N. Nimitz Hwy., Ste. 200
Honolulu, Hawaii 96817

Attention: Everett Ohta

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Gentlemen:

Thank you for your comment letter dated March 1, 2016. As a follow-up, we are transmitting the Draft Environmental Assessment for the subject project for your review and comment. The 30-day comment deadline is December 8, 2016.

Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS

ALAN M. ARAKAWA
Mayor

KA'ALA BUENCONSEJO
Director

BRIANNE L. SAVAGE
Deputy Director

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

DEPARTMENT OF PARKS & RECREATION

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

March 2, 2016

Andrew Amuro, Engineer
Fukunaga & Associates, Inc.
1357 Kapiolani Blvd., Suite 1530
Honolulu, HI 96814

Dear Mr. Amuro:

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment - Pookela Well B Drilling and Development

Thank you for the opportunity to review and comment on the proposed Pookela Well B Drilling and Development project. The Department has no comment at this time, but would like to review the project as it develops. In accordance with the requirements of Chapter 343, Hawaii Revised Statutes (HRS) and Section 11-2-00-6, Hawaii Administrative Rules (HAR) please provide a copy of the Draft Environmental Assessment (EA).

Feel free to contact me or Robert Halvorson, Chief of Planning and Development, at 270-7931, should you have any questions.

Sincerely,

KA'ALA BUENCONSEJO
Director

c: Robert Halvorson, Chief of Planning and Development

KB:RH:do

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

Mr. Ka'ala Buenconsejo, Director
Maui Department of Parks and Recreation
700 Hali'a Nakoa Street, Unit 2F
Wailuku, Hawaii 96873

Attn: Robert Halvorson

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Gentlemen:

As requested in your response letter dated March 2, 2016, we are transmitting the Draft Environmental Assessment for the subject project for your review and comment. The 30-day comment deadline is December 8, 2016.

Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:

EPO 16-066

March 3, 2016

Mr. Andrew Amuro, Engineer
Fukunaga & Associates, Inc.
1357 Kapiolani Boulevard, Suite 1530
Honolulu, Hawaii 96814

Dear Mr. Amuro:

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment (PAC DEA)
Pookela Well B Drilling and Development
TMK: 2-4-12:28

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your PAC DEA to our office on February 22, 2016. Thank you for allowing us to review and comment on the proposed project. The PAC DEA was routed to the District Health Office on Maui, the Clean Water and Safe Drinking Water Branches. They will provide specific comments to you if necessary. EPO recommends that you review the standard comments and available strategies to support sustainable and healthy design provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard comments.

EPO suggests you review guidance maps and viewers available on the Environmental Planning GIS website: http://health.hawaii.gov/epo/egis

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal. The portal provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings. The Portal is continually updated. Please visit it regularly at: https://eha-cloud.doh.hawaii.gov.

We request that you utilize all of this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design.

Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

Attachments: OEQC Viewer: http://eha-web.doh.hawaii.gov/oeqc-viewer
U.S. EPA EJScreen Report: http://www2.epa.gov/ejscreen

c: DOH: DHO Maui, CWB, SDWB {via email only}

hawaii.gov Stay Connected

OEQC Viewer

makaweo

2 sites found

Results Filter

Show sites with no location

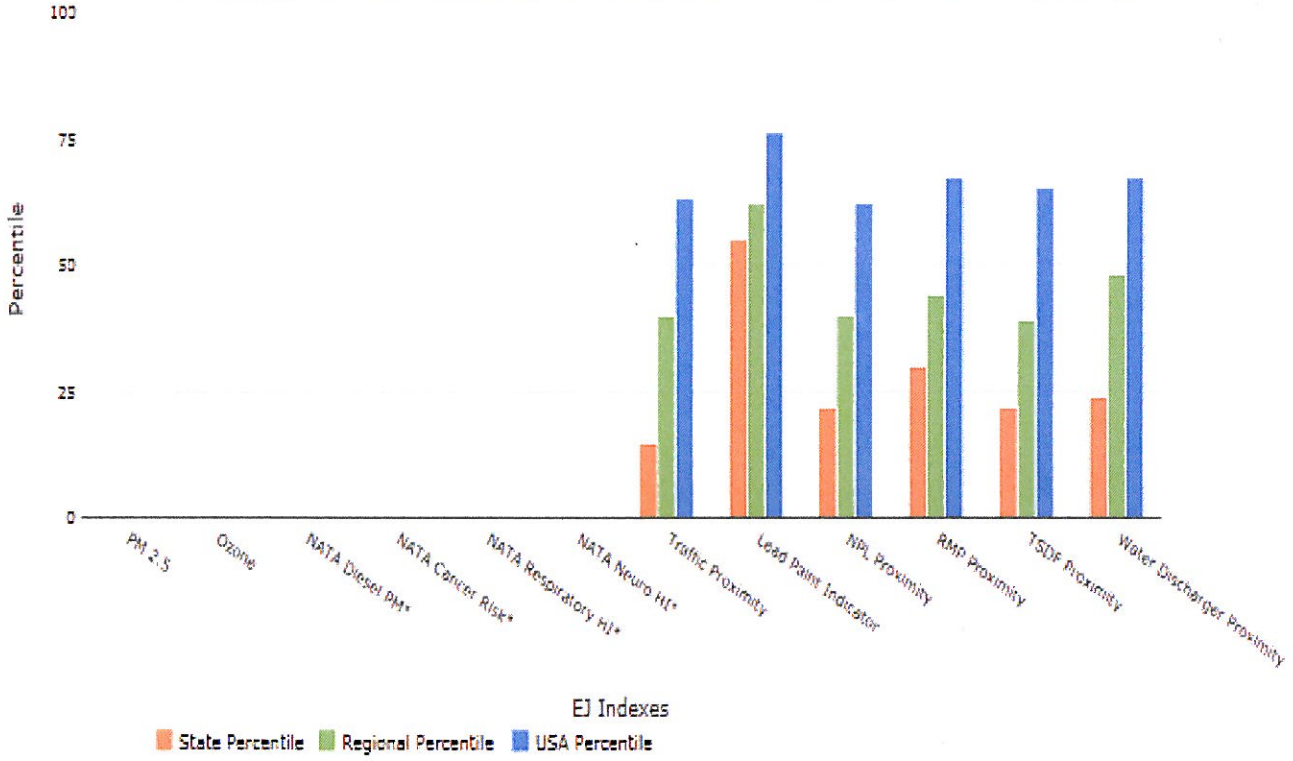
POOKELA WELL DEVELOPMENT (FEA-FONSI)
Environmental Assessment (Agency)

POOKELA WELL (FEA-FONSI)
Environmental Assessment (Agency)

1 mile Ring Centered at 20.849680,-156.305441
HAWAII, EPA Region 9
Approximate Population: 3331

Selected Variables	Percentile in State	Percentile in EPA Region	Percentile in USA
EJ Indexes			
EJ Index for Particulate Matter (PM 2.5)	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA Diesel PM*	N/A	N/A	N/A
EJ Index for NATA Air Toxics Cancer Risk*	N/A	N/A	N/A
EJ Index for NATA Respiratory Hazard Index*	N/A	N/A	N/A
EJ Index for NATA Neurological Hazard Index*	N/A	N/A	N/A
EJ Index for Traffic Proximity and Volume	15	40	63
EJ Index for Lead Paint Indicator	55	62	76
EJ Index for NPL Proximity	22	40	62
EJ Index for RMP Proximity	30	44	67
EJ Index for TSDF Proximity	22	39	65
EJ Index for Water Discharger Proximity	24	48	67

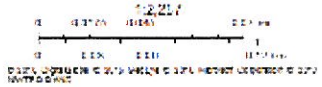
EJ Index for the Selected Area Compared to All People's Block Groups in the State/Region/US



This report shows environmental, demographic, and EJ indicator values. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

March 4, 2016

+ Digitized Point



Selected Variables	Raw data	State Average	%ile in State	EPA Region Average	%ile in EPA Region	USA Average	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	N/A	N/A	N/A	9.95	N/A	9.78	N/A
Ozone (ppb)	N/A	N/A	N/A	49.7	N/A	46.1	N/A
NATA Diesel PM (µg/m³)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Air Toxics Cancer Risk (risk per MM)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Respiratory Hazard Index*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Neurological Hazard Index*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Traffic Proximity and Volume (daily traffic count/distance to road)	4.7	280	5	190	6	110	11
Lead Paint Indicator (% pre-1960s housing)	0.18	0.17	60	0.25	53	0.3	46
NPL Proximity (site count/km distance)	0.0051	0.092	14	0.11	5	0.096	1
RMP Proximity (facility count/km distance)	0.058	0.18	20	0.41	9	0.31	17
TSDF Proximity (facility count/km distance)	0.0054	0.092	15	0.12	1	0.054	11
Water Discharger Proximity (count/km)	0.058	0.33	14	0.19	17	0.25	15
Demographic Indicators							
Demographic Index	47%	51%	35	46%	53	35%	72
Minority Population	61%	77%	18	57%	52	36%	75
Low Income Population	33%	25%	72	35%	52	34%	54
Linguistically Isolated Population	4%	6%	54	9%	39	5%	67
Population with Less Than High School Education	6%	10%	41	18%	28	14%	31
Population under Age 5	7%	6%	64	7%	56	7%	61
Population over Age 64	12%	14%	45	12%	64	13%	54

*The National-Scale Air Toxics Assessment (NATA) environmental indicators and EJ indexes, which include cancer risk, respiratory hazard, neurodevelopment hazard, and diesel particulate matter will be added into EJSCREEN during the first full public update after the soon-to-be-released 2011 dataset is made available. The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

Ms. Laura McIntyre, AICP, Program Manager
State Department of Health
Environmental Planning Office
P.O. Box 3378
Honolulu, HI 96801-3378

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Dear Ms. McIntyre,

Thank you for your comment letter dated March 3, 2016. As a follow-up, we are transmitting the Draft Environmental Assessment for the subject project for your review and comment. The 30-day comment deadline is December 8, 2016.

We received specific comments from the Clean Water Branch and Safe Drinking Water Branch, and will send them a copy directly.

Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS

Amanda Kimi

From:	Andrew Amuro
Sent:	Monday, March 07, 2016 8:25 PM
To:	Amanda Kimi
Subject:	FW: Pre-Assessment Consultation for Draft Environmental Assessment - Pookela Well B Drilling and Development(RFC 2016/0055)
Attachments:	ZonFldConf_Rev12-13_WEB_201401081911318912.pdf

Hello Amanda

Response from Maui Planning. We should look into filing the form with ZAED so we can close the loop. We should fall under consistency exemption since this is previously acquired public land.

We can discuss today.

Thanks

Andy

From: Livit Callentine [mailto:Livit.Callentine@co.maui.hi.us]
Sent: Monday, March 07, 2016 5:14 PM
To: Andrew Amuro
Cc: Clayton Yoshida; Jeffrey Dack
Subject: Pre-Assessment Consultation for Draft Environmental Assessment - Pookela Well B Drilling and Development(RFC 2016/0055)

Dear Mr. Amuro,

Thank you for the opportunity to provide comments during the early consultation phase of environmental review of the subject project. On behalf of the Department of Planning, we understand that the project consists of:

1. Construction of a well to provide backup for the existing Pookela Tank site located at Maui TMK: 2-4-012:028, a 2.2 acre parcel owned by the County of Maui, Department of Water Supply (MDWS). The site is located on the northern slopes of Haleakala, off Olinda Road, less than one-half mile mauka of Makawao Town. MDWS proposes to drill, test, and develop the Pookela Well B as a backup to the existing Pookela Well (State Well No. 5118-02). The two wells, once fully developed, will not run simultaneously.

2. The Pookela backup well project will be completed in two phases; the first phase will include drilling and testing of the well. The second phase will include

development of the well, including installation of a pump, discharge piping and valving, controls, piping to the existing 3 million gallon concrete reservoir on site, and a control building.

Comments:

1. The land use designations have not been confirmed, but appear to be as follows:
State Land Use: Agricultural District
County Zoning: Agricultural District
Makawao-Pukalani-Kula Community Plan: Public/Quasi-Public
Not located in the Special Management Area.

2. If you haven't already done so, we suggest you request zoning confirmation from the Zoning Administration and Enforcement Division. For your convenience, a blank form is attached.

3. Please include the Department of Planning in your distribution of the environmental assessment for further comments.

Thank you for the opportunity to provide comments.

Sincerely,

Livit Callentine, AICP
Staff Planner
Environmental Planning Section | Department of Planning
County of Maui
2200 Main Street, Suite 619
Wailuku, HI 96793
Phone: (808) 270-5537
Fax: (808) 270-1775
livit.callentine@mauicounty.gov

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

Ms. Livit Callentine, AICP, Staff Planner
Maui Department of Planning
2200 Main Street, Suite 619
Wailuku, HI 96793

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Dear Ms. Callentine,

Thank you for your response dated March 7, 2016. We are transmitting the Draft Environmental Assessment for the subject project for your review and comment. The 30-day comment deadline is December 8, 2016. Per your comment, zoning confirmation has been requested from the Zoning Administration and Enforcement Division.

Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS

OFFICE OF PLANNING
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
DIRECTOR
OFFICE OF PLANNING

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824
Web: http://planning.hawaii.gov/

Ref. No. P-15064

March 8, 2016

Mr. Andrew Amuro
Engineer
Fukunaga & Associates, Inc.
1357 Kapiolani Boulevard, Suite 1530
Honolulu Hawaii 96814

Dear Mr. Amuro:

Subject: Pre-Consultation Draft Environmental Assessment – Pookela Well B Drilling and Development; TMK: (2) 2-4-012:028

Thank you for the opportunity to provide comments on this pre-assessment consultation request for the drilling and development of the Pookela Well B project. The pre-consultation review material was transmitted to our office by letter dated February 17, 2016.

It is our understanding that the County of Maui, Department of Water Supply seeks to develop the Pookela Well B site as a backup to the existing Pookela State Well (No. 5118-02). The proposed well development will occur in two phases. The first phase will include drilling and testing of the well. The second phase will include development of the well, which will involve the installing of a pump, discharge piping and valving, controls, piping to the existing three-million-gallon concrete reservoir on-site, and a control building.

The Office of Planning (OP) has reviewed the transmitted material and has the following comments to offer:

1. Pursuant to the Hawaii Administrative Rules (HAR) § 11-200-10(4) – general description of the action's technical, economic, social, and environmental characteristics; this project must demonstrate that it is consistent with a number of State environmental, social policies, economic goals, and policies for land use. OP provides technical assistance to State and county agencies in administering the statewide planning system in Hawaii Revised Statutes (HRS) Chapter 226, the Hawaii State Plan. The Hawaii State Plan provides goals, objectives, policies, and priority guidelines for growth, development, and the allocation of resources throughout the State in areas of state interest including but not limited to the economy, agriculture, the visitor industry, federal expenditure, the physical environment, facility systems, socio-cultural advancement, climate change adaptation, and sustainability.

The Draft Environmental Assessment (Draft EA) should include an analysis that addresses whether the proposed project conforms to or is in conflict with the goals, objectives, policies, and priority guidelines listed in the Hawaii State Plan.

2. The coastal zone management (CZM) area is defined as "all lands of the State and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the U.S. territorial sea" see HRS § 205A-1 (definition of "coastal zone management area").

   HRS § 205A-5(b) requires all State and county agencies to enforce the CZM objectives and policies. The Draft EA should include an assessment as to how the proposed project conforms to the CZM objectives and its supporting policies set forth in HRS § 205A-2. The assessment on compliance with HRS § 205A-2 is an important component for satisfying the requirements of HRS Chapter 343. These objectives and policies include recreational resources, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, managing development, public participation, beach protection, and marine resources.

3. Pursuant to HAR § 11-200-10(6) – identification and summary of impacts and alternatives considered; in order to ensure that the coastline and water resources within North and Central Maui remain protected, the negative effects of stormwater inundation ensuing from development activities should be evaluated in the Draft EA. This 2.2-acre project lies within an agricultural area, upslope along Haleakala. During heavy storm events, the natural contours of the land and drainage infrastructure may transport upslope sediment, land-based pollutants, and toxicant-load contributions into the nearshore marine environment along the north shore of Maui.

   The Draft EA should examine potential benefits and/or negative impacts resulting from this project on coastal and marine resources. Issues that may be examined in the Draft EA include, but are not limited to: project site characteristics in relation to erosion controls on flood prone areas, undeveloped open spaces, and the absorption characteristics of the soil. Furthermore, it should differentiate between the existing permeable surfaces versus hardened surfaces in the area. These items, as well as the marine water quality classification, should be considered when developing mitigation measures to protect the coastal ecosystem.

   The enclosed map of this project, as well as resources available to us, indicate that this project is well upslope along Haleakala, located approximately 0.5 miles from Makawao Town; within an area classified as State Land Use Agriculture District; and on a parcel with an existing potable water well facility.

   The Draft EA should examine the cumulative impact on coastal resources from land-

based polluted runoff and sediment loss. It should take into account any of the natural features in the area, undeveloped open spaces, down-sloping topography, hardened non-permeable surfaces that have a cumulative effect on the volume and speed of storm runoff, and soil absorption rates.

OP has a number of resources available to assist in the development of projects which ensure sediment and stormwater control on land, thus protecting the nearshore environment. OP recommends consulting these guidance documents and stormwater evaluative tools when developing strategies to address polluted runoff. They offer useful techniques to keep land-based pollutants and sediment in place and prevent contaminating nearshore waters, while considering the practices best suited for this project. These three evaluative tools that should be used during the design process include:

- Hawaii Watershed Guidance provides direction on mitigation strategies in urban areas that will safeguard Hawaii's watersheds and implement watershed plans http://files.hawaii.gov/dbedt/op/czm/initiative/nonpoint/HI Watershed Guidance Final.pdf

- Stormwater Impact Assessments can be used to identify and evaluate information on hydrology, stressors, sensitivity of aquatic and riparian resources, and management measures to control runoff, as well as consider secondary and cumulative impacts to the area http://files.hawaii.gov/dbedt/op/czm/initiative/stomwater_imapct/final_stormwater_impact_assessments_guidance.pdf

- Low Impact Development (LID), A Practitioners Guide covers a range of structural best management practices (BMP's) for stormwater control management, roadway development, and urban layout that minimizes negative environmental impacts http://files.hawaii.gov/dbedt/op/czm/initiative/lid/lid_guide_2006.pdf

If you have any questions regarding this comment letter, please contact Joshua Hekekia of our office at (808) 587-2845.

Sincerely,

Leo R. Asuncion
Director

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

Mr. Leo R. Asuncion, Director
State of Hawaii
Office of Planning
P.O. Box 2359
Honolulu, HI 96804

Attn: Joshua Hekekia

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Gentlemen:

Thank you for your comment letter dated March 8, 2016. We are transmitting the Draft Environmental Assessment for the subject project for your review and comment. The 30-day comment deadline is December 8, 2016. Your comments are addressed/incorporated in the Draft EA.

Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS

Amanda Kimi

From: Andrew Amuro
Sent: Thursday, March 03, 2016 10:57 AM
To: Amanda Kimi
Subject: FW: POH-2016-00065 (Pookela Well B Drilling and Development, Makawao, Mauai, HI)

Importance: High

-----Original Message-----
From: Fukunaga Office
Sent: Thursday, March 03, 2016 10:50 AM
To: Andrew Amuro
Subject: FW: POH-2016-00065 (Pookela Well B Drilling and Development, Makawao, Mauai, HI)
Importance: High

See below email.

Thank you,
Jasmyn Honda
Fukunaga & Associates, Inc.
1357 Kapiolani Blvd., Ste. 1530
Honolulu, HI 96814
Phone: (808) 944-1821
Fax: (808) 946-9339
Email: jhonda@fukunagaengineers.com

-----Original Message-----
From: Hunt, Carol L POH [mailto:Carol.L.Hunt@usace.army.mil]
Sent: Thursday, March 03, 2016 9:29 AM
To: Fukunaga Office <office@fukunagaengineers.com>
Cc: Koskelo, Vera B POH <Vera.B.Koskelo@usace.army.mil>
Subject: POH-2016-00065 (Pookela Well B Drilling and Development, Makawao, Mauai, HI)
Importance: High

Aloha,

Thank you for submitting your request to the Honolulu District Regulatory Office. We have received your correspondence and it has been assigned file number POH-2016-00065. Please reference this number in all future correspondence. Vera Koskelo has been assigned to your project. If you have not heard from our office within 30 days, please contact us at (808) 835-4303 or by e-mail at CEPOH-RO@usace.army.mil. Thank you for contacting the Honolulu District Regulatory Office.

Mahalo,

Carol "Lynn" Hunt
Administrative Assistant, Regulatory Office USACE-Honolulu District Bldg 252 Fort Shafter, HI 96858-5440

Phone: (808)-835-4303
Fax: (808)-835-4126

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

March 9, 2016

SUBJECT: Approved Jurisdictional Determination and No Permit Required for Pookela Well B Drilling and Development, Makawao, Maui. DA File No. POH-2016-00065

Andrew Amuro
Fukunaga & Associates, Inc.
1357 Kapiolani Boulevard, Suite 1530
Honolulu, Hawaii 96814

Dear Mr. Amuro:

We have received your letter dated February 17, 2016 for the proposed Pookela Well B Drilling and Development, located at the Pookela Tank Site at TMK 2-2-4-012:018, off of Olinda Road in Makawao, Island of Maui, Hawaii. We have assigned your project Department of the Army (DA) file number POH-2016-00065. Please reference this number in all future correspondence concerning this project.

We have reviewed your submittal pursuant to Section 10 of the Rivers and Harbors Act of 1899 (Section 10) and Section 404 of the Clean Water Act (Section 404). Section 10 requires that a DA permit be obtained for certain structures or work in or affecting navigable waters of the United States, prior to conducting the work (33 U.S.C. 403). Section 404 requires that a DA permit be obtained for the discharge of dredged and/or fill material into waters of the U.S., including wetlands and navigable waters of the U.S, prior to conducting the work (33 U.S.C. 1344).

Based on our review of your submittal, we have determined that there are no waters of the United States, including wetlands, under the regulatory jurisdiction of the Corps within the review area as described above and depicted on the attached map (Enclosure 1). Assuming your project is conducted only as set forth in the information provided, this office has determined the proposed activity does not affect the course, capacity, condition, or location of a Navigable Water of the U.S. as defined by Section 10 and would not result in the discharge of dredged or fill material into waters of the U.S. as defined by Section 404. Therefore, a DA permit will not be required.

This letter contains an approved JD that identifies the basis for not asserting jurisdiction (Enclosure 2). The approved JD is valid for a period of five (5) years from the date of this letter, unless new information warrants revision of the determination before the expiration date. If you object to this determination, you may request an Administrative Appeal under 33 CFR 331. We have enclosed a Notification of Appeal Process and Request for Appeal (NAP/RFA) form. If you request to appeal this determination you must submit a completed RFA form, according to instructions in the RFA, to the Corps' Pacific Ocean Division office at the following address:

Civil Works and Regulatory Program Manager
U.S. Army Corps of Engineers
Pacific Ocean Division, ATTN: CEPOD-PDC
Building 525
Fort Shafter, HI 96858-5440

This JD and statement of no permit required does not relieve the Maui County Department of Water Supply of any need to obtain other federal, state, or local authorizations required by law, ordinance and/or regulation.

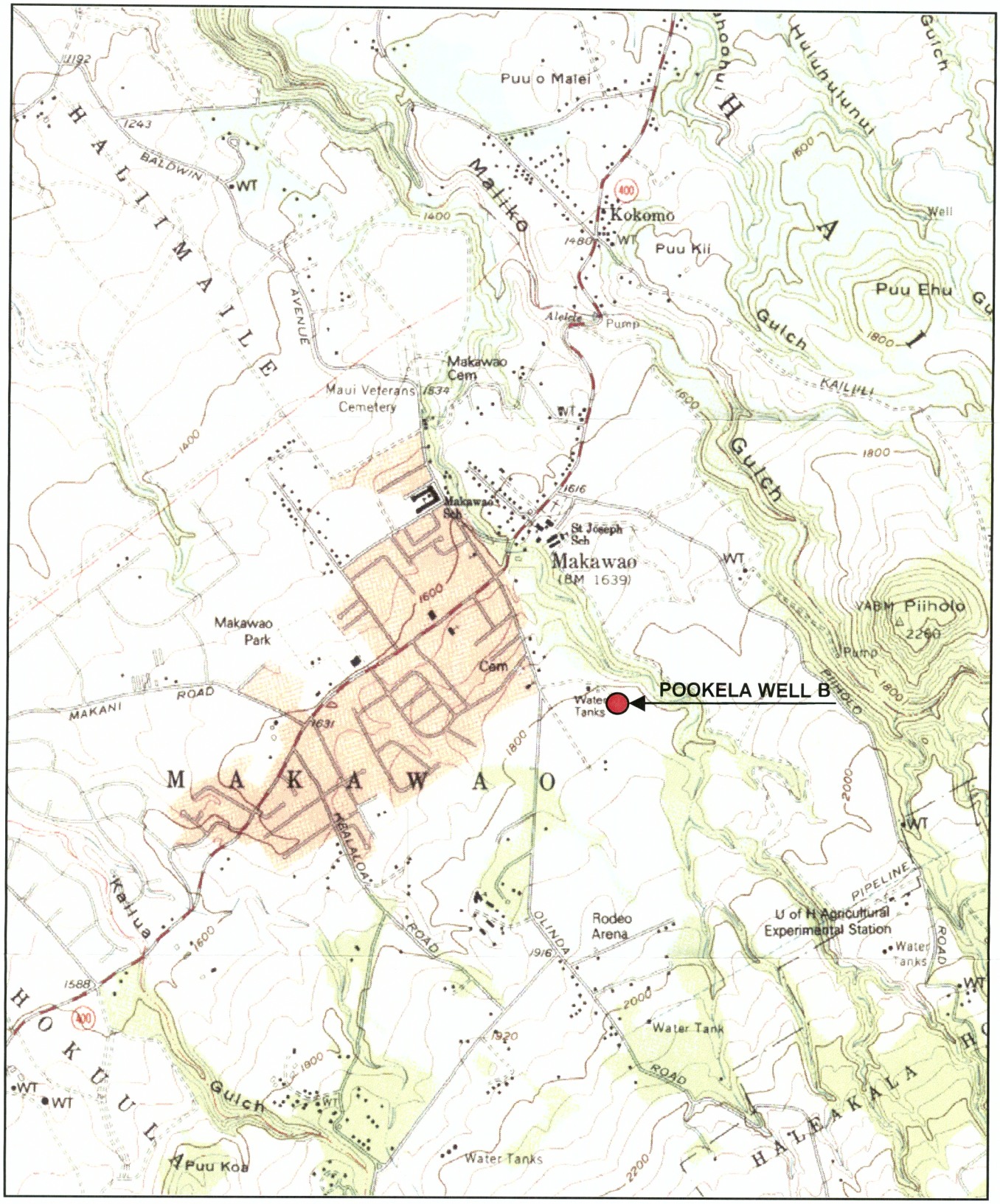
Thank you for your cooperation with the Honolulu District Regulatory Program. Should you have any questions related to this determination, please contact Ms. Vera Koskelo of my staff at 808-835-4310 or via e-mail at Vera.B.Koskelo@usace.army.mil. You are encouraged to provide comments on your experience with the Honolulu District Regulatory Office by accessing our web-based customer survey form at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0.

Sincerely,

Susan M. Gayagas
for Michelle R. Lynch
Chief, Regulatory Office

Enclosures

cc:
State of Hawaii DBEDT Office of Planning (John Nakagawa)
State of Hawaii DOH-CWB (Darryl Lum)



COUNTY OF MAUI

Pookela Well B

Location Map

Approx. Scale: 1" = 2000 ft

1/13/2013
2016-00065
Google earth
Tour Guide
2001
Imagery Date: 1/13/2013 20°50'57.83" N 156°18'19.57" W elev 0 ft eye alt 805 ft

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 09 March 2016

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Honolulu District, POH-2016-00065 (Pookela Well B Drilling and Development, Makawao, Maui)

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State:Hawaii County/parish/borough: Maui City: Makawao
Center coordinates of site (lat/long in degree decimal format): Lat. 20.849192° **N**, Long. -156.305656° **W**.
Universal Transverse Mercator:
Name of nearest waterbody: unnamed stream
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: no aquatic resource located within the review area; the unnamed stream to the northeast of the review area flows north to the Pacific Ocean
Name of watershed or Hydrologic Unit Code (HUC): 2002000

- ☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
- ☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- ☒ Office (Desk) Determination. Date: 09 March 2016
- ☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

- ☐ Waters subject to the ebb and flow of the tide.
- ☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are no** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   - ☐ TNWs, including territorial seas
   - ☐ Wetlands adjacent to TNWs
   - ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   - ☐ Non-RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   - ☐ Impoundments of jurisdictional waters
   - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: linear feet: width (ft) and/or acres.
   Wetlands: 0.0 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Pick List**
   Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]

---

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: **Pick List**
Drainage area: **Pick List**
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.
Project waters are **Pick List** river miles from RPW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Project waters are **Pick List** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: .
Tributary stream order, if known: .

---

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: inflow is diversion structure.
☐ Manipulated (man-altered). Explain: impoundment created from UPLANDS.

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: feet
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):

☐ Silts	☐ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**
Describe flow regime: .
Other information on duration and volume: .

Surface flow is: **Pick List.** Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain:flow from reservoir to receiving tributarydependent on storage capacity of reservoir.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

☐ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☐ Habitat for:
  ☐ Federally Listed species. Explain findings: .
  ☐ Fish/spawn areas. Explain findings: .
  ☐ Other environmentally-sensitive species. Explain findings: .
  ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
  Wetland size: acres
  Wetland type. Explain: .
  Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Pick List**. Explain: .

Surface flow is**: Pick List**
  Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
  ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☐ Directly abutting
☐ Not directly abutting
  ☐ Discrete wetland hydrologic connection. Explain: .
  ☐ Ecological connection. Explain: .
  ☐ Separated by berm/barrier. Explain: reservoir is artificial wetland.

(d) Proximity (Relationship) to TNW
Project wetlands are **Pick List** river miles from TNW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Flow is from: **Pick List.**
Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width): .
☐ Vegetation type/percent cover. Explain: .
☐ Habitat for:
  ☐ Federally Listed species. Explain findings: .
  ☐ Fish/spawn areas. Explain findings: .
  ☐ Other environmentally-sensitive species. Explain findings: .
  ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: water and sediment retention.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: artificial impoundment has potential to release excess waters to RPW tributaries.

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **.**

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **.**

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

---

[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:Topo map provided with letter dated 17 February 2016.
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☐ U.S. Geological Survey map(s). Cite scale & quad name: .
☒ USDA Natural Resources Conservation Service Soil Survey. Citation:NRCS Soil Mapper Data Layer in GoogleEarth Pro, http://casoilresource.lawr.ucdavis.edu/soilweb-apps, accessed on 3-9-16.
☒ National wetlands inventory map(s). Cite name:NWI mapper, http://www.fws.gov/wetlands/Data/Mapper.html, accessed on 3-9-16.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date):aerial photo dated 5-26-04, 3-12-11, 6-24-11, 1-12-13, 1-13-13, and 7-17-14 from GoogleEarth Pro; Bing Birds Eye view aerial photographs.
or ☐ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☒ Other information (please specify): State of Hawaii DLNR Flood Hazard Assessment Tool TMK map, accessed 3-9-16, http://gis.hawaiinfip.org/FHAT/; Topographic map from topozone.com, access 3-9-16, http://www.topozone.com/map-

print/?lat=20.8493548&lon=-156.316694&title=Makawao Topo Map in Maui County Hawaii; EPA My Waters data layer in GoogleEarth Pro, accessed 3-9-16 http://www.epa.gov/waterdata/my-waters-mapper.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

Ms. Michelle R. Lynch, Regulatory Branch
U.S. Army Corps of Engineers
Pacific Ocean Division
Building 525
Fort Shafter, HI 96858-5440

Attn: Vera Koskelo

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Ladies:

Thank you for your comment letter dated March 8, 2016. We are transmitting the Draft Environmental Assessment for the subject project for your review and comment. The 30-day comment deadline December 8, 2016. Your comments are addressed/incorporated in the Draft EA.

Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS

DAVID Y. IGE
GOVERNOR
STATE OF HAWAII

SHAN S. TSUTSUI
LT. GOVERNOR
STATE OF HAWAII

JOBIE M. K. MASAGATANI
CHAIRMAN
HAWAIIAN HOMES COMMISSION

WILLIAM J. AILA, JR.
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

P. O. BOX 1879
HONOLULU, HAWAII 96805

March 9, 2016

Andrew Amuro, Engineer
Fukunaga & Associates, Inc.
1357 Kapi'olani Blvd. Suite 1530
Honolulu, HI 96814

Subject: Pre-Assessment Consultation for Draft Environmental Assessment - Po'okela Well B Drilling and Development.

Dear Mr. Amuro,

Mahalo for consulting the Department of Hawaiian Home Lands (DHHL) on the Maui County Department of Water Supply's (MDWS) proposal to drill and develop Po'okela Well B as a "backup" to the existing Po'okela Well (State Well No. 5118-02) at TMK (2) 2-4-012:028. DHHL reviewed your February 17, 2016 request for consultation and provides the following comments.

Comment #1: There is additional informational background on DHHL's development plans and interests in areas potentially served by proposed Po'okela Well B.

DHHL provides the following information and background in order to aid MDWS in assessing impacts on DHHL's legal rights, duties, and privileges consequent to the proposed action and for the purposes of preparation of a draft environmental assessment (DEA). Much of this information is based on DHHL's Island Plans, Regional Plans, Water Policy Plan (approved July 2014), and Energy Plan, which are publicly available through the DHHL Planning Office.

In 2004, DHHL supported MDWS' proposal to develop the existing Po'okela Well into a production well:

> DHHL supports the additional capacity in the County well in order to better service Upcountry Maui. It is our understanding that the Makawao, Ha'ikū, and Kula Water

> Systems serve Upcountry Maui. DHHL has significant land interests that may be served by the upper and lower Kula Water Systems. Additionally, the proposed project is consistent with the Maui General Plan objectives for water by "supporting the planning, preservation and development of water resources which service Hawaiian Home Lands."

Letter from Linda Chin, Acting Administrator, Land Management Division, Dep't Hawaiian Home Lands, to Lynn Malinger, Fukunaga & Assoc., Subj: Draft Environmental Assessment, Po'okela Well. Maui" (Aug. 23, 2004) (in Maui County Dep't of Water Supply, Po'okela Well Development Final Environmental Assessment, Maui, Hawai'i Tax Map Key: 2-4-12:28, Appendix "E" (Sep. 2004), ("Po'okela FEA")). DHHL has maintained and expanded its interests in the Po'okela Well and development of Upcountry water sources more generally.

DHHL has three Upcountry landholdings that are currently served by MDWS' Makawao and Kula water systems: Kēōkea-Waiōhuli, 'Ulupalakua, and Kualapa (totaling 6,154.9 acres). *See* DHHL, Maui Island Plan, at 3-1 (Sep. 2004) ("MIP"). These lands primarily receive surface water through MDWS systems. MDWS and DHHL have a water credits agreement, signed on December 9, 1997, under which MDWS commits 0.5 million gallons per day (mgd) to DHHL, maintains improvements, and delivers potable water except during drought periods affecting lower Kula. DHHL currently utilizes 0.219 mgd these water credits for its Kēōkea-Waiōhuli subdivision for its existing 321-unit Kula Unit 1, and 44-unit Hikina infill developments. MIP at 3-14; (Draft) State Water Projects Plan Update at 4-24 ("draft SWPP"). The remaining balance of 0.281 mgd in water credits will not be insufficient for later phases of the Kēōkea-Waiōhuli development, for which total potable demand will be 0.3489 mgd. Kēōkea-Waiōhuli Regional Plan (Jun. 2010); draft SWPP at 4-24.

DHHL also has a fourth landholding at Kahikunui (22,860 acres, at TMK (2) 1-9-01:03, 07, 08, and 11, where homesteaders currently rely on catchment or haul their own water for domestic purposes from the nearest source, which is seven miles away. DHHL Kahikinui Regional Plan, at 21 (Jul. 2011). On May 21, 2002, MDWS discussed extending its Kula Water Line from Kanaio to Kahikunui to serve DHHL Kahikinui homesteaders. However, later on September 18, 2009, DWS representatives stated DWS was working with DHHL to find alternative sources. *Id.* Any nexus between the proposed Po'okela Well B, increased capacity in MDWS' Kula

water systems, and the potential extension of the Kula water line to Kahikinui would positively implicate DHHL's interests.

Comment #2: *Energy constraints noted in MDWS' pre-consultation request should be considered in alternatives analysis.*

Po'okela Well water requires energy to be pumped vertically, over 1,800 feet, to an existing concrete reservoir. However, because Po'okela Well taps "an essentially virgin source of water, and is a reliable alternative water source, which can supplement the water system to alleviate the effects of drought conditions and meet the demands of the community[,]" MDWS determined the energy consumption would not be significant for purposes of environmental assessment under HAR §11-200-12. Po'okela FEA at 35.

Citing similar concerns, DHHL has noted "the high cost of pumping water to the higher elevations renders it unlikely that the DWS would rely on this source other than to supplement Upcountry supplies during prolonged periods of low rainfall." MIP at 3-4. DHHL's service areas are at too high an elevation to be economically supplied by water pumped from lower elevations where ground and surface water sources are more easily developed. DHHL concluded, "[h]igher-level sources are needed to avoid pumping." *Id.* DHHL understands the existing Po'okela Well is currently utilized only under drought conditions or other emergency purposes, when Upcountry water sources are inadequate. Kēōkea-Waiōhuli Regional Plan at 21.

The substantial need for water sources to service Upcountry areas appears to suggest that MDWS might direct further efforts towards developing higher-elevation production wells, as opposed to constructing a "back up" to an alternative source used primarily under drought conditions. DHHL also considers water resource protection as one of its interests.[1] Such protection includes best practices spacing of different wells in aquifer systems. DHHL offers the comment that the rationale behind MDWS' decision to construct Po'okela Well B, instead of a higher-level source or a source at a different location could be described in an alternatives analysis.

---

[1] *See* The Hawaiian Homes Commission Water Policy Plan, adopted July 22, 2014 *available at:* http://dhhl.hawaii.gov/wp-content/uploads/2013/09/HHC-Water-Policy-Plan-140722.pdf.

Comment #3: *MDWS' EA should fully and expressly address DHHL's rights in Makawao aquifer waters and potential development needs for those water resources.*

Comment No. 1, *supra* was directed at DHHL's interests in MDWS' systems, however DHHL may also by law develop its own systems and sources for its Upcountry and Kahikinui landholdings. The Makawao aquifer has a sustainable yield of 7 mgd, with approximately 3.24 mgd currently used. Po'okela FEA at 26. Although DHHL does not presently anticipate a need to exert rights to Makawao aquifer resources, DHHL's general interests in water should be fully addressed in MDWS' EA. In general, the State and its subdivisions have duties to protect DHHL's rights in water resources as enumerated in the Hawaiian Homes Commission Act, 1920, as amended, §§ 101(4), 20, 221; the Hawai'i Constitution, article XI, §§ 1 and 7; and Chapter 174C, Hawaii Revised Statutes (HRS), also known as the State Water Code. Our environmental review law, HRS Chapter 343, also contains clear language requiring that EAs examine the impacts of proposed actions on Hawaiian rights, including those of DHHL.

MDWS' EA should expressly address DHHL's water rights in the Makawao aquifer resources and DHHL's potential need to exercise them.[2] Please keep in mind that DHHL is entitled to reservation of water for its current and foreseeable water uses, even in areas that the State Commission on Water Resource Management have not designated as water management areas.[3]

---

[2] HRS §174C-101(a), providing for CWRM to "incorporate and protect adequate reserves of water for current and foreseeable development and use of Hawaiian home lands as set forth in section 221 of the Hawaiian Homes Commission Act."

[3] At its August 17, 2015 meeting, CWRM approved a 3.398 mgd reservation of water from the Keauhou aquifer system area on Hawai'i island for DHHL pursuant to HRS § 174C-101(a).

Mahalo nui for MDWS's request for consultation on the proposed Po'okela Well B project. Please direct any questions to me at (808) 620-9501, or your staff may contact Kaleo Manuel in our Planning Office at (808) 620-9485 or at Kaleo.L.Manuel@hawaii.gov.

Aloha,

Jobie M. K. Masagatani, Chair
Hawaiian Homes Commission

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

Ms. Jobie M. K. Masagatani, Chair
Department of Hawaiian Home Lands
Hawaiian Homes Commission
P.O. Box 1879
Honolulu, HI 96805

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Dear Ms. Masagatani,

Thank you for your comment letter dated March 9, 2016. We are transmitting the Draft Environmental Assessment for the subject project for your review and comment. The 30-day comment deadline is December 8, 2016. We would like to offer specific responses to your comments:

Comment #1: *There is additional informational background on DHHL's development plans and interests in areas potentially served by proposed Po'okela Well B.*

Duly noted.

Comment #2: *Energy constraints noted in MDWS' pre-consultation request should be considered in alternatives analysis.*

Maui Department of Water Supply (MDWS) currently has a plan to increase water service reliability in Upcountry Maui for various regions. The electrical energy constraints at the site do not affect this project because Po'okela Well "B" would be a backup to the existing well. If Po'okela Well "B" is constructed, it would not be operated at the same time as the existing Po'okela Well.

In regard to the follow-up discussion in your comment, MDWS is developing an update to the Water Use and Development Plan that will address your concerns with the Upcountry Maui water systems. The decision to develop Po'okela Well "B" as a back-up well instead of a higher-level source or source at a different location will not create impacts on the aquifer or existing wells or the potential for future production well development, and would be speculative at this point, and therefore need not be addressed in the alternatives analysis.

Comment #3: *MDWS' EA should fully and expressly address DHHL's rights in Makawao aquifer waters and potential development needs for those water resources.*

Po'okela Well "B" will serve strictly as a backup to the existing Po'okela Well. No additional water will be pumped from the Makawao Aquifer by this well.

We appreciate the input provided by your office. Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON

WILLIAM D. BALFOUR, JR.
KAMANA BEAMER, PH.D.
MICHAEL G. BUCK
MILTON D. PAVAO
VIRGINIA PRESSLER, M.D.
JONATHAN STARR

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR

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

March 14, 2016

REF: RFD.4339.6

Andy:

TO: Andrew Amuro
Fukunaga & Associates, Inc.

FROM: Jeffrey T. Pearson, P.E., Deputy Director
Commission on Water Resource Management

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment - Pookela Well B Drilling and Development

FILE NO.: RFD.4339.6
TMK NO.: 2-4-12:28

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://dlnr.hawaii.gov/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 EAP as having high water efficiency can be found at http://www.epa.gov/watersense.

☐ 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/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://www.hawaiiscape.com/wp-content/uploads/2013/04/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.

☐ 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) are required before the commencement of any well construction work.

☒ 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 can be made to the bed and/or banks of a steam channel.

☐ 16. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is 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: Provisions should be made to use the existing Pookela Well 5118-002 as an observation well during the required aquifer pump test for the proposed new well.

If you have any questions, please contact Roy Hardy of the Commission staff at 587-0225.

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

Mr. Jeffrey T. Pearson, P.E., Deputy Director
Department of Land and Natural Resources
Commission on Water Resource Management
P.O. Box 621
Honolulu, HI 96809

Attention: Roy Hardy

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Gentlemen:

Thank you for your comment letter dated March 8, 2016. We are transmitting the Draft Environmental Assessment for the subject project for your review and comment. The 30-day comment deadline is December 8, 2016. A Well Construction Permit and a Pump Installation Permit will be obtained before the commencement of any well construction work and before ground water is developed as a source of supply for the project, respectively. Provisions will be made to use the existing Po'okela Well (State ID 5118-002) as an observation well during the required aquifer pump test for the proposed new well.

Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS

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

GLEN A. UENO, P.E., P.L.S.
Development Services Administration

CARY YAMASHITA, P.E.
Engineering Division

Highways Division

March 14, 2016

Mr. Andrew Amuro, Engineer
FUKUNAGA & ASSOCIATES, INC.
1357 Kapiolani Boulevard, Suite 1530
Honolulu, Hawaii 96814

Dear Mr. Amuro:

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR DRAFT ENVIRONMENTAL ASSESSMENT--POOKELA WELL B DRILLING AND DEVELOPMENT; TMK: 2-4-012:028

We reviewed your pre-assessment consultation request and have no comments at this time.

If you have any questions regarding this memorandum, please call Rowena Dagdag-Andaya at (808) 270-7845.

Sincerely,

DAVID C. GOODE
Director of Public Works

DCG:RMDA:da
xc: Highways Division
Engineering Division
S:\DSA\Engr\CZM\24012028_pookela_well_dev_proj_dea.wpd

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

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

Attn: Rowena Dagdag-Andaya

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Dear Mr. Goode and Ms. Dagdag-Andaya,

Thank you for your comment letter dated March 8, 2016. We are transmitting the Draft Environmental Assessment for the subject project for your review and comment. The 30-day comment deadline is December 8, 2016.

Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS

ALAN M. ARAKAWA
Mayor

STEWART STANT
Director

MICHAEL M. MIYAMOTO
Deputy Director

MICHAEL RATTE
Solid Waste Division

ERIC NAKAGAWA, P.E.
Wastewater Reclamation Division

COUNTY OF MAUI
DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT
2050 MAIN STREET, SUITE 2B
WAILUKU, MAUI, HAWAII 96793

March 16, 2016

Mr. Andrew Amuro
Fukunaga & Associates, Inc.
1357 Kapiolani Blvd.
Suite 1530
Honolulu, Hawaii 96814

SUBJECT: POOKELA WELL B DRILLING AND DEVELOPMENT PRE-ASSESSMENT CONSULTATION FOR DRAFT EA TMK (2) 2-4-012:028, 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. The County does not have a wastewater system in the area of the subject project.

If you have any questions regarding this letter, please contact Michael Miyamoto at 270-8230.

Sincerely,

STEWART STANT
Director of Environmental Management

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

Mr. Stewart Stant, Director
Maui Department of Environmental Management
2050 Main Street, Suite 28
Wailuku, HI 96793

Attention: Michael Miyamoto

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Gentlemen:

Thank you for your comment letter dated March 8, 2016. We are transmitting the Draft Environmental Assessment for the subject project for your review and comment. The 30-day comment deadline is December 8, 2016.

Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS

ALAN M. ARAKAWA
MAYOR

JEFFREY A. MURRAY
FIRE CHIEF

ROBERT M. SHIMADA
DEPUTY FIRE CHIEF

COUNTY OF MAUI
DEPARTMENT OF FIRE AND PUBLIC SAFETY
FIRE PREVENTION BUREAU

313 MANEA PLACE • WAILUKU, HAWAII 96793
(808) 876-4690 • FAX (808) 244-1363

March 18, 2016

Fukunaga & Associates, Inc.
Attn: Andrew Amuro, Engineer
1357 Kapiolani Blvd, Suite 1530
Honolulu, HI 96814

Re: Pre-Assessment Consultation for Draft Environmental Assessment – Pookela Well B Drilling and Development

Dear Andrew:

Thank you for the opportunity to comment on this subject. At this time, our office provides the following comments:

- Our office does not have any comments regarding the referenced subject.
- Our office does reserve the right to comment on the proposed project during the building permit review process if any permits for this project are routed to our office for review. At that time, fire department access, water supply for fire protection, and fire and life safety requirements will be addressed.

If there are any questions or comments, please feel free to contact me at (808) 876-4693.

Sincerely,

Paul Haake
Captain, Fire Prevention Bureau

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

Mr. Paul Haake, Captain
Maui Department of Fire and Public Safety
Fire Prevention Bureau
313 Manea Place
Wailuku, HI 96793

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Mr. Haake,

Thank you for your comment letter dated March 8, 2016. We are transmitting the Draft Environmental Assessment for the subject project for your review and comment. The 30-day comment deadline is December 8, 2016.

Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
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 96793-3378

March 24, 2016

Mr. Andrew Amuro
Engineer
Fukunaga & Associates, Inc.
1357 Kapiolani Boulevard, Suite1530
Honolulu, Hawaii 96814

Dear Mr. Amuro:

Subject: Pre-Assessment Consultation for Draft Environmental Assessment- Pookela Well B Drilling and Development TMK: (2) 2-4-12:28

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

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

2. The noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules, Chapter 11-46, "Community Noise Control." A noise permit may be required and should be obtained before the commencement of work. Please call the Indoor & Radiological Health Branch at 808 586-4700.

3. Please contact the Safe Drinking Water Branch (SDWB) at 808 586-4258 regarding the well drilling and development.

4. Please provide site plan showing 1,000-foot radius of well within the neighboring properties in order to determine the need and requirements of Hawaii Administrative Rules, Chapter 11-62, "Wastewater Systems." Should you have any questions, please call Roland Tejano, Environmental Engineer, at 808 984-8232.

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

Should you have any questions, please contact me at 808 984-8230.

Sincerely,

Patti Kitkowski

Patti Kitkowski
District Environmental Health Program Chief

c EPO

1357 KAPIOLANI BLVD. / SUITE 1530 / HONOLULU, HI 96814 / PH. (808) 944-1821 / FAX (808) 946-9339 / office@fukunagaengineers.com

November 8, 2016

Ms. Patti Kitkowski, District Environmental Health Program Chief
State Department of Health
Maui District Health Office
54 High Street
Wailuku, HI 96793-3378

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment – Po'okela Well "B" Exploratory/Backup

Ms. Kitkowski,

Thank you for your comment letter dated March 24, 2016. We are transmitting the Draft Environmental Assessment for the subject project for your review and comment. The 30-day comment deadline is December 8, 2016. We would like to offer specific responses to your comments:

Comment #1: *National Pollutant Discharge Elimination System (NPDES) permit coverage may be required for this project. The Clean Water Branch should be contacted at 808 586-4309.*

DOH CWB was consulted as part of the pre-consultation process. Less than one acre of land will be disturbed. The Contractor will be required to obtain the applicable NPDES permits for construction activities.

Comment #2: *The noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules, Chapter 11-46, "Community Noise Control." A noise permit may be required and should be obtained before the commencement of work. Please call the Indoor & Radiological Health Branch at 808 586-4700.*

Duly Noted.

Comment #3: *Please contact the Safe Drinking Water Branch (SDWB) at 808 586-4258 regarding the well drilling and development.*

DOH SDWB was also consulted as part of the pre-consultation process. A Well Construction Permit and a Pump Installation Permit will be obtained before the commencement of any well construction work and before ground water is developed as a source of supply for the project, respectively.

Comment #4: *Please provide site plan showing 1,000-foot radius of well within the neighboring properties in order to determine the need and requirements of Hawaii Administrative Rules, Chapter 11-62, "Wastewater Systems." Should you have any questions, please call Roland Tejano, Environmental Engineer, at 808 984-8232.*

Roland Tejano was contacted and two septic tanks were found to be within the 1000-foot radius of the well, see Figure 18 of the Draft EA for a map of their locations with respect to the project site. Although the 1000 feet guideline is not met, Po'okela Well "B" seems adequately protected. Po'okela Well "B" will tap the basal aquifer at approximately 12 feet MSL, and data show no evidence of perched water in the area. Several hundred feet of unsaturated zone (Kula lavas, which are poorly permeable) separate the perched water that may exist from the basal aquifer. The layers are hydrologically disconnected. In addition to the considerable horizontal separation, there is a significant vertical separation of over 1800 feet to the water table. The following Best Management Practices (BMPs) will be followed:

1. Inspect exposed parts of the well periodically for problems such as: cracked or corroded well casing, broken or missing well cap, damage to protective casing, settling and cracking of surface seals.

2. Slope the area around the well so that the surface runoff drains away from the well.

3. Provide a well cap or sanitary seal to prevent unauthorized use of or entry into the well.

4. Provide for sediment removal or well cleaning as necessary.

5. Have the well tested once a year for fecal coliform or other constituents that may be of concern.

6. Keep accurate records of any well maintenance, such as disinfection or sediment removal, that might require use of chemicals in the well.

7. Avoid mixing or using pesticides, fertilizers, herbicides, degreasers, fuels, or other pollutants near the well.

8. Do not locate any type of potentially polluting activity within 1000 feet of the well for wellhead protection.

Should you have any questions, please feel free to contact me at aamuro@fukunagaengineers.com or at (808) 944-1821.

Sincerely,
FUKUNAGA & ASSOCIATES, INC.

Andrew Amuro, P.E.

cc: Jordan Molina, MDWS